Train alternatives to short-haul flights in Europe

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About OBC Transeuropa

OBC Transeuropa (www.balcanicaucaso.org) is a think tank based in Trento (Italy), hosted by the Centro per la Cooperazione Internazionale. Since 2000, OBC Transeuropa reports about and studies European issues, paying special attention to South-East Europe, social and environmental issues, fundamental rights, media freedom, and data journalism. To this end, it combines online journalism, research, training, advocacy, and policy advice through a multi-lingual and transnational approach.

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Methodology

Analysis of air traffic (Greenpeace)

In order to assess train alternatives to short–haul flights in Europe, the starting point was an analysis of Eurostat's "air transport measurement – passengers" database (avia_par), in order to identify and rank flight routes based on the volume of traffic. The yearly data for 2019 was considered, as it is the latest available data prior to the outbreak of the Covid–19 pandemic, which disrupted air traffic.

In the analysis, Greenpeace only focused on flight routes of less than 1500 km; GIS software was used to measure the radial distance between city centers. The data covers intra–EU flights as well as the flights connecting the EU with the other European countries included in the database, such as Montenegro, North Macedonia, Norway, Serbia, Switzerland, and the United Kingdom. Routes that connect the mainland to islands where no rail tunnel, bridge or train ferry exist were excluded, since there is no train alternative there.[1] The Eurostat database does not differentiate connecting flights, so data on air passengers travelling between two cities also includes travellers who flew to a given airport in order to board another flight from there.

Large urban areas sometimes have multiple airports. Data on passenger traffic for airports referring to the same city was merged. This was the case for: Berlin (Tegel, Schönefeld); Brussels (Charleroi, Brussels City); Frankfurt (Hahn, Main); London (London City, Gatwick, Heathrow, Luton, Stansted); Milan (Malpensa, Linate, Bergamo); Paris (Beauvais, Orly, Charles de Gaulle); Rome (Ciampino, Fiumicino); Stockholm (Bromma, Arlanda); Venice (Marco Polo, Treviso); Warsaw (Chopin, Modlin).

Analysis of train routes (OBC Transeuropa)

Based on the data on air traffic generated by Greenpeace, we identified 13 lists of routes for the analysis of train services on them. These lists include:

- the top–150 busiest intra–EU routes in terms of air passenger traffic

- the top–250 busiest European routes (EU + Montenegro, North Macedonia, Serbia, Switzerland, Norway, and the United Kingdom)

- the top 40 busiest intra–EU routes for France, Germany, Italy, Spain

- the top 40 busiest domestic routes for France, Germany, Italy, Spain

- the top 30 busiest intra–EU routes for Austria, Belgium, the Netherlands

Where we refer to "Europe" or "European routes" in this analysis, we refer to all the countries covered by the Eurostat database except for Turkey, that is to say all EU countries plus Montenegro, North Macedonia, Serbia, Switzerland, Norway, and the United Kingdom. None of the routes involving Montenegro, North Macedonia or Serbia makes it to the list of the top–250 busiest routes in Europe, in any case. Dedicated national datasets and factsheets were prepared for the following countries: Austria, Belgium, France, Germany, Italy, the Netherlands, and Spain.

Overall, 331 intra–EU routes are included in the database, along with 95 additional routes that cover flights within the UK, Switzerland and Norway, or flights connecting those countries with each other or with EU countries. In total, the database includes 426 distinct routes in total, covering 76 routes involving French airports, 95 routes involving German airports, 79

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1 Passenger traffic on some of these flight routes is very intense however.

routes involving Italian airports, 72 routes involving Spanish airports, 30 routes involving Belgian airports, 31 routes involving Dutch airports, and 33 routes involving Austrian airports.

For each route, we considered whether it could be travelled by train and we analysed the corresponding train service. Most data on train services also refers to 2019, both for consistency with the flight data and because many train services were suspended in 2020–21 due to the Covid–19 pandemic. As train services vary based on the weekday and on the period of the year, we analysed train services on Wednesday 2 October 2019, which was deemed a standard day for being a midweek day in a period not affected by holidays or festivities.[2] The source of the data was the European Rail Timetable (summer 2019 edition). We calculated the travel time of each route in 2021 as well, taking Wednesday 6 October 2021 as a reference day. Updated information on current services and on the impact of Covid–19–related suspensions could be gathered in this way.

For each route that could be travelled by train, we calculated a standard duration of the journey. Durations depend on specific trains or train combinations. Both for the sake of comparability and due to time constraints, for 2019 data we looked at the combination ensuring the earliest possible arrival at the target destination, provided that the departure takes place after 7am (local time). In cases when train B departed later than train A but arrived at the same time or even earlier, we privileged the travel time of train B.

Due to greater access to information, the analysis of train services in 2021 adopted a partly different approach compared to 2019, so the results of the two analyses are not directly comparable with each other. Data for 2021 looks at the duration of the quickest possible train connection between the two cities, expanding the window for morning departures to 5am to 10am. When no connection existed within this time frame we also considered later departures.

A complementary analysis of night-train services was made, in order to assess whether it was possible to travel a given route by using a night train, and how long it would take. For this analysis, we only considered night trains offering sleeping wagons, i.e. ordinary trains traveling night-time were excluded. If connections involving a transfer were faster than direct night trains covering the same route, we collected data about the former. Whenever a transfer was necessary, trains with the shortest possible journey time and the earliest possible arrival at the destination were identified. We did not consider night-train services that involve a stay on board shorter than 6 hours, a departure after 1am, or an arrival before 5am. A night-train option coming in addition to a daytime one on a given route is clearly marked in the database with an "N" letter in the ID; such options were only considered in the current report for the analyses on night-train services.

In some cases it proved not to be possible to leave in the morning and reach the target city by the night; it was necessary to sleep in an intermediate city. For these routes, if an alternative involving a night train existed we only retained the night-train option in the database.

Data on train services for each route refers to only one direction. It is assumed that they reflect the state of the services in the opposite direction as well. No specific criterion guided the choice of which of the 2 directions was to be analysed.

Some regional airports serve multiple medium-size cities, such as the Asturias airport, Biarritz-Bayonne, Hyères-Toulon, Leipzig-Halle, Münster-Osnabrück, Paderborn-Lippstadt, and Tarbes-Lourdes. In these cases, train connections leading to any of those cities were considered, based on

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2 This choice implies the exclusion of a few train services, such as the Paris-Moscow direct train, which runs only once a week.

the earliest possible time of arrival; the considered city is specified in the notes of the dataset.

The following information is available for every route in the database: type of connection (domestic/international, intra-EU or not); connected countries; no. of air passengers; city of origin and destination; cities where a train transfer is needed; no. of transfers; involvement of a night train in the journey or not; time of departure, time of arrival, and duration of the journey. Additional information is available for a selection of routes, such as rail distance; average speed of the journey; no. of weekly direct connections; duration of the journey in 2021.

National factsheets focus on Austria, Belgium, France, Germany, Italy, the Netherlands and Spain. For the biggest countries, a double analysis was performed: on one hand, the top 40 intra-EU routes departing from or arriving at cities in that country were considered, while on the other hand a separate analysis was made for the top 40 domestic routes. For Austria, Belgium and the Netherlands, the analysis looked at the top 30 intra-EU routes departing from or arriving at their cities; the top 4 domestic routes were also considered for Austria.

PART I

Train alternatives to short-haul flights in Europe

Overview on the main findings

31% of the top 150 intra-EU short-haul flight routes that have a train alternative in principle could be travelled by train in less than 6 hours in 2019. The same went for 29% of the top-250 European routes. The share of routes that can be travelled by train in less than 6 hours in 2021 is 34% for the top-150 list and 29% for the top-250 list.[3] The proportion of short-haul flight routes coming with a train alternative under 6 hours is even higher for the most popular routes in France and Germany, while it is significantly lower for all the other focus countries of this report, with the top intra-EU routes for Italy and Austria performing particularly poorly in terms of duration.

49% of the top 150 intra-EU short-haul flight routes that have a train alternative in principle could either be travelled in 2019 with a train journey taking less than 6 hours in total, with a direct night train, or with a journey involving a night train and taking less than 12 hours in total. This also applied to 43% of the top-250 European short-haul flight routes. This share was also around 50% for the top 40 intra-EU routes for France, Germany and Italy in 2019, while it was even higher for Austria. To the contrary, 70% or more of the top 30 intra-EU routes for Belgium, the Netherlands and Spain involved slower or less convenient journeys. The same patterns can be observed for 2021.

Night trains (either direct or connecting ones) are available for journeys on the majority of the routes in the top-150 and top-250 lists as well as on the top routes for each of the focus countries, except for the Netherlands and France. They were available in 2019 on 81% of the top 150 intra-EU routes where there was no daytime train option lasting less than 6 hours, with an extremely high coverage for Italy in particular. However, the coverage of direct night trains was very low and surpassed 50% of served routes only in Austria and Italy. It is also worth noting that almost a third of the top routes for Spain required boarding at least 1 night train in 2019, as those routes could not be travelled within a day by daytime trains only.

Night-train services for most of the top routes for Belgium, France, Italy and Spain rely on just a handful of trains. All the international intra-EU routes for Spain coming with a night-train option relied on the operation of just two night trains in 2019, namely Hendaye-Lisbon and Paris-Portbou. Most of the 17 routes above 6 hours coming with a night-train option for France relied on the operation of just two trains, Paris-Venice and Paris-Portbou; also the night-train connections for Belgium relied almost entirely on those two trains. Similarly, almost all night-train options for international intra-EU routes above 6h for Italy depended on just a couple of trains, Milan/Venice-Munich and Venice-Paris. Despite their importance, most of these night-train services were suppressed or limited after the outbreak of the Covid-19 pandemic and are no longer operating.

A third of the top-150 intra-EU routes that we analysed were covered by direct trains in 2019,[4] while only 16% of them required 3 or more transfers. Germany and France presented the highest share of direct trains among their most popular routes. In Belgium, the Netherlands and Spain 3 or more transfers were necessary in order to travel about one third of the routes.

Among the focus countries, France, Spain and Belgium were the countries where the average speed of journeys on the top routes was the highest in 2019, while Austria and the Netherlands presented the lowest values.

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3 The analysis of train services in 2021 adopted a partly different approach compared to 2019, so the results of the two analyses are not directly comparable with each other (see the Methodology for more details).

4 Direct trains are available for a greater share of routes in fact, since whenever a connecting train was faster than a direct train on a given route we privileged the former.

In general terms, the situation of train services in Europe in 2021 is worse than in 2019, mostly because of the cancellation of some key services in the wake of the Covid–19 pandemic. The Hendaye–Lisbon and Venice–Paris night trains were cancelled, while the Paris–Portbou night train was reduced. Daytime connections operated by Eurostar and on the Barcelona–Paris route have been cut, and all train services between Sweden and Norway have been replaced by buses. On a positive note, 4 new night–train services have been introduced on the routes analysed (Paris–Marseille–Nice, Stockholm–Berlin, Vienna/Munich–Amsterdam and Vienna–Brussels).

Chart 1. Average journey duration, route length and speed in 2019 per lists of train routes (intra-EU routes only, according to the methodology used for 2019 data).

Set of routes	Average duration of the train journey (2019)	Average length of the train routes (km) (2019)	Average speed of the train journey (km/h) (2019)
Top–150 intra–EU routes	10h57	1175	123
France (intra–EU routes)	8h02	1096	150
Germany (intra–EU routes)	10h08	1102	120
Italy (intra–EU routes)	11h53	1285	115
Spain (intra–EU routes)	13h01	1564	131
Austria (intra–EU routes)	10h38	916	100
Belgium (intra–EU routes)	10h39	1258	129
Netherlands (intra–EU routes)	12h18	1239	112

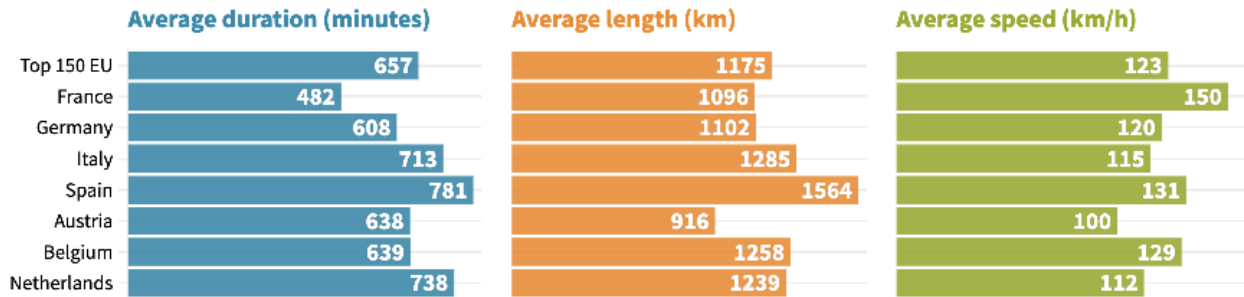**Table 1. Average journey duration, route length and speed per lists of train routes, according to the methodology used for 2019 data.**

Chart 2. Percentage of routes by duration of the train journey in 2019, per list of routes, according to the methodology used for 2019 data.

Set of routes	< 4 hours (2019)	4–6 hours (2019)	6–8 hours (2019)	8–16 hours (2019)	> 16 hours (2019)	Cannot be travelled by train (2019)
Top–150 intra–EU routes	11%	20%	13%	41%	13%	2%
Top–250 European routes	10%	19%	14%	37%	17%	2%
France (intra–EU routes)	17.5%	27.5%	7.5%	42.5%	5%	0%
Germany (intra–EU routes)	15%	17.5%	17.5%	32.5%	15%	2.5%
Italy (intra–EU routes)	5%	10%	7.5%	62.5%	12.5%	2.5%
Spain (intra–EU routes)	5%	15%	12.5%	42.5%	25%	0%
Austria (intra–EU routes)	3%	13%	20%	43%	17%	3%
Belgium (intra–EU routes)	10%	10%	13%	53%	13%	0%
Netherlands (intra–EU routes)	10%	17%	10%	47%	17%	3%

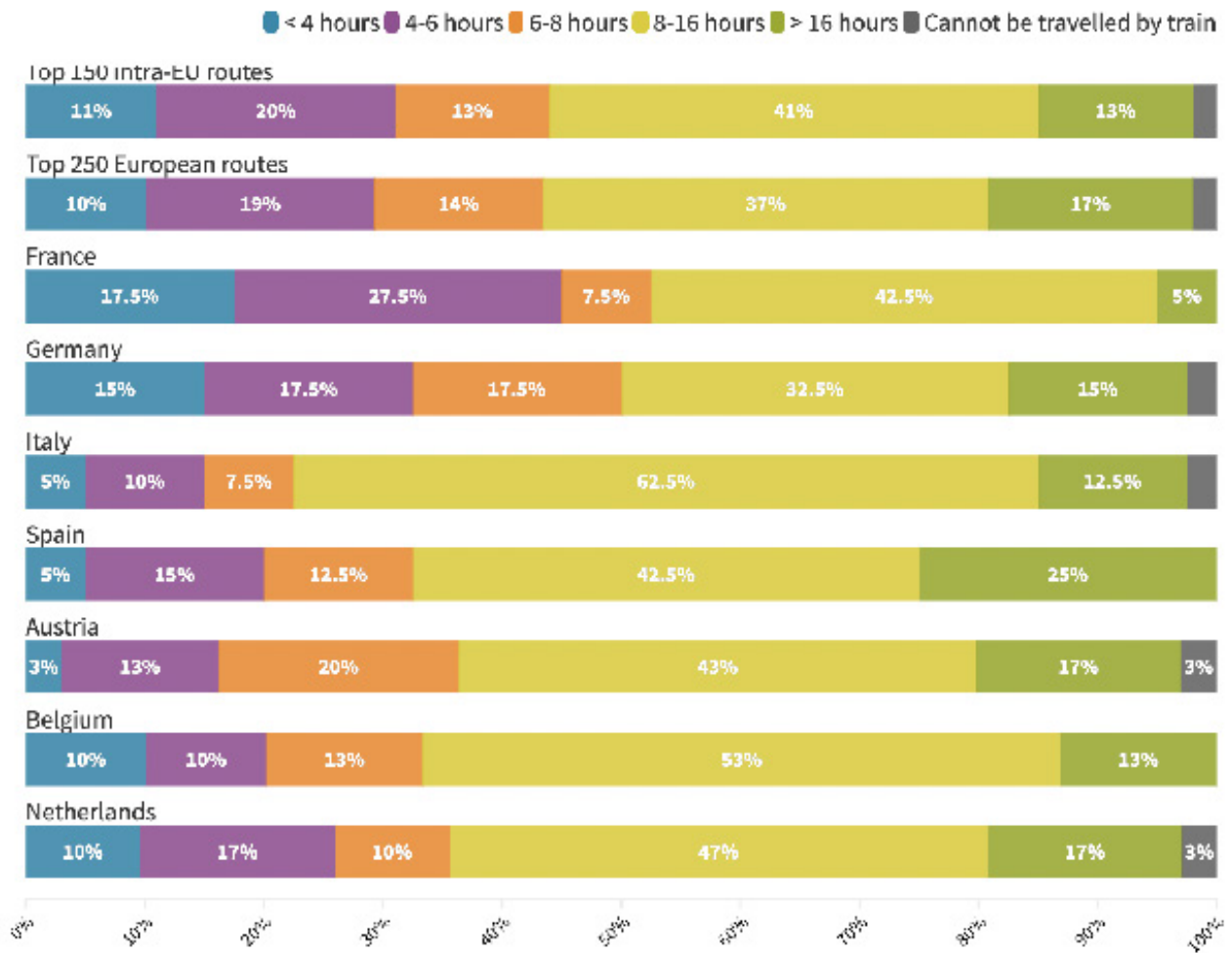Table 2. Percentage of routes by duration of the train journey, per list of routes, according to the methodology used for 2019 data.

Set of routes	Routes served in less than 6h (2019)	Routes served by a direct night train (2019)	Routes served by a night–train option under 12h (2019)	Routes that fall in none of these categories (2019)
Top–150 intra–EU routes	31%	25%	22%	51%
Top–250 European routes	29%	17%	15%	57%
France (intra–EU routes)	47.5%	7.5%	5%	47.5%
Germany (intra–EU routes)	32.5%	27.5%	27.5%	50%
Italy (intra–EU routes)	15%	45%	30%	52.5%
Spain (intra–EU routes)	20%	7.5%	10%	70%
Austria (intra–EU routes)	20%	53%	40%	33%
Belgium (intra–EU routes)	20%	3%	3%	73%
Netherlands (intra–EU routes)	23%	3%	0%	73%

Table 3. Percentage of routes where trains are already quite competitive, according to the methodology used for 2019. Routes may fall into multiple categories, so the total is higher than 100%. For more details see the Annex.

Boarding one or more night trains is…

Necessary | Optional | Not possible

Top 150 intra-EU routes
- 21% | 60% | 19%

Top 250 European routes
- 22% | 48% | 30%

France
- 9% | 68% | 23%

Germany
- 30% | 35% | 35%

Italy
- 15% | 85%

Spain
- 34% | 56% | 9%

Austria
- 17% | 67% | 17%

Belgium
- 13% | 54% | 33%

Netherlands
- 9% | 55% | 36%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Chart 3. Night-train coverage in 2019, per list of routes. The chart only refers to routes where there was no daytime-train option less than 6 hours long, according to the methodology used for 2019.

Boarding one or more night trains is…

Set of routes	Necessary (2019)	Optional (2019)	Not possible (2019)
Top–150 intra–EU routes	21%	60%	19%
Top–250 European routes	22%	48%	30%
France (intra–EU routes)	9%	68%	23%
Germany (intra–EU routes)	30%	35%	35%
Italy (intra–EU routes)	15%	85%	0%
Spain (intra–EU routes)	34%	56%	9%
Austria (intra–EU routes)	17%	67%	17%
Belgium (intra–EU routes)	13%	54%	33%
Netherlands (intra–EU routes)	9%	55%	36%

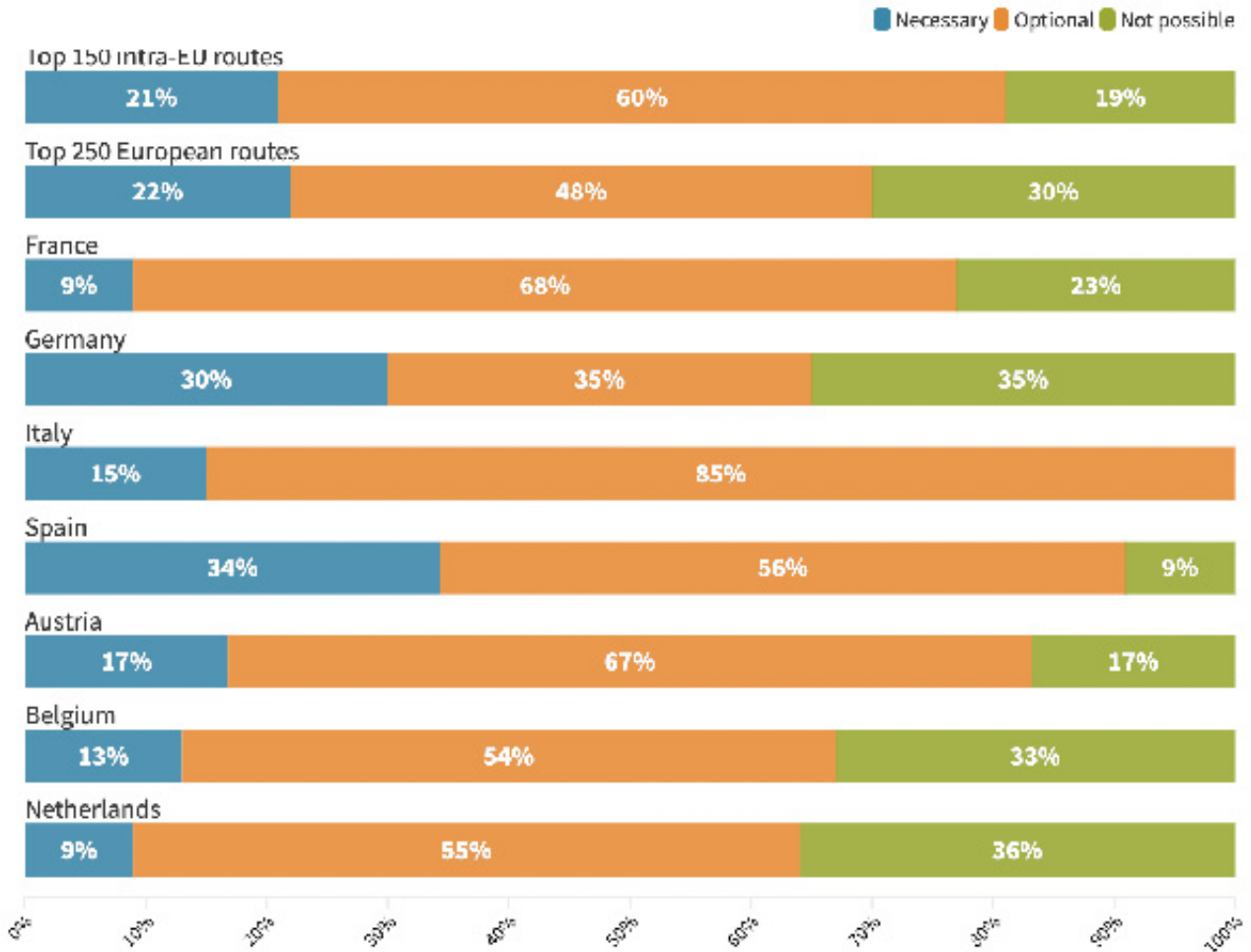**Table 4. Night-train coverage, per list of routes. The table only refers to routes where there was no daytime-train option less than 6 hours long, according to the methodology used for 2019.**

Train alternatives to short-haul flights in Europe

Chart 4. Percentage of routes by no. of required transfers in 2019, per list of routes, according to the methodology used for 2019.

Set of routes	Direct train (2019)	1–2 transfers (2019)	3 or more transfers (2019)
Top–150 intra–EU routes	32%	50%	16%
Top–250 European routes	27%	51%	20%
France (intra–EU routes)	40%	58%	3%
Germany (intra–EU routes)	43%	48%	8%
Italy (intra–EU routes)	18%	65%	15%
Spain (intra–EU routes)	18%	50%	33%
Austria (intra–EU routes)	20%	60%	17%
Belgium (intra–EU routes)	10%	63%	27%
Netherlands (intra–EU routes)	13%	57%	27%

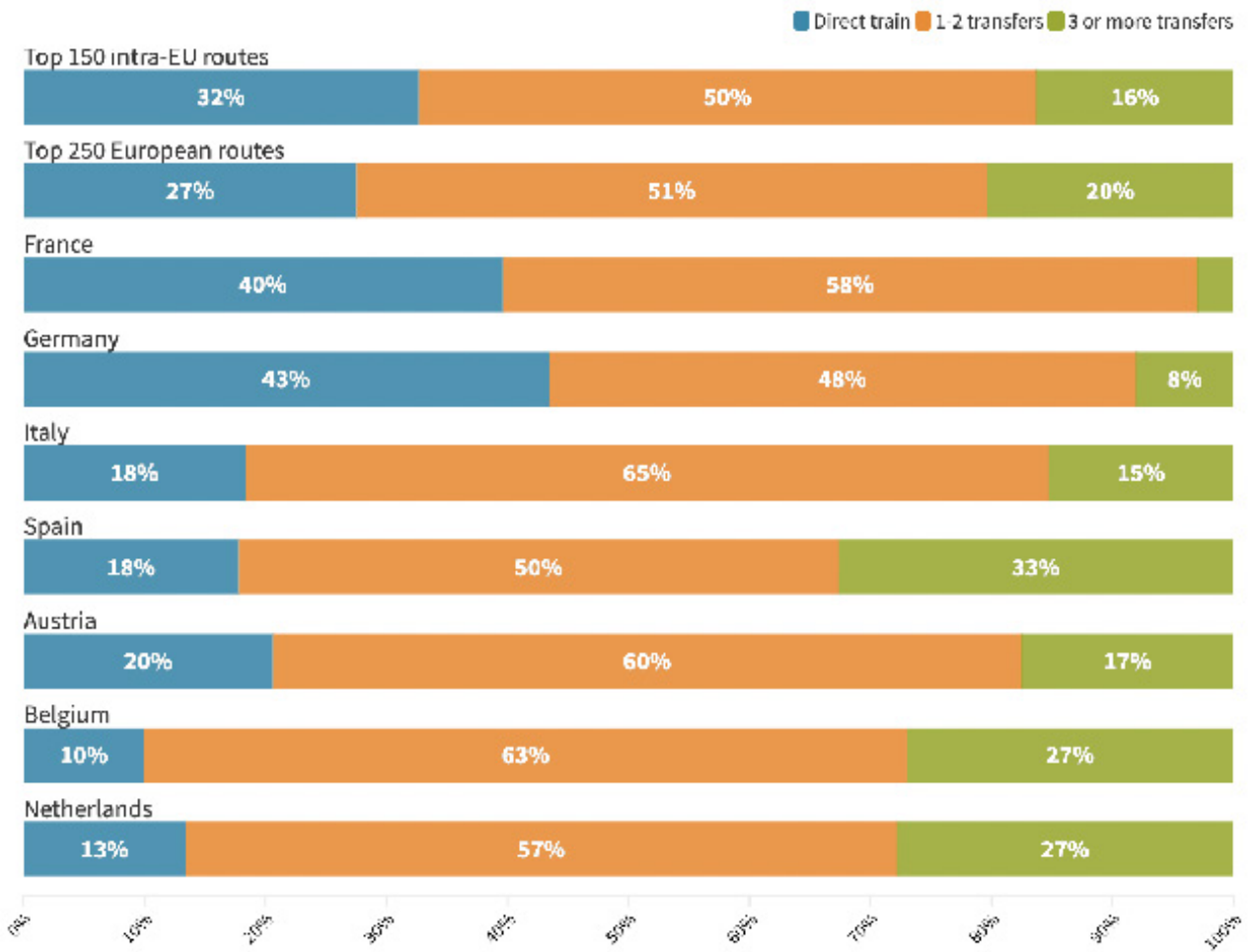**Table 5. Percentage of routes by no. of required transfers, per list of routes, according to the methodology used for 2019.**

Train alternatives for the top 150 intra-EU routes[5]

Out of the top–150 intra–EU short–haul flight routes where a train connection could in principle be available, 147 could actually be travelled by train in 2019. The only exceptions were the routes to Greece, as there was no operating train connection to the country in the covered period (a bus transfer was necessary both on the Novi Sad–Belgrade stretch and across the Bulgarian–Greek border).

The average duration of the train journey was 10h57 in 2019,[6] ranging from 2h03 for the Paris–Lyon journey to 60h11 for Helsinki–Stockholm. The median was 10h46.

The average length of the train journey for the top–150 intra–EU routes is 1175 km, ranging from 337 km for the Lisbon–Porto journey to 4232 km for Helsinki–Stockholm. The median is 1059 km.
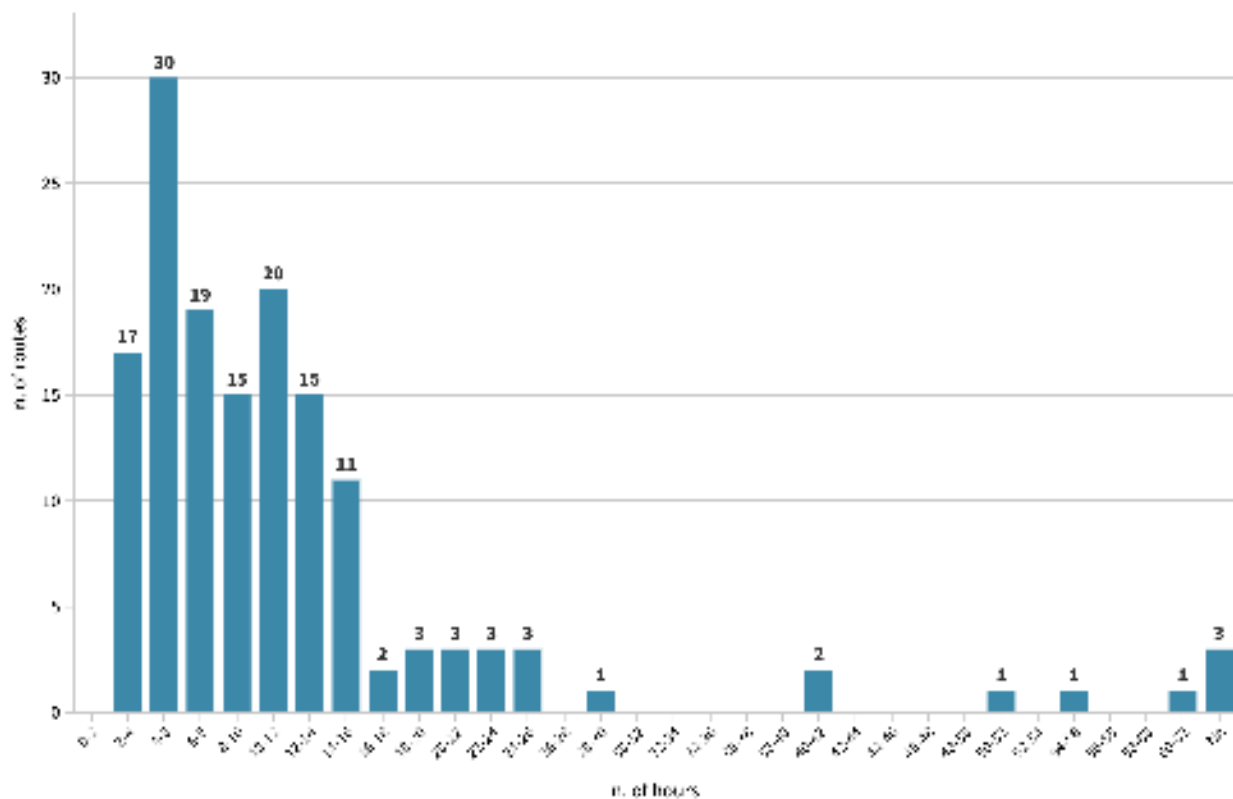
Chart 5. Top-150 intra-EU routes by range of duration of the train journey in 2019, according to the methodology used for 2019 data.

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5 The list of top–150 intra–EU routes largely coincides with the list of the 146 intra–EU routes where flights carry more than 500,000 people per year. On top of those, the top–150 list also includes the Barcelona–Granada, Turin–Rome, Brussels–Prague, and Madrid–Düsseldorf routes. Given the extent of the overlap between the two lists, we did not draft a separate report for the intra–EU routes carrying more than 500,000 people per year.

6 Whenever a route comes with a daytime and a night–train alternative, we only take into account the fastest of the two options (which is almost always the day–time option) in order to calculate average values of duration, length and speed. Average values covering journeys that involve night trains are presented in the section which focuses on night trains.

The average speed of the journey[7] for these routes was 123 km/h in 2019, ranging from 55 km/h for the Rome–Bucharest journey to 250 km/h for Paris–Bordeaux. The median was 103 km/h. The average was 142 km/h for daytime direct journeys.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	17	11%	20.5
4–6 hours	30	20%	33.2
6–8 hours	19	13%	18.3
8–16 hours	61	41%	58.8
More than 16 hours	20	13%	18.5
Cannot be travelled by train	3	2%	0.8
Total	150	100%	151.5

Table 6. Duration of the train journey for the top-150 intra-EU routes, according to the methodology used for 2019.

17 routes could be travelled by train in less than 4 hours in 2019. Except for the Amsterdam–Paris, Brussels–Frankfurt, and Paris–Frankfurt routes, they were all domestic routes. All of them were covered by daytime connections and were direct, except for Hamburg–Düsseldorf. More than 1 million passengers were carried by plane on 11 of these 17 routes in 2019; Madrid–Barcelona, Frankfurt–Berlin, and Munich–Berlin were the most popular routes among them.

All these routes featured an average speed higher than the EU average, except for the Lisbon–Porto and Hamburg–Düsseldorf connections, which were slightly below the average. The longest route in this selection is Paris–Montpellier, covering 736 km, while the fastest was Paris–Bordeaux.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Paris–Lyon	2h03	715,117
Paris–Bordeaux	2h09	1,219,673
Paris–Nantes	2h10	568,942
Madrid–Barcelona	2h30	2,572,844
Lisbon–Porto	2h50	1,008,288
Rome–Milan	2h59	1,198,119
Stockholm–Gothenburg	3h02	1,148,015
Brussels–Frankfurt	3h08	578,559
Frankfurt–Munich	3h14	1,146,439
Amsterdam–Paris	3h23	1,388,051
Paris–Montpellier	3h29	989,296
Paris–Frankfurt	3h39	1,042,112
Hamburg–Düsseldorf	3h41	522,362
Frankfurt–Berlin	3h46	2,248,754

7 This indicator does not refer to the average speed of the trains operating the service, but to the average speed of the overall journey, so it also takes into account waiting times for transfers and border crossings.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Frankfurt–Hamburg	3h58	1,426,732
Rome–Bari	3h59	765,162
Munich–Berlin	3h59	1,934,712

Table 7. Routes of the top-150 intra-EU list where the journey takes less than 4 hours, according to the methodology used for 2019.

30 routes could be travelled by train in 4 to 6 hours in 2019. 27 of them were domestic routes, the only exceptions being Amsterdam–Frankfurt, Vienna–Munich, and Stockholm–Copenhagen. All these routes were covered by daytime connections and 21 of them did not involve a transfer. More than 1 million passengers were carried by plane on 13 of these routes in 2019; the selection includes the two most popular intra–EU flying routes (Paris–Toulouse and Paris–Nice).

23 out of these 30 routes featured an average speed equal or higher than the EU average, the most notable exception being the Copenhagen–Aalborg connection (the average speed was 97 km/h). The longest and fastest route in this selection is Barcelona–Malaga, which covers 1186 km.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Paris–Brest	4h00	562,128
Amsterdam–Frankfurt	4h05	882,532
Paris–Marseille	4h05	1,569,716
Paris–Bayonne	4h08	629,775
Vienna–Munich	4h11	535,673
Berlin–Düsseldorf	4h17	1,233,072
Berlin–Cologne	4h20	1,434,481
Athina–Thessaloniki	4h23	2,621,638
Milan–Naples	4h28	1,376,954
Stockholm–Malmö	4h32	1,022,621
Munich–Hannover	4h35	542,253
Turin–Rome	4h36	489,190
Munich–Cologne	4h37	1,018,045
Madrid–Oviedo	4h39	548,209
Copenhagen–Aalborg	4h51	782,849
Lyon–Bordeaux	4h52	584,312
Paris–Toulouse	4h56	3,221,467
Rome–Brindisi	4h59	525,571
Lyon–Nantes	5h03	562,382
Madrid–Bilbao	5h04	835,731
Munich–Düsseldorf	5h05	1,488,902
Venice–Naples	5h06	535,778
Stockholm–Copenhagen	5h09	1,397,474
Barcelona–Malaga	5h22	848,962
Barcelona–Sevilla	5h25	1,045,029
Helsinki–Oulu	5h30	956,641

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Hamburg–Stuttgart	5h34	738,375
Madrid–Santiago	5h35	719,692
Berlin–Stuttgart	5h40	1,235,068
Paris–Nice	5h59	3,191,073

Table 8. Routes of the top-150 intra-EU list where the journey takes between 4 and 6 hours, according to the methodology used for 2019.

19 routes could be travelled by train in 6 to 8 hours in 2019. They include the busiest international route among the top 150 intra–EU short–haul flight routes which could in principle be travelled by train, i.e. the Paris–Barcelona route. This and the Barcelona–Granada route are the longest routes in this selection and the only routes whose average speed was significantly above the EU average. A travel option involving night trains was available for 12 of these 19 routes.

Only 9 of the 61 routes that took between 8 and 16 hours were domestic routes (almost exclusively located in Italy). An option involving a night train was available for 47 of these routes; the most significant exceptions were Amsterdam–Copenhagen, Barcelona–Munich and Paris–Copenhagen.

The average speed for this group of journeys (113 km/h) was slightly below the EU average, with significantly poor performances for the Madrid–Lisbon and Amsterdam–Copenhagen routes. The longest route in this selection is Milan–Madrid, while the fastest was Paris–Madrid.

All 20 routes that took more than 16 hours by train involved at least 1 night train, except for the Amsterdam–Stockholm route. More than 1 million passengers were carried by plane on 6 of these 20 routes in 2019; they included the Paris–Lisbon and Paris–Porto routes, as well as the routes connecting Rome with Barcelona or Madrid.

10 of these 20 routes involved up to 2 transfers (with Vienna–Bucharest being the only route where a direct train was available), while 10 routes involved more transfers. As a consequence, the average speed of these journeys was 90 km/h, with lowest figures of between 55 and 57 km/h for Rome–Bucharest, Vienna–Bucharest, and Amsterdam–Helsinki.

Geography plays a major role here, as land connections are longer than 1500 km for 18 such routes and even surpass 3000 km for most routes involving Helsinki and for the Rome–Madrid route. In some of these cases, the most realistic alternative to planes is a combination of ferry and train (e.g. Helsinki–Stockholm). In other cases, major infrastructure investments would be needed (e.g. Helsinki–Tallinn undersea tunnel).

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	48	32%
1–2 transfers	75	50%
3 or more transfers	24	16%
Cannot be travelled by train	3	2%
Total	150	100%

Table 9. No. of required transfers for the top-150 intra-EU routes, according to the methodology used for 2019.

86% of routes under 3000 km of length that could be travelled by train in 2019 could be travelled with either direct trains or with maximum 2 transfers, some of the most notable exceptions being Amsterdam–Copenhagen

and Barcelona–Lisbon (4 transfers needed). Journeys involving 3 or more transfers were typically very long both in terms of distance and of duration; the main exceptions were the Madrid–Lisbon and Amsterdam–Copenhagen daytime journeys, which cover a relatively short distance.

On average, 1.1 transfers were needed per 1000 km of travel by train in 2019. Direct trains covered on average 648 km. The average length of the route increased to 1063 km for routes that included one transfer, and to 1642 km for routes that included two. The higher the number of transfers, the lower the average speed of the journey – except for night trains, where transfers could actually prove beneficial: this was the case for instance when travelers used a fast train to reach a stop of a night train or to reach their final destination.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	21	14%
Optional	80	53%
Not possible, but the route is served by a daytime–train under 6 hours	27	18%
Not possible, and the route is served by no daytime–train under 6 hours	19	13%
The route cannot be travelled by train	3	2%
Total	150	100%

Table 10. Night-train coverage of the top-150 intra-EU routes.

For 126 of the 150 routes which are included in the dataset, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for 21 other routes, where travelers needed to board 1 or more night trains in order to reach the destination. In 16 of these cases, the journey was more than 1800 km long: these routes were exclusively international intra–EU routes and involved on average 2.9 transfers. In 15 of these 21 routes, the journey took 20 hours or even more.

80 of the 126 routes that could be travelled daytime came with a night–train option in 2019. On average, daytime travel took 9h08 on these routes, while nighttime travel took 13h09 hours. The former involved 1.2 transfers on average while the latter involved 0.9 transfers. The average speed of such journeys involving a night train was 84 km/h, while the average speed of daytime journeys was 122 km/h.

Night travel always took longer than daytime travel. It was particularly uncompetitive on the Paris–Barcelona route in 2019, since the daytime journey took 6h27 while the nighttime alternative (involving a transfer in Portbou) took 16h05; all train routes passing through this stretch were similarly affected, e.g. Paris–Madrid, Amsterdam–Barcelona.

46 out of the 150 routes included in the dataset had no night–train option in 2019. 23 of them consisted of relatively short domestic routes, covered by relatively fast trains, so that travel time was below 6 hours. On at least some of the other routes, a night–train option would probably be competitive. Except for a handful of domestic routes in Spain, such underserved routes were international ones; the most popular included Amsterdam–Copenhagen, Munich–Paris and Amsterdam–Berlin.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	35	35%
Connecting night train (journey takes < 16h in total)	27	27%
Connecting night train (journey takes > 16h in total)	39	39%
Total	101	100%

Table 11. Type of night-train services for the top-150 intra-EU routes where this option was available.

A direct night train existed on 35 out of the 101 routes in which the night travel option is available in 2019; on average these journeys lasted 10h10 and covered 774 km, reaching a maximum of 1192 kilometers with the Vienna–Hamburg route. On 51 other routes 1 or 2 transfers were required, and even more on 15 other routes.

Key rail corridors

Despite the large number of cities crossed or reached by trains providing an alternative to the 150 busiest intra–EU short–haul flight routes, the number of key rail corridors was actually quite limited both in 2019 and in 2021, with the Brussels–Paris–Lyon–Barcelona–Madrid corridor clearly coming out on top. Other very intensively used corridors are Munich–Frankfurt–Düsseldorf and Lyon–Milan–Rome–Naples.

Other rail corridors that play an important role in connecting the large EU countries with each other include Brussels–Cologne–Berlin and Paris–Frankfurt for France and Germany; Paris–Bordeaux–Valladolid for France and Spain; Milan–Munich and Milan–Frankfurt for Italy and Germany. Corridors connecting France with Italy and Germany are also important for train routes linking Spain with those two countries.

In addition to these corridors, other rail stretches that were used by at least 5 of the train routes in the top–150 list in 2019 included Vienna–Munich–Stuttgart and Vienna–Nuremberg; Frankfurt–Berlin and Frankfurt–Hamburg; Berlin–Warsaw; Hamburg–Copenhagen–Stockholm; Madrid–Valladolid; Rome–Naples–Messina.

If travelers had to or wanted to use a night train during their journey on the top–150 intra–EU routes, they probably needed to pass through Paris in 2019: in the absence of night trains connecting for instance the South of France to Italy or to Switzerland, Austria or the South of Germany, any journey from Spain or France to Germany or Italy and viceversa involving a night train required to depart from or arrive to Paris. This essentially boiled down to 3 key train stretches in 2019: Paris–Hendaye–Valladolid; Paris–Milan–Venice; and Paris–Toulouse–Portbou. Other key corridors involving night trains include Milan–Rome–Sicily; Venice–Vienna and Venice–Munich; Vienna–Frankfurt; Copenhagen–Stockholm.
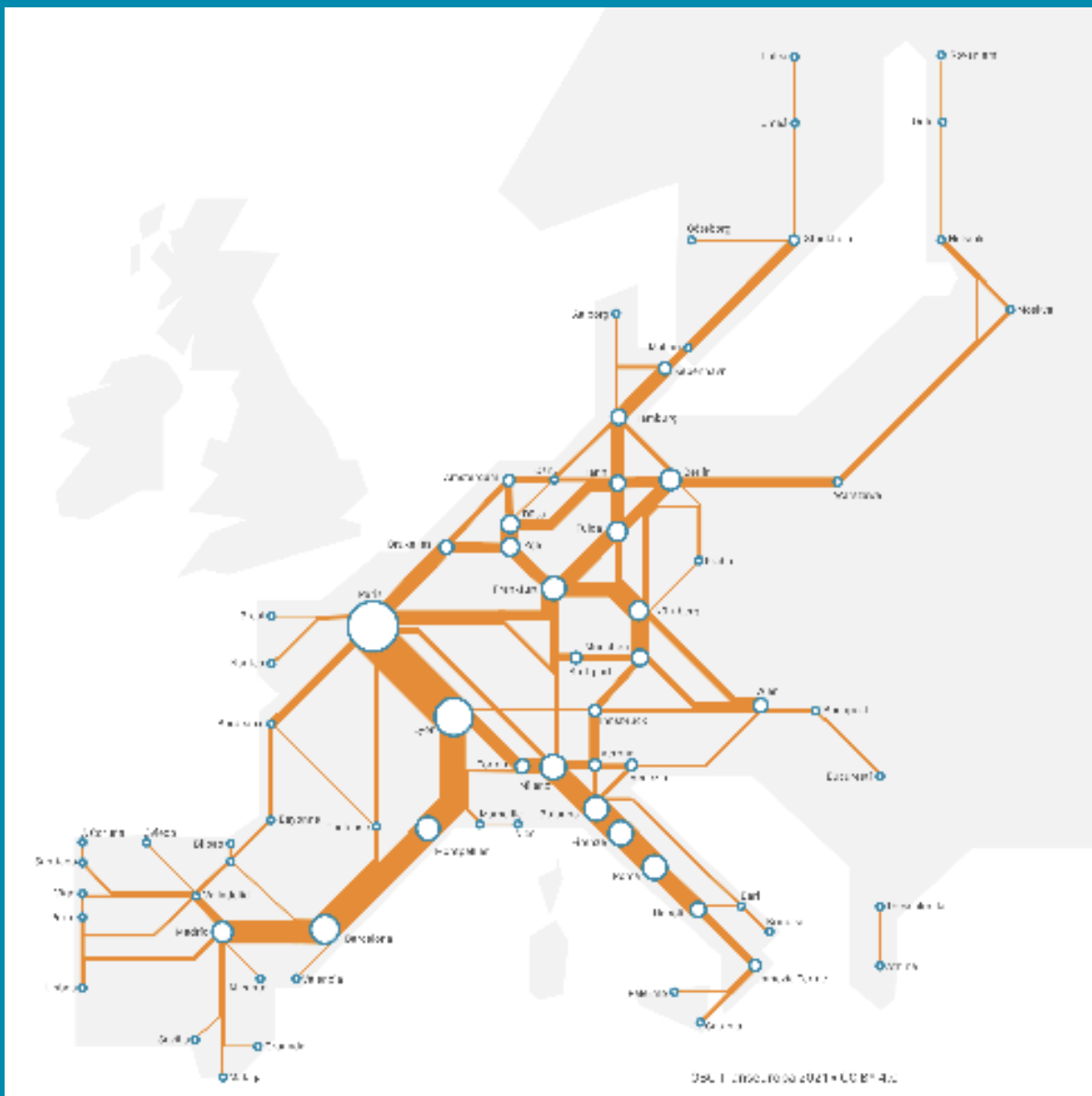
The width of each segment is proportional to the no. of train routes passing through it in 2019, based on the top-150 intra-EU list.

Train alternatives for the top-250 European routes

Out of the top 250 European short–haul flight routes where a train connection could in principle be available, 244 could actually be travelled by train in 2019. The exceptions were routes to Greece, as there was no operating train connection to the country in the covered period, and some domestic routes in Norway due to the absence of rail connection to some cities.

The average duration of the train journey for the top–250 European routes was 11h20 in 2019, ranging from 2h03 for the Paris–Lyon and Brussels–London journeys to 68h25 for Helsinki–Oslo. The median was 10h41.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	25	10%	27.0
4–6 hours	48	19%	53.4
6–8 hours	36	14%	37.3
8–16 hours	92	37%	95.1
More than 16 hours	43	17%	38.8
Cannot be travelled by train	6	2%	4.8
Total	250	100%	256.4

Table 12. Duration of the train journey for the top-250 European routes, according to the methodology used for 2019.

25 routes could be travelled by train in less than 4 hours in 2019; most of them were domestic routes. They were all covered by daytime connections and none of them involved a transfer, except for the Hamburg–Düsseldorf and London–Cologne routes. The list includes many of the busiest flying routes in Europe; the most popular in this group are Madrid–Barcelona and Frankfurt–Berlin.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Paris–Lyon	2h03	715,117
Brussels–London	2h03	675,607
London–Manchester	2h07	552,255
Paris–Bordeaux	2h09	1,219,673
Paris–Nantes	2h10	568,942
Madrid–Barcelona	2h30	2,572,844
Paris–London	2h31	2,118,570
Madrid–Seville	2h32	486,437
Geneva–Zurich	2h41	622,564
Lisbon–Porto	2h50	1,008,288
Rome–Milan	2h59	1,198,119
Stockholm–Gothenburg	3h02	1,148,015
Paris–Geneva	3h08	1,059,227

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Brussels–Frankfurt	3h08	578,559
Frankfurt–Munich	3h14	1,146,439
Amsterdam–Paris	3h23	1,388,051
Paris–Montpellier	3h29	989,296
Paris–Frankfurt	3h39	1,042,112
Hamburg–Düsseldorf	3h41	522,362
Paris–Düsseldorf	3h45	464,579
Frankfurt–Berlin	3h46	2,248,754
Frankfurt–Hamburg	3h58	1,426,732
Rome–Bari	3h59	765,162
London–Cologne	3h59	570,463
Munich–Berlin	3h59	1,934,712

Table 13. Routes of the top-250 list where the journey takes less than 4 hours, according to the methodology used for 2019.

48 routes could be travelled by train in 4 to 6 hours in 2019; 32 of them were domestic routes. All these routes were covered by daytime connections and 22 of them did not involve a transfer. More than 1 million passengers were carried by plane on 18 of these 48 routes in 2019; the list included the 2 most popular flying routes in Europe that come with a rail alternative (Amsterdam–London and London–Edinburgh).

An option involving a night train was available for 19 of the 36 routes that could be travelled by train in 6 to 8 hours. Only 10 of the 92 routes that took between 8 and 16 hours were domestic routes (almost exclusively located in Italy). An option involving a night train was available for 61 of these routes; the most significant exceptions were London–Copenhagen, London–Berlin and London–Zurich.

35 of the 43 routes that took more than 16 hours by train involved at least 1 night train in 2019. More than 1 million passengers were carried by plane on 14 of these 43 routes in 2019; they include the Rome–London, Paris–Lisbon, Budapest–London and Rome–Madrid routes. 16 of these 43 routes involved up to 2 transfers (with Vienna–Bucharest being the only route where a direct train was available), while 27 routes involved more transfers – up to 7 transfers for the London–Oslo and London–Gothenburg routes.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	67	27%
1–2 transfers	127	51%
3 or more transfers	49	20%
Cannot be travelled by train	6	2%
Total	250	100%

Table 14. No. of required transfers for the top-250 European routes, according to the methodology used for 2019.

80% of the top–250 European routes that could be travelled by train could be travelled with either direct trains or with maximum 2 transfers in 2019. This number was lower for the top–250 European routes compared to the top–150 intra–EU routes; this mostly depended on the fact that 52 of the routes in this dataset connected or passed by London: given the small net–

work covered by Eurostar trains, a transfer in London, Paris or Brussels was almost always needed. Journeys involving 3 or more transfers were typically very long.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	37	15%
Optional	106	42%
Not possible, but the route is served by a daytime–train under 6 hours	49	20%
Not possible, and the route is served by no daytime–train under 6 hours	52	21%
The route cannot be travelled by train	6	2%
Total	250	100%

Table 15. Night-train coverage of the top-250 routes.

For 202 of the 250 routes included in the dataset, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for 43 other routes, almost exclusively international: on 37 of them travelers could board one or more night trains in order to reach their destination, while on 6 routes they had no night–train option and needed to spend a night in an intermediate stop – this was the case for the Oslo to Amsterdam/Paris/London routes, and for London to Stockholm, Gothenburg or Warsaw. These 43 routes involved on average 3.0 transfers; for 31 of them, the journey took 20 hours or even more.

Out of the 201 routes that could be travelled daytime, 106 came with a night–train option in 2019. On average, daytime travel took 9h17 on these routes, while nighttime travel took 13h21, even if the former involved 1.0 transfers on average while the latter involved 1.2 transfers. Night travel always took longer than daytime travel, except for Bergen-Stavanger. Night travel was particularly uncompetitive on the Paris-Barcelona route in the covered period, since the daytime journey took 6h27 while the nighttime alternative (involving a transfer) took 16h05; all train routes passing through this stretch were similarly affected.

Out of the 201 routes that could be travelled daytime, 95 presented no night–train option in 2019; 49 of them consisted of routes with a travel time below 6 hours. On at least some of the other 46 routes, a night–train option would probably be competitive. Except for a handful of domestic routes in Spain and Greece, such underserved routes were international ones; the most popular included London–Geneva, London–Copenhagen and London–Frankfurt.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	46	32%
Connecting night train (journey takes < 16h in total)	32	23%
Connecting night train (journey takes > 16h in total)	65	46%
Total	143	100%

Table 16. Type of night-train services for the top-250 routes where this option is available.

A direct night train existed on 46 of the 143 routes where a night travel option was available in 2019; on average these journeys took 9h54. 67 other night routes required 1 or 2 transfers (average duration of the journey: 16h44). Even more transfers were needed in the other routes, which included some popular ones such as London–Madrid, London–Budapest and Rome–Madrid.

Room for improvement of train services on popular routes

Strategies to improve passenger rail transport in Europe fall out of the scope of this report. The performed analysis makes it possible however to spot some routes which are very popular in terms of passenger air traffic but where there is much room to improve the train service.

Among the routes included in the top–150 intra–EU list, there are some where the average speed of the journey was about half of the average speed for this list in 2019 (123 km/h). If we leave aside extremely long routes such as those exceeding 3000 km in length, slow routes typically involved 1–2 transfers and the boarding of a night train. The Madrid–Lisbon daytime connection constituted an exception in this respect.

Route	No. of night trains involved (2019)	Duration of trips (2019)	Distance (km)	Average speed (km/h) (2019)
Rome–Bucharest	2	40h32	2241	55
Vienna–Bucharest	1	19h24	1108	57
Madrid–Lisbon	0	10h47	742	69
Venice–Frankfurt	1	12h52	997	77
Helsinki–Berlin	2	41h32	2949	71
Amsterdam–Copenhagen	0	11h08	841	76
Stockholm–Luleå	1	13h51	1066	77
Madrid–Porto	0	10h21	852	82
Rome–Palermo	0	10h27	893	85
Copenhagen–Brussels	0	12h00	1039	87

List of the 10 slowest routes of the top-150 intra-EU list, according to the methodology used for 2019 (routes above 3000 km are not included).

Some of the routes included in the top–150 intra–EU list required travelers to transfer 4 or even 5 times during their journey. This is understandably the case for very long routes connecting Helsinki to other cities in the EU, but a high number of transfers was required in order to travel on shorter routes as well, including very popular ones such as Amsterdam–Copenhagen, Barcelona–Lisbon and Paris–Copenhagen.

Route	No. of transfers (2019)	Duration of trips (2019)	Distance (km)	Average speed (km/h) (2019)
Helsinki–Stockholm	5	60h11	4232	70
Amsterdam–Copenhagen	4	11h08	841	76
Barcelona–Lisbon	4	13h32	1393	103
Madrid–Muenchen	4	28h37	2581	90
Paris–Copenhagen	4	14h13	1394	98
Amsterdam–Stockholm	4	16h34	1485	90
Helsinki–Copenhagen	4	50h56	3588	70
Amsterdam–Helsinki	4	54h57	3060	56
Vienna–Milan	4	9h25	937	100
Madrid–Düsseldorf	4	23h03	2308	100

List of the routes of the top-150 intra-EU list where train travel required 4 or more transfers, according to the methodology used for 2019.[1]

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1 The analysis of the 2019 rail timetable looked at the connection ensuring the earliest possible arrival to the target city, provided that the departure took place after 7am on a typical weekday. Some alternatives requiring fewer transfers may have existed for the same routes, depending on the date and time.

85 routes included among the top-150 intra-EU routes came with an average speed of the journey which was below the EU average of 123 km/h. What would happen if train services on these routes were improved to the extent that the average speed of the journey increases to 123 km/h? Travel time would decrease by 25% or more on 24 routes, including very popular ones such as Rome–Catania, Rome–Palermo and Madrid–Lisbon. At least for some of them, train transport would become competitive with air transport. In absolute terms, travel time from Rome or Vienna to Bucharest could even be more than halved.

An increase of the average speed of the journey could be achieved either by reducing the number of transfers or the waiting time in transfer or border stations, or by increasing the average speed of operation of trains.

Route	Duration (2019)	Projected duration (average speed: 123 km/h)	Difference (%)
Rome–Bucharest	40h32	18h13	–55%
Vienna–Bucharest	19h24	9h00	–54%
Madrid–Lisbon	10h47	6h01	–44%
Helsinki–Berlin	41h32	23h58	–42%
Amsterdam–Copenhagen	11h08	6h50	–39%
Stockholm–Luleå	13h51	8h40	–37%
Madrid–Porto	10h21	6h55	–33%
Rome–Palermo	10h27	7h15	–31%

List of the routes of the top-150 intra-EU list where a better service could result in a reduction of train travel time greater than 30%, according to the methodology used for 2019 (routes above 3000 km are not included).

An increase of the average speed of the journey could also bring 9 routes under the threshold of 6h of duration, and bring 4 more routes under the 4h threshold. This improvement would impact popular routes, such as Amsterdam–Berlin, Amsterdam–Frankfurt and Milan–Frankfurt.

Route	Duration (2019)	Projected duration (average speed: 123 km/h)	Difference
Stockholm–Umeå	7h58	5h48	–2h09
Milan–Frankfurt	7h45	5h43	–2h01
Milan–Munich	7h11	5h15	–1h55
Copenhagen–Berlin	6h44	5h11	–1h32
Frankfurt–Prague	7h08	5h37	–1h30
Barcelona–Bilbao	6h34	5h22	–1h11
Amsterdam–Berlin	6h22	5h15	–1h06
Vienna–Stuttgart	6h31	5h49	–0h41
Madrid–Vigo	6h08	5h30	–0h37

List of the routes of the top-150 intra-EU list where a better service could bring train travel time under 6 hours, according to the methodology used for 2019.

Route	Duration (2019)	Projected duration (average speed: 123 km/h)	Difference
Copenhagen–Aalborg	4h51	3h48	–1h02
Madrid–Oviedo	4h39	3h56	–0h42
Vienna–Munich	4h11	3h51	–0h19

Route	Duration (2019)	Projected duration (average speed: 123 km/h)	Difference
Amsterdam–Frankfurt	4h05	3h46	–0h18

List of the routes of the top-150 intra-EU list where a better service could bring train travel time under 4 hours, according to the methodology used for 2019.

Some of the train services competing with the most popular short-haul flights in Europe are actually already very good in terms of duration of the journey, average speed and number of weekly connections – Madrid–Barcelona is probably the most outstanding case in this respect. The fact that millions of travelers still prefer to fly on those routes every year suggests that other factors need to be taken into account, first and foremost the price of the tickets.

It should also be considered that some of the flights are actually connecting flights:[2] in order for travelers on these routes to use the train for at least part of their journey, it is important to be able to count on a good direct train connection with the airport hub concerned. This is sometimes the case for a few airports such as Frankfurt, Amsterdam Schipol and Paris Charles de Gaulle, but such options are still extremely rare elsewhere.

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2 Eurostat data on short-haul flights does not flag connecting flights.

Train alternatives to short-haul flights in 2021

In general terms, the situation of train services in Europe in 2021 is worse than in 2019, mostly because of the cancellation of some services in the wake of the Covid-19 pandemic. It is not granted that those services will be resumed once the emergency period is over. As far as the set of routes included in this analysis is concerned, the most impactful changes include the suppression of the Hendaye-Lisbon and Venice-Paris night trains. For Portugal and Italy these constituted extremely useful connections with foreign countries. As a result, trips from Paris to Porto that used to take 18h56 now take 34h02; trips to Lisbon were similarly affected. The same goes for all routes that counted on the Hendaye-Lisbon night train, such as connections linking Lisbon and Porto to Brussels, Geneva, London and Lyon.

Night services involving France were further hit by the reduction of the Paris-Portbou service, which now only runs in weekends and is limited to the Paris-Toulouse stretch on weekdays. This has impacted quite a few connections between Spain and foreign countries, which heavily relied on the Barcelona-Portbou-Paris route; current travel options between Toulouse and Barcelona are very limited. For instance, the London-Valencia trip making use of a night train now takes 27h24 compared to 20h24 in 2019, and Barcelona-Frankfurt now takes 26h54 compared to 21h32 in 2019. Night trains linking Madrid with Lisbon, Vigo and A Coruña were also cancelled. The night train Rome-Bari-Brindisi was partly cancelled, since it now only runs on weekends.

Options for train travel also decreased in 2021 compared to 2019 because of the lower number of services operated by Eurostar on the London to Paris/Brussels/Amsterdam routes and by the reduction in daytime direct connections between Barcelona and Paris. As a consequence, it is no longer possible, for instance, to travel from London to Warsaw, Prague or Valencia within a day; the same goes for Paris-Malaga. On top of this, all train services between Sweden and Norway have been replaced by buses.

On a positive note, 4 new night-train services on the routes analysed can be noticed in the data about 2021, namely those covering the Paris-Marseille-Nice, Stockholm-Berlin, Vienna/Munich-Amsterdam and Vienna-Brussels routes. As a consequence, a night-train option is now available for passengers travelling from London to Stockholm.

Top-150 intra-EU routes

Passengers need less than 6 hours in order to travel 34% of the top-150 intra-EU routes that can be travelled by train in 2021.[8][9] These routes include 14 of the 30 busiest routes in the list, including the two most popular ones (Paris-Toulouse and Paris-Nice). 3 routes are even below or around 2 hours of duration, such as Paris to Lyon, Bordeaux or Nantes. Most of the routes with a travel time below 6 hours are domestic ones and they are mostly located in Germany, France and Spain; the subset also includes a few international intra-EU routes however, such as Stockholm-Copenhagen and Paris to Amsterdam, Frankfurt or Munich.

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8 The routes that cannot be travelled by train are three routes to Greece, as there was no operating train connection to the country in the covered period (a bus transfer was necessary both on the Novi Sad-Belgrade stretch and across the Bulgarian-Greek border).

9 The analysis of train services in 2021 adopted a partly different approach compared to 2019, so the results of the two analyses are not directly comparable with each other (see the Methodology for more details).

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	21	14%	24.1
4–6 hours	30	20%	33.6
6–8 hours	15	10%	15.1
8–16 hours	58	39%	54.9
More than 16 hours	23	15%	21.4
Cannot be travelled by train	3	2%	2.4
Total	150	100%	151.5

Table 17. Duration of the train journey for the top 150 intra-EU routes, according to the methodology used for 2021.

Route	Duration (2021)	No. of air passengers (both ways) (2019)
Paris–Lyon	1h58	715,117
Paris–Bordeaux	2h04	1,219,673
Paris–Nantes	2h06	568,942
Madrid–Barcelona	2h30	2,572,844
Lisbon–Porto	2h58	1,008,288
Rome–Milan	2h59	1,198,119
Stockholm–Gothenburg	2h59	1,148,015
Paris–Marseille	3h04	1,569,716
Brussels–Frankfurt	3h07	578,559
Hamburg–Düsseldorf	3h11	522,362
Amsterdam–Paris	3h23	1,388,051
Frankfurt–Munich	3h28	1,146,439
Paris–Brest	3h28	562,128
Paris–Montpellier	3h29	989,296
Frankfurt–Hamburg	3h37	1,426,732
Paris–Frankfurt	3h50	1,042,112
Amsterdam–Frankfurt	3h53	882,532
Frankfurt–Berlin	3h53	2,248,754
Paris–Bayonne	3h57	629,775
Munich–Berlin	3h58	1,934,712
Rome–Bari	3h59	765,162
Vienna–Munich	4h00	535,673
Munich–Hannover	4h17	542,253
Berlin–Düsseldorf	4h20	1,233,072
Turin–Rome	4h20	489,190
Paris–Toulouse	4h22	3,221,467
Athina–Thessaloniki	4h23	2,621,638
Stockholm–Malmö	4h27	1,022,621

Route	Duration (2021)	No. of air passengers (both ways) (2019)
Milan–Naples	4h33	1,376,954
Munich–Cologne	4h38	1,018,045
Madrid–Santiago	4h40	719,692
Berlin–Cologne	4h42	1,434,481
Madrid–Oviedo	4h46	548,209
Lyon–Nantes	4h51	562,382
Rome–Brindisi	4h57	525,571
Copenhagen–Aalborg	5h00	782,849
Stockholm–Copenhagen	5h01	1,397,474
Hamburg–Stuttgart	5h01	738,375
Munich–Düsseldorf	5h02	1,488,902
Madrid–Bilbao	5h04	835,731
Lyon–Bordeaux	5h05	584,312
Venice–Naples	5h10	535,778
Madrid–A Coruña	5h12	680,075
Barcelona–Malaga	5h14	848,962
Barcelona–Sevilla	5h16	1,045,029
Berlin–Stuttgart	5h31	1,235,068
Madrid–Vigo	5h40	683,927
Munich–Paris	5h47	1,014,392
Hamburg–Munich	5h48	1,745,720
Helsinki–Oulu	5h53	956,641
Paris–Nice	5h55	3,191,073

Table 18. Routes of the top-150 intra-EU list where the train journey takes less than 6 hours, according to the methodology used for 2021.

Top 250 European routes

Passengers need less than 6 hours in order to travel 31% of the top 250 European routes that can be travelled by train. These routes include 11 of the 30 busiest routes in the list. 5 routes are even below or around 2 hours of duration, such as Brussels-London, London-Manchester and Paris to Lyon, Bordeaux or Nantes. Most of the routes with a travel time below 6 hours are domestic ones and they are mostly located in Germany, France and Spain; the subset also includes a few international routes however, such as Amsterdam-London, Paris-London, Stockholm-Copenhagen and Paris–Amsterdam.

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	29	12%	30.8
4–6 hours	44	18%	50.3
6–8 hours	33	13%	33.7
8–16 hours	89	36%	89.1

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
More than 16 hours	40	16%	40.5
Cannot be travelled by train	15	6%	12.0
Total	250	100%	256.3

Table 19. Duration of the train journey for the top 250 European routes, according to the methodology used for 2021.

Routes where trains already offer an alternative
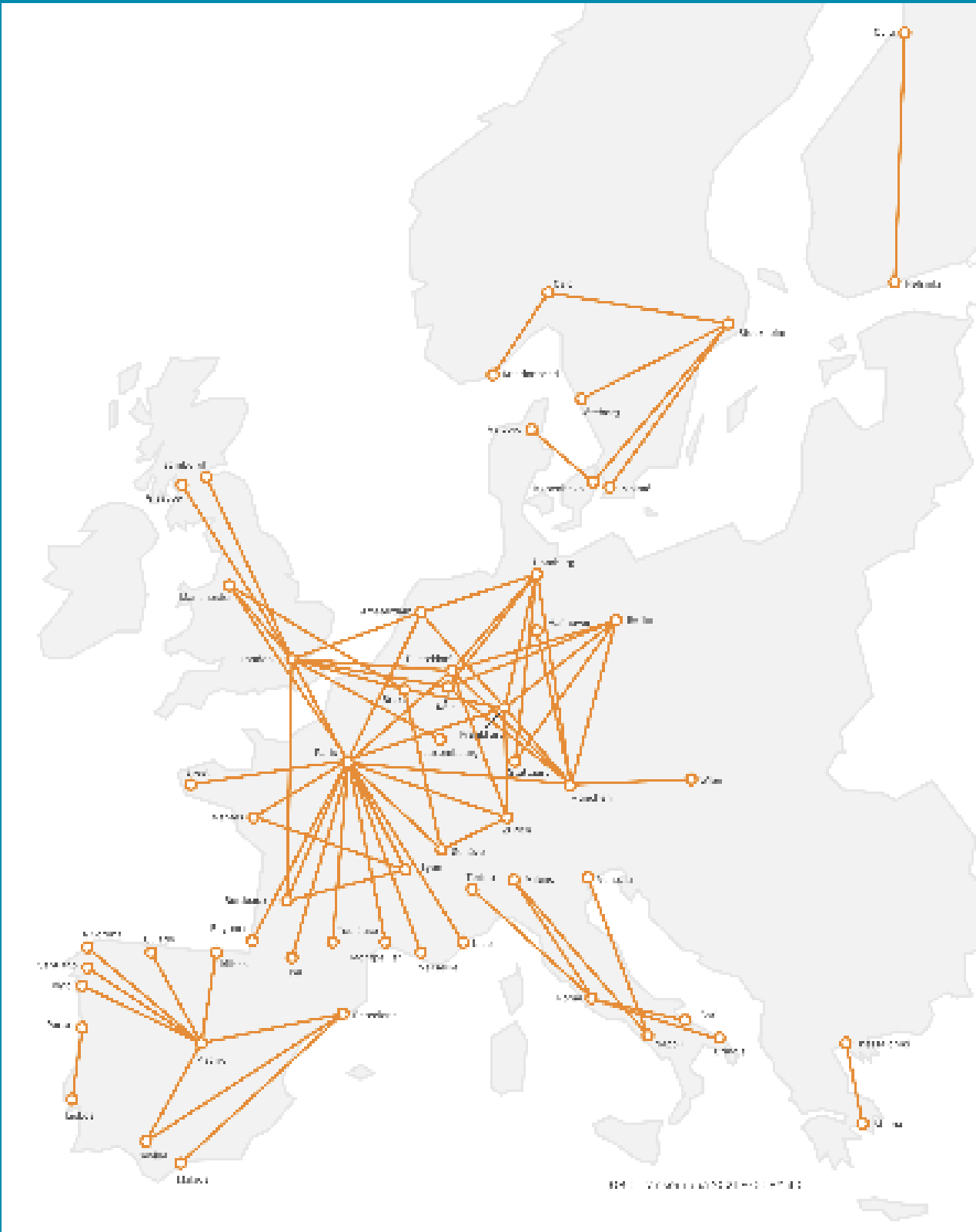
The map shows the routes where train travel time is under 6 hours in 2021, based on the list of the top 250 European routes.
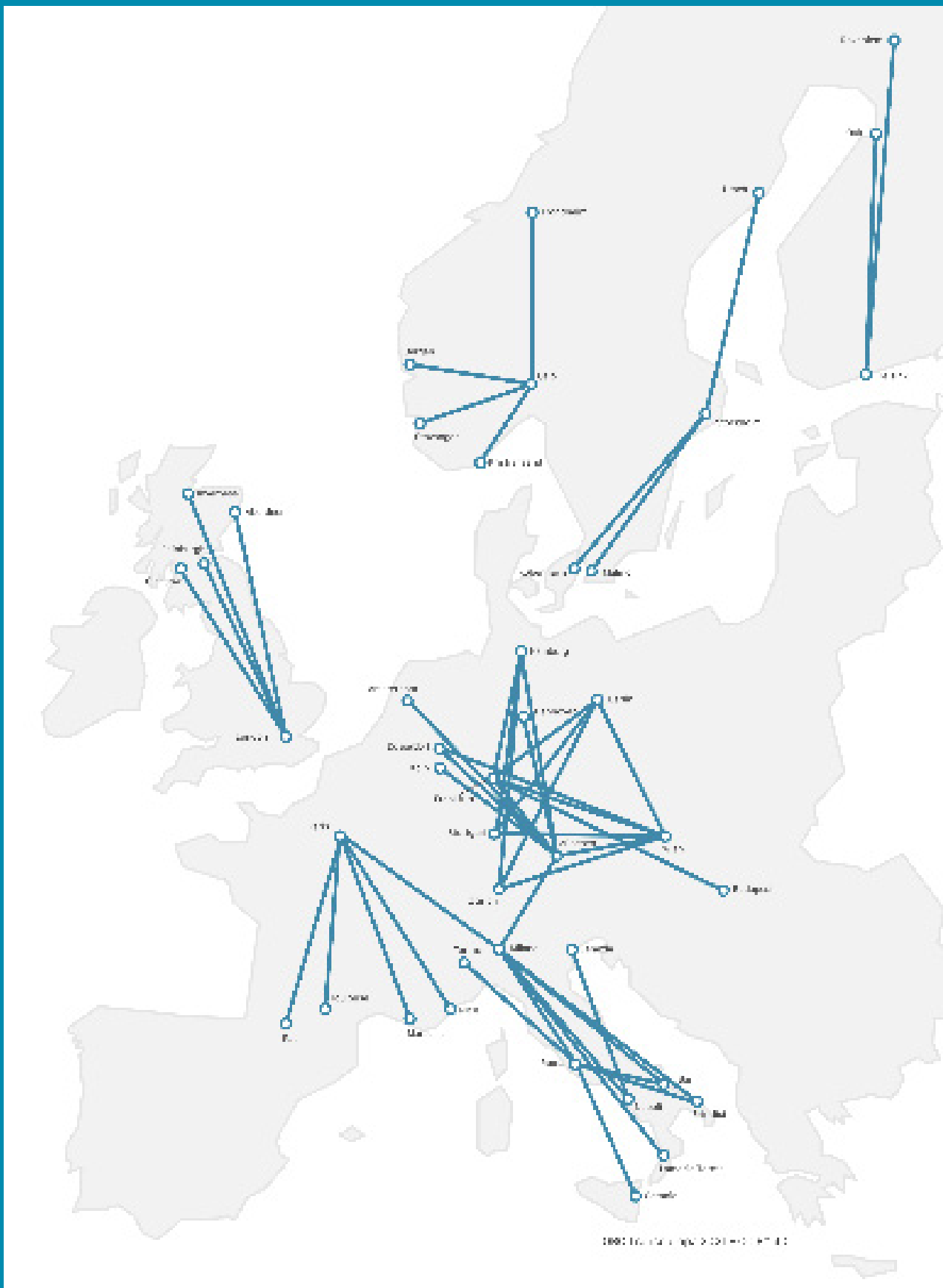
The map shows the routes where travel time of journeys involving a night train is under 12 hours in 2021, based on the list of the top 250 European routes.

PART II

National factsheets

Train alternatives for the top 40 intra-EU routes for France

Train alternatives were available in 2019 for all the top 40 intra–EU short–haul flight routes for France that could in principle be travelled by train.

The average duration of the train journey was 8h02, ranging from 2h03 for the Paris–Lyon journey to 19h32 for Paris–Lisbon. The median was 8h14. 18 routes, i.e. 45% of the routes included in this list, could be travelled in less than 6 hours in 2019.

The average length of the journey on these routes is 1096 km, ranging from 390 km for the Paris–Nantes journey to 2243 km for Paris–Malaga. The median is 987 km.

The average speed of the journey was 150 km/h in 2019, ranging from 91 km/h for the Paris–Porto journey to 250 km/h for Paris–Bordeaux. The median was 151 km/h. The average speed for daytime direct trains was 170 km/h.

| Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	7	17.5%	6.4
4–6 hours	11	27.5%	12.1
6–8 hours	3	7.5%	5.9
8–16 hours	17	42.5%	15.5
More than 16 hours	2	5%	3.7
Total	40	100%	43.5

Table 20. Duration of the train journey for the top 40 intra-EU routes for France, according to the methodology used for 2019.

7 routes could be travelled by train in less than 4 hours in 2019. They were all covered by daytime direct connections, and they all connected Paris to other cities. 3 of these routes were international intra–EU ones, and more than 1 million passengers were carried by plane on 3 of these routes in 2019. However, only one of the 10 most popular intra–EU routes for France featured in this list (Paris–Amsterdam).

All these routes featured an average speed higher than the French average. The longest route was Paris–Montpellier (736 km), while the fastest was Paris–Bordeaux.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Paris–Lyon	2h03	715,117
Paris–Bordeaux	2h09	1,219,673
Paris–Nantes	2h10	568,942
Paris–Amsterdam	3h23	1,388,051
Paris–Montpellier	3h29	989,296
Paris–Frankfurt	3h39	1,042,112

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Paris–Düsseldorf	3h45	464,579

Table 21. List of the routes where the train journey takes less than 4 hours among the top 40 intra-EU routes for France, according to the methodology used for 2019.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	16	40%
1–2 transfers	23	57.5%
3 or more transfers	1	2.5%
Total	40	100%

Table 22. Top 40 intra-EU routes for France, by no. of required transfers, according to the methodology used for 2019.

All routes could be travelled with either direct trains or with maximum 2 transfers in 2019; the only exception was Paris–Copenhagen (4 transfers needed).

On average, 0.8 transfers were needed per 1000 km of travel by train in 2019. Direct trains covered on average 694 km. The average length of the route increased to 1179 km for routes that included one transfer, and to 1710 km for routes that included two. The higher the number of transfers, the lower the average speed of the journey, at least for daytime routes.

In 2021, passengers need less than 6 hours in order to travel 47.5% of the top 40 intra–EU routes for France that can be travelled by train. These routes include only 4 of the 10 busiest routes in France (but they do include the two busiest routes in France, Paris–Toulouse and Paris–Nice, which move around 3.2 million air passengers each). Most routes with a travel time below 6 hours are domestic ones, 3 of them are below or around 2 hours of duration (Paris–Lyon, Paris–Bordeaux, Paris–Nantes).

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	10	25%	9.1
4–6 hours	9	22.5%	10.4
6–8 hours	3	7.5%	5.4
8–16 hours	15	37.5%	14.3
More than 16 hours	3	7.5%	4.5
Total	40	100%	43.5

Table 23. Duration of the train journey for the top 40 routes for France, according to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	2	5%
Optional	17	43%

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Not possible, but the route is served by a daytime–train under 6 hours	16	40%
Not possible, and the route is served by no daytime–train under 6 hours	5	13%
Total	40	100%

Table 24. Night-train coverage of the top-40 intra-EU routes for France.

For 38 of the 40 routes included in the dataset, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for Paris–Lisbon and Paris–Porto, where travelers needed to board a night train.

Out of the 38 routes that could be travelled daytime, 17 came with a night–train option. They included the most popular route for France, Paris–Toulouse. On average, daytime travel on these routes took 9h55 and involved 1.0 transfer, while nighttime travel took 15h17 and involved 1.4 transfers. The average speed of journeys involving a night train was 92 km/h, while the average speed of daytime journeys was 142 km/h. Night travel took longer than daytime travel on all these routes; it was particularly uncompetitive on the Paris–Barcelona route in the covered period; all routes passing through this stretch were similarly affected.

21 out of the 40 routes included in the dataset presented no night–train option in 2019. 13 of them consisted of relatively short domestic routes, covered by quite fast trains. A night–train option would probably be competitive on some of the remaining routes, such as Paris to Munich, Copenhagen or Prague.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	3	16%
Connecting night train (journey takes < 16h in total)	11	58%
Connecting night train (journey takes > 16h in total)	5	26%
Total	19	100%

Table 25. Type of night-train services for the top-40 intra-EU routes for France where this option was available.

A direct night train existed on just 3 of the 19 routes where the night travel option was available in 2019 (i.e. Paris to Toulouse, Milan or Venice); on average these journeys lasted 10h48 and covered 922 km.

Train alternatives for the top 40 domestic routes for France

Train alternatives were available in 2019 for all the top 40 domestic short–haul flight routes for France that could in principle be travelled by train.

The average duration of the train journey was 5h19 in 2019, ranging from 2h01 for the Paris–Rennes journey to 9h43 hours for Nice–Bordeaux. The median was 5h01. 27 routes, i.e. 67.5% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey for these routes is 851 km, ranging from 364 km for the Paris–Rennes journey to 1512 km for Nice–Bordeaux. The median is 812 km.

The average speed of the journey was 165 km/h in 2019, ranging from 82 km/h for the Nice–Toulouse journey to 250 km/h for Paris–Bordeaux. The median was 165 km/h. The average speed for daytime direct trains in France was 171 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 2 hours	0	0%	0.0
2–4 hours	8	20%	4.3
4–6 hours	19	47.5%	13.4
6–8 hours	9	22.5%	2.0
More than 8 hours	4	10%	0.9
Total	40	100%	20.5

Table 26. Duration of the train journey for the top 40 domestic routes for France, according to the methodology used for 2019.

No routes could be travelled by train in less than 2 hours in 2019, and none of the top 3 domestic routes could be travelled in less than 4 hours, i.e. Paris to Toulouse, Nice and Marseille. The average speed of these 3 routes was slightly above the average for domestic journeys in France.

35 of the top 40 domestic routes for France either connected Paris to other cities or required a transfer in Paris. No route required more than 2 transfers, but a transfer was sometimes needed even to travel on some of the 3 most popular domestic routes.

Domestic night trains were virtually absent in France in 2019, so very few routes came with a night-train option; almost all of them built on the Paris–Toulouse night-train connection.

Germany

Train alternatives for the top 40 intra-EU routes for Germany

Train alternatives were available in 2019 for 39 of the top 40 routes for Germany which could in principle be travelled by train. The only exception was the Munich–Athens route, as there was no direct train connection to Greece in the covered period.

The average duration of the train journey was 10h08 in 2019, ranging from 3h08 for the Brussels–Frankfurt journey to 41h32 for Helsinki–Berlin. The median was 7h45. 13 routes, i.e. 32.5% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 1102 km, ranging from 406 km for the Brussels–Frankfurt journey to 2949 km for Helsinki–Berlin. The median is 873 km.

The average speed of the journey was 120 km/h in 2019, ranging from 71 km/h for the Helsinki–Berlin journey to 182 km/h for Paris–Frankfurt. The median was 119 km/h. The average speed for daytime direct trains was 134 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	6	15%	8.4
4–6 hours	7	17.5%	8.1
6–8 hours	7	17.5%	7.4
8–16 hours	13	32.5%	10.4
More than 16 hours	6	15%	4.5
Cannot be travelled by train	1	2.5%	1.1
Total	40	100%	39.7

Table 27. Duration of the train journey for the top 40 intra-EU routes for Germany, according to the methodology used for 2019.

Only 6 routes could be travelled by train in less than 4 hours in 2019. They were all covered by daytime direct connections and they were all domestic routes, except for Paris–Frankfurt and Brussels–Frankfurt. More than 1 million passengers were carried by plane on all these routes in 2019, except for Brussels–Frankfurt. The group included the most popular flying route for Germany (Frankfurt–Berlin).

All these routes featured an average speed higher than the German average. The longest and the fastest route was Paris–Frankfurt (664 km, 182 km/h).

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Brussels–Frankfurt	3h08	578,559
Frankfurt–Munich	3h14	1,146,439
Frankfurt–Paris	3h39	1,042,112

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Frankfurt–Berlin	3h46	2,248,754
Frankfurt–Hamburg	3h58	1,426,732
Berlin–Munich	3h59	1,934,712

Table 28. List of the routes where the train journey takes less than 4 hours among the top 40 intra-EU routes for Germany, according to the methodology used for 2019.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	17	42.5%
1–2 transfers	19	47.5%
3 or more transfers	3	7.5%
Cannot be travelled by train	1	2.5%
Total	40	100%

Table 29. Top 40 intra-EU routes for Germany by no. of required transfers, according to the methodology used for 2019.

92% of the top 40 routes for Germany that could be travelled by train could be travelled with either direct trains or with maximum 2 transfers in 2019, the most notable exception being Madrid–Munich (4 transfers needed). All journeys involving 3 or more transfers were very long both in terms of distance and of duration.

On average, 0.9 transfers were needed per 1000 km of travel by train in 2019. Direct trains covered on average 629 km. The average length of the route increased to 957 km for routes that included one transfer, and to 1744 km for routes that included two. The higher the number of transfers, the lower the average speed of the journey.

In 2021, passengers need less than 6 hours in order to travel 37.5% of the top 40 intra–EU routes for Germany that can be travelled by train. These routes include 9 of the 10 busiest routes in Germany. 11 out of the 15 of the routes with a travel time below 6 hours are domestic ones, none of them is below 3 hours of duration.

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	7	17.5%	9.3
4–6 hours	8	20%	9.9
6–8 hours	5	12.5%	4.7
8–16 hours	15	37.5%	12.1
More than 16 hours	4	10%	2.7
Cannot be travelled by train	1	2.5%	1.1
Total	40	100%	39.7

Table 30. Duration of the train journey for the top 40 routes for Germany, according to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is...	No. of routes (2019)	Percentage of routes (2019)
Necessary	6	15%
Optional	22	55%
Not possible, but the route is served by a daytime–train under 6 hours	6	15%
Not possible, and the route is served by no daytime–train under 6 hours	5	13%
The route cannot be travelled by train	1	3%
Total	40	100%

Table 31. Night-train coverage of the top-40 intra-EU routes for Germany.

For 33 of the 39 routes included in the dataset that could be travelled by train, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for a few long international routes connecting German cities to Spain or the Nordic countries, where travelers needed to board 1 or more night trains.

22 of the 33 routes that could be travelled daytime came with a night–train option in 2019. On average, daytime travel took 7h50 hours and involved 0.8 transfers on these routes, while nighttime travel took 11h56 and involved 0.7 transfers. The average speed of such journeys involving a night train was 82 km/h, while the average speed of daytime journeys was 123 km/h. Night travel took longer than daytime travel on all these routes; it was particularly uncompetitive on the Frankfurt–Milan and Frankfurt–Barcelona routes in the covered period.

11 out of the top 40 routes for Germany could only be travelled day–time in 2019. Most of them consisted of relatively short routes that were covered by relatively fast trains, so that travel time was below or around 6 hours. A night–train option would probably be competitive on the remaining routes, such as Frankfurt to Copenhagen for instance.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	10	36%
Connecting night train (journey takes < 16h in total)	8	29%
Connecting night train (journey takes > 16h in total)	10	36%
Total	28	100%

Table 32. Type of night-train services for the top-40 intra-EU routes for Germany where this option is available.

A direct night train existed on 10 of the 28 routes where the night travel option was available in 2019 (mostly routes connecting Vienna to large German cities); on average these journeys took 9h32 and covered 730 km.

Train alternatives for the top 40 domestic routes for Germany

Train alternatives existed in 2019 for all the top 40 domestic short–haul flight routes for Germany which could in principle be travelled by train.

The average duration of the train journey was 4h13 in 2019, ranging from 1h18 for the Frankfurt–Stuttgart journey to 6h33 hours for Düsseldorf–Dresden. The median was 4h12; 88% of the routes could be covered in less than 6 hours.

The average length of the journey on these routes is 537 km, ranging from 171 km for the Nuernberg–Munich journey to 876 km for Munich–Bremen. The median is 554 km.

The average speed of the journey was 128 km/h in 2019, ranging from 98 km/h for the Nuremberg–Munich journey to 163 km/h for Frankfurt–Hamburg. The median was 126 km/h. The average speed for daytime direct trains was 131 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 2 hours	3	7.5%	0.9
2–4 hours	14	35%	9.3
4–6 hours	18	45%	9.9
6–8 hours	5	12.5%	2.7
More than 8 hours	0	0%	0.0
Total	40	100%	22.7

Table 33. Duration of the train journey for the top 40 domestic routes for Germany, according to the methodology used for 2019.

42.5% of the top 40 domestic routes for Germany could be travelled by train in less than 4 hours in 2019, and in 3 cases even in less than 2 hours. They included the two most popular domestic routes: Berlin–Frankfurt and Berlin–Munich.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Frankfurt–Stuttgart	1h18	325,219
Frankfurt–Düsseldorf	1h22	383,580
Munich–Nuremberg	1h45	130,882

Table 34. List of the routes where the train journey takes less than 2 hours among the top 40 domestic routes for Germany, according to the methodology used for 2019.

Most routes were served by direct trains, and only two (Friedrichshafen–Frankfurt and Cologne–Dresden) required more than one transfer in 2019.

13 routes came with a night–train option, but this option was available for all the longest domestic routes; most of such night trains connected Munich or Stuttgart with large cities in the north.

Train alternatives for the top 40 intra-EU routes for Italy

Train alternatives were available in 2019 for 39 of the top 40 routes for Italy which could in principle be travelled by train. The only exception was the Rome–Athens route, as there was no operating train connection from foreign countries to Greece in the covered period.

The average duration of the train journey was 11h53 in 2019, ranging from 2h56 for the Rome–Milan journey to 40h32 hours for Rome–Bucharest. The median was 11h21. 6 routes, i.e. 15% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 1285 km, ranging from 503 km for the Rome–Bari journey to 3196 km for Rome–Madrid. The median is 1144 km.

The average speed of the journey was 115 km/h in 2019, ranging from 55 km/h for the Rome–Bucharest journey to 194 km/h for Rome–Milan. The median was 111 km/h. The average speed for daytime direct trains was 148 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	2	5%	2.0
4–6 hours	4	10%	3.0
6–8 hours	3	7.5%	3.6
8–16 hours	25	62.5%	26.6
More than 16 hours	5	12.5%	4.8
Cannot be travelled by train	1	2.5%	0.8
Total	40	100%	40.7

Table 35. Duration of the train journey for the top 40 intra-EU routes for Italy, according to the methodology used for 2019.

Only 2 routes could be travelled by train in less than 4 hours in 2019. Both of them were domestic routes covered by daytime direct connections. Rome–Milan is among the busiest flying routes in Europe, carrying more than 1 million passengers per year. None of these two routes made it to the top 10 most popular intra–EU routes for Italy, however. Both routes featured an average speed higher than the Italian average.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Rome–Milan	2h56	1,198,119
Rome–Bari	3h59	765,162

Table 36. List of the routes where the train journey takes less than 4 hours among the top 40 intra-EU routes for Italy, according to the methodology used for 2019.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	7	17.5%
1–2 transfers	26	65%
3 or more transfers	6	15%
Cannot be travelled by train	1	2.5%
Total	40	100%

Table 37. Top 40 intra-EU routes for Italy by no. of required transfers, according to the methodology used for 2019.

Most routes could be travelled with either direct trains or with maximum 2 transfers in 2019. The most notable exceptions were Milan–Vienna (daytime), Rome–Madrid and Milan–Madrid.

On average, 1.1 transfers were needed per 1000 km of travel by train in 2019. Direct trains covered on average 686 km. The average length of the route increased to 1183 km for routes that included one transfer, and to 1635 km for routes that included two. The higher the number of transfers, the lower the average speed of the journey – except for night trains, where the combination with a fast daytime train could actually prove beneficial.

In 2021, passengers need less than 6 hours in order to travel 15% of the top 40 intra-EU routes for Italy that can be travelled by train. These routes include only 1 of the 10 busiest routes in Italy (Milan–Naples, the 10th busiest) and they are all domestic ones. Only one of these routes is below 3 hours of duration (Rome–Milan).

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	2	5%	2.0
4–6 hours	4	10%	3.0
6–8 hours	5	12.5%	6.0
8–16 hours	22	55%	22.8
More than 16 hours	6	15%	6.2
Cannot be travelled by train	1	2.5%	0.8
Total	40	100%	40.7

Table 38. Duration of the train journey for the top 40 routes for Italy, according to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is...	No. of routes (2019)	Percentage of routes (2019)
Necessary	5	13%
Optional	34	85%
Not possible, but the route is served by a daytime-train under 6 hours	0	0%
Not possible, and the route is served by no daytime-train under 6 hours	0	0%
The route cannot be travelled by train	1	3%

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Total	40	100%

Table 39. Night-train coverage of the top-40 intra-EU routes for Italy.

For 34 of the 39 routes included in the dataset that could be travelled by train, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for 5 routes, where travelers needed to board 1 or more night trains; all these cases involved an international journey more than 16 hours and 2000 km long.

All routes that could be travelled during the daytime also came with a night–train option in 2019. On average, daytime travel took 9h46 and involved 1.3 transfers on these routes, while nighttime travel took 13h09 and involved 0.8 transfers. The average speed of such journeys involving a night train was 89 km/h, while the average speed of daytime journeys was 116 km/h. Night travel took longer than daytime travel on all these routes; it was particularly uncompetitive on the Milan–Frankfurt and Milan–Munich routes in the covered period.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	13	33%
Connecting night train (journey takes < 16h in total)	13	33%
Connecting night train (journey takes > 16h in total)	13	33%
Total	39	100%

Table 40. Type of night-train services for the top-40 intra-EU routes for Italy where this option is available.

A direct night train existed on 13 of the 39 routes where the night travel option was available in 2019, including to foreign destinations such as Paris, Vienna and Munich; on average these journeys took 10h18 and cover 821 km.

Train alternatives for the top 40 domestic routes for Italy

Train alternatives existed in 2019 for all of the top 40 domestic short–haul flight routes for Italy which could in principle be travelled by train.

The average duration of the train journey was 8h42 in 2019, ranging from a minimum of 1h10 for the Naples–Rome journey to 21h23 for Milan–Trapani. The median was 9h03. 15 routes, i.e. 37.5% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 903 km, ranging from 222 km for the Naples–Rome journey to 1657 km for Milan–Trapani. The median is 876 km.

The average speed of the journey was 118 km/h in 2019, ranging from 71 km/h for the Catania–Naples journey to 196 km/h for Florence–Rome. The median was 105 km/h. The average speed for daytime direct trains was 147 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 2 hours	2	5%	0.6

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
2–4 hours	5	12.5%	3.1
4–6 hours	8	20%	4.0
6–8 hours	6	15%	1.2
More than 8 hours	19	47.5%	13.5
Total	40	100%	22.3

Table 41. Duration of the train journey for the top 40 domestic routes for Italy, according to the methodology used for 2019.

2 routes could be travelled by train in less than 2 hours in 2019:

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Rome–Naples	1h10	310,270
Rome–Florence	1h20	263,656

Table 42. List of the routes where the train journey takes less than 2 hours among the top 40 domestic routes for Italy, according to the methodology used for 2019.

Only 18% of the top 40 domestic routes for Italy could be travelled by train in less than 4 hours in 2019. In fact, travel time by train was above 8 hours for 4 of the 5 most popular routes, which connected the mainland to Sicily. The average speed of these 4 routes was well below the average for domestic journeys in Italy.

15 routes were served by direct trains in 2019, while the rest of them was served by trains which involved one transfer; only 4 routes involved 2 transfers and none more than 2. For a large majority of trains involving a transfer, Rome was the city where the transfer occurred.

All routes came with a night-train option in 2019, except for short routes served by fast trains and for the Milan–Pescara route.

Train alternatives for the top 40 intra-EU routes for Spain

Train alternatives existed in 2019 for all the top 40 intra–EU short–haul flight routes for Spain which could in principle be travelled by train.

The average duration of the train journey was 13h01 in 2019, ranging from 2h30 for the Madrid–Barcelona journey to 29h00 for Barcelona–Prague. The median was 10h28. 8 routes, i.e. 20% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 1564 km, ranging from 470 km for Madrid–Seville to 3196 km for Rome–Madrid. The median is 1548 km.

The average speed of the journey was 131 km/h in 2019, ranging from 69 km/h for the Madrid–Lisbon journey to 248 km/h for Madrid–Barcelona. The median was 121 km/h. The average speed for daytime direct trains was 148 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	2	5%	3.1
4–6 hours	6	15%	4.5
6–8 hours	5	12.5%	5.2
8–16 hours	17	42.5%	18.7
More than 16 hours	10	25%	8.3
Total	40	100%	39.7

Table 43. Duration of the train journey for the top 40 intra-EU routes for Spain, according to the methodology used for 2019.

Only 2 routes could be travelled by train in less than 4 hours in 2019. Both were domestic routes covered by daytime direct connections. Madrid–Barcelona was the busiest intra–EU route for Spain and it was among the busiest flying routes in Europe, carrying more than 1 million passengers per year. Both routes featured an average speed much higher than the Spanish average.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Madrid–Barcelona	2h30	2,572,844
Madrid–Seville	2h32	486,437

Table 44. List of the routes where the train journey takes less than 4 hours among intra-EU routes for Spain, according to the methodology used for 2019.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	7	17.5%
1–2 transfers	20	50%

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
3 or more transfers	13	32.5%
Total	40	100%

Table 45. Top 40 intra-EU routes for Spain by no. of required transfers, according to the methodology used for 2019.

Only 68% of the top 40 routes for Spain could be travelled with either direct trains or with maximum 2 transfers in 2019, the most notable exceptions being Barcelona–Prague, Barcelona–Lisbon and Madrid–Munich. Journeys involving 3 or more transfers tended to be very long in terms of distance however.

On average, 1.2 transfers were needed per 1000 km of travel by train in 2019. Direct trains covered on average 663 km; the average length of the route increased to 1219 km for routes that included one transfer, and to 2071 km for routes that included two. The higher the number of transfers, the lower the average speed of the journey – except for night trains, where the opposite was true.

In 2021, passengers need less than 6 hours in order to travel 25% of the top 40 intra-EU routes for Spain that can be travelled by train. These routes include only 1 of the 10 busiest routes in Spain. 2 routes are just over 2 hours of duration (Madrid–Sevilla and Madrid–Barcelona), while the rest are above 4 hours of duration. All of the routes with a travel time below 6 hours are domestic ones.

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	2	5%	3.1
4–6 hours	8	20%	5.8
6–8 hours	3	7.5%	3.8
8–16 hours	13	32.5%	15.1
More than 16 hours	14	35%	14.4
Total	40	100%	39.7

Table 46. Duration of the train journey for the top 40 routes for Spain, according to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	11	28%
Optional	19	48%
Not possible, but the route is served by a daytime-train under 6 hours	7	17%
Not possible, and the route is served by no daytime-train under 6 hours	3	8%
Total	40	100%

Table 47. Night-train coverage of the top-40 intra-EU routes for Spain.

For 29 of the top 40 routes for Spain, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for 11 routes, where travelers needed to board 1

night train. All these cases involved international journeys more than 16 hours long, except for Barcelona–Porto.

19 of the 29 routes that could be travelled daytime came with a night–train option in 2019. On average, daytime travel took 11h02 and involved 1.9 transfers on these routes, while nighttime travel took 17h41 and involved 1.8 transfers. The average speed of such journeys involving a night train was 86 km/h, while the average speed of daytime journeys was 132 km/h.

Night travel took much longer than daytime travel on all these routes in 2019; it was particularly uncompetitive on the Barcelona–Paris route in the covered period and on all the routes that passed through this stretch. The only exceptions were the journeys from Madrid or Barcelona to Lisbon or Porto, mainly because these routes were badly served during daytime.

10 out of the 40 top routes for Spain presented no night–train option in 2019. Except for Barcelona–Munich, they all consisted of relatively short domestic routes, covered by quite fast trains, so that travel time was below or around 6 hours for all of them.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	3	10%
Connecting night train (journey takes < 16h in total)	4	13%
Connecting night train (journey takes > 16h in total)	23	77%
Total	30	100%

Table 48. Type of night-train services for the top-40 intra-EU routes for Spain where this option is available.

A direct night train existed on 3 of the 30 routes where the night travel option was available in 2019. On most routes 1 to 3 transfers were re–quired, but even more were necessary in order to travel for instance from Madrid to Munich or from Barcelona to Prague.

Train alternatives for the top 40 domestic routes for Spain

Train alternatives were available in 2019 for all the top 40 domestic short–haul flight routes for Spain which could in principle be travelled by train, i.e. excluding routes to Baleares or Canarias islands.

The average duration of the train journey was 6h23 in 2019, ranging from 1h41 for the Valencia–Madrid journey to 12h04 hours for Barcelona–Vigo. The median was 6h34. 18 routes, i.e. 45% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 861 km, rang–ing from 353 km for the Valencia–Barcelona journey to 1372 km for Barcelona–A Coruna. The median is 909 km.

The average speed of the journey was 142 km/h in 2019, ranging from 90 km/h for the Madrid–Almeria journey to 248 km/h for Madrid–Barcelona. The median was 130 km/h. The average speed for daytime direct trains was 143 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 2 hours	1	2.5%	0.4
2–4 hours	6	15%	4.1

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
4–6 hours	11	27.5%	5.5
6–8 hours	8	20%	3.2
More than 8 hours	14	35%	2.8
Total	40	100%	15.8

Table 49. Duration of the train journey for the top 40 domestic routes for Spain, according to the methodology used for 2019.

Among the top 40 domestic routes, only one route could be travelled by train in less than 2 hours in 2019 (Valencia–Madrid, 1h41).

Only 18% of the top 40 domestic routes for Spain could be travelled by train in less than 4 hours in 2019. Except for Madrid–Barcelona, travel time by train was above 4 hours for 4 of the 5 most popular routes, but the average speed of these routes was well above the average for domestic journeys in Spain.

15 routes were served by direct trains, while 19 involved one transfer – almost always in Madrid. A few routes required 2 transfers, such as the routes connecting Barcelona to the North–West.

Only 3 routes came with a night–train option in 2019. However, such an option would probably be competitive on other domestic routes as well, since routes where daytime travel took more than 6 hours were 1062 km long on average (e.g. Barcelona–Bilbao).

Train alternatives for the top 30 intra-EU routes for Austria

Train alternatives were available in 2019 for 29 of the top 30 intra–EU short–haul flight routes for Austria which could in principle be travelled by train. The only exception was the Vienna–Athens route, as there was no operating train connection in the covered period.

The average duration of the train journey was 10h38 in 2019, ranging from 3h57 for the Vienna–Prague journey to 29h38 for Vienna–Sofia. The median was 9h25. 5 routes, i.e. 17% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 916 km, ranging from 402 km for the Vienna–Prague journey to 1930 km for Vienna–Barcelona. The median is 937 km.

The average speed of the journey was 100 km/h in 2019, ranging from 56 km/h for the Vienna–Sofia journey to 169 km/h for Vienna–Hannover. The median was 108 km/h. The average speed for daytime direct trains was 106 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	1	3%	0.2
4–6 hours	4	13%	1.2
6–8 hours	6	20%	2.7
8–16 hours	13	43%	7.2
More than 16 hours	5	17%	2.4
Cannot be travelled by train	1	3%	0.4
Total	30	100%	13.9

Table 50. Duration of the train journey for the top 30 intra-EU routes for Austria, according to the methodology used for 2019.

Among the top 30 intra–EU routes for Austria, only 1 route could be travelled by train in less than 4 hours in 2019, i.e. Vienna–Prague (3h57). It was covered by daytime direct connections. In terms of flying passenger traffic, however, Vienna–Prague was only the 28th busiest intra–EU route for Austria.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	6	20%
1–2 transfers	18	60%
3 or more transfers	5	17%
Cannot be travelled by train	1	3%
Total	30	100%

Table 51. Top 30 intra-EU routes for Austria by no. of required transfers, according to the methodology used for 2019.

83% of the top 30 routes for Austria that could be travelled by train were served by either direct trains or by trains involving maximum 2 transfers in 2019. The most notable exceptions were Vienna–Milan (daytime) and Vienna–Barcelona.

On average, 1.4 transfers were needed per 1000 km of travel by train in 2019. Direct trains covered on average 675 km; the average length of the route increased to 806 km for routes that included one transfer, and to 911 km for routes that included two. The average speed of the journey was ac−tually higher for journeys involving 1 transfer compared to direct journeys.

In 2021, passengers need less than 6 hours in order to travel 20% of the top 30 intra−EU routes for Austria that can be travelled by train. These routes include none of the 10 busiest routes in Austria. No routes are be−low 4 hours of duration. Almost all of the routes with a travel time below 6 hours are international ones (5 out of 6).

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	0	0%	0.0
4–6 hours	6	20%	1.6
6–8 hours	5	17%	2.5
8–16 hours	12	40%	6.9
More than 16 hours	6	20%	2.6
Cannot be travelled by train	1	3%	0.4
Total	30	100%	13.9

Table 52. Duration of the train journey for the top 30 routes for Austria, ac−cording to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	4	13%
Optional	19	63%
Not possible, but the route is served by a daytime−train under 6 hours	2	7%
Not possible, and the route is served by no daytime−train under 6 hours	4	13%
The route cannot be travelled by train	1	3%
Total	30	100%

Table 53. Night-train coverage of the top-30 intra-EU routes for Austria.

For 25 of the 29 routes included in the dataset that could be travelled by train, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for 4 routes (Vienna to Barcelona, Bucharest, Sofia and Stockholm), where trav−elers needed to board 1 or more night trains.

19 of the 25 routes that could be travelled daytime came with a night−train option in 2019. On average, daytime travel took 8h50 and involved 1.4 transfers on these routes, while nighttime travel took 11h16 and in−volved 0.4 transfers. The average speed of such journeys involving a night train was 81 km/h, while the average speed of daytime journeys was 108

km/h. Night travel took longer than daytime travel on all these routes, ex–cept for Vienna–Copenhagen and Vienna–Bologna.

6 out of the 29 routes that could be travelled by train presented no night–train option in 2019; they were all international intra–EU routes. Two of them consisted of relatively short routes with a travel time below 6 hours. A night–train option would probably be competitive on some of the remaining routes, such as Vienna to Brussels or Warsaw.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	13	57%
Connecting night train (journey takes < 16h in total)	5	22%
Connecting night train (journey takes > 16h in total)	5	22%
Total	23	100%

Table 54. Type of night-train services for the top-30 intra-EU routes for Austria where this option is available.

A direct night train existed on 13 of the 23 routes where the night travel option was available in 2019, including to the most popular foreign desti–nation for Austria (Frankfurt) and to a relatively distant city like Hamburg; on average these journeys took 10h44 and covered 835 km.

Train alternatives for the top 4 domestic routes for Austria

All the top 4 domestic flight routes for Austria could also be travelled by train in less than 6 hours in 2019.

The average duration of the train journey was 3h19, ranging from 2h28 for the Vienna–Graz journey to 4h14 hours for Vienna–Innsbruck.

The average length of the journey on these routes is 358 km, ranging from 208 km for the Vienna–Graz journey to 591 km for Vienna–Innsbruck.

The average speed of the journey was 105 km/h, ranging from 84 km/h for the Vienna–Graz journey to 140 km/h for Vienna–Innsbruck.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 2 hours	0	0%	0.0
2–4 hours	3	75%	0.4
4–6 hours	1	25%	0.2
Total	4	100%	0.6

Table 55. Duration of the train journey for the top 4 domestic routes for Austria, according to the methodology used for 2019.

All routes were served by direct trains in 2019. Only the Vienna–Innsbruck route came with a direct night–train option, lasting 6h24.

Belgium

Train alternatives for the top 30 intra-EU routes for Belgium

Train alternatives were available in 2019 for all the top 30 intra-EU short-haul flight routes for Belgium which could in principle be travelled by train.

The average duration of the train journey was 10h39 in 2019, ranging from 1h22 for the Brussels–Paris journey to 22h00 for Brussels–Stockholm. The median was 13h06. 6 routes, i.e. 20% of the routes included in this list, could be travelled in less than 6 hours.

The average length of the journey on these routes is 1258 km, ranging from 212 km for the Brussels–Amsterdam journey to 2042 km for Brussels–Madrid. The median is 1338 km.

The average speed of the journey was 129 km/h, ranging from 77 km/h for the Brussels–Stockholm journey to 228 km/h for Brussels–Paris. The median was 120 km/h. The average speed for daytime direct trains was 157 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	3	10%	1.1
4–6 hours	3	10%	0.8
6–8 hours	4	13%	1.5
8–16 hours	16	53%	8.7
More than 16 hours	4	13%	1.2
Total	30	100%	13.1

Table 56. Duration of the train journey for the top 30 intra-EU routes for Belgium, according to the methodology used for 2019.

Only 3 routes could be travelled by train in less than 4 hours in 2019 – 2 of them took less than two hours. All three were covered by daytime direct connections; Brussels–Paris featured an average speed much higher than the average for Belgium, while Brussels–Amsterdam was below it. Only the Brussels–Frankfurt route featured in the top-10 list of the busiest intra-EU flying routes for Belgium.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Brussels–Paris	1h22	196,534
Brussels–Amsterdam	1h52	281,812
Brussels–Frankfurt	3h08	578,559

Table 57. List of the routes where the journey takes less than 4 hours among the top 30 intra-EU routes for Belgium, according to the methodology used for 2019.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	3	10%
1–2 transfers	19	63%
3 or more transfers	8	27%
Total	30	100%

Table 58. Top 30 intra-EU routes for Belgium by no. of required transfers, according to the methodology used for 2019.

Only 73% of the top 30 routes for Belgium were served by either direct trains or by trains involving maximum 2 transfers in 2019. Even a very popular route such as Brussels–Rome required 3 transfers.

On average, 1.5 transfers were needed per 1000 km of travel by train. Direct trains (i.e. Brussels–Paris, Brussels–London and Brussels–Frankfurt) covered on average 310 km. The average length of the route increased to 987 km for routes that included one transfer, and to 1496 km for routes that included two. The higher the number of transfers, the lower the average speed of the journey – except for night trains, where the difference was very limited.

In 2021, passengers need less than 6 hours in order to travel 20% of the top 30 intra-EU routes for Belgium that can be travelled by train. These routes include only 1 of the 10 busiest routes in Belgium (Brussels–Frankfurt). 2 routes are below 2 hours of duration (Brussels–Paris and Brussels–Amsterdam), while the rest takes more than 3 hours to travel. None of these routes is domestic.

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	4	13%	1.3
4–6 hours	2	7%	0.5
6–8 hours	4	13%	1.5
8–16 hours	15	50%	8.1
More than 16 hours	4	13%	1.2
Cannot be travelled by train	1	3%	0.6
Total	30	100%	13.1

Table 59. Duration of the train journey for the top 30 routes for Belgium, according to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	3	10%
Optional	13	43%
Not possible, but the route is served by a daytime-train under 6 hours	6	20%
Not possible, and the route is served by no daytime-train under 6 hours	8	27%
Total	30	100%

Table 60. Night-train coverage of the top-30 intra-EU routes for Belgium.

For 27 of the top 30 routes for Belgium, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for 3 long routes, where travelers needed to board 1 or more night trains (Brussels to Porto, Stockholm and Zagreb).

13 of the 27 routes that could be travelled daytime came with a night-train option in 2019. On average, daytime travel took 12h04 and involved 2.2 transfers on these routes, while nighttime travel took 17h52 and involved 2.2 transfers. The average speed of such journeys involving a night train was 93 km/h, while the average speed of daytime journeys was 131 km/h. Night travel took longer than daytime travel on all these routes; it was particularly uncompetitive on the Brussels-Barcelona route in the covered period and on the other routes passing through that stretch.

14 out of the top 30 routes for Belgium presented no night-train option in 2019. About half of them consisted of relatively short routes or routes that were served by fast trains, so that travel time was below or around 6 hours. A night-train option would probably be competitive on the remaining routes, that included popular routes such as Brussels-Warsaw and Brussels-Copenhagen.

Type of nigh-train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	0	0%
Connecting night train (journey takes < 16h in total)	3	19%
Connecting night train (journey takes > 16h in total)	13	81%
Total	16	100%

Table 61. Type of night-train services for the top-30 intra-EU routes for Belgium where this option is available.

No direct night train existed on the 16 routes where the night travel option was available in 2019. On most routes 1 to 3 transfers were required, and even more in the case of Brussels-Alicante and Brussels-Stockholm. A Brussels-Vienna direct night train exists in 2021, however.

Train alternatives for the top 30 intra-EU routes for the Netherlands

Train alternatives were available in 2019 for all the top 30 intra-EU short-haul routes for the Netherlands which could in principle be travelled by train. Amsterdam-Paris was the busiest intra-EU route for the Netherlands.

The average duration of the train journey was 11h58 in 2019, ranging from 1h52 for the Brussels-Amsterdam journey to 54h57 for Amsterdam-Helsinki. The median was 14h37. 87 routes, i.e. 27% of the routes included in this list, could be travelled in less than 6 hours. No routes in the list were covered by a direct night train.

The average length on these routes is 1204 km, ranging from 212 km for the Brussels-Amsterdam journey to 3060 km for Amsterdam-Helsinki. The median is 1351 km.

The average speed of the journey was 111 km/h in 2019, ranging from 56 km/h for the Amsterdam-Helsinki journey to 167 km/h for Amsterdam-Lyon. The median was 98 km/h. The average speed for daytime direct trains was 116 km/h.

Duration of the journey	No. of routes (2019)	Percentage of routes (2019)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	3	10%	1.9
4–6 hours	5	17%	2.4
6–8 hours	3	10%	2.3
8–16 hours	14	47%	10.5
More than 16 hours	5	17%	2.5
Total	30	100%	19.8

Table 62. Duration of the train journey for the top 30 intra-EU routes for the Netherlands, according to the methodology used for 2019.

Only 3 routes could be travelled by train in less than 4 hours in 2019. They were all covered by daytime direct connections.

Route	Duration (2019)	No. of air passengers (both ways) (2019)
Amsterdam–Brussels	1h52	281,812
Amsterdam–Düsseldorf	2h14	257,004
Amsterdam–Paris	3h23	1,388,051

Table 63. List of the routes for the Netherlands where the journey takes less than 4 hours among the top 30 intra-EU routes for the Netherlands, according to the methodology used for 2019.

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
Direct train	5	17%

No. of transfers	No. of routes (2019)	Percentage of routes (2019)
1–2 transfers	17	57%
3 or more transfers	8	27%
Total	30	100%

Table 64. Top 30 intra-EU routes for the Netherlands by no. of required transfers, according to the methodology used for 2019.

Only 73% of the top 30 routes for the Netherlands were served by either direct trains or by trains involving maximum 2 transfers in 2019. Even a very popular and relatively short route such as Amsterdam–Copenhagen required 4 transfers.

On average, 1.5 transfers were needed per 1000 km of travel by train. Direct trains covered on average 413 km; the average length of the route increased to 965 km for routes that included one transfer, and to 1416 km for routes that included two. The average speed of the journey was higher for daytime routes involving 1 transfer compared to direct routes, as well as for nighttime routes involving 2 transfers compared to those involving 1 transfer.

In 2021, passengers need less than 6 hours in order to travel 20% of the top 30 intra–EU routes for the Netherlands. These routes include only 2 of the 10 busiest routes in the Netherlands (but they include the top one, Amsterdam–Paris, which moves around 1.4 million air passengers per year). 1 route is below 2 hours of duration (Brussels–Amsterdam). None of these routes is domestic.

Duration of the journey	No. of routes (2021)	Percentage of routes (2021)	Cumulative no. of air passengers for these routes (M, 2019)
Less than 4 hours	4	13%	2.8
4–6 hours	2	7%	0.8
6–8 hours	5	17%	2.9
8–16 hours	16	53%	10.3
More than 16 hours	3	10%	2.7
Total	30	100%	19.8

Table 65. Duration of the train journey for the top 30 routes for the Netherlands, according to the methodology used for 2021.

Night-train alternatives

Boarding one or more night trains is…	No. of routes (2019)	Percentage of routes (2019)
Necessary	2	7%
Optional	12	40%
Not possible, but the route is served by a daytime–train under 6 hours	8	27%
Not possible, and the route is served by no daytime–train under 6 hours	8	27%
Total	30	100%

Table 66. Night-train coverage of the top-30 intra-EU routes for the Netherlands.

For 28 of the 30 routes included in the dataset, it was possible in 2019 to depart after 7am in the morning and reach the target destination by midnight. This was not possible for Amsterdam–Naples and Amsterdam–Helsinki, where travelers needed to board 1 or more night trains; both involved an international journey more than 16 hours long.

Out of the 28 routes that could be travelled daytime, 12 came with a night–train option. On average, daytime travel took 14h01 and involved 2.3 transfers on these routes, while nighttime travel took 18h27 and involved 2.0 transfers. The average speed of such journeys involving a night train was 84 km/h, while the average speed of daytime journeys was 109 km/h. Night travel took longer than daytime travel on all these routes; it was particularly uncompetitive on the Amsterdam–Barcelona route in the covered period and on the other routes passing through that stretch.

16 out of the top 30 routes for the Netherlands presented no night–train option in 2019. About half of them consisted of relatively short routes or routes that were served by fast trains, so that travel time was below or around 6 hours. A night–train option would probably be competitive on the remaining routes, which included popular ones such as Amsterdam to Copenhagen or Prague.

Type of nigh–train option available	No. of routes (2019)	Percentage of routes (2019)
Direct night train	0	0%
Connecting night train (journey takes < 16h in total)	3	21%
Connecting night train (journey takes > 16h in total)	11	79%
Total	14	100%

Table 67. Type of night-train services for the top-30 intra-EU routes for the Netherlands where this option is available.

No direct night train existed on the 12 routes where the night travel option was available in 2019. On most routes 1 to 3 transfers were required. An Amsterdam–Vienna direct night train exists in 2021 however.

ANNEX

The following tables refer to 2021 and list all the short–haul flight routes which can be travelled by train in less than 6 hours, or which come with reasonable night–train alternatives (i.e. direct night trains or night–train options lasting less than 12 hours in total). The key differences with 2019 data are highlighted after each table.

Top 150 intra-EU routes

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Paris–Toulouse	x	x	x	3,221,467
Paris–Nice	x	x	x	3,191,073
Athina–Thessaloniki	x			2,621,638
Madrid–Barcelona	x			2,572,844
Frankfurt–Berlin	x	x	x	2,248,754
Milan–Catania		x		2,026,011
Munich–Berlin	x			1,934,712
Rome–Catania		x	x	1,824,588
Hamburg–Munich	x	x	x	1,745,720
Rome–Palermo		x		1,582,685
Paris–Marseille	x	x	x	1,569,716
Milan–Palermo		x		1,539,626
Munich–Düsseldorf	x	x	x	1,488,902
Berlin–Cologne	x			1,434,481
Frankfurt–Hamburg	x	x	x	1,426,732
Stockholm–Copenhagen[10]	x	x	x	1,397,474
Amsterdam–Paris	x			1,388,051
Milan–Naples	x	x	x	1,376,954
Berlin–Stuttgart	x		x	1,235,068
Berlin–Düsseldorf	x			1,233,072
Paris–Bordeaux	x			1,219,673
Milan–Lamezia Terme		x	x	1,204,651
Rome–Milan	x	x	x	1,198,119
Milan–Bari		x	x	1,159,746
Stockholm–Gothenburg	x			1,148,015
Frankfurt–Munich	x	x	x	1,146,439
Vienna–Frankfurt		x	x	1,109,793
Stockholm–Luleå		x		1,045,828
Barcelona–Sevilla	x			1,045,029
Paris–Frankfurt	x			1,042,112
Stockholm–Malmö	x	x	x	1,022,621
Munich–Cologne	x	x	x	1,018,045
Munich–Paris	x			1,014,392
Lisbon–Porto	x			1,008,288

10 The night train to/from Stockholm actually stops in Høje Taastrup, which is part of the Copenhagen metropolitan area.

Budapest–Eindhoven Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night-train option under 12h	No. of air passengers (2019)
Paris–Montpellier	x			989,296
Amsterdam–Munich		x	x	971,192
Vienna–Berlin		x	x	966,659
Helsinki–Oulu	x	x	x	956,641
Vienna–Amsterdam		x		943,844
Milan–Brindisi		x	x	885,734
Amsterdam–Frankfurt	x			882,532
Stockholm–Umeå		x	x	872,118
Barcelona–Malaga	x			848,962
Madrid–Bilbao	x			835,731
Copenhagen–Aalborg	x			782,849
Vienna–Düsseldorf		x	x	771,175
Rome–Bari	x	x*	x	765,162
Hamburg–Stuttgart	x		x	738,375
Frankfurt–Budapest			x	725,600
Vienna–Hamburg		x	x	720,332
Madrid–Santiago	x			719,692
Rome–Munich		x		718,525
Paris–Lyon	x			715,117
Madrid–Vigo	x			683,927
Madrid–A Coruña	x			680,075
Vienna–Bucharest		x		634,044
Paris–Bayonne	x			629,775
Lyon–Bordeaux	x			584,312
Brussels–Frankfurt	x			578,559
Paris–Nantes	x			568,942
Lyon–Nantes	x			562,382
Vienna–Milan		x		562,246
Paris–Brest	x			562,128
Rome–Vienna		x		558,401
Vienna–Stuttgart			x	558,006
Madrid–Oviedo	x			548,209
Helsinki–Rovaniemi		x	x	543,716
Munich–Hannover	x	x	x	542,253
Venice–Naples	x		x	535,778
Vienna–Munich	x	x	x	535,673
Rome–Brindisi	x	x*	x	525,571
Hamburg–Düsseldorf	x			522,362
Stockholm–Berlin		x		516,452
Milan–Munich		x	x	503,772
Turin–Rome	x	x	x	489,190

* = This service used to run daily in 2019 but it now only runs a few days per week.

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Hamburg–Munich, Munich–Paris, Madrid–Vigo and Madrid–A Coruña which used to take longer, at least based on the criteria that we used for the collection of 2019 data.

Direct night-train services Paris–Marseille–Nice, Stockholm–Copenhagen, Stockholm–Berlin, and Vienna/Munich–Amsterdam were not in place in 2019, and no night-train option under 12 hours of duration was available for Paris–Marseille–Nice, Milan–Lamezia Terme, Vienna–Düsseldorf, and Amsterdam–Munich. However, back in 2019 direct night trains were in place on the Venice–Milan–Paris, Madrid–Lisbon, Madrid–Vigo and Madrid–A Coruña routes, and a night-train option under 12 hours of duration was also available for Madrid–Porto in 2019.

Top 250 routes in Europe

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night-train option under 12h	No. of air passengers (2019)
Amsterdam–London	x			4,724,508
London–Edinburgh	x	x	x	3,374,701
Paris–Toulouse	x	x	x	3,221,467
Paris–Nice	x	x	x	3,191,073
Athina–Thessaloniki	x			2,621,638
Madrid–Barcelona	x			2,572,844
London–Glasgow	x	x	x	2,287,012
Frankfurt–Berlin	x	x	x	2,248,754
Paris–London	x			2,118,570
Oslo–Trondheim		x	x	2,106,608
Milan–Catania		x		2,026,011
Oslo–Bergen		x	x	2,004,018
Munich–Berlin	x			1,934,712
Rome–Catania		x	x	1,824,588
Hamburg–Munich	x	x	x	1,745,720
Oslo–Stavanger		x	x	1,681,389
Rome–Palermo		x		1,582,685
Paris–Marseille	x	x	x	1,569,716
Milan–Palermo		x		1,539,626
Munich–Düsseldorf	x	x	x	1,488,902
Berlin–Cologne	x			1,434,481
Frankfurt–Hamburg	x	x	x	1,426,732
Stockholm–Copenhagen[11]	x	x	x	1,397,474
Amsterdam–Paris	x			1,388,051
Milan–Naples	x	x	x	1,376,954
Berlin–Stuttgart	x		x	1,235,068
Berlin–Düsseldorf	x			1,233,072
Paris–Bordeaux	x			1,219,673

11 The night train to/from Stockholm actually stops in Høje Taastrup, which is part of the Copenhagen metropolitan area.

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Milan–Lamezia Terme		x	x	1,204,651
Rome–Milan	x	x	x	1,198,119
Berlin–Zurich		x	x	1,163,424
Milan–Bari		x	x	1,159,746
Stockholm–Gothenburg	x			1,148,015
Frankfurt–Munich	x	x	x	1,146,439
Vienna–Frankfurt		x	x	1,109,793
Paris–Geneva	x			1,059,227
Stockholm–Luleå		x		1,045,828
Barcelona–Sevilla	x			1,045,029
Paris–Frankfurt	x			1,042,112
Stockholm–Malmö	x	x	x	1,022,621
Munich–Cologne	x	x	x	1,018,045
Munich–Paris	x			1,014,392
Lisbon–Porto	x			1,008,288
Paris–Montpellier	x			989,296
Amsterdam–Munich		x	x	971,192
Vienna–Berlin		x	x	966,659
Helsinki–Oulu	x	x	x	956,641
Vienna–Amsterdam		x		943,844
Vienna–Zurich		x	x	941,007
Milan–Brindisi		x	x	885,734
Amsterdam–Frankfurt	x			882,532
Stockholm–Umeå		x	x	872,118
Barcelona–Malaga	x			848,962
Madrid–Bilbao	x			835,731
Copenhagen–Aalborg	x			782,849
London–Aberdeen		x	x	772,034
Vienna–Düsseldorf		x	x	771,175
Rome–Bari	x	x*	x*	765,162
Düsseldorf–Zurich	x			747,922
Hamburg–Stuttgart	x		x	738,375
Frankfurt–Budapest			x	725,600
Paris–Zurich	x			723,183
Vienna–Hamburg		x		720,332
Madrid–Santiago	x			719,692
Rome–Munich		x		718,525
Paris–Lyon	x			715,117
Hamburg–Zurich		x	x	692,048
Madrid–Vigo	x			683,927
Manchester–Paris	x			681,050
Madrid–A Coruña	x			680,075

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night-train option under 12h	No. of air passengers (2019)
Brussels–London	x			675,607
Frankfurt–Zurich	x			651,241
Vienna–Bucharest		x		634,044
Paris–Bayonne	x			629,775
London–Lyon	x			625,547
Geneva–Zurich	x			622,564
Lyon–Bordeaux	x			584,312
Brussels–Frankfurt	x			578,559
London–Cologne	x			570,463
Paris–Nantes	x			568,942
Lyon–Nantes	x			562,382
Vienna–Milan		x		562,246
Paris–Brest	x			562,128
Rome–Vienna		x		558,401
Vienna–Stuttgart			x	558,006
London–Manchester	x			552,255
Madrid–Oviedo	x			548,209
London–Inverness		x	x	544,517
Helsinki–Rovaniemi		x	x	543,716
Munich–Hannover	x	x	x	542,253
Venice–Naples	x		x	535,778
Vienna–Munich	x	x	x	535,673
Rome–Brindisi	x	x*	x*	525,571
Hamburg–Düsseldorf	x			522,362
Stockholm–Berlin		x		516,452
Oslo–Kristiansand	x			510,077
London–Bordeaux	x			508,852
Milan–Munich		x	x	503,772
Turin–Rome	x	x	x	489,190
Madrid–Sevilla	x			486,437
Paris–Pau	x		x	479,889
Amsterdam–Hamburg	x			477,238
Paris–Düsseldorf	x			464,579
Hamburg–Cologne	x			463,775
Brussels–Manchester	x			460,873

* = This service used to run daily in 2019 but it now only runs a few days per week.

   All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Hamburg–Munich, Munich–Paris, Madrid–Vigo and Madrid–A Coruña which used to take longer, at least based on the criteria that we used for the collection of 2019 data. However, Brussels–Geneva, London–Luxembourg and London–Düsseldorf used to take less than 6 hours in 2019 but now take longer. Stockholm–Oslo took less than 6 hours as well, but it is not operated by train in 2021.

Direct night-train services Paris-Marseille-Nice, Stockholm-Copenhagen, Stockholm-Berlin, and Vienna/Munich-Amsterdam were not in place in 2019, and no night-train option under 12 hours of duration was available for Paris-Marseille-Nice in 2019. Night-train options on the routes Milan-Lamezia Terme, Berlin-Zurich, Vienna-Düsseldorf, Amsterdam-Munich, and Hamburg-Zurich used to take more than 12 hours, but they take a shorter time in 2021. However, back in 2019 a direct night train was in place on the Venice-Milan-Paris route, and night-train options under 12 hours of duration were available for Madrid-Lisbon and Madrid-Porto.

Top 40 intra-EU routes for France

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night-train option under 12h	No. of air passengers (2019)
Paris-Toulouse	x	x	x	3,221,467
Paris-Nice	x	x	x	3,191,073
Paris-Marseille	x	x	x	1,569,716
Amsterdam-Paris	x			1,388,051
Paris-Bordeaux	x			1,219,673
Paris-Frankfurt	x			1,042,112
Munich-Paris	x			1,014,392
Paris-Montpellier	x			989,296
Paris-Lyon	x			715,117
Paris-Bayonne	x			629,775
Lyon-Bordeaux	x			584,312
Paris-Nantes	x			568,942
Lyon-Nantes	x			562,382
Paris-Brest	x			562,128
Paris-Pau	x		x	479,889
Paris-Düsseldorf	x			464,579
Lyon-Toulouse	x			432,052
Marseille-Bordeaux	x			426,814
Paris-Toulon	x	x	x	391,734

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Munich-Paris which used to take longer, at least based on the criteria that we used for the collection of 2019 data.

Direct night-train services Paris-Marseille-Toulon-Nice were not in place in 2019, and no night-train option under 12 hours of duration was available for such routes in 2019. However, back in 2019 a direct night train was in place on the Venice-Milan-Paris route.

Top 40 French domestic routes

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Paris–Toulouse	x	x	x	3,221,467
Paris–Nice	x	x	x	3,191,073
Paris–Marseille	x	x	x	1,569,716
Paris–Bordeaux	x			1,219,673
Paris–Montpellier	x			989,296
Paris–Lyon	x			715,117
Paris–Bayonne	x			629,775
Lyon–Bordeaux	x			584,312
Paris–Nantes	x			568,942
Lyon–Nantes	x			562,382
Paris–Brest	x			562,128
Paris–Pau	x		x	479,889
Lyon–Toulouse	x			432,052
Marseille–Bordeaux	x			426,814
Paris–Toulon	x	x	x	391,734
Nantes–Toulouse			x	329,043
Paris–Clermont Ferrand	x			281,268
Paris–Perpignan	x	x*	x	239,141
Lille–Toulouse			x	233,962
Lille–Bordeaux	x			227,950
Lille–Marseille	x		x	220,303
Nice–Lyon	x			218,439
Lyon–Rennes	x			180,465
Paris–Rennes	x			148,846
Strasbourg–Toulouse			x	137,347
Paris–Lourdes/Tarbes	x		x	133,949
Strasbourg–Bordeaux	x			129,392
Nantes–Strasbourg	x			124,931
Lyon–Caen	x			111,668
Strasbourg–Lyon	x			110,773

* = This service used to run daily in 2019 but it now only runs a few days per week.

   All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well. Direct night–train services Paris–Marseille–Toulon–Nice were not in place in 2019, and no night–train option under 12 hours of duration was available for such routes in 2019; no such option was available for Lille–Marseille either.

Top 40 intra-EU routes for Germany

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Frankfurt–Berlin	x	x	x	2,248,754
Munich–Berlin	x			1,934,712
Hamburg–Munich	x	x	x	1,745,720
Munich–Düsseldorf	x	x	x	1,488,902
Berlin–Cologne	x			1,434,481
Frankfurt–Hamburg	x	x	x	1,426,732
Berlin–Stuttgart	x		x	1,235,068
Berlin–Düsseldorf	x			1,233,072
Frankfurt–Munich	x	x	x	1,146,439
Vienna–Frankfurt		x	x	1,109,793
Paris–Frankfurt	x			1,042,112
Munich–Cologne	x	x	x	1,018,045
Munich–Paris	x			1,014,392
Amsterdam–Munich		x	x	971,192
Vienna–Berlin		x	x	966,659
Amsterdam–Frankfurt	x			882,532
Vienna–Düsseldorf		x	x	771,175
Hamburg–Stuttgart	x		x	738,375
Frankfurt–Budapest			x	725,600
Vienna–Hamburg		x		720,332
Rome–Munich		x		718,525
Brussels–Frankfurt	x			578,559

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Hamburg–Munich and Munich–Paris which used to take longer, at least based on the criteria that we used for the collection of 2019 data.

No direct night–train service Munich–Amsterdam was in place in 2019. Night–train options on the routes Vienna–Düsseldorf and Munich–Amsterdam used to take more than 12 hours, but they take a shorter time in 2021.

Top 40 German domestic routes

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Frankfurt–Berlin	x	x	x	2,248,754
Munich–Berlin	x			1,934,712
Hamburg–Munich	x	x	x	1,745,720
Munich–Düsseldorf	x	x	x	1,488,902

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Berlin–Cologne	x			1,434,481
Frankfurt–Hamburg	x	x	x	1,426,732
Berlin–Stuttgart	x		x	1,235,068
Berlin–Düsseldorf	x			1,233,072
Frankfurt–Munich	x	x	x	1,146,439
Munich–Cologne	x	x	x	1,018,045
Hamburg–Stuttgart	x		x	738,375
Munich–Hannover	x	x	x	542,253
Hamburg–Düsseldorf	x			522,362
Hamburg–Cologne	x			463,775
Munich–Bremen	x		x	412,931
Frankfurt–Düsseldorf	x			383,580
Frankfurt–Hannover	x			357,246
Frankfurt–Dresden	x			331,928
Frankfurt–Stuttgart	x			325,219
Frankfurt–Bremen	x			303,435
Frankfurt–Leipzig	x			265,382
Frankfurt–Nuremberg	x			254,041
Munich–Münster			x	233,825
Munich–Dresden	x			210,195
Munich–Stuttgart	x			196,543
Munich–Dortmund	x	x	x	188,017
Munich–Leipzig	x			171,734
Stuttgart–Bremen	x		x	169,716
Hamburg–Nuremberg	x			160,549
Hannover–Stuttgart	x			159,737
Friedrichshafen–Frankfurt	x			145,666
Nuremberg–Düsseldorf	x			145,626
Frankfurt–Münster	x			132,505
Cologne–Dresden	x			131,173
Nuremberg–Munich	x		x	130,882
Stuttgart–Düsseldorf	x			127,493
Paderborn–Munich	x			127,082
Leipzig–Düsseldorf	x			104,783
Stuttgart–Dresden	x			89,813

    All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Munich-Bremen, Stuttgart-Dresden, and Hamburg-Munich, which used to take longer, at least based on the criteria that we used for the collection of 2019 data.

Top 40 intra-EU routes for Italy

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Milan–Catania		x		2,026,011
Rome–Catania		x	x	1,824,588
Rome–Palermo		x		1,582,685
Milan–Palermo		x		1,539,626
Milan–Naples	x	x	x	1,376,954
Milan–Lamezia Terme		x	x	1,204,651
Rome–Milan	x	x	x	1,198,119
Milan–Bari		x	x	1,159,746
Milan–Brindisi		x	x	885,734
Rome–Bari	x	x*	x*	765,162
Rome–Munich		x		718,525
Vienna–Milan		x		562,246
Rome–Vienna		x		558,401
Venice–Naples	x		x	535,778
Rome–Brindisi	x	x*	x*	525,571
Milan–Munich		x	x	503,772
Turin–Rome	x	x	x	489,190

* = This service used to run daily in 2019 but it now only runs a few days per week.

   All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well. Current direct night–train services were already in place in 2019. However, back in 2019 a direct night train was also in place on the Venice–Milan–Paris route.

Top 40 Italian domestic routes

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Milan–Catania		x		2,026,011
Rome–Catania		x	x	1,824,588
Rome–Palermo		x		1,582,685
Milan–Palermo		x		1,539,626
Milan–Naples	x	x	x	1,376,954
Milan–Lamezia Terme		x	x	1,204,651
Rome–Milan	x	x	x	1,198,119
Milan–Bari		x	x	1,159,746
Milan–Brindisi		x	x	885,734
Rome–Bari	x	x*	x*	765,162
Venice–Naples	x		x	535,778

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Rome–Brindisi	x	x*	x*	525,571
Turin–Rome	x	x	x	489,190
Rome–Venice	x	x	x	447,145
Rome–Lamezia Terme	x			422,633
Bologna–Catania		x		400,428
Genoa–Rome	x			311,692
Naples–Rome	x			310,270
Bologna–Rome	x			290,191
Palermo–Bologna		x		278,938
Venice–Bari			x	273,490
Turin–Naples	x	x	x	270,468
Trieste–Rome	x		x	266,463
Florence–Rome	x			263,656
Catania–Naples		x	x	259,315
Milan–Pescara	x			246,475
Palermo–Naples		x	x	238,314
Pisa–Bari			x	138,761
Lamezia Terme–Venice			x	126,843
Lamezia Terme–Pisa			x	126,722
Milan–Reggio Calabria		x		117,044
Pisa–Brindisi			x	116,137

* = This service used to run daily in 2019 but it now only runs a few days per week.

   All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well. Rome–Lamezia Terme used to take less than 6 hours in 2019 but now takes longer. Current direct night–train services were already in place in 2019. Rome–Lamezia Terme and Genoa–Rome also have night train options, but their duration is under 6 hours.

Top 40 intra-EU routes for Spain

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Madrid–Barcelona	x			2,572,844
Barcelona–Sevilla	x			1,045,029
Barcelona–Malaga	x			848,962
Madrid–Bilbao	x			835,731
Madrid–Santiago	x			719,692
Madrid–Vigo	x			683,927
Madrid–A Coruña	x			680,075
Madrid–Oviedo	x			548,209

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Madrid–Sevilla	x			486,437
Barcelona–Alicante	x			449,095

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Madrid–Vigo and Madrid–A Coruña which used to take longer, at least based on the criteria that we used for the collection of 2019 data.

Direct night trains were in place on the Madrid–Lisbon, Madrid–Vigo and Madrid–A Coruña routes back in 2019, and a night–train option under 12 hours of duration was also available for Madrid–Porto in 2019.

Top 40 Spanish domestic routes

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Madrid–Barcelona	x			2,572,844
Barcelona–Sevilla	x			1,045,029
Barcelona–Malaga	x			848,962
Madrid–Bilbao	x			835,731
Madrid–Santiago	x			719,692
Madrid–Vigo	x			683,927
Madrid–A Coruña	x			680,075
Madrid–Oviedo	x			548,209
Madrid–Sevilla	x			486,437
Barcelona–Alicante	x			449,095
Madrid–Malaga	x			357,229
Valencia–Madrid	x			338,181
Madrid–Jerez	x			304,260
Madrid–Alicante	x			299,447
Madrid–Santander	x			271,703
Valencia–Sevilla	x			213,013
Madrid–Granada	x			199,065
Madrid–San Sebastian	x			198,456
San Sebastian–Barcelona	x			123,438
Valencia–Barcelona	x			85,247

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Madrid–Vigo and Madrid–A Coruña which used to take longer, at least based on the criteria that we used for the collection of 2019 data. Direct night trains were in place on the Madrid–Vigo and Madrid–A Coruña routes back in 2019.

Top 30 intra-EU routes for Austria

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Vienna–Frankfurt		x	x	1,109,793
Vienna–Berlin		x	x	966,659
Vienna–Amsterdam		x		943,844
Vienna–Düsseldorf		x	x	771,175
Vienna–Hamburg		x		720,332
Vienna–Bucharest		x		634,044
Vienna–Milan		x		562,246
Vienna–Rome		x		558,401
Vienna–Stuttgart			x	558,006
Vienna–Munich	x	x	x	535,673
Vienna–Brussels		x		486,177
Vienna–Cologne		x	x	373,087
Salzburg–Frankfurt	x			227,406
Vienna–Hannover		x	x	226,802
Graz–Munich	x		x	225,569
Vienna–Innsbruck	x	x	x	204,896
Vienna–Bologna		x	x	182,491
Vienna–Venice		x	x	181,525
Vienna–Prague	x			180,795
Linz–Frankfurt	x	x	x	177,638

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well, except for Vienna–Innsbruck and Linz–Frankfurt, which used to take longer, at least based on the criteria that we used for the collection of 2019 data. No direct night-train services Vienna–Amsterdam and Vienna–Brussels were in place in 2019.

All the top 4 Austrian domestic routes are served by trains taking less than 6 hours in 2021.

Top 30 intra-EU routes for Belgium

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night–train option under 12h	No. of air passengers (2019)
Brussels–Frankfurt	x			578,559
Brussels–Vienna		x		486,177
Brussels–Marseille	x			308,741
Brussels–Toulouse			x	305,272
Brussels–Amsterdam	x			281,812
Brussels–Lyon	x			261,219
Brussels–Paris	x			196,534

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night– train option under 12h	No. of air passengers (2019)
Brussels–Bordeaux	x			166,611

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well. No direct night–train service Vienna–Brussels was in place in 2019.

Top 30 intra-EU routes for the Netherlands

Connection	Route served in less than 6h	Route served by a direct night train	Route served by a night– train option under 12h	No. of air passengers (2019)
Amsterdam–Paris	x			1,388,051
Amsterdam–Munich		x	x	971,192
Vienna–Amsterdam		x		943,844
Amsterdam–Frankfurt	x			882,532
Amsterdam–Hamburg	x			477,238
Amsterdam–Stuttgart	x			345,419
Brussels–Amsterdam	x			281,812
Amsterdam–Düsseldorf	x			257,004

All routes taking less than 6 hours in 2021 took less than 6 hours in 2019 as well. Amsterdam–Bordeaux and Amsterdam–Lyon took less than 6 hours in 2019 but now these journeys take longer. No direct night–train service was in place between Amsterdam and Munich/Vienna in 2019.

List of analysed routes

Top 150 intra–EU routes

A Coruña–Madrid
Aalborg–København
Alicante–Bruxelles
Amsterdam–Barcelona
Amsterdam–Berlin
Amsterdam–Frankfurt
Amsterdam–Helsinki
Amsterdam–København
Amsterdam–Madrid
Amsterdam–Milano
Amsterdam–München
Amsterdam–Paris
Amsterdam–Praha
Amsterdam–Roma
Amsterdam–Stockholm
Amsterdam–Warszawa
Amsterdam–Wien
Athina–München
Athina–Roma
Athina–Thessaloniki
Barcelona–Berlin
Barcelona–Bilbao
Barcelona–Bruxelles
Barcelona–Frankfurt
Barcelona–Granada
Barcelona–Lisboa
Barcelona–Madrid
Barcelona–Malaga
Barcelona–Milano
Barcelona–München
Barcelona–Paris
Barcelona–Porto
Barcelona–Roma
Barcelona–Sevilla
Barcelona–Venezia
Barcelona–Wien
Bari–Milano
Bari–Roma
Bayonne–Paris
Berlin–Bruxelles
Berlin–Düsseldorf
Berlin–Frankfurt
Berlin–Helsinki
Berlin–København
Berlin–Köln
Berlin–Milano
Berlin–München
Berlin–Paris
Berlin–Roma
Berlin–Stockholm
Berlin–Stuttgart
Berlin–Wien
Bilbao–Madrid
Bordeaux–Lyon
Bordeaux–Paris
Brest–Paris
Brindisi–Milano
Brindisi–Roma
Bruxelles–Budapest
Bruxelles–Frankfurt
Bruxelles–København
Bruxelles–Madrid
Bruxelles–Milano

Bruxelles–Praha
Bruxelles–Roma
Bruxelles–Warszawa
București–Roma
București–Wien
Budapest–Frankfurt
Catania–Milano
Catania–Roma
Catania–Venezia
Düsseldorf–Hamburg
Düsseldorf–Madrid
Düsseldorf–München
Düsseldorf–Wien
Firenze–Paris
Frankfurt–Hamburg
Frankfurt–København
Frankfurt–Madrid
Frankfurt–Milano
Frankfurt–München
Frankfurt–Paris
Frankfurt–Praha
Frankfurt–Roma
Frankfurt–Stockholm
Frankfurt–Venezia
Frankfurt–Warszawa
Frankfurt–Wien
Göteborg–Stockholm
Hamburg–München
Hamburg–Stuttgart
Hamburg–Wien
Hannover–München
Helsinki–København
Helsinki–Oulu
Helsinki–Rovaniemi
Helsinki–Stockholm
København–München
København–Paris
København–Stockholm
Köln–München
Lamezia Terme–Milano
Lisboa–Madrid
Lisboa–Paris
Lisboa–Porto
Luleå–Stockholm
Lyon–Nantes
Lyon–Paris
Madrid–Milano
Madrid–München
Madrid–Oviedo
Madrid–Paris
Madrid–Porto
Madrid–Roma
Madrid–Santiago
Madrid–Venezia
Madrid–Vigo
Malaga–Paris
Malmö–Stockholm
Marseille–Paris
Milano–München
Milano–Napoli
Milano–Palermo
Milano–Paris
Milano–Roma
Milano–Wien
Montpellier–Paris
München–Paris

München–Roma
München–Stockholm
München–Thessaloniki
München–Wien
Nantes–Paris
Napoli–Paris
Napoli–Venezia
Nice–Paris
Palermo–Roma
Paris–Porto
Paris–Praha
Paris–Roma
Paris–Toulouse
Paris–Valencia
Paris–Venezia
Paris–Warszawa
Paris–Wien
Roma–Torino
Roma–Wien
Stockholm–Umeå
Stuttgart–Wien

Top 250 routes in Europe

A Coruña–Madrid
Aalborg–København
Aberdeen–London
Ålesund –Oslo
Alexandruopolis–Athina
Alicante–Bruxelles
Alicante–London
Amsterdam–Barcelona
Amsterdam–Berlin
Amsterdam–Birmingham
Amsterdam–Bristol
Amsterdam–Edinburgh
Amsterdam–Frankfurt
Amsterdam–Genève
Amsterdam–Hamburg
Amsterdam–Helsinki
Amsterdam–København
Amsterdam–London
Amsterdam–Madrid
Amsterdam–Manchester
Amsterdam–Milano
Amsterdam–München
Amsterdam–Nice
Amsterdam–Oslo
Amsterdam–Paris
Amsterdam–Praha
Amsterdam–Roma
Amsterdam–Stockholm
Amsterdam–Warszawa
Amsterdam–Wien
Amsterdam–Zürich
Athina–München
Athina–Roma
Athina–Thessaloniki
Barcelona–Berlin
Barcelona–Bilbao
Barcelona–Bruxelles
Barcelona–Frankfurt
Barcelona–Genève
Barcelona–Granada
Barcelona–Lisboa

Barcelona–London
Barcelona–Madrid
Barcelona–Malaga
Barcelona–Manchester
Barcelona–Milano
Barcelona–München
Barcelona–Paris
Barcelona–Porto
Barcelona–Roma
Barcelona–Sevilla
Barcelona–Venezia
Barcelona–Wien
Barcelona–Zürich
Bari–Milano
Bari–Roma
Basel–London
Bayonne–Biarritz–Paris
Bergen–Oslo
Bergen–Stavanger
Berlin–Bruxelles
Berlin–Düsseldorf
Berlin–Frankfurt
Berlin–Helsinki
Berlin–København
Berlin–Köln
Berlin–London
Berlin–Milano
Berlin–München
Berlin–Paris
Berlin–Roma
Berlin–Stockholm
Berlin–Stuttgart
Berlin–Wien
Berlin–Zürich
Bilbao–Madrid
Bodø–Oslo
Bologna–London
Bordeaux–London
Bordeaux–Lyon
Bordeaux–Paris
Brest–Paris
Brindisi–Milano
Brindisi–Roma
Bruxelles–Budapest
Bruxelles–Frankfurt
Bruxelles–Genève
Bruxelles–København
Bruxelles–London
Bruxelles–Madrid
Bruxelles–Manchester
Bruxelles–Milano
Bruxelles–Porto
Bruxelles–Praha
Bruxelles–Roma
Bruxelles–Warszawa
Bruxelles–Wien
București–Roma
București–Wien
Budapest–Frankfurt
Budapest–London
Budapest–Paris
Catania–Milano
Catania–Roma
Catania–Venezia
Düsseldorf–Hamburg
Düsseldorf–London

Düsseldorf–Madrid
Düsseldorf–München
Düsseldorf–Paris
Düsseldorf–Wien
Düsseldorf–Zürich
Edinburgh–London
Firenze–Paris
Frankfurt–Hamburg
Frankfurt–København
Frankfurt–Krakow
Frankfurt–London
Frankfurt–Madrid
Frankfurt–Manchester
Frankfurt–Milano
Frankfurt–München
Frankfurt–Oslo
Frankfurt–Paris
Frankfurt–Praha
Frankfurt–Roma
Frankfurt–Sofia
Frankfurt–Stockholm
Frankfurt–Venezia
Frankfurt–Warszawa
Frankfurt–Wien
Frankfurt–Zürich
Gdansk–London
Genève–Lisboa
Genève–London
Genève–Madrid
Genève–Paris
Genève–Porto
Genève–Zürich
Glasgow–London
Göteborg–London
Göteborg–Stockholm
Hamburg–Köln
Hamburg–London
Hamburg–München
Hamburg–Paris
Hamburg–Stuttgart
Hamburg–Wien
Hamburg–Zürich
Hannover–München
Haugesund–Oslo
Helsinki–København
Helsinki–Oslo
Helsinki–Oulu
Helsinki–Rovaniemi
Helsinki–Stockholm
Inverness–London
København–London
København–München
København–Oslo
København–Paris
København–Stockholm
København–Zürich
Köln–London
Köln–München
Krakow–London
Kristiansand–Oslo
Lamezia Terme–Milano
Lisboa–Madrid
Lisboa–Paris
Lisboa–Porto
London–Luxembourg
London–Lyon
London–Madrid
London–Manchester
London–Marseille
London–Milano

London–München
London–Nice
London–Oslo
London–Paris
London–Pisa
London–Porto
London–Praha
London–Roma
London–Stockholm
London–Stuttgart
London–Toulouse
London–Valencia
London–Venezia
London–Warszawa
London–Wien
London–Zürich
Luleå–Stockholm
Lyon–Nantes
Lyon–Paris
Madrid–Milano
Madrid–München
Madrid–Oviedo
Madrid–Paris
Madrid–Porto
Madrid–Roma
Madrid–Santiago
Madrid–Sevilla
Madrid–Venezia
Madrid–Vigo
Madrid–Zürich
Malaga–Paris
Malmö–Stockholm
Manchester–Paris
Marseille–Paris
Milano–München
Milano–Napoli
Milano–Palermo
Milano–Paris
Milano–Roma
Milano–Wien
Montpellier–Paris
München–Paris
München–Roma
München–Stockholm
München–Thessaloniki
München–Wien
Nantes–Paris
Napoli–Paris
Napoli–Venezia
Narvik–Oslo
Nice–Paris
Oslo–Paris
Oslo–Stavanger
Oslo–Stockholm
Oslo–Tromsø
Oslo–Trondheim
Palermo–Roma
Paris–Pau
Paris–Porto
Paris–Praha
Paris–Roma
Paris–Sevilla
Paris–Toulouse
Paris–Valencia
Paris–Venezia
Paris–Warszawa
Paris–Wien
Paris–Zürich
Roma–Torino
Roma–Wien

Stockholm–Umeå
Stuttgart–Wien
Wien–Zürich

Top 40 intra–EU routes for France

Amsterdam–Nice
Amsterdam–Paris
Barcelona–Paris
Bayonne–Paris
Berlin–Paris
Bologna–Paris
Bordeaux–Lyon
Bordeaux–Marseille
Bordeaux–Paris
Brest–Paris
Budapest–Paris
Düsseldorf–Paris
Firenze–Paris
Frankfurt–Paris
Hamburg–Paris
København–Paris
Lisboa–Paris
Lyon–Nantes
Lyon–Paris
Lyon–Toulouse
Madrid–Paris
Malaga–Paris
Marseille–Paris
Milano–Paris
Montpellier–Paris
München–Paris
Nantes–Paris
Napoli–Paris
Nice–Paris
Paris–Pau
Paris–Porto
Paris–Praha
Paris–Roma
Paris–Sevilla
Paris–Toulon
Paris–Toulouse
Paris–Valencia
Paris–Venezia
Paris–Warszawa
Paris–Wien

Top 40 domestic routes for France

Bayonne–Lyon
Bayonne–Paris
Bordeaux –Lyon
Bordeaux–Lille
Bordeaux–Marseille
Bordeaux–Nice
Bordeaux–Paris
Bordeaux–Strasbourg
Brest–Lyon
Brest–Marseille
Brest–Paris
Caen–Lyon
Clermont Ferrand–Paris
Lille–Marseille
Lille–Nice
Lille–Toulouse
Lourdes–Paris
Lyon–Nantes
Lyon–Nice

Lyon–Paris
Lyon–Rennes
Lyon–Strasbourg
Lyon–Toulouse
Marseille–Nantes
Marseille–Paris
Montpellier–Nantes
Montpellier–Paris
Nantes–Nice
Nantes–Paris
Nantes–Strasbourg
Nantes–Toulouse
Nice–Paris
Nice–Strasbourg
Nice–Toulouse
Paris–Pau
Paris–Perpignan
Paris–Rennes
Paris–Toulon
Paris–Toulouse
Strasbourg–Toulouse

Top 40 intra–EU routes for Germany

Amsterdam–Berlin
Amsterdam–Frankfurt
Amsterdam–München
Athina–München
Barcelona–Berlin
Barcelona–Frankfurt
Barcelona–München
Berlin–Düsseldorf
Berlin–Frankfurt
Berlin–Helsinki
Berlin–København
Berlin–Köln
Berlin–Milano
Berlin–München
Berlin–Paris
Berlin–Roma
Berlin–Stuttgart
Berlin–Wien
Bruxelles–Frankfurt
Budapest–Frankfurt
Düsseldorf–München
Düsseldorf–Wien
Frankfurt–Hamburg
Frankfurt–København
Frankfurt–Madrid
Frankfurt–Milano
Frankfurt–München
Frankfurt–Paris
Frankfurt–Roma
Frankfurt–Stockholm
Frankfurt–Venezia
Frankfurt–Wien
Hamburg–München
Hamburg–Stuttgart
Hamburg–Wien
Köln–München
Madrid–München
München–Paris
München–Roma
München–Stockholm

Top 40 domestic routes for Germany

Berlin–Düsseldorf

Berlin–Frankfurt
Berlin–Köln
Berlin–München
Berlin–Stuttgart
Bremen–Frankfurt
Bremen–München
Bremen–Stuttgart
Dortmund–München
Dresden–Düsseldorf
Dresden–Frankfurt
Dresden–Köln
Dresden–München
Dresden–Stuttgart
Düsseldorf–Frankfurt
Düsseldorf–Hamburg
Düsseldorf–Leipzig
Düsseldorf–München
Düsseldorf–Nürnberg
Düsseldorf–Stuttgart
Frankfurt–Friedrichshafen
Frankfurt–Hamburg
Frankfurt–Hannover
Frankfurt–Leipzig
Frankfurt–München
Frankfurt–Münster
Frankfurt–Nürnberg
Frankfurt–Stuttgart
Hamburg–Köln
Hamburg–München
Hamburg–Nürnberg
Hamburg–Stuttgart
Hannover–München
Hannover–Stuttgart
Köln–München
Leipzig–München
München–Münster
München–Nürnberg
München–Paderborn
München–Stuttgart

Top 40 intra–EU routes for Italy

Amsterdam–Milano
Amsterdam–Roma
Athina–Roma
Barcelona–Milano
Barcelona–Roma
Barcelona–Venezia
Bari–Milano
Bari–Roma
Berlin–Milano
Berlin–Roma
Brindisi–Milano
Brindisi–Roma
Bruxelles–Milano
Bruxelles–Roma
București–Roma
Catania–Milano
Catania–Roma
Catania–Venezia
Firenze–Paris
Frankfurt–Milano
Frankfurt–Roma
Frankfurt–Venezia
Lamezia Terme–Milano
Madrid–Milano
Madrid–Roma
Madrid–Venezia
Milano–München

Milano–Napoli
Milano–Palermo
Milano–Paris
Milano–Roma
Milano–Wien
München–Roma
Napoli–Paris
Napoli–Venezia
Palermo–Roma
Paris–Roma
Paris–Venezia
Roma–Torino
Roma–Wien

Top 40 domestic routes for Italy

Bari–Milano
Bari–Pisa
Bari–Roma
Bari–Venezia
Bologna–Catania
Bologna–Palermo
Bologna–Roma
Brindisi–Milano
Brindisi–Pisa
Brindisi–Roma
Catania–Milano
Catania–Napoli
Catania–Pisa
Catania–Roma
Catania–Torino
Catania–Venezia
Catania–Verona
Firenze–Roma
Genova–Roma
Lamezia Terme–Milano
Lamezia Terme–Pisa
Lamezia Terme–Roma
Lamezia Terme–Venezia
Milano–Napoli
Milano–Palermo
Milano–Pescara
Milano–Reggio Calabria
Milano–Roma
Milano–Trapani
Napoli–Palermo
Napoli–Roma
Napoli–Torino
Napoli–Venezia
Palermo–Pisa
Palermo–Roma
Palermo–Torino
Palermo–Venezia
Roma–Torino
Roma–Trieste
Roma–Venezia

Top 40 intra–EU routes for Spain

A Coruña–Madrid
Alicante–Barcelona
Alicante–Bruxelles
Amsterdam–Barcelona
Amsterdam–Madrid
Barcelona–Berlin
Barcelona–Bilbao
Barcelona–Bruxelles
Barcelona–Frankfurt

Barcelona–Granada
Barcelona–Lisboa
Barcelona–Madrid
Barcelona–Malaga
Barcelona–Milano
Barcelona–München
Barcelona–Paris
Barcelona–Porto
Barcelona–Praha
Barcelona–Roma
Barcelona–Sevilla
Barcelona–Venezia
Barcelona–Wien
Bilbao–Madrid
Bruxelles–Madrid
Düsseldorf–Madrid
Frankfurt–Madrid
Lisboa–Madrid
Madrid–Milano
Madrid–München
Madrid–Oviedo
Madrid–Paris
Madrid–Porto
Madrid–Roma
Madrid–Santiago
Madrid–Sevilla
Madrid–Venezia
Madrid–Vigo
Malaga–Paris
Paris–Sevilla
Paris–Valencia

Top 40 domestic routes for Spain

A Coruña–Barcelona
A Coruña–Madrid
A Coruña–Sevilla
Alicante–Barcelona
Alicante–Bilbao
Alicante–Madrid
Alicante–Santiago
Almeria–Barcelona
Almeria–Madrid
Barcelona–Bilbao
Barcelona–Granada
Barcelona–Jerez
Barcelona–Madrid
Barcelona–Malaga
Barcelona–Oviedo
Barcelona–San Sebastian
Barcelona–Santander
Barcelona–Santiago
Barcelona–Sevilla
Barcelona–Valencia
Barcelona–Vigo
Bilbao–Madrid
Bilbao–Malaga
Bilbao–Sevilla
Bilbao–Valencia
Granada–Madrid
Jerez–Madrid
Madrid–Malaga
Madrid–Oviedo
Madrid–San Sebastian
Madrid–Santander
Madrid–Santiago
Madrid–Sevilla
Madrid–Valencia
Madrid–Vigo

Malaga–Oviedo
Malaga–Santiago
Santiago–Sevilla
Santiago–Valencia
Sevilla–Valencia

Top 30 intra–EU routes for Austria

Amsterdam–Wien
Athina–Wien
Barcelona–Wien
Berlin–Wien
Bologna–Wien
Bruxelles–Wien
București–Wien
Düsseldorf–Wien
Frankfurt–Graz
Frankfurt–Linz
Frankfurt–Salzburg
Frankfurt–Wien
Graz–München
Hamburg–Wien
Hannover–Wien
Innsbruck–Wien
København–Wien
Köln–Wien
Milano–Wien
München–Wien
Nice–Wien
Paris–Wien
Praha–Wien
Roma–Wien
Sofia–Wien
Stockholm–Wien
Stuttgart–Wien
Venezia–Wien
Warszawa–Wien
Wien–Zagreb

Top 4 domestic routes for Austria

Graz–Wien
Innsbruck–Wien
Klagenfurt–Wien
Salzburg–Wien

Top 30 intra–EU routes for Belgium

Alicante–Bruxelles
Amsterdam–Bruxelles
Barcelona–Bruxelles
Berlin–Bruxelles
Bilbao–Bruxelles
Bologna–Bruxelles
Bordeaux–Bruxelles
Bruxelles–Budapest
Bruxelles–Frankfurt
Bruxelles–Göteborg
Bruxelles–Hamburg
Bruxelles–København
Bruxelles–Lyon
Bruxelles–Madrid
Bruxelles–Marseille
Bruxelles–Milano
Bruxelles–München
Bruxelles–Napoli
Bruxelles–Paris

Bruxelles–Pisa
Bruxelles–Porto
Bruxelles–Praha
Bruxelles–Roma
Bruxelles–Stockholm
Bruxelles–Toulouse
Bruxelles–Valencia
Bruxelles–Venezia
Bruxelles–Warszawa
Bruxelles–Wien
Bruxelles–Zagreb

Top 30 intra–EU routes for the Netherlands

Amsterdam–Barcelona
Amsterdam–Berlin
Amsterdam–Billund
Amsterdam–Bordeaux
Amsterdam–Bruxelles
Amsterdam–Budapest
Amsterdam–Düsseldorf

Amsterdam–Firenze
Amsterdam–Frankfurt
Amsterdam–Göteborg
Amsterdam–Hamburg
Amsterdam–Helsinki
Amsterdam–København
Amsterdam–Lyon
Amsterdam–Madrid
Amsterdam–Marseille
Amsterdam–Milano
Amsterdam–München

Amsterdam–Napoli
Amsterdam–Nice
Amsterdam–Paris
Amsterdam–Praha
Amsterdam–Roma
Amsterdam–Stockholm
Amsterdam–Stuttgart
Amsterdam–Valencia
Amsterdam–Venezia
Amsterdam–Warszawa
Amsterdam–Wien