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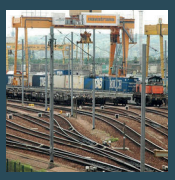
RAIL MARKET
MONITORING REPORT IN FRANCE IN 2022
> OVERVIEW





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INTRODUCTION

7TH RAILWAY REPORT OF THE FRENCH TRANSPORT REGULATORY AUTHORITY (ART-FRANCE)

The seventh annual review of the Transport Regulatory Authority (hereinafter ART) on the rail transport market is structured in two complementary documents:

- this report, which summarises the main indicators of rail activity in France in 2021 and their annual and multiannual evolution;

- a comprehensive report (French only) that includes all analyses and indicators of rail markets, and also complementary thematic axes.

These two reports cover all rail markets in freight and passenger France (including the exhaustive activity of the "Réseau Express Régional" (RER) on the perimeter of the national rail network (RFN) and that of the "Régie Autonome des Transports Parisiens" (RATP)). Both reports provide a detailed and independent analysis of the main descriptive indicators of these markets and their evolution until 2022. They are enriched with new indicators and thematic analyses regarding:

- the degree of use of the national rail network with time variation;
- the impacts of inflation regarding economic results for upstream and downstream rail markets;
- the balance of greenhouse gas emissions in France for passenger rail activities, including regional benchmarks;
- the analysis of reliability and punctuality causis for rail traffic.

The impacts of the pandemic crisis on the transport sector affected rail activities for both years 2021 and 2022; Some analysis do not allow, at this stage, to characterize long-term developments and are presented essentially with an annual evolution. No definitive conclusions should be drawn from these developments.

CONTEXT OF THE ANNUAL MARKET MONITORING REPORT

Directive 2012/34/EU establishing a single European railway area requires sectoral regulatory authorities to monitor competition in the market for rail services. In France, among the tasks that the legislator has entrusted to the Transport Regulatory Authority, is primarily that of contributing "to the monitoring and proper functioning, in its technical, economic and financial dimensions, of the national rail transport system, in particular the public service and competitive activities, for the benefit of users and customers of rail transport services" (Article L. 2131-1 of the French Transport Code). To carry out this mission, ART has been given the power to regularly collect information from infrastructure managers, service infrastructure operators, rail operators and other authorised candidates with activities in the national rail network and in the RATP network, enabling it to carry out expert appraisals and studies and to conduct the necessary information action in the rail sector that this report constitutes. Finally, "the Transport Regulatory Authority draws up each year an overview of the opening to competition of rail transport services" (Article L. 2133-1-1 of the French Transport Code) which appears in this report.

THEMATIC ANALYSIS 2017-2022

2017-2018
- Use of RFN during peak/off-peak hour
- Change of national PSO services (TET) activities and night trains
- Thermal/electric trains Punctuality per railway O/D
- Use of RFN per region

2019
- "Small railway lines"
- Declarations of opening to competition
- Air/rail complementarity
- Costs and investments for RFN
- Rail highways

2020
- Monthly change
- Freight corridors
- Electrical/thermal use

2021
- Features of the RATP network
- Combined transport
- GHG balance 2021

2022
- Inflation
- GHG balance
- Causes of delays

SUMMARY

SINTHESIS (1/2)

01. Characteristics and usage intensity of the national rail network

- The national rail network (RFN*) continued its downward restructuring in 2022, following the trend of last years: 600 kilometres of track have been taken out of operation since the end of 2019, as a result of the neutralization of the network's least trafficked lines.
- The age of the network has stabilized at 28.4 years, and at almost 22 years for the most used network (categories 2 to 4). These observed ages remain higher (by nearly 3 years for the RFN and 2.5 years for categories 2 to 4) than the objective set by SNCF Réseau to maintain the average age of infrastructures at half of their theoretical lifespan.
- In 2022, the RFN has not yet returned to the level of traffic observed in 2019. It still shows a strong disparity in usage between peak hours (which account for 58% of traffic) and night traffic, which is 60 to 80% lower than the level of traffic observed on average, including on routes with low traffic on daytime.

02. Economic performance of infrastructure managers

- Access charges received by infrastructure managers and SNCF Gares & Connexions decreased by 1% (in constant euros) in 2022 compared to 2019, despite an 8% increase in nominal terms. Total amount of track access charges paid to SNCF Réseau (€6.2 billion) was the same to what had been defined in the performance contract between SNCF Réseau and the State for the period of 2021-2030.
- Network maintenance and surveillance costs decreased, in constant euros, by 6.9% over 5 years, but expenditures on the core network excluding high-speed lines increased. Investment realized in 2022 by SNCF Réseau continued the downward trend observed since 2015, regarding particularly the standardization* (-56%) and the renewal and performance of the network (-10%). Moreover, investment in network modernization still appear low, explaining the little progress for the deployment of the centralized network control system (CCR) and the European rail traffic management system (ERTMS) on the French network.
- In 2022, maintenance costs of the PSO RER lines (Paris region's suburban express lines) managed by RATP amounted to €157 million, in comparison with €228 million spent on investment, a large majority of which was dedicated to the modernization of RER B.

03. Modal shares

- In 2022, passenger rail transport exceeded the "historic record" of modal share of 10%, with a stronger dynamic than that of other modes of public transport (coaches and air transport).
- The modal share of rail passenger transport went up more quickly in France in 2021 than in neighbouring countries. On the other hand, the modal share of rail freight transport remained almost half of the level observed for example in Germany.

04. Rail freight services

- With 35.7 billion tonne-km in 2021, rail freight market had reached a slightly higher level of traffic than the level in 2017. This trend continued during the first half of 2022, but traffic fell back during the second one. The first outlook for 2023 show a 23% drop compared to the first half of 2022, explained by the increase of energy costs and the social movements against the pension reform.
- Revenues of railway undertakings decreased by 4% compared to 2017, but thanks to the increase of load factor, revenue per kilometre went up.
- The domestic incumbent Fret SNCF remains the main rail freight operator in France with a market share exceeding 50% in 2022. However, the incumbent has been under investigation by the European commission, which may end up with the settlement of an « economic discontinuity » plan and a cession of 30% of its activity.

05. Rail passenger services

- In 2022, passenger rail services continued the rebound that began in 2021, with an increase of nearly 9% (in trains.km) in one year and a level more than 2% higher than in 2019. This increase was driven by TER-Intercités services, while Transilien-RER services were still down 3%, as were non-PSO services, which were particularly down regarding the international offer (-10%).
- With more than 100 billion passenger-km transported, rail traffic reached a record level in France, 3% higher than in 2019, with a likely similar dynamic in 2023. However, a strong contrast remains between services: the increase for TER (+13%) and non-PSO services (+4%) led to a growth of train occupancy rates for these activities, while Transilien-RER services recorded a much less dynamic return, with a drop in 2022 (-11%) as well as at the beginning of 2023.

** See "Definitions/Glossary" appended to the report for terms marked with a star (*)*

SYNTHESIS (2/2)

05. Rail passenger services

- As early as 2022, the opening up to competition showed the first effects of traffic induction and lower prices. The operator Renfe, now 3rd operator of freely organized domestic services in France in 2023, faces increased competition for its historical market, due to the cannibalization of nearly 50% of the market share by French and Italian operators for main traffic routes.
- In France the regions (public transport authorities) confirmed their gradual commitment to the process of opening up to competition of their PSO services, with the exception of Bretagne, Occitanie and Centre-Val de Loire regions, for which the competitive award of PSO services has been postponed beyond 2030.
- Greenhouse gas emissions from passenger rail have increased by 2.5% since 2019, less than the increase in passenger numbers (+3%), due to a decrease of the use of thermal train, which is expected to continue for PSO services in favour of dual-mode (electric/thermal) trains.

06. Economic performance of passenger rail transport

- In 2022, the revenues of railway undertakings exceeded their 2019 level in nominal terms (+5%) but declined in real terms (-3%). They followed a trend close to inflation for PSO activities. However we can note a 12% increase (in current euros) for TER-Intercités revenues and a 3% decrease of public subsidies allocated to all PSO services.
- Prices of open access domestic services remained relatively stable in 2022, and resumed on average their pre-crisis level only after the first half of the year. As a result, prices increased at a slower pace than inflation rates, in 2022 as at the beginning of 2023. As a result, the overall level of revenue for high speed services fell in constant euros (-8%), but fell moderately per train.km (-6%) due to the simultaneous increase of train occupancy.

07. Quality of passenger service

- The reliability rate of scheduled supply deteriorated by 5 points in 2022 compared to 2017, with a greater impact for TER and Transilien services. The punctuality rate of trains also decreased, in line with the increase in rail traffic, and returned to its 2019 level on average.
- The causes of train delays point to a shared responsibility between railway undertakings (14% of train delays are due to a failure of rolling stock, i.e. one third of the causes attributable to railway undertakings) and infrastructure managers (delays largely associated with infrastructure failures as well as the complexity of managing interoperability).

08. Regional PSO services (TER)

- Demand for PSO TER services increased for the majority of regions, with up to a third of additional passenger-km in Bretagne. This growth was driven by non-subscriber traffic (up in volume from +3% to +43%). On the other hand, subscriber traffic decreased, especially in regions close to Île-de-France, potentially affected by a lasting drop in commuting traffic. The more moderate growth in rail services led to an increase of occupancy rates for 7 out of 11 regions.
- Most regions record higher reliability rate of scheduled supply, despite an increase in "last-minute" cancellations (cancellations declared after D-1 4pm), with high rates particularly in the Hauts-de-France, Grand-Est and Provence-Alpes-Côte-d'Azur regions. The TER punctuality rate also decreased for most regions to its 2019 level.
- Revenues from the TER activity declined due to the decline in public subsidies, in almost all regions (but Bretagne, the Grand-Est region and Occitanie), despite an increase of revenue from fares, observed for all regions excluding Centre-Val de Loire and Grand-Est. At the same time, the expenses of TER services fell more sharply than the revenue decline for all regions, mainly due to operating expenses per train-km which fell by almost 25% (in constant euros).

09. PSO services in region Île-de-France (Transilien and RER)

- In 2022, both the supply and the number of passengers for Transilien-RER services remained below their 2019 level for almost all the Transilien and RER lines, with the notable exception, on the supply side, of the RER A and B (which saw an increase of seat-km), and, on the demand side, of the RER B (up 4% of passenger-km).
- In 2022, the reliability rate (rate of operated traffic compared to scheduled traffic) increased by 0.5 points only compared to 2019, even if 2019 was strongly affected by social unrest during the fourth quarter. The punctuality rate of the Transilien and RER services appears to be higher than in 2019 for all lines, except for RER B.

01

NETWORK CHARACTERISTICS AND USAGE INTENSITY (1/3)

Characteristics and use of the national rail network *(including the routes managed by SNCF Réseau, SEA and BPL high-speed lines and the loop railway around Nîmes and Montpellier (see glossary))*	Level (as of 31/12/2022)	3-years change (2019-2022)	5-year change (2017-2022)
▪ Total route length (km)	27 592 km	-484 km	-1 175 km
▪ Total track length (km)	48 866 km	-635 km	-1 275 km
▪ Age of the national rail network (RFN)	28.4 year	-8 months	-1 year 4 months
▪ Electrified track length (km)	34 874 km	+166 km	- 331 km
▪ ERTMS*-compatible network (% of route length)	4.0%	+0.1 pp	n/d
▪ Volume of train-km	468 M	+0.6%	-4.3%
▪ 80% of railway traffic (train-km) operated on…	41% du RFN	+2 pp	+3 pp

The decline of rail traffic during the pandemic led to several changes of maintenance categories for track.

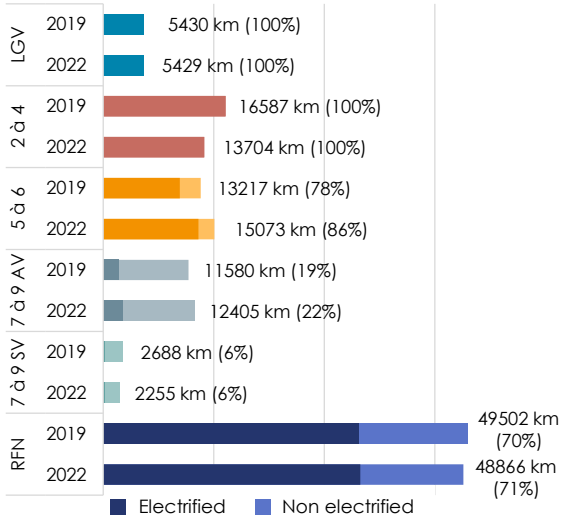
The national rail network (RFN) has decreased by 240 km of track in 2022 and by 635 km (1,3% of the network) since the end of 2019, resulting from the closure of the least used tracks (tracks 7 to 9[1]).

The classification of the tracks guides the maintenance actions of the infrastructure manager on the tracks of the RFN by determining a theoretical lifespan due to wear and tear caused by traffic (see Figure 2). It is based on traffic over three rolling years, so that a track can change category if its traffic decreases or increases (for example, a category 6 track that sees its traffic decrease may be upgraded to category 7). This ranking was affected by the traffic declines that occurred during the pandemic and the social movements of 2019 and 2021. The length of tracks 7 to 9 increased between 2019 and 2022 due to reclassifications from the most used track categories, while 2 to 4 category, the busiest tracks, accounted for only 28% of the RFN in 2022 (compared to 34% in 2019).

This results in an apparent decrease in the maintenance and renewal needs of the RFN tracks, which could therefore "mechanically" increase again with a resumption of traffic to levels equivalent to those before the crisis.

Figure 1 –Track lengths and electrification of the national rail network operated, by track category, at the end of 2019 and 2022

Kilometers of track (% electrified tracks)



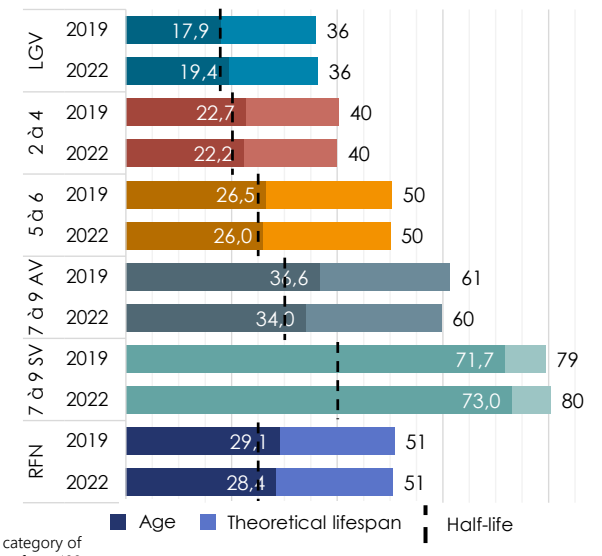
Source : ART according to infrastructure managers

The age of the network has stabilised, beyond the objective set by SNCF Réseau.

The age of RFN tracks remains stable in 2022, on average, at 28.4 years (-8 months compared to 2019). This level represents 56% of the theoretical lifespan of the tracks1 (51 years), beyond the half-life (25 years in total of the RFN). This observation is also observed regardless of the category of track considered: on the busiest network (categories 2 to 4), the age of the tracks is 22.2 years, above the theoretical half-life of the infrastructure (average age of 20 years). By way of comparison, the average age of the German network was 20.9 years in 2022, in line with DB Netz's target of a maximum of 21 years.

At the beginning of 2022, 14.4% of the RFN's tracks had already reached or exceeded their theoretical lifespan, i.e. nearly 3,900 km of tracks 7 to 9, 2,500 km of tracks 2 to 6 and 500 km of high-speed lines. In addition, more than 1,700 km of additional track could reach their theoretical lifespan by the end of 2024 (i.e. 3.5% of the network).

Figure 2 – Age and theoretical lifespan, by track category



Source : ART according to infrastructure managers

[1]The theoretical lifespan of the track depends on its technical characteristics and its intensity of use (i.e. the category of the track). Thus, SNCF Réseau evaluates a track consistency index (ICV), which varies in a decreasing manner from 100 to 10, with 100 being the value assigned to a new infrastructure, 55 being the threshold for reaching the half-life, and 10 being the threshold assigned to an infrastructure at the end of its theoretical lifespan. For track categories 2 to 6, SNCF Réseau considers that maintaining the age of the assets at their half-life (i.e. an age equal to 50% of their theoretical lifespan, or an ICV of 55) is the optimal threshold to ensure the sustainability of the assets.

NETWORK CHARACTERISTICS AND USAGE INTENSITY (2/3)

Despite the overall increase in network usage over the last year, rail traffic remained below the pre-pandemic level on almost half of the network

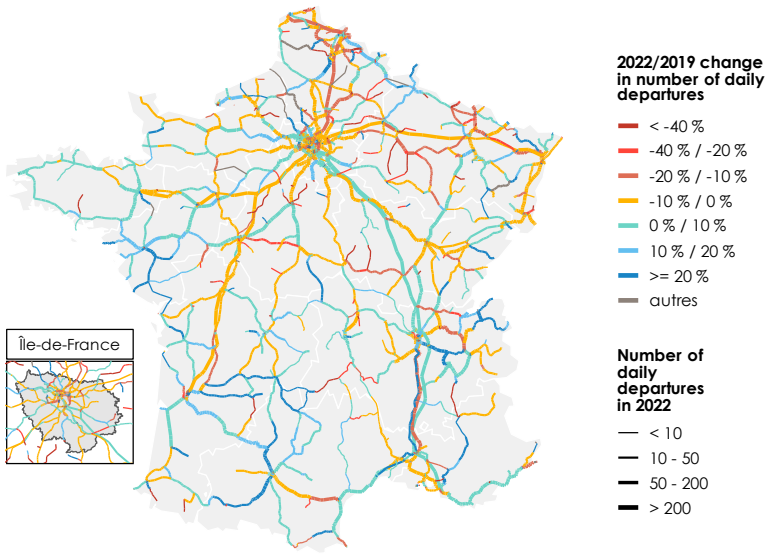
In 2022, 468 millions of train-km were operated on the RFN, slightly exceeding the 2019 level (+0.6%) and increasing by 7% year-on-year. However, this result is overrated due to the very low level of traffic in December 2019, severely affected by the strikes. Excluding December, the network usage in 2022 did not reach the 2019 level (-4%). **Except June and October, where a recovery can be observed, as well as December, monthly train-km in 2022 were lower than the corresponding levels of 2019**, with drops ranging from -10% (in January and July) and -1% (in August).

The network usage increased by 3% compared to 2019 but decreased on the busiest lines, including high-speed lines.

In 2022, the average network usage intensity was 46 train-km per route km per day (39 of which were from passenger services). With regard to the gradual traffic recovery, 47% of the network (on which 59% of traffic in 2022 was operated) recorded a drop in traffic compared to 2019. In particular, the drop was higher than 10% on 29% of the network. On high-speed lines and conventional lines of category 2 to 4, train-km fell by 3% and 9% respectively.

On the contrary, over the half of the network (51%) registered higher traffic in 2022 than in 2019. The increase was larger than 20% for 11% of RFN routes.

Figure 3 – Number of train departures on the RFN – 2022/2019 change and average level in 2022



NB : « others » refer to unknown changes due to the variation of measurement zoning between 2019 and 2022 (concerning 2% of the network)

Source : ART according to SNCF Réseau

More than half of the traffic on the RFN is operated during peak hours.

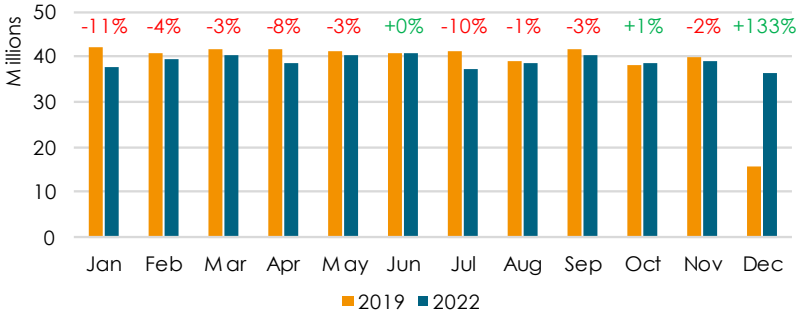
Network usage differs considerably between line categories. On average in 2022, almost three departures per hour (freight and passenger services combined) are observed on lines of categories 2 to 6, compared to four departures on high-speed lines and less than one departure on the least used lines (categories 7 to 9).

Compared to these average levels, **total traffic on RFN is more than 50% higher during peak hours (between 6 am and 9 am and between 4 pm and 8 pm). In consequent, this period accounts for 58% of traffic operated on the RFN.** The temporal disparity is even higher on non-electrified and/or the least used lines. The traffic variation between peak and off-peak hours seems more limited on high-speed lines (compared to other line categories).

Unsurprisingly, night traffic on the RFN is very low, with just over one train per hour on lines of category 2 to 6 and almost no traffic on lines of category 7 to 9, regardless of the day of the week.

During the weekend (Saturday and Sunday), peak hours still account for 53% of daily traffic, but the distribution of traffic over the different time periods of the day seems more balanced (53% during peak hours and 35% during normal hours at weekends, compared to 60% and 27% during the business week). In particular, network usage level on high-speed lines is higher during normal daytime hours (5.6 trains per hour on Saturdays) than during peak hours (5.2 trains).

Figure 4 – Monthly train-km on the RFN in 2019 and 2022
(2022/2019 change in labels)



Source : ART according to SNCF Réseau

Figure 5 – Average number of trains per hour per line category in 2019 and 2022

Line category	2019	2022	Peak hours*	Other daytime hours*	Night time hours*
High-speed	**4.20**	**4.08**	**6.31**	**5.40**	**0.98**
Categories 2 to 6	**2.63**	**2.73**	**4.20**	**2.91**	**1.13**
Electrified	2.81	2.87	4.40	3.07	1.21
Non-electrified	1.18	1.21	2.11	1.27	0.28
Categories 7 to 9	**0.43**	**0.49**	**0.82**	**0.58**	**0.10**
Electrified	0.78	0.76	1.25	0.94	0.15
Non-electrified	0.37	0.44	0.74	0.52	0.09

* Peak hours: 6am-9am and 4pm-8pm; other daytime hours: 9am-4pm; night time hours: 8pm-6am.
Reading example: In 2022 on average, over 4 trains ran per hour on high-speed lines. While this number reaches 6.31 during peak hours, it drops to less than 1 during the night.

Source : ART according to SNCF Réseau

NETWORK CHARACTERISTICS AND USAGE INTENSITY (3/3)

Focus on Paris region's PSO suburban express network (RER) managed by RATP (out of RFN)

	Level (as of 31/12/2022)	3-years change (2019-2022)
▪ Total RATP's RER route length (km)	123.4 km	-
▪ Total RATP's RER track length (km, including side tracks)	377 km	-
▪ Percentage of lifespan[1] reached	64%	-
▪ Volume of train-km on RATP's RER network	13.3 M	+5.6%
of which, RER A	9.0 M	+6.3%
RER B	4.3 M	+4.1%

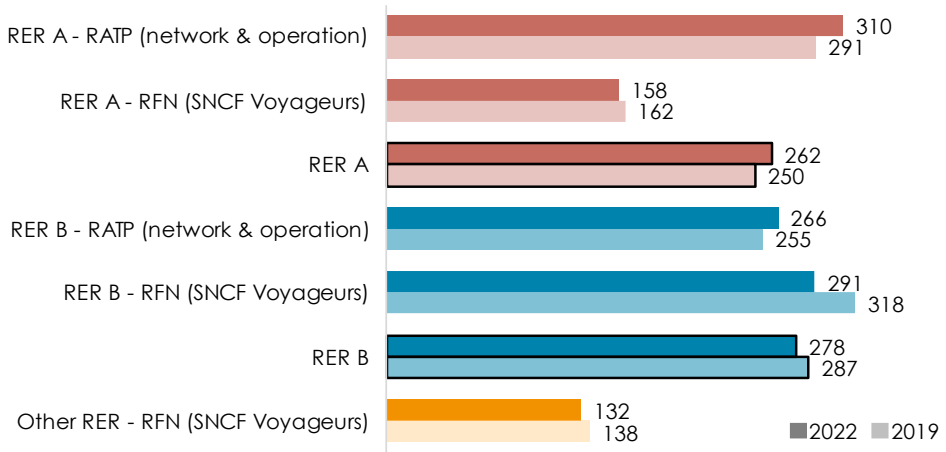
Traffic is 6% higher for lines A and B on the RATP's RER network than the pre-pandemic level

The operation of lines A and B of RER services in Paris region is shared between RATP and SNCF Voyageurs. The section under RATP's management covers, for each line, the central section as well as half of their branches, summing up to more than 120 km, out of a total of 200 km of both lines. More than 13 million train-km were operated in 2022 on the RATP's RER network, rising by nearly 6% compared to 2019 and 7% year-on-year.

The traffic density is very high on these lines, with more than 294 trains running, on average, per day per line, compared to an average of 116 trains per day on the Transilien network and 202 trains on the most used conventional lines of the RFN (category-2 lines). Compared to 2019, traffic on RATP RER network increased by almost 6%, while the sections operated by SNCF Voyageurs saw a decrease of 7%, due to a drop of almost 9% in traffic operated on the RER B's sections on RFN.

In 2022, the track components of the RATP RER network reached, on average, 64% of their lifespan (for reference, the track components of the RFN reached 56%[2] of their lifespan, which is lower than what is observed for the RATP RER network).

Figure 6 – Number of daily departures in 2022 and 2019 on lines A and B of Paris region's suburban express (RER) network



Source : ART according to RATP and SNCF Réseau

Reading example: In 2022 for RER line A, there were 310 train departures per day on average (all directions combined) on the sections managed by RATP, and 158 departures on the sections belonging to the RFN (operated by SNCF Voyageurs). The average number on the whole line A is 262 departures per day.

[1] The average age of the RATP RER network relative to its lifespan is the weighted average age of the components (rail, ballast, sleeper). For each component, the age is calculated in relation to their respective lifespan. The weighting factor is the product of the dimension of the component and its renewal cost.

[2] The percentage of lifespan attainment established by the RATP (indicator ranging from 0% to 100%) can thus be compared to the ICV index which is computed and monitored by SNCF Réseau – see footnote 6.

02

ECONOMIC PERFORMANCE OF THE INFRASTRUCTURE MANAGERS (1/3)

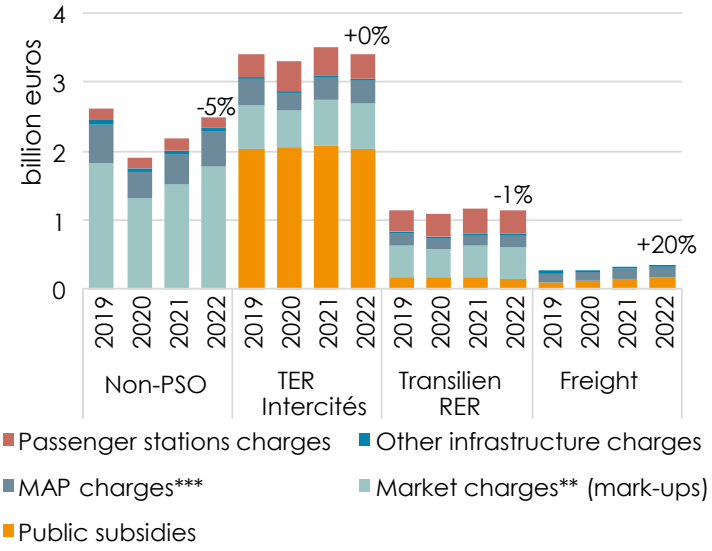
	Level (2022)	3-years change in real terms* (2019-2022)	5-years compound annual growth rate In real terms* (2017-2022)
▪ Infrastructure manager's revenues	€6,5 billion	-1,8%	-0,7%
of which, public subsidies (incl. Subsidies for PSO charges)	€2,4 billion	+3,6%	+0,7%
▪ Passenger stations manager's revenues (SNCF Gares & Connexions)	€0,8 billion	+5,5%	+4,0%
▪ SNCF Réseau's operating costs	€5,2 billion	+1,0%	-0,5%
of which, maintenance costs	€2,8 billion	-8,4%	-1,9%
▪ SNCF Réseau's investment	€5,3 billion	-3,6%	n/d (scope changed)

Revenues for infrastructure and passenger station managers fell by 1% (in real terms) since 2019.

The total revenue of €7.4 billion from track access charges (TAC) levied by the Infrastructure managers (SNCF Réseau and Lisea) and the station manager (SNCF Gares & Connexions) was down 1% in real terms* compared to 2019 (despite a nominal increase of 8%). This decline is explained by a drop of revenues from non-PSO passenger services (-5%), while revenues from PSO services remained relatively stable (+0% for TER and Intercités, -1% for Transilien and RER services). SNCF Réseau levied €6.2 billion of track access charges, equal to the level specified in the Performance Contract between SNCF Réseau and the State for the period 2021-2030.

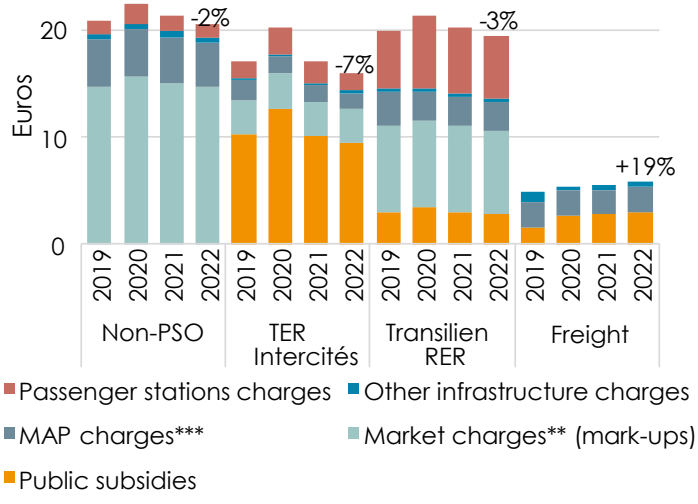
The revenue of SNCF Gares & Connexions (€829 million of TAC) went up 5% compared to 2019, largely due to the transfer of the platform fee previously levied by SNCF Réseau (real change of -10% when neutralizing the effect of the transfer).

Figure 7 – Infrastructure and passenger stations managers' revenues
(real terms 2022 –% change 2022/2019)*



Source : Infrastructure and passenger stations managers

Figure 8 – Infrastructure and passenger stations managers' revenues
(real terms 2022 per train-km –% change 2022/2019)*



Source : Infrastructure and passenger stations managers

The relatively greater increase in traffic, especially for national and regional PSO services, compared to the evolution of charges, implies a decrease (in real terms) in charges per train-km:

- for PSO passenger services, the 2022 level of revenues per train.km for national and regional services is down compared to 2019 (-7%); it fell by 3% for PSO services in Île-de-France region;

- non-PSO passenger services have seen a decrease in the level of charges per train.km since 2019 (-2%);

- for freight transport services, the strong growth in charges per train-km since 2019 (+19%) is the result of the growth in compensation through public competitions, while the actual average level of running charges per train-km paid by railway undertakings has decreased by 1%.

* Changes measured in constant euros, in 2022 value. See appendix for the indices used to adjust for the effects of inflation (Appendix - Figure A1)
** Charges amounts invoiced by SNCF Réseau are established on the basis of capacity allocations on the RFN and not only on the number of train-km. Market charges collected by SNCF Réseau is thus only partially affected by the adaptation of the offer during the Covid-19 health crisis. Reservation waivers and non-circulation give rise to regularizations or penalties, in particular through reciprocal incentive schemes.
*** MAP (Minimum Access Package) charges : charges set at the cost that is directly incurred as a result of operating the train service (Article 31 of Directive 2012/34/UE)

RÉSULTATS ÉCONOMIQUES DES GESTIONNAIRES D'INFRASTRUCTURE (2/3)

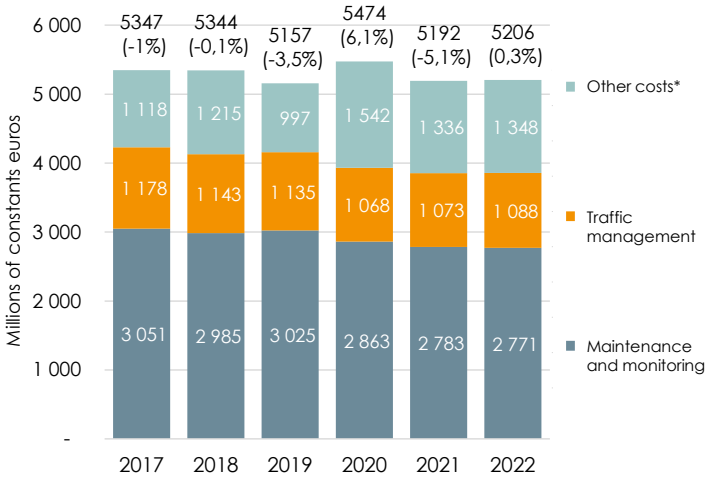
Network maintenance and monitoring costs are below their 2017 level (in real terms).

In 2022, SNCF Réseau's operating costs increased sharply due to inflation (+8.1% compared to 2021); In real terms, this cost remains relatively stable (+0.3%). With regard to operating costs related to traffic management, the 7.3% increase in expenses over 5 years (in current euros) translates into a decrease of -7.6% in constant euros, mainly due to a reduction in the number of employees.

The same can be said for costs related to network maintenance and monitoring, which show an increase in current euros (+5.5%) but a decrease of -9.2% in real terms compared to 2017.

By kilometre of track (and excluding costs related to service tracks1), the costs for the maintenance and monitoring of the network in 2022 amounted to just under €54,400 compared to €58,400 constant in 2017 (€50,300 in current euros). As a result, maintenance and monitoring costs by kilometer fell by 6.9% in constant euros over five years.

Figure 9 – SNCF Réseau operating cost
(constants euros 2022)



Note: "Other costs" include sales of services to external third parties or other SNCF entities other than SNCF Réseau (€677 million), non-incorporatable costs* (€151 million), Opex* on projects (€317 million), train paths marketing (€127 million), and miscellaneous costs (€76 million).

Source : ART according to SNCF Réseau

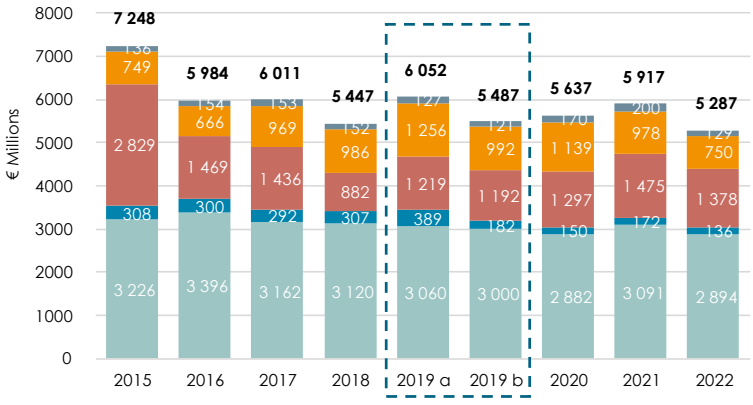
In 2022, rail investment kept on decreasing (in constant euros).

SNCF Réseau's capital expenditure in 2022 was strongly affected by high inflation: while it did decrease by nearly 3% in current euros, **this corresponds to a decrease in real terms of nearly 11% year-on-year**. This decrease continues the trend observed since 2015 (-27%), which particularly concerns the standardization of the network[2] (-56%) and renewal and performance (-10%).

Nearly 60% of "renewal and performance" investment in 2022 was dedicated to tracks. However, this proportion has been steadily declining since 2018 in favour of spendings on centralised control system of the network (CCR) and fixed facilities of electric traction. However, at around €250 million per year since 2018, the amounts invested in the CCR have remained low compared to the resources allocated as per the performance contract (€450 million per year), which are themselves considered insufficient for a rapid deployment of the CCR on the RFN[3]. Similarly, investment in the European Traffic Management System (ERTMS), although continuously increasing since 2018, did not exceed €175 million in 2022, which explains the delay in the deployment of this system in France.

In total, 69% of investment in 2022 are spent on tracks of categories 2 to 6, versus 10% on the least used tracks of categories 7 to 9 and 7% on high-speed lines. However, "renewal and performance" expenditure is clearly prioritised for the structuring network, representing by category, 87% of expenditure on tracks, 92% of spendings on electric traction, 95% of that on engineering structures and 83% of expenditure on signaling.

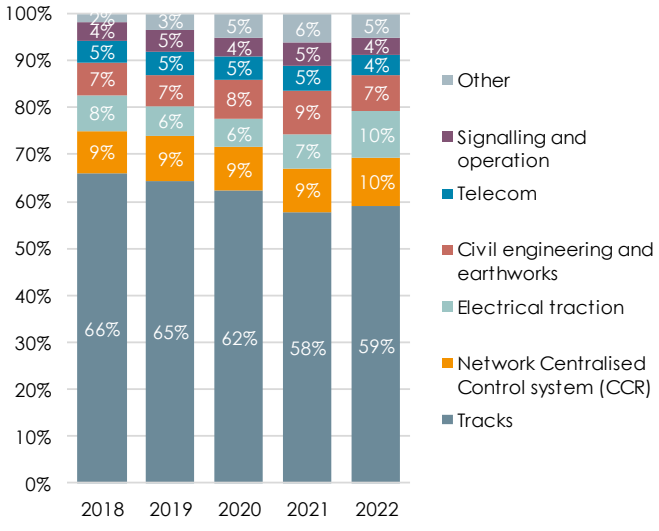
Figure 10 – Rail capital expenditure of SNCF Réseau
(including Opex but excluding financial fees, in constant euro of 2022)



Notes: Not included in this chart: industrial investment (€299M in 2022), financial fees (€225M) and projects' Opex (€214M).
a/ Amounts before the asset transfer to SNCF Gares & Connexions
b/ Amounts after the asset transfer to SNCF Gares & Connexions

Source : ART according to SNCF Réseau

Figure 11 – Breakdown of "renewal and performance" investment



Source : ART according to SNCF Réseau

[1] Sidings account for around 5% of maintenance and surveillance costs.
[2] Standardisation investment refers to safety related works (79%) (securing sites, pedestrian crossings, safety, cybersecurity, etc.), interoperability (ERTMS, 16%), environmental and sustainable development (4%) and adapting the network to (new) rolling stock.
[3] See ART's Report on the long-term scenarios for the national railway network (2022-2042)

RÉSULTATS ÉCONOMIQUES DES GESTIONNAIRES D'INFRASTRUCTURE (3/3)

Focus on Paris region's PSO suburban express network (RER) managed by RATP (out of RFN)

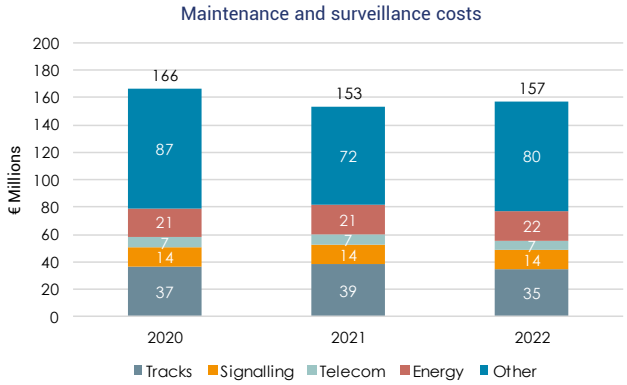
	Level (as of 31/12/2022)	Annual change in real terms* (2021-2022)
▪ Maintenance and surveillance costs on the RATP's RER network	€157.1 M	+ 2.5%
of which costs attributed to RER A	€62.5 M	- 7.7%
costs attributed to RER B	€32.5 M	+ 4.5%
▪ Investment on RATP's RER network	€227.7 M	- 17.2%
of which investment attributed to RER A	€97.1 M	- 39.6%
investment attributed to RER B	€113.8 M	+ 4.9%

RATP's maintenance expenditures on RER lines increased at a lower pace than traffic.

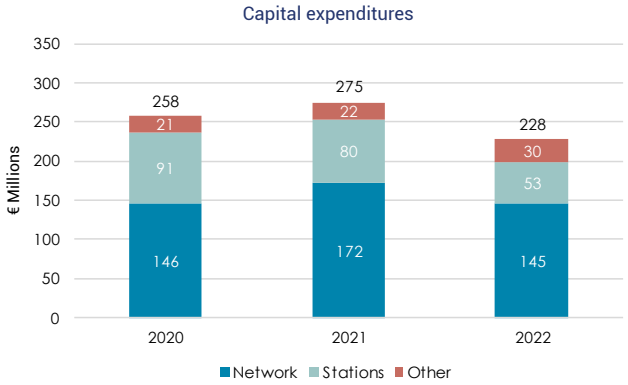
RATP's maintenance and surveillance expenditures on RER A and B lines amounted to more than €157 million in 2022, up 2.5% year-on-year in constant euros* (+11% in current euros). However, this increase is lower than the growth in traffic, which rose by almost 5% over the same period. Maintenance costs for RER B increased (+4.5%) while those for RER A decreased (-7.7%). **Calculated per track km, the RATP's maintenance costs for RER lines amounted to nearly €417,000**, 22% of which is spent on the track and track equipment.

Nearly €230 million in capital expenditures were allocated by RATP to RER lines in 2022. This corresponds to a decrease of more than 17% year-on-year (in constant euros) and represents 10% in the overall investment package in 2022 of RATP Group** (which also appeared to decline by 19% in real terms). Investment on the tracks still accounted for the majority of the amount allocated to two RER lines (64% in 2022). **Major investment efforts have been made to modernise the RER B infrastructure**, which saw its overall budget increase by almost 5% over the year, in contrast to the investment allocated to RER A, which decreased sharply. Since 2020, almost €127 million (constant) has been spent on modernising the RER B infrastructure, augmented by €52 million (constant) for adapting the infrastructure to the new rolling stock.

Figure 12 – RATP's maintenance and surveillance costs and capital expenditure for RER A and B
(constant euro 2022)



Note : Other expenses include electromechanical and civil engineering equipment, as well as costs that cannot be assigned to RER A or B.



Note : Other investment involves the workshops or investment on both the network and stations.

Source : ART according to RATP

* Changes measured in constant euros, 2022 value. See appendix for the rates used to correct inflation effects in statistical series (Appendix - Figure A1)
** According to 2022 annual report (page 26) of RATP group, total investment of the group was €2,386 million in 2022. The 2021 amount (2021 financial report, page 24) was €2,708 million (€2,950 million in 2022 value).

03

MODAL SHARES OF RAIL TRANSPORT (FREIGHT AND PASSENGERS)

	Level (2022)	3-years change (2019-2022)	5-years change (2017-2022)
▪ Modal share of passenger rail transport	10,2%	+0,7 pp	+0,4 pp
▪ Modal share of freight rail transport	10,1%	+0,4 pp	-0,3 pp

Rail transport exceeded the "historical ceiling" of modal share at 10%, and appear more dynamic than the other public transport modes (coaches and air transport).

The steady growth for passenger rail transport in 2021 and 2022, led, in terms of modal share, during the health crisis, what it had lost to road modes. Both rail and individual road transport surpassed their 2019 traffic (in terms of passenger-km) levels, compared to only 88% for urban public transport (buses, trams and metros), 83% for air transport, and 75% for intercity coach transport (regular and occasional).

The apparent "ceiling" of 10% modal share for rail transport, which had not been exceeded over the last five or even ten years, is expected to be confirmed in 2023 in view of the growth of passenger transport in the first half of the year.

Rail freight traffic stabilised in 2021 and 2022 at the 2017 traffic level, while road freight transport continues to grow at a rate of +4% since 2017. As a result, the modal share of rail freight transport remains at a low level of 10%, which has changed little for almost twenty years.

Figure 13 – 2017-2022 passenger traffic by mode of transport (index 100 in 2017)

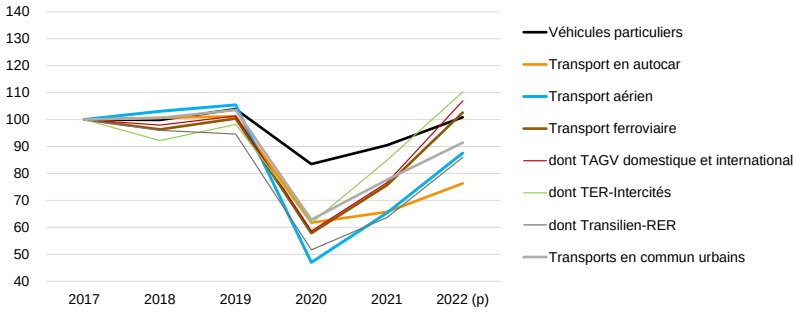
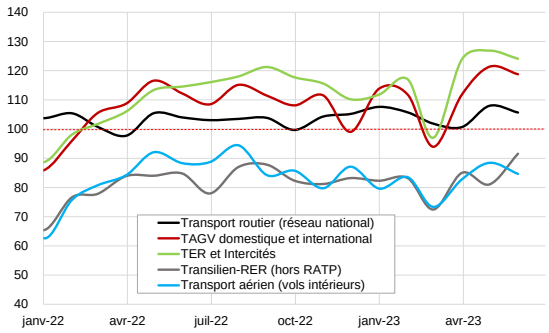


Figure 14 – 2022-2023 monthly passenger traffic per mode of transport (index 100 in 2017)

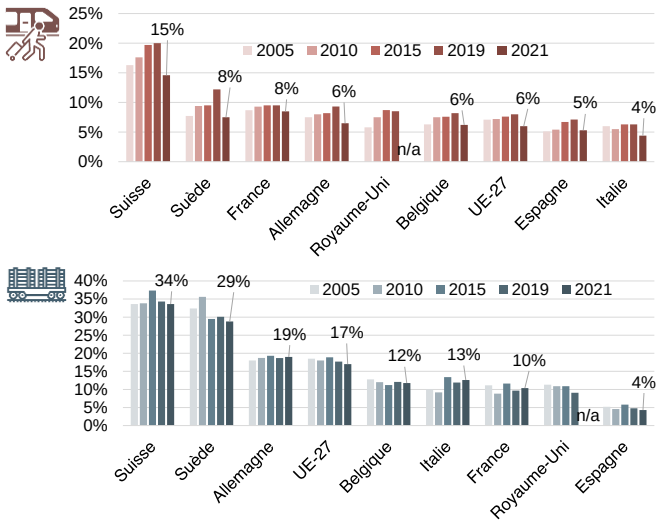


The modal share of rail passenger transport increased more in France in 2021 than in neighbouring countries. The rail freight modal share remains almost twice as low as in Germany.

In 2021, France saw a faster recovery in rail passenger transport than in other European countries: neighbouring European countries thus show a much sharper decline than in France in the modal share of rail and passenger transport, close to or below 6% in Germany, Belgium, Spain and Italy.

The modal share of inland rail freight transport in France appears to be significantly higher than in Spain, but lower than in most other neighbouring countries. This modal share has generally remained stable or even decreasing since 2005 for European countries, with the exception of Italy.

Figure 15 – Modal shares of rail passenger and freight transport



Source : ART, Eurostat, IRG-Rail

04

THE RAIL FREIGHT MARKET IN FRANCE (1/2)

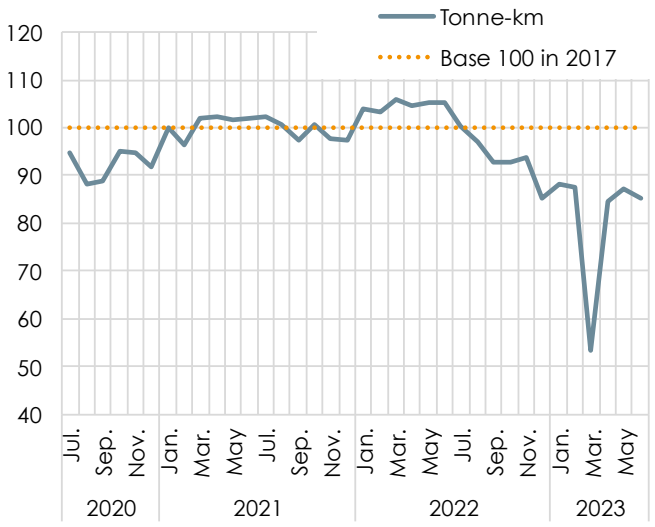
	Level (2022)	3-years change (2019-2022)	5-years change (2017-2022)
▪ Freight train-km	59.2 million	+0.6%	-8.1%
▪ Net tonne-km transported	35.3 billion	+4.2%	-0.4%
▪ Load factor (tonnes per train)	596	+3.6%	+8.4%
▪ Revenues from commercial traffic (years change in constant euros)	€1,126 million	+2.5%	-4.1%
▪ Share of combined transport (tonne-km)	40.6%	+6.8 pp	+13.1 pp
▪ Percentage of trains behind schedule at the 30 min threshold	15.9%	+0.4 pp	+0.3 pp

Rail freight fell back in the second half of 2022.

With 35.7 billion tonne-km in 2021, rail freight market had got back a slightly higher level of traffic than the level in 2017 (35.4 billion tonne-km). This growing trend continues in 2022: traffic in the first half of the year rises by 3.9% compared to 2021 (against 4.7% for S1 2017).

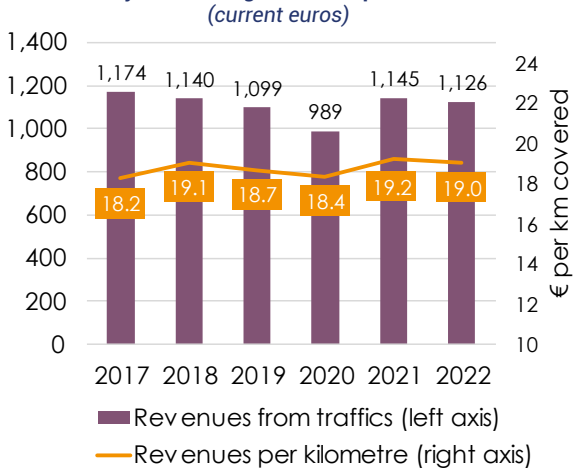
During the second half of 2022, freight tonne-km drop, and the first estimates show that this trend gets worse during the first half of 2023: -23% compared to S1 2022 (-17% without March when social movements strongly impacted the activity). Besides social movements, the increase of energy costs has impacted the market rising the « traction service » costs and, in consequence, lowering transport demand and particularly the industrial one. During the first half of 2023, the industrial production of several sectors, which are important customers of rail freight services, decrease (year-on-year rate, seasonally adjusted and corrected for working days) by -23% for basic chemical products, by -28% for metallurgy and by -8% for mining and quarrying products (INSEE industrial production index).

Figure 16 – Freight rail traffic in tonne-km (base 100 in 2017, seasonally adjusted and corrected for working days)



Source: ART according to SDES

Figure 17 – Revenues from commercial traffic and freight railway undertakings revenues per kilometre *(current euros)*



Note: revenues are adjusted to reflect journeys carried out on the RFN (except international journeys).

Source: ART according to railway undertakings

Railway undertakings revenues declined by -4% in 2022 compared to 2017.

In 2022, revenues created from the RFN activities by railway undertakings amounted to €1.13 billion, against €1.17 billion in 2017.

The 5-years drop of revenues for the rail freight sector is explained by the fall of revenues per tonne-km, from 3.3 to 3.2 euro cents between 2017 and 2022.

Nevertheless, the rise of load factor of freight trains (+8,4% in 5 years) has enabled, at the same time, the increase of revenue per kilometre (i.e. revenue per train-km), from 18.2 euros in 2017 to 19 euros in 2022.

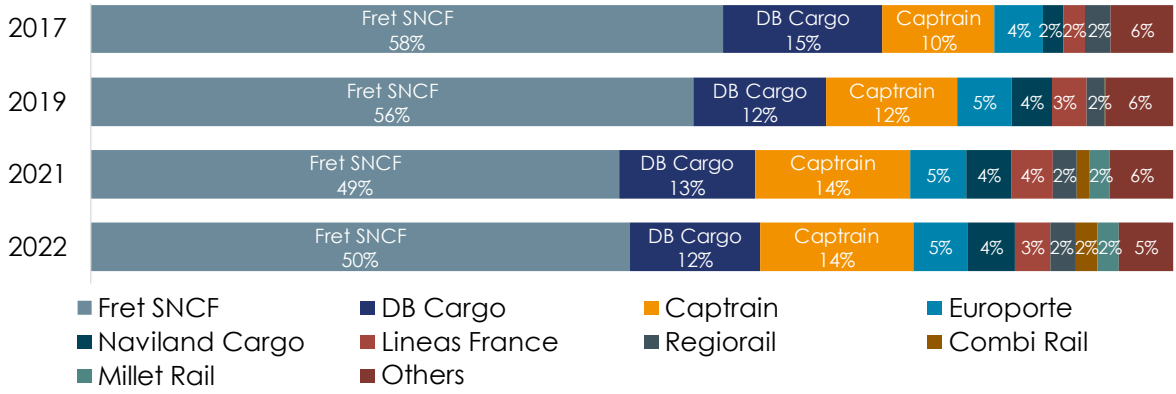
THE RAIL FREIGHT MARKET IN FRANCE (2/2)

Fret SNCF levels off its market share in 2022, while the other railway undertakings recorded contrasting development.

While the freight activities are slightly decreasing (-1.2% tonne-km in 2022 compared to 2021), the domestic incumbent succeeds to regain 1 point of market share and represents 50% of tonne-km (with a small rise by 0.8% of tonne-km).

Among the other main railway undertakings, four of them experience a decline of the tonne-km in 2022 (DB Cargo France : -5.2%, Captrain France : -2.4%, Europorte : -3.9% et Lineas France : -14.2%), while 3 others grow (Naviland Cargo : +2.3%, Regiorail France : +4.4% et Combi Rail : +74.6%). The high growth of the undertaking Combi Rail, specialised in combined transport, results that its share reaches 2% of rail freight market in 2022. Although Combi Rail started its activity in 2022, the undertaking is part of the Open Modal group, on the same terms as T3M, already set up on the market as allowed applicant of combined transport.

Figure 18 – Share of tonne-km carried out by railway undertakings



Source: ART according to railway undertakings

The « economic discontinuity » plan considered for Fret SNCF.

Based on a preliminary examination and before the opening of in-depth inquiry the 18th January 2023, European commission considered that some measures concerning state aid and economic support granted to Fret SNCF between 2007 and 2019 were likely illegal regarding the Union rules. These aids include cash advances carried out by SNCF group to Fret SNCF since the beginning of 2007 (the amount of theses is estimated at between €4 and €4.3 billion), and the cancellation of the financial debt through a legislative amendment in 2019 when Fret SNCF was transformed into a limited company (a total of €5.3 billion, including the above-mentioned cash advances).

In this context, the « economic discontinuity » plan considered by the government would result that Fret SNCF gives up assets amounting about 30% of the traffic in tonne-km.

05

THE RAIL PASSENGER MARKET IN FRANCE (1/4)

	Level (2022)	3-years change (2019-2022)	5-years change (2017-2022)
▪ Rail passenger transport supply (train-km)	393 millions	+2%	-4%
▪ Rail passenger transport supply (seat-km)	210 milliards	+1%	-4%
▪ Train capacity (seat-km per train-km)	533	-2 %	+0 %
▪ Demand (passenger-km)	101 milliards	+3%	+4%
▪ Rail occupancy rate	48%	+1 pp	+4 pp
▪ Share of non-PSO services	31% (train-km) 60% (pass-.km) 73% (occ. rate.)	-2 pp +1 pp +3 pp	-2 pp +0 pp +7 pp

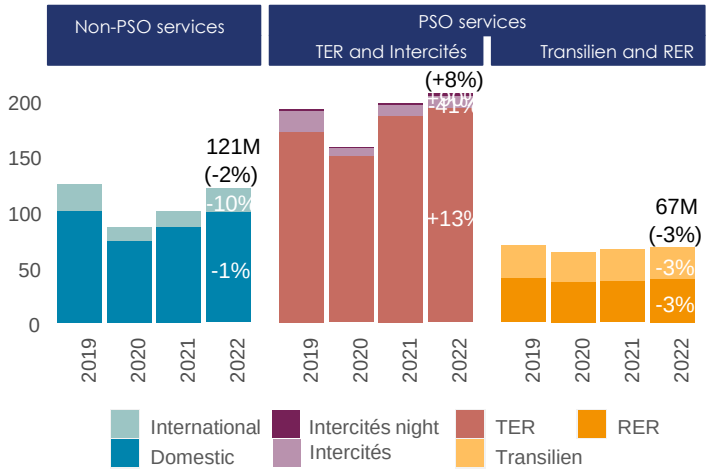
Passenger rail transport recovered to pre-crisis levels.

The rebound of rail services continued in 2022 as in 2021, with an annual increase of nearly 9%, and a level of traffic (in train-km) 2% above 2019 levels. This increase was driven by regional and long-distance PSO services (up 8% compared to 2019), while the level of supply of PSO services in Île-de-France region ("Transilien" and "RER") remained 3% below 2019 levels in 2022.

The traffic of non-PSO services (-2% in trains.km) suffered slower recovery for international services, down 10% compared to 2019. As a result of a 3% increase in seat capacity[1] (due to an increased supply of the low-cost Ouigo services), the overall supply of non-PSO services remained stable in seat-km.

While the seat capacity of trains for interurban PSO services is relatively stable, it fell sharply compared to 2019 for PSO services in Île-de-France (-11%), due to variations in equipment configuration, which led to a -8% drop in seat-km.

Figure 19 – Passenger train supply (million train-km–% 2022/2019 change)



Source : ART according to railway undertakings and RATP

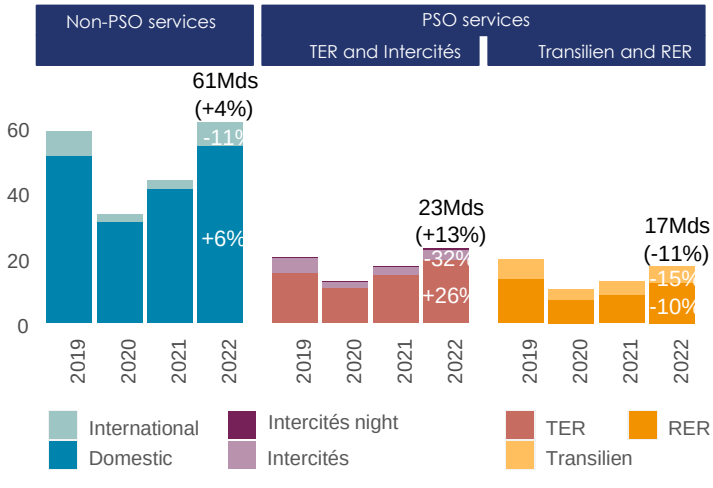
Levels of passenger-km returned to pre-crisis levels.

With more than 100 billion passenger-km carried, rail demand reached a record level in France, 3% higher than in 2019. However, contrasting trends are noted by service. **The highest growth is observed for Regional PSO services, with a +13% increase since 2019.** An increase of +4% is noted for Non-PSO services since 2019, despite a slower recovery for international services. On the other hand, **demand felt sharply for PSO services in Île-de-France region (-11%),** for which the Transilien services appear to be more affected than the RER (down, respectively, by -15% and -10%).

After a 2-years downturn due to the health crisis, passenger rail occupancy rates reached backed 2019 levels, reflecting a robust recovery in demand. The highest recorded level was even reached for the domestic open access services (74%), up +2.5 pp compared to 2019.

Due to decline for supply and demand for the Transilien (around -15% passenger-km) and RER (-10%) services, occupancy rates remained stables for PSO services in Île-de-France region.

Figure 20 – Passenger train demand (billion passenger-km –% 2022/2019 change)



Source : ART according to railway undertakings and RATP

[1] correspondant au ratio de seat-kmpar train.km

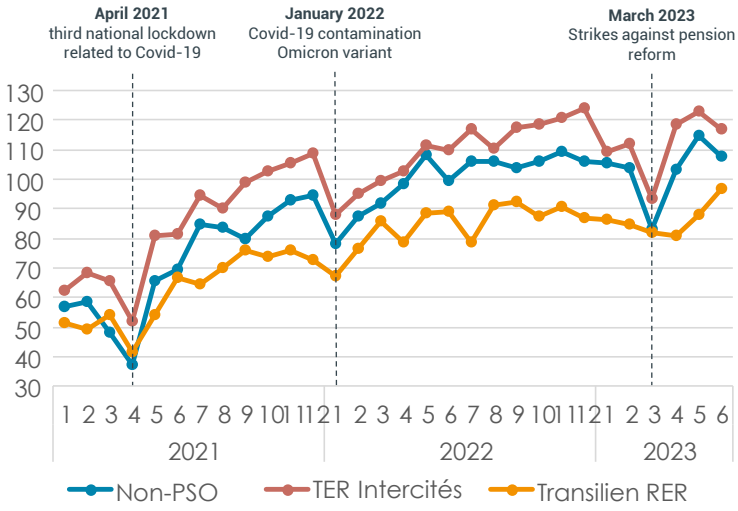
THE RAIL PASSENGER MARKET IN FRANCE (2/4)

Rail traffic remains down in 2023 for PSO services in the Île-de-France region, while it stabilized above 2019 levels for other services.

In 2022 the rail demand reached back the levels observed before the health crisis for most services. **The increase of rail demand continued during the first half of 2023 with levels 8% higher for non-PSO and PSO services outside Île-de-France in the first half of 2023 than those of the same period of 2022.** Only the month of March was affected by nation-wide social movements against the pension reform, leading to a drop of traffic for all high-speed trains and TER and Intercités services.

The traffic for PSO services in Île-de-France region was still decreasing in early 2023, confirming a lasting disruption for these services, despite relative stability of demand in March (in comparison with a sharp drop of supply) and a notable increase in June 2023.

Figure 21 – Monthly rail service demand in passenger-km (index base 100 in 2019)



Note: comparison to November 2019 for the months of December to correct for the strike effect at the end of 2019.
Source : ART according to railway undertakings and RATP

Characteristics of TER and Intercités services

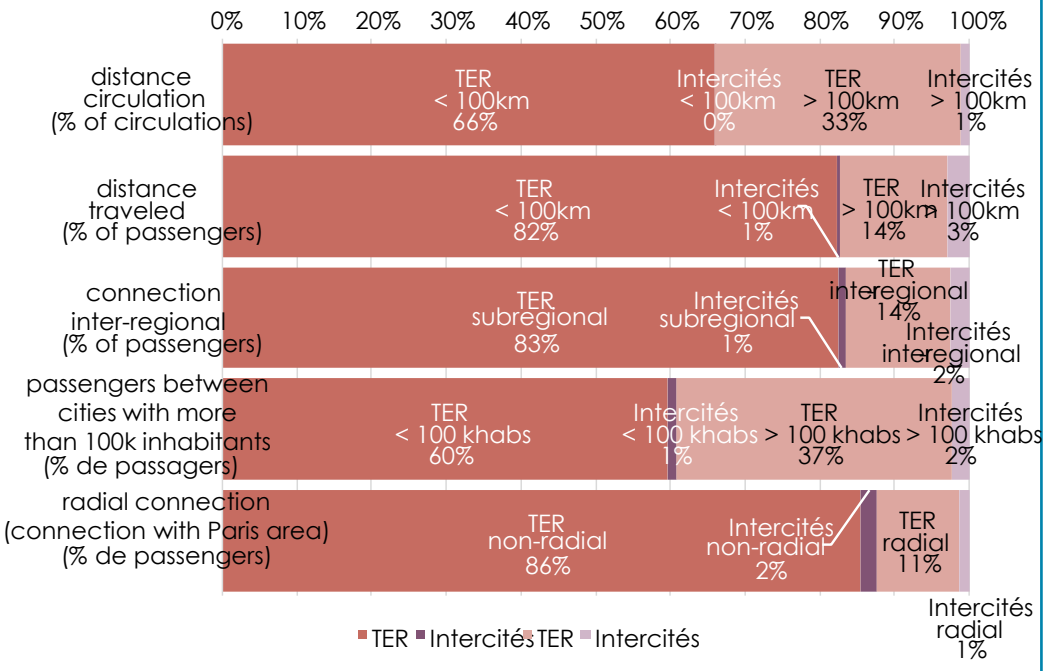
Long distance connections (above 100 km) accounted for 17% of the overall traffic of national and regional services.

PSO services outside Île-de-France region are splitted between the Intercités contracted by the State and the TER services contracted by the regions. While the former are intended to provide long-distance connections between metropolises (**73% of Intercités passenger journeys connect cities with more than 100,000 inhabitants**), the latter are distinguished by mixed purposes.

The vast majority of journeys operated by TER services are short-distance: 85% of journeys are less than 100 km for an average distance of 54 km, compared to 16% and 322 km respectively for Intercités.

However, the TER offer includes a significant proportion of lines whose main motive is far removed from the characteristics of a regional service. These are essentially the former Intercités lines transferred to the regions between 2017 and 2020. Thus, **TER services provide the vast majority of contracted rail connections of more than 100 km (83%), radial links (90%) and links between cities with more than 100,000 inhabitants (94%).**

Figure 22 – Characteristics of the offer (in% of departures) and ridership (in% of the number of passengers) of PSO services excluding Île-de-France region



Source: ART based on SNCF Voyageurs
Interpretation: traffic of more than 100 km represents 34% (33% TER + 1% Intercités) of all TER and Intercités PSO services, among which the vast majority are provided in 2022 by TER services.

THE RAIL PASSENGER MARKET IN FRANCE (3/4)

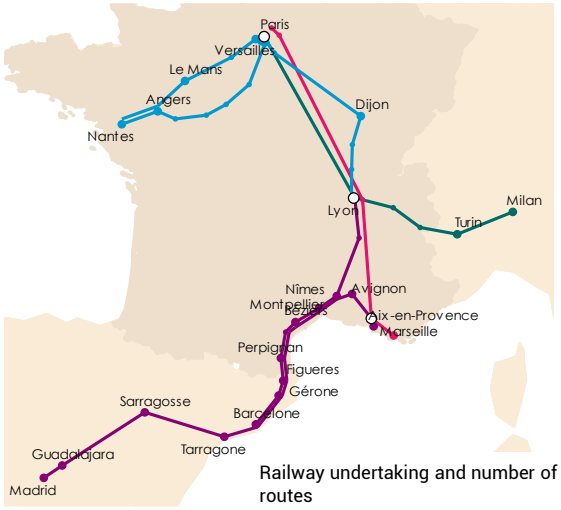
Recent liberalization of open access rail services led to traffic induction, price decrease, and increased competition in Europe between French, Spanish and Italian operators.

At the end of 2023, several new open access services have developed in France. The "renfe-sncf in cooperation" service effective until the end of 2022 was taken over by competing services between France and Spain, with routes operated by both the French incumbent operator (Paris-Barcelona line) and by **Renfe** (Lyon-Barcelona and Marseille-Madrid routes). In addition, in December, SNCF Voyageurs started a new **Ouigo** high-speed service linking Paris-CDG and Lyon-Saint-Exupéry airports and the Toulon terminus. These services are in addition, since the effective liberalization of open access services, to the high-speed services of **Trenitalia France** operated since the end of 2021 (Paris-Lyon-Milan services, interrupted in August 2023 due to landslide on the Maurienne Valley railway tunnel, and Paris-Lyon) and the "**Ouigo Train Classique**" service operated since 2022 (Paris-Nantes and Paris-Lyon lines). Finally, the Thalys brand was removed as of October 2023, as part of the merger of the operator's network with that operated by **Eurostar**.

3 notifications of new rail services were also received by ART-France in 2023, concerning the service via classical lines, by the incumbent operator, of the Paris-Bordeaux, Paris-Rennes and Paris-Brussels lines.

While open access services remains largely operated in France by SNCF Voyageurs' various brands and high-speed service subsidiaries, the opening up to competition had already visible effects on the level of train supply (+10% of the number of trips over 2022 on the Paris-Lyon service), the number of passengers, and price levels (an average decrease of more than 10% in revenues per passage-km is observed in 2022 between Paris and Lyon).

Figure 23 - New open access rail services in France operated by the end of 2023 for which ART-France has been notified
(as well as Renfe operator routes previously operated in cooperation*)



Similar and concomitant effects of market opening are observed in Spain: looking at the Madrid-Barcelona service, rail traffic increased by more than 50% between the first half of 2019 and the first half of 2023. While the incumbent operator, Renfe, stabilised its level of traffic between 2019 and 2023, the arrival in 2021 and 2022 of competing operators Ouigo and Iryo (a subsidiary of Trenitalia) created significant induced traffic and captured a market share of 21% and 24%, respectively, on the route. This traffic induction was also observed on the Madrid-Seville, Madrid-Valencia and Madrid-Malaga routes, in particular, on which the subsidiaries of the French and Italian foreign incumbents also operate.

By the end of 2023, all regions clarified their calendar for opening up to competition of PSO services, and 9 of them started tendering procedures.

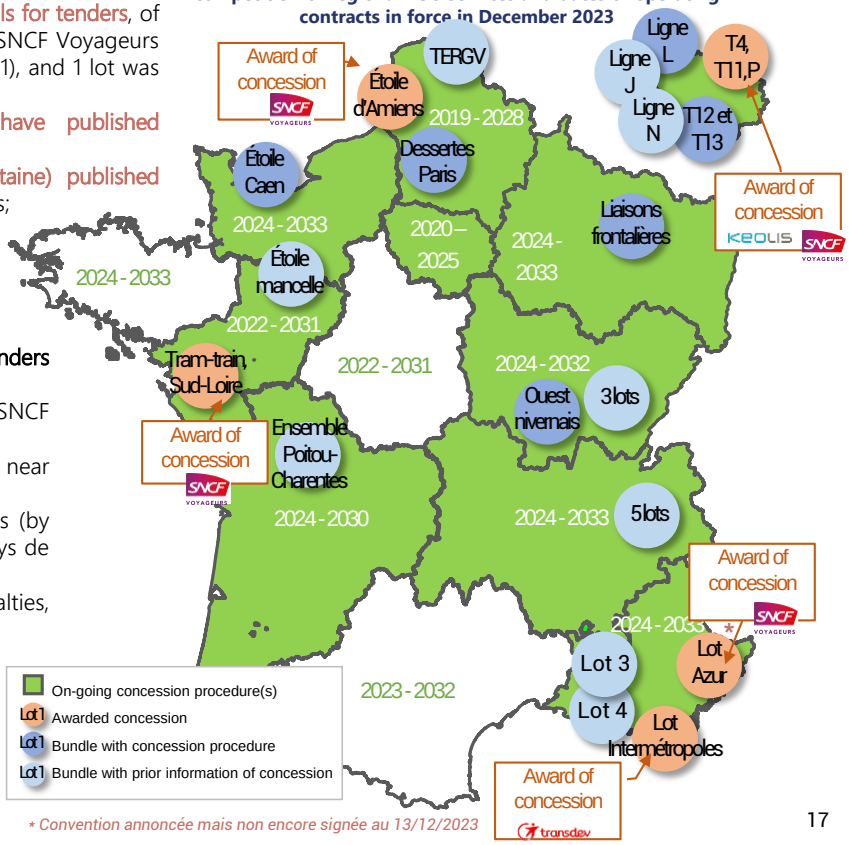
As required by the Fourth European Railway Package, the competitive tendering of contracted rail services is mandatory in France from 25 December 2023. At the end of the year, all regions specified their timetable for opening up their PSO rail services to competition:

- 4 regions (Sud-PACA, Île-de-France, Hauts-de-France and Pays de la Loire) already awarded packages of contracted services following calls for tenders, of which 4 out of 5 were awarded to the incumbent operator SNCF Voyageurs (and the Keolis-SNCF Voyageurs consortium in Île-de-France1), and 1 lot was awarded by the Sud-PACA region to Transdev;
- 2 regions (Grand-Est and Bourgogne-Franche-Comté) have published concession notices of regional bundles of routes ;
- 3 regions (Normandie, Auvergne-Rhône-Alpes, Nouvelle-Aquitaine) published information notices for upcoming competitive bidding process;
- 3 regions (Bretagne, Occitanie, Centre-Val de Loire) have renewed their agreement with SNCF Voyageurs in advance and will only open their services to competition in 5 to 10 years' time.

It is already possible to observe the effects of the first calls for tenders for public passenger rail transport services:
The 4 bundles of PSO services awarded by the regions to SNCF Voyageurs (for 3 of them) and Transdev provide:

- a sharp increase of train supply for all bundles (including a near doubling for the 2 bundles in Sud-PACA);
- With identical or significantly reduced costs for the regions (by more than 20% for bundles in the Hauts-de-France and Pays de la Loire regions);
- Plus more incentive-based contractual conditions (penalties, termination conditions, etc.).

Figure 24 - Bundles announced for the opening up to competition of regional PSO services and dates of operating contracts in force in December 2023



[1]lot des lignes de tram-train T4, T11 et branche Esbly-Crécy de la ligne P

* *Convention annoncée mais non encore signée au 13/12/2023*

THE RAIL PASSENGER MARKET IN FRANCE (4/4)

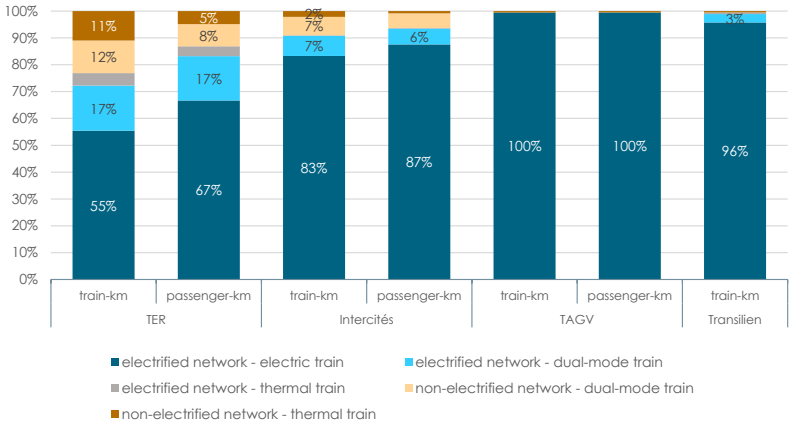
In 2022, the use of diesel-powered trains accounted for 16% of rail traffic (in trains.km) and 28% of the regional PSO service, and 17% of demand.

Although the non-electrified rail network represents a significant part of the RFN (nearly 30% of the tracks), **rail traffic on non-electrified tracks accounted in 2022 for only 11% of total train-km operated on the network.** Freight traffic is operated for 4% of train-kmon non-electrified tracks, while passenger traffic is operated for 12% of train-kmon such tracks. The latter traffic is mainly operated by the TER and Intercités services for the service of small lines.

In addition, the use of thermal equipment on electrified tracks represents nearly 5% of train-km, among which freight service represents 19%.

Rail connections, via thermal traction equipment, account for a smaller share of passenger numbers than in train-km. In other words, passenger traffic on non-electrified routes (and the links connected to these routes), which are most often the routes with the lowest traffic, is much lower than that of electrified lines. Only 17% of TER passengers use the 28% of train-kmTER trains operated with thermal or dual-mode equipment on non-electrified tracks.

Figure 25 – Rail traffic and passenger traffic by activity and freight by type of network (electrified or not) and type of rolling stock (in trains.km)



Source : ART d'après SNCF Réseau et SNCF Voyageurs

The lower use of thermal equipment is expected to continue for PSO services in favour of dual-mode and hybrid (battery-electric) equipment.

More than half of the traffic operated on non-electrified tracks was carried out with dual-mode equipment, which represents a total weight of 28% of the rail traffic of the TER and Intercités services. While almost all traffic operated on non-electrified tracks is, in 2022, carried out with diesel traction, the planned start of operation[1] from the end of 2024 of battery-electric TER trains to replace thermal equipment (and current dual-modes) should make it possible to reduce the use of diesel traction on tracks whose electrification is not envisaged in view of higher costs.

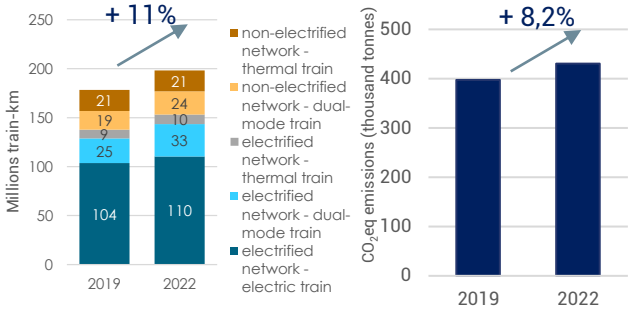
CO_2 emissions from rail passenger transport activity have increased by 2.5% since 2019, less than the increase in passenger numbers (+3%).

In 2022, rail passenger transport generated nearly 664,000 tonnes of CO_2 equivalent (CO_2eq) (10% more than in 2021 and 2.5% more than in 2019).

The TER activity is the main contributor to these emissions (around 65%), due to the overall weight of the train-kmactivity and its energy mix, characterised by a still significant use of thermal traction rolling stock.

However, the continuous evolution of this mix according to the renewal of rolling stock (and the acquisition, in particular, of dual-mode equipment by the regions) has made it possible to reduce (by 3 percentage points) the growth of CO_2eq emissions compared to that of traffic in train-kmbetween 2019 and 2022.

Figure 26 – Evolution of traffic (train-km) and energy mix (left) and CO_2eq emissions (right) for the TER activity



Notes: "CO_2 equivalent emission (CO_2eq) is the amount of carbon dioxide (CO_2) emitted that would cause the same integrated radiative forcing, for a given time horizon, as an emitted amount of a single greenhouse gas (GHG)." IPCC, 2014.
Source : ART based upon SNCF Réseau and SNCF Voyageurs

[1] Battery-powered TER trains are scheduled to be operational from the end of 2024 on the Lyon-Bourg-en-Bresse, Alincourt-Beauvais-Creil, Bordeaux-Mont de Marsan, Bordeaux-Le Verdon, Bordeaux-Saint Mariens, Nîmes-Le Grau du Roi and Marseille-Aix lines. https://www.latribune.fr/entreprises-finance/services/transport-logistique/pour-sortir-du-diesel-la-sncf-mise-sur-les-ter-a-batterie-980660.html

[2] The discrepancies observed compared to the 2022 balance sheet are the result of an update of the emission factors for electricity and diesel used in the calculation of CO2 emissions (set by decree and considered constant between 2019 and 2022). The environmental impact attributable to each passenger activity (i.e. the quantity of CO2e emitted) is obtained by multiplying the total energy consumption per activity by its emission factor (quantity of diesel fuel * diesel emission factor + quantity of electricity * electricity emission factor).

06

ECONOMIC PERFORMANCE OF PASSENGER RAILWAY UNDERTAKINGS (1/2)

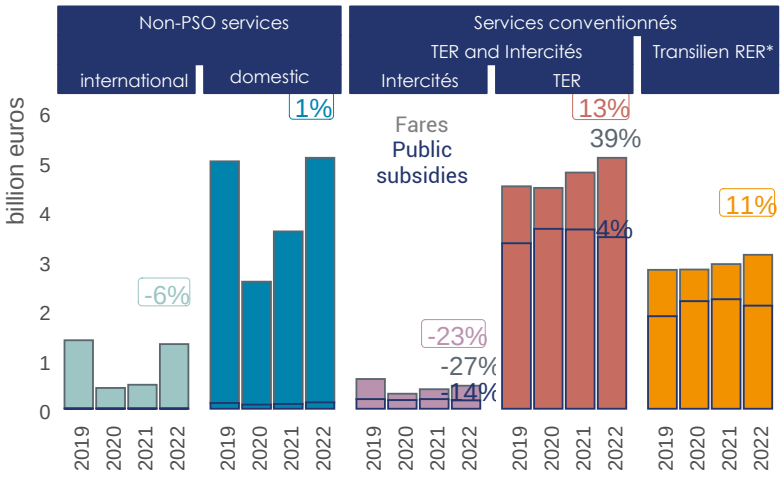
Financial results (restricted to usage of national rail network) *(RATP perimeters of RER lines A and B, and sections outside RFN of international traffic are excluded)*	Level (2022)	3-years change nominal value (2019-2022)	5-years change nominal value (2017-2022)
▪ Railway undertakings revenue from passenger services	€15 billion	+5%	+8%
from fares	€9,1 billion	+5%	+7%
from subsidies	€5,9 billion	+6%	+9%
▪ Average revenue per passenger-km	€ cents15,7	+2%	+3%
▪ Average revenue from fares per passenger-km	€ cents 9,6	+2%	+3%
▪ Average revenue from fares per train-km	€24,1	+2%	+12%

Railway undertakings' revenues in 2022 exceeded their 2019 level in nominal terms (+5%) but declined in real terms (-3%).

Revenues for TER-Intercités services increased by 9% in current euros and those for Transilien-RER services (SNCF scope) increased by 11%, ensuring stability of revenues to remain in real terms (+0% and +2% respectively). Public subsidies, which accounts for two-thirds of the financing of PSO services, increased relatively little for both services (by almost 6% in current euros, i.e. a decrease of 3% in constant euros). Revenues for these services were therefore driven by a significant increase in revenue from fares, which increased by +22% for TER-Intercités services (+12% in real terms).

Railway undertakings suffered quasi-stability of the nominal level of income for non-PSO services, reflecting a decline of 8% in real terms.

Figure 27 – Railway undertaking from passenger rail services in France (on the RFN part of journeys) [% 2022/2019 change]

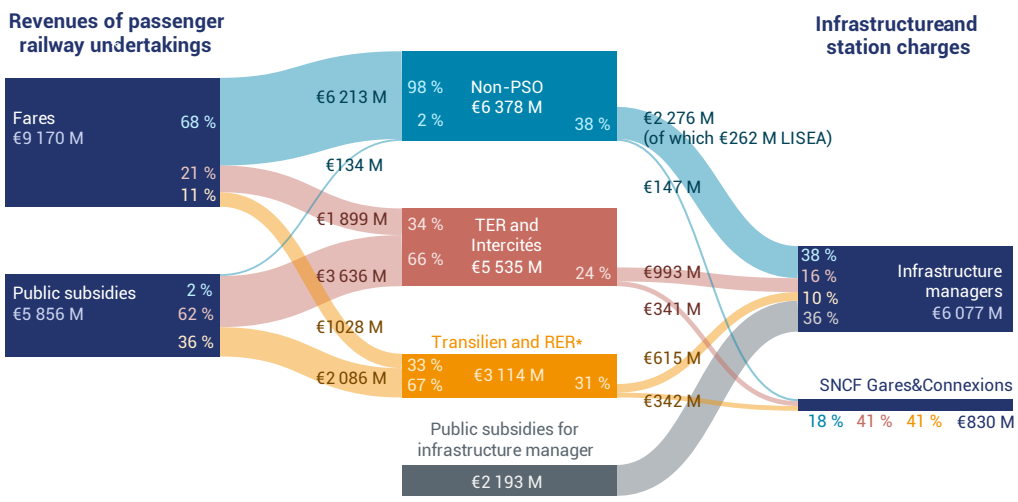


*Note: * for the Transilien and RER services, fares have been collected directly since 2020 by Île-de-France Mobilités and no longer by SNCF Voyageurs: the level of fares presented here illustrates an indicative share of the amount paid by users.*
Source: ART based on railway undertakings

In 2022, charges (infrastructure tolls and station fees) accounted for between 24% (for TER and Intercités services) and 38% (for non-PSO services) of railway undertakings' revenues.

For the Transilien-RER services, charges represent 31% of the railway companies' revenues. The weight of fees in revenues has been relatively stable since 2017 for all services, apart from the period of the health crisis, which saw a much sharper drop in attendance (and therefore revenues) than in the supply of high-speed trains, leading to an increase of nearly 10 points in the ratio of tolls to revenues for non-PSO services.

Figure 28 – Structure of revenues and charges by service in 2022



*Note: * for the Transilien and RER services, fares have been collected directly since 2020 by Île-de-France Mobilités and no longer by SNCF Voyageurs: the level of fares presented here illustrates an indicative share of the amount paid by users.*
Source: ART based on railway undertakings

ECONOMIC PERFORMANCE OF PASSENGER RAILWAY UNDERTAKINGS (2/2)

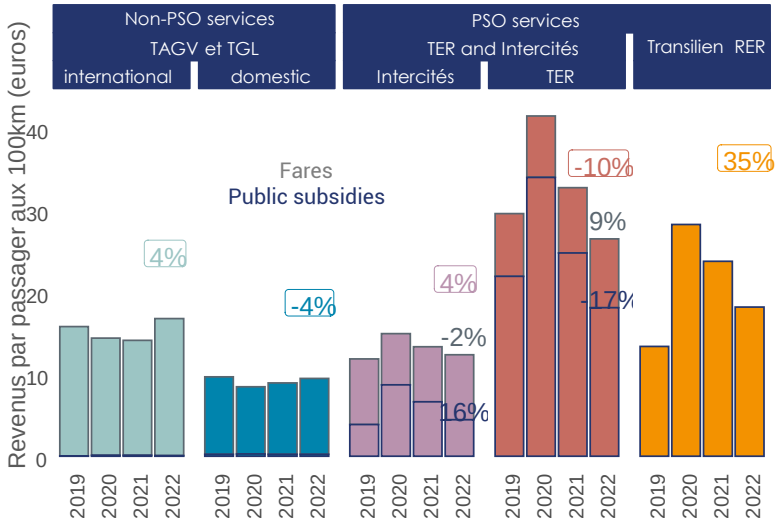
Prices for non-PSO domestic services remained relatively stable in 2022 (in current euros) – however, the increase in train capacity led to an increase in revenue per train for all services.

The level of fares per passenger per 100 km appears to be on the rise in 2022 for PSO services, as well as for international trains. This indicator shows the average price (excluding taxes) paid by passengers in proportion to the kilometres travelled.

The average prices of non-PSO services also remained stable for inOui services between 2019 and 2022, and increased by 13% for Ouigo services. While there has been a decrease in the price of domestic services on average (by -4% between 2019 and 2022, see figure opposite), this is mainly the result of the strong growth of low-cost Ouigo services (they accounted for 19% of ridership in 2019 compared to 24% in 2022), whose price per kilometre remains around half that of InOui domestic services.

Reported by train.km, the level of income is up for all services (+2%). This is particularly the case for non-PSO services, which benefited from an increase in average load driven by Ouigo services, thus offsetting the decline in average revenue per passenger per 100 km. **However, taking into account inflation over the period, the level of real income per average train.km fell by -5%** for all services combined (and by -6% for non-PSO domestic services).

Figure 29 – Revenue per passenger-km of passenger rail services in France (on the RFN part of journeys) [% 2022/2019 change]



Note : cf. note Figure 27

Source : ART based on railway undertakings

Rail prices increased more slowly than the consumer price index since the health crisis.

The growth of rail service prices (approximated on average by the evolution of revenue per passager.km), must be put into perspective with inflation that has been rising since the end of 2021.

The price level of passenger rail services has been on a downward trend between 2015 and 2019. The health crisis has affected all services with price levels falling sharply in 2020, and while prices have rebounded since 2021, this evolution remains significantly lower than the evolution of the consumer price index (HICP) over the period 2019-2022.

The price index for non-PSO services returned to its pre-crisis level from the second half of 2022. The price index for PSO services outside Île-de-France exceeded its 2019 level since the beginning of 2022. The increase in the level of these two indices at the end of 2022 and the beginning of 2023 remains below 10%, and is well below the increase in the consumer price index for transport services in metropolitan France measured by the National census (INSEE) (+15 to +20%) as well as that of the consumer price index for all products.

Figure 30 – Average annual level of revenue per passenger-km [index in base 100 in 2015]

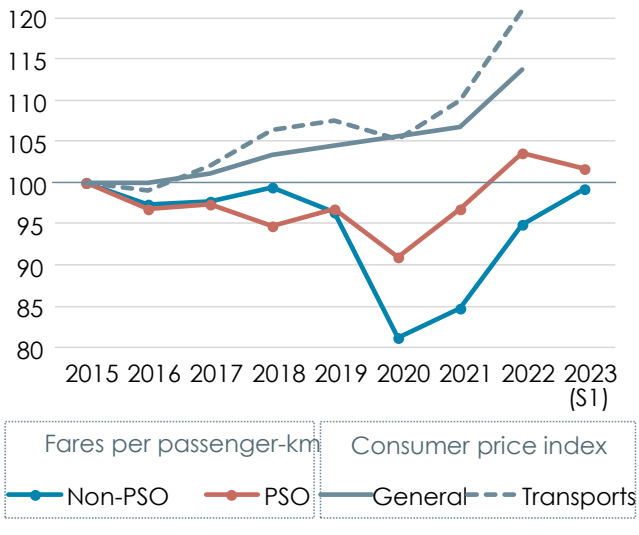
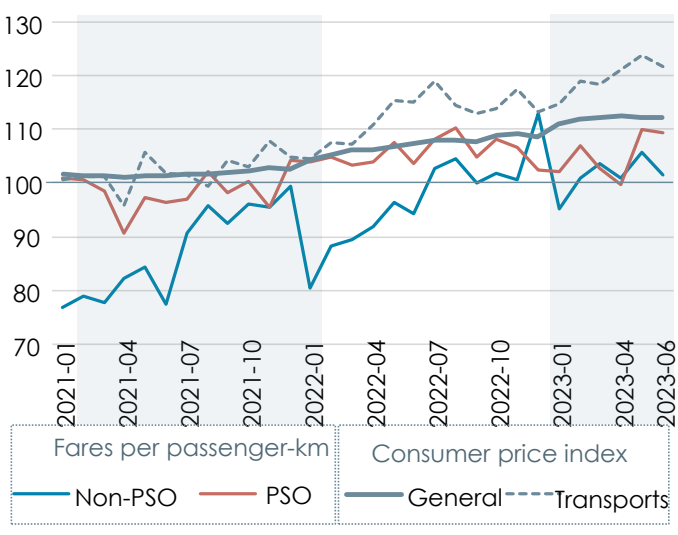


Figure 31 – Average monthly level of revenue per passenger-km [base 100 index in 2019]



07

QUALITY OF SERVICE OF PASSENGER RAILWAY UNDERTAKINGS (1/3)

	Level (2022)	3-years change (2019-2022)	5-years change (2017-2022)
▪ Cancellation rate prior to D-1 (before D-1, 4pm)	7%	-1 pp	+4 pp
▪ Late cancellation rate (after D-1, 4pm)	1.9%	+0.3 pp	+0.4 pp
▪ Reliability rate (effective trains per scheduled trains)	91%	+1 pp	-5 pp
▪ % of trains behind schedule (5 min threshold)	11%	-0.3 pp	-2 pp
▪ Reliability and punctuality (5 min threshold) for non-PSO trains	95% circ. effect. 24% circ. <5mn	+1 pp +0.4 pp	-4 pp -1 pp

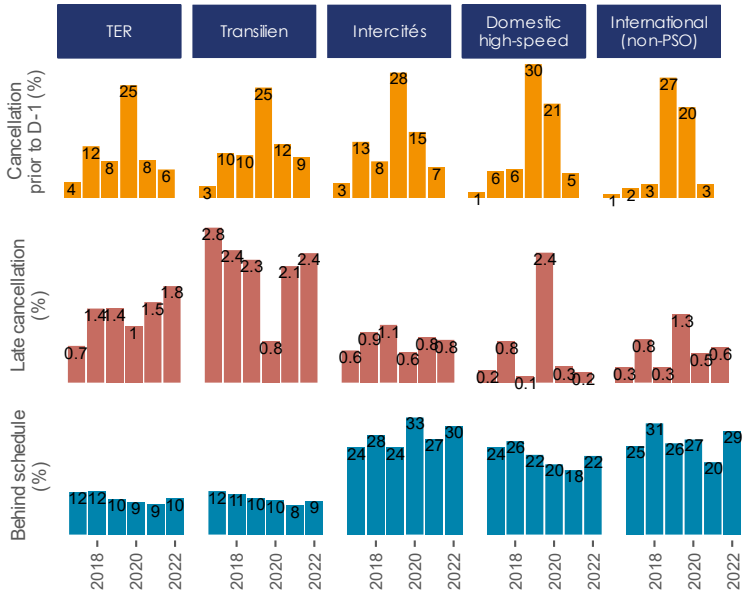
The reliability rate was 5 points lower in 2022 than in 2017, last year without major disruptions.

91% of passenger trains scheduled by railway undertakings in 2022 were operated. This reliability indicator considers both cancellation prior D-1 4 p.m. rate, which increased by 4 pp compared to 2017, and late cancellation rate (i.e., after D-1 4 p.m.), which was 0.4 pp higher than in 2017.

The worsening of reliability rate concerned all services. Although it "only" fell by 2 pp for international (non-PSO) services, it dropped by almost 6 pp compared to 2017 for PSO service in île-de-France region ("Transilien"). Indeed "Transilien" services, as well as Regional PSO services ("TER"), recorded the highest rates of cancellations prior D-1 and late cancellations in 2022 : 2.3 out of 20 scheduled "Transilien" trains were cancelled, compared to 1.1 in 2017.

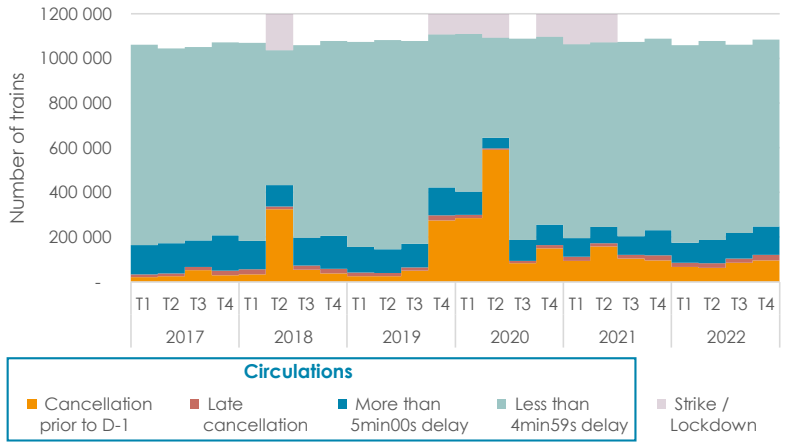
The punctuality rate dropped to 2019 level. It improved greatly during the COVID-19 pandemic due to a significant decrease in traffic on the RFN, but fell over again in 2022, particularly for non-PSO services.

Figure 32 – Cancellation (prior to D-1) and late cancellation rates, and percentage of trains behind schedule at destination (5min threshold)



Note: TER and Transilien services, exclude tram-train.
Source: ART according to SNCF Réseau and railway undertakings

Figure 33 – quarterly split of scheduled passenger trains per final status (2017-2022)



Source: ART according to SNCF Réseau and railway undertakings

Unlike 2022, which was not concerned by any strike or lockdown, the four previous years (2018-2021) were marked by a sharp drop in both reliability and punctuality rates due to various disruptions (visible on the quarterly scale). However, 2022 registered higher cancellation rates compared to years such as 2017 without any disruptions. Thus, the average cancellation prior to D-1 rate was 7% in 2022, 3 pp more than in 2017 and in 2019 excluding December. The average late cancellation rate was 1.9%, the highest level since 2017.

QUALITY OF SERVICE OF PASSENGER RAILWAY UNDERTAKINGS (2/3)

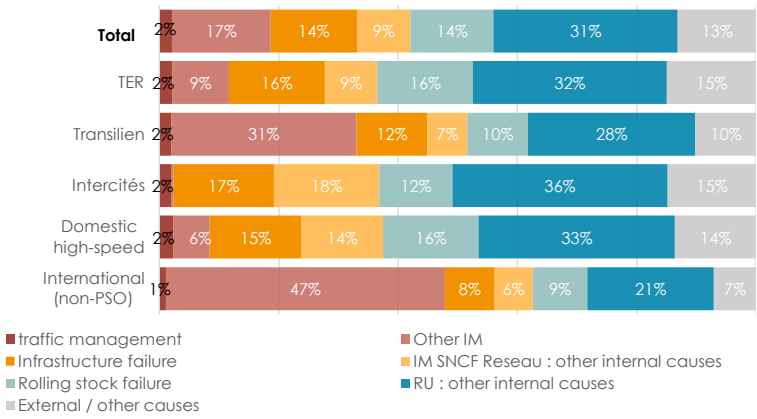
Causes of delays stress shared responsibility between railway undertakings and infrastructure managers, as well as difficulties in parallel management of traffic for infrastructure managers.

In 2022, the proportions of delays attributable to railway undertakings and infrastructure managers were close, RU and IM accounting for 45% and 42% respectively.

Almost 14% of delays were due to a rolling stock failure, which represent a third of delay causes falling under RU responsibility. The proportion of delays fallinging under railway undertaking was not very differentiated between regional PSO services, national PSO services and domestic HST services, RU being responsible for nearly 50% of all delays for these three services.

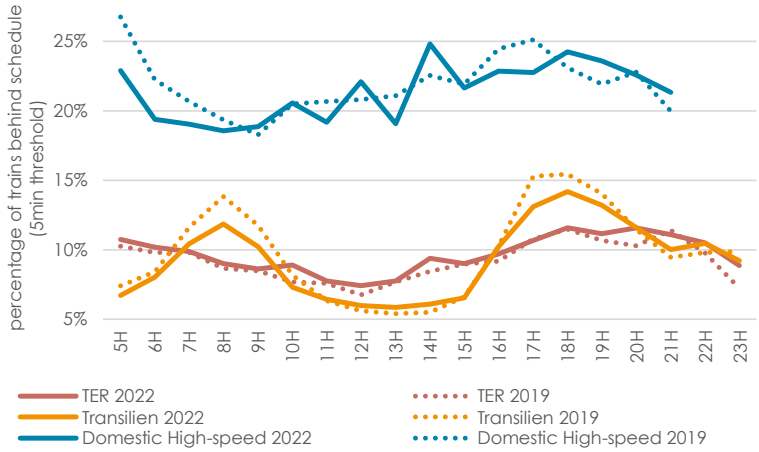
A third of "delay causes falling under IM" were due to infrastructure failure, accounting for 14% of all delays. "Other IM" has a majority share in causes for International non-PSO services due to cross-border traffic. The same is true for Transilien services, due to the co-management of the infrastructures by SNCF Réseau and RATP.

Figure 34 – Causes of delay for each service in 2022



Source: ART according to SNCF Réseau

Figure 35 – Percentage of trains behind schedule (5min threshold) depending on the time of departure



Source: ART according to SNCF Réseau

The difference between minimum and maximum percentage of trains behind schedule reached up to 8 pp, depending on the service.

The "percentage of trains behind schedule" (at 5min threshold) varies greatly depending on the time of departure.

For "Transilien" services, there are two peaks of increase during the so-called rush hour period, from 6 a.m. to 10 a.m. and from 4 p.m. to 8 p.m. In 2022, the worst punctuality rate was recorded for trains leaving at 6 p.m., with 14% of trains behind schedule on average compared to 6% for the lowest rate of the day. However, there was an improvement of the proportion of trains on time during peak hours between 2019 and 2022.

The differences were less important for "TER" services. In 2022, the lowest percentage of trains behind schedule was 7% on average between 11 a.m. and 1p.m. and the highest was 12% between 6 p.m. and 8p.m.

For domestic HST services, trains behind schedule rate ranged from 19% to 25% over the day.

QUALITY OF SERVICE OF PASSENGER RAILWAY UNDERTAKINGS (3/3)

	Level (2022)	3-years change (2019-2022)	5-years change (2017-2022)
▪ Proportion of passengers experiencing delays of 5 minutes or more at destination	11%	-0.5 pp	-5 pp
▪ Proportion of compensated passengers for delays exceeding 30 minutes for HST services	37%	+5 pp	+2 pp*

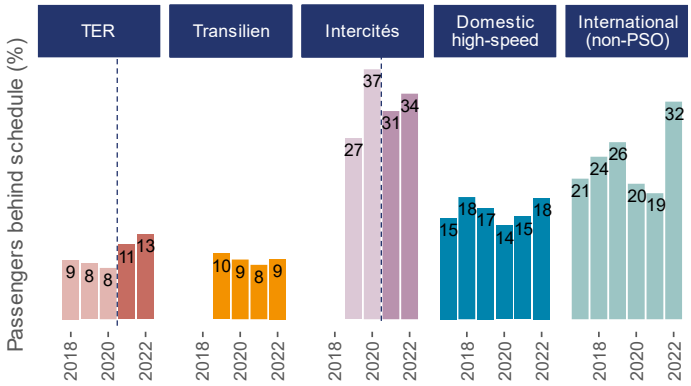
* *5-year change calculated for delays exceeding an*

The proportion of passengers arriving on time decreased by 5 pp over the last 5 years.

The worsening of trains ponctuality rate caused by the fact that suppply has been rising to 2019 level, affected the punctuality rate of passengers. **The proportion of passengers arriving behind schedule (at 5min threshold) increased sharply for International (non-PSO) service, reaching almost a third.** This is linked to the strong recovery in traffic in passenger-km, 95% of 2019 level in 2022 compared to only 42% in 2021.

The proportion of passengers behind schedule is higher than that of trains, especially for regional and national PSO services ("TER" and "Intercités") and for international non-PSO services. This can be partly explained by higher traffic in passenger during peak hours, which coincides with higher percentage of delayed trains (see previous page).

Figure 36 – Proportion of passengers behind schedule at destination (5min threshold)



Source: ART according to railway undertakings and RATP
Scope: Regional services (TER) including tram-trains, high-speed services uncluding Ouigo
Note: due to a methodological change in the way passengers are computed, there is a break in series for TER and intercités services in 2021

For international non-PSO services, the lower punctuality rate for passengers may also come from differences in the way of measuring delays (at the border point for trains and at destination for passengers), leading to increased delay due to difficulties in traffic co-management by different infrastructure managers or to an additional delay on the foreign rail network.

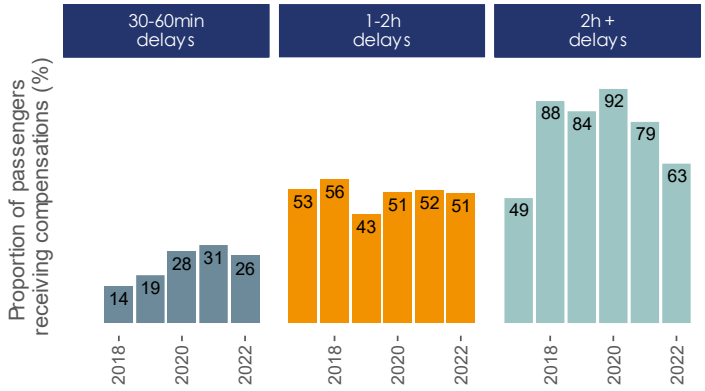
37% of HST services passengers experiencing delays exceeding 30 minutes for were compensated.

In 2022, 26% of international non-PSO and HST services passengers, (excluding Ouigo[2]), suffered delays exceeding 30 minutes and thus entitling them to compensation, at this threshold for inOui, Trenitalia, Thalys and Renfe activities, or at 1-hour threshold - as required by European regulation[3] - for all activities (which included, in addition, in 2022, Eurostar activities).

The proportion of compensated passengers appears low under 60-minutes threshold. The mechanism proposed by the operators (in the form of a voucher for TAGV inOui and Renfe activities) was used by less than a third of the eligible passengers.

Over the past three years, the compensation rate for passengers suffering delays ranging 1 to 2 hours remained stable at around 50%. On the other hand, there was a downward trend in the percentage of passengers receiving compensations for delays exceeding two hours, while the proportion of non-PSO services passengers affected by long delays increased.

Figure 37 – Proportion of passengers* receiving compensations per year and delay threshold



Source: ART according to railway undertakings
Scope: only domestic high-speed (except Ouigo) and international services

[1] Destination station is the one located on the RFN or the international destination station for all railway undertakings except Trenitalia, which measures delays at the last station located on the RFN for passengers bound for Italy.
[2] Excluding Ouigo services, which offers no compensations for trains arriving within an hour of the appointed time.
[3] (EU) Regulation n° 1371/2007 of 23 October 2007 on rail passengers' rights and obligations

08

PSO REGIONAL SERVICES (TER) IN FRANCE (1/4)

	Level (2022)	2-years change (2019-2022)	5-years change (2017-2022)
▪ Daily number of trains	7 500	+10%	+5%
▪ Seat capacity of trains	346 seats	+5 %	+12%
▪ Train occupancy rate	29%	+2 pp	+3 pp
▪ Proportion of subscribers in total traffic in passenger-km	37%	-9 pp	n/d
▪ PProportion of public subsidies in total revenue	69%	-5 pp	-6 pp
▪ Reliability rate (effective trains per scheduled trains)	92 %	+1pp	-4 pp
▪ of trains behind schedule (5 min threshold)	10%	0 pp	-2 pp

TER supply and demand exceeded 2019 levels for most regions.

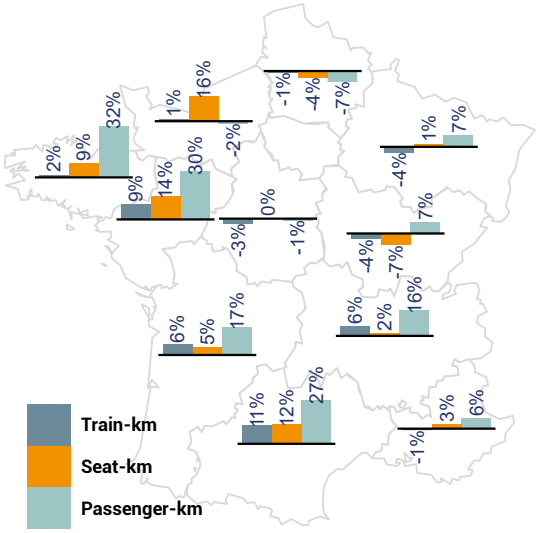
Compared to the average increase of rail transport supply for Regional PSO services ("TER") in 2022 (+3% of seat-km and +2% of train-km), supply in Normandie[1], Pays de la Loire and Occitanie strengthened significantly, increasing by more than 10% in seat-km in three years

On the other hand, TER services supply decreased by 4% and 7% respectively in Hauts-de-France and Bourgogne-Franche-Comté.

Traffic in passenger-km varied greatly between regions. In Pays de la Loire, Occitanie, Nouvelle-Aquitaine and Bretagne, a strong increase in demand added to the increase in supply. On the other hand, traffic remained lower than in 2019 for three regions bordering Île-de-France : Normandy, despite the increase in supply, as well as Hauts-de-France and Centre-Val de Loire. This can be explained by a drop in commuter traffic on lines connecting Paris to neighbouring regions after the Covid-19 pandemic.

As demand increased more than supply, **the occupancy rate of TER services improved by 3pp or more for 6 regions.** Occitanie recorded the highest occupancy rate with 34% (5pp higher than the average).

Figure 38 –2022/2019 change of supply and demand
(excluding social movements of December 2019)



Scope : see footnote
Source: ART according to SNCF Voyageurs

Figure 39 – Average occupancy rates per region in 2022, and 2022/2019 change in pp
(excluding social movements of December 2019)

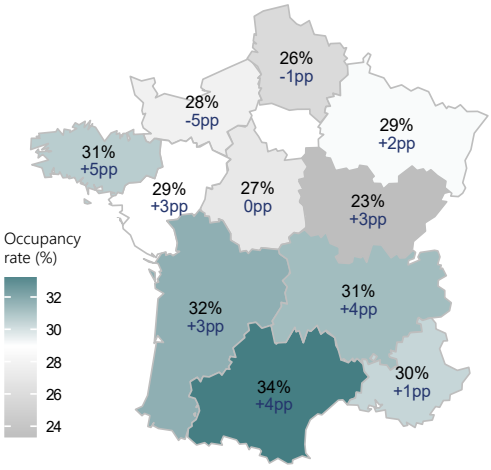
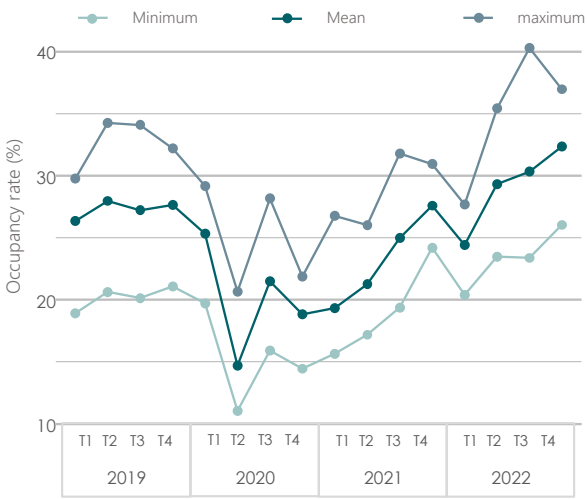


Figure 40 – Quartely occupancy rate for TER services
(excluding social movements of December 2019)



[1]Scope for all charts and figures of this page : Intercités services were included for region Normandie in 2019 in order to keep a constant perimeter. Data were corrected for december 2019 in order to mitigate the effect of social movements.

Source: ART according to SNCF Voyageurs

PSO REGIONAL SERVICES (TER) IN FRANCE (2/4)

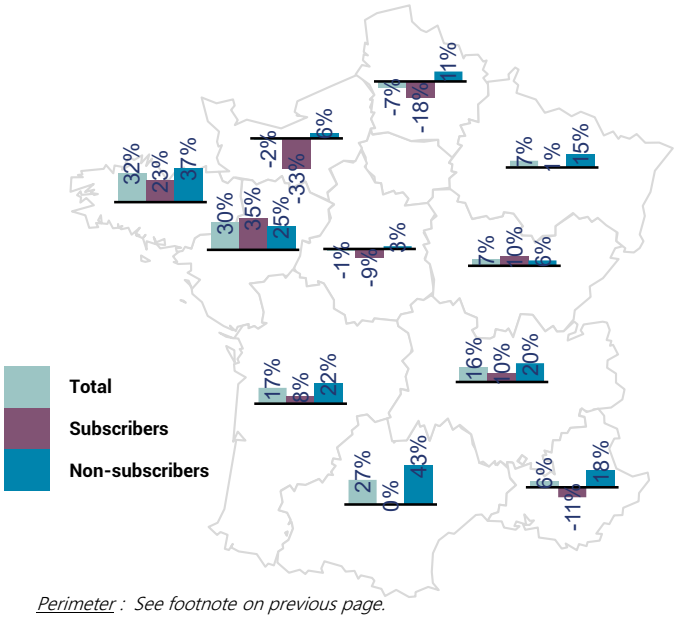
6 regions recorded a drop in subscriber attendance between 2019 and 2022.

Although subscriber ridership increased compared to 2021 for all regions, it remains below the 2019 level for four of them (from -9% for the Centre-Val de Loire region to -33% for the Normandie region), including three regions close to Paris. This observation could thus confirm a lasting change in commuter mobility on TER lines connected to Paris (which account for nearly 12% of overall TER ridership – see also Figure 22 on page 16).

On the contrary, the number of non-subscribed users increased for all regions compared to 2019. However, there is a strong heterogeneity between the growth rates of the different regions (from +3% in the Centre-Val de Loire region to +43% in the Occitanie region).

Only Pays de la Loire and Bourgogne-Franche-Comté regions recorded a higher increase in the number of subscribers than non-subscribers and consequently an increase in the share of subscriber passengers for regional TER services.

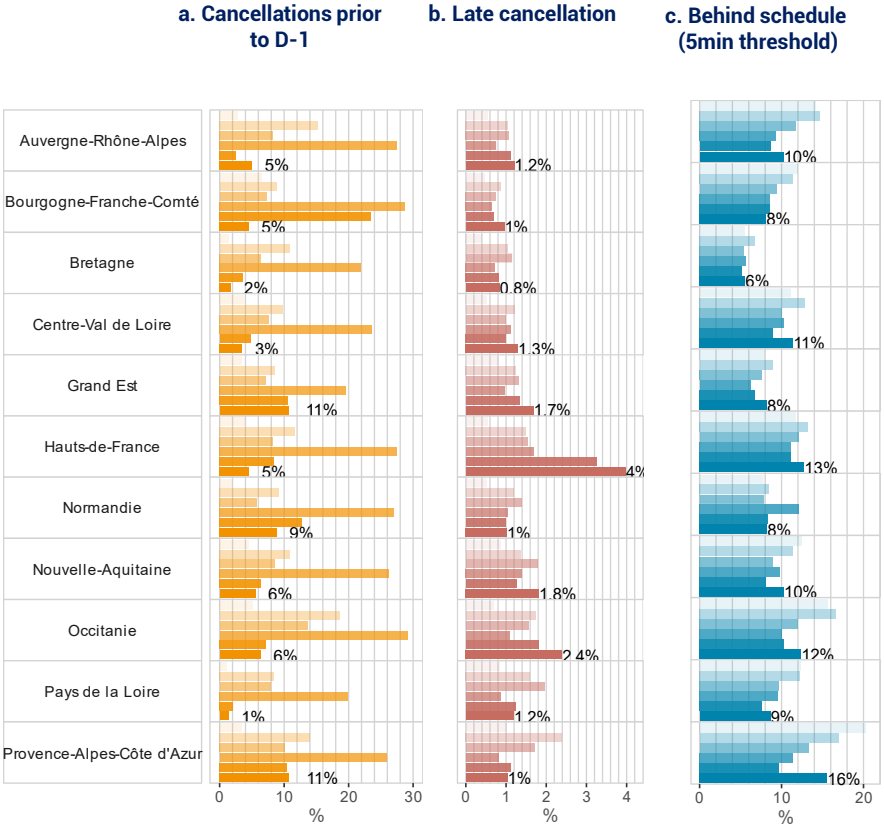
Figure 41 – 2019/2022 change of subscriber and non-subscriber TER traffic (passenger-km)
(excluding social movements in December 2019)



Perimeter : See footnote on previous page.

Source : ART according to SNCF Voyageurs

Figure 42 – Reliability of Regional Rail Services (2017-2022)



Methodological note: the scope considered is that of TER services excluding tram-trains. Total cancellations are considered and not partial cancellations. The cancellation rate is computed on the basis of all scheduled trips. The delay threshold considered is 5 minutes and 0 seconds at the terminus.

Source: ART according to SNCF Réseau

Better reliability rate of the supply was observed in regions despite an increase of "last-minute" cancellations.

In 2022, 6% of TER services were cancelled before D-1 4 p.m., two points less than in 2019. **However, the rate of cancellations prior to D-1 varies greatly from one region to another:** Pays de la Loire, which recorded strong growth in TER services since 2019, recorded the higher reliability rate (i.e. 1% of cancellations prior to D-1). Conversely, the reliability rate reached or exceeded 11% in Grand-Est and Provence-Alpes-Côte d'Azur (this rate has been above 10% since Q3 2019).

The rate of late cancellations reached its highest level for six of the eleven regions. Hauts-de-France still records the highest level, due in particular to the weather conditions in the first quarter, which strongly affected the quality of service in the region (5% late cancellation rate in Q1 2022).

The punctuality rate of TER services fell back to 2019 levels.

The 2022 punctuality rate (threshold of 5 minutes and 0 seconds at the terminus) was equal or below the 2019 level for eight of the eleven regions. Only Auvergne-Rhône-Alpes, Bourgogne-Franche-Comté and Pays de la Loire saw higher punctuality rate in 2022 than in 2019.

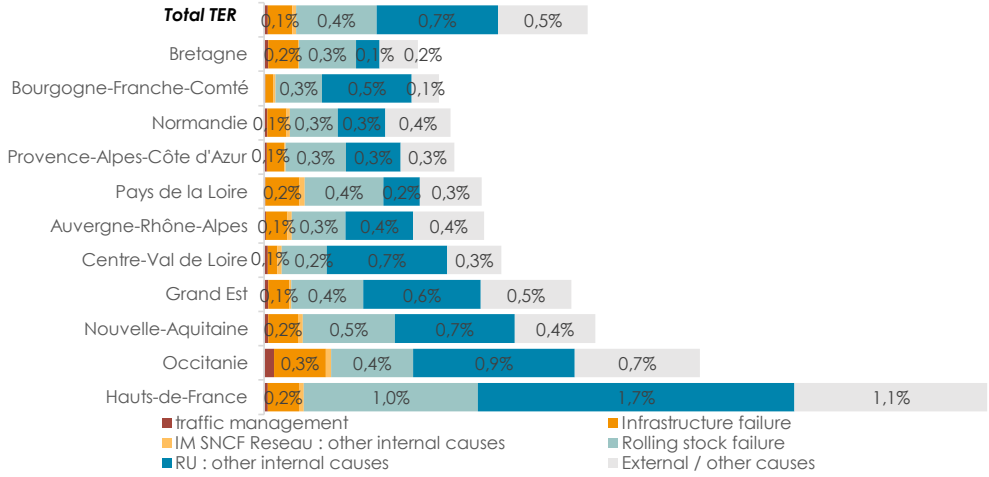
Large differences in punctuality rates are observed between different regions, ranging from 6% for Bretagne to 16% for Provence-Alpes-Côte d'Azur, which recorded the largest increase compared to 2019 (+2.5 points).

PSO REGIONAL SERVICES (TER) IN FRANCE (3/4)

1 out of 4 "late cancellations" of TER services trains was due to a rolling stock failure.

In 2022, most cancellations occurring after D-1 4 p.m. fell under railway undertakings responsibility. They represented a share ranging from 51% to 78% of cancellation causes depending on the region. Among these causes, rolling stock failures accounted for a heterogeneous share (from 27 to 71%). However, they represented a homogeneous rate of late cancellations (between 0.3% and 0.4% of scheduled traffic for most regions). Only Hauts-de-France stood out, with nearly 1 out of 100 scheduled trains cancelled after D-1 4 p.m because of a rolling stock breakdown, and an overall rate of late cancellations due to railway undertakings much higher than in the other regions. Of note, "rolling stock failures" can be induced by problems related to weather conditions (high heat, snow, heavy rain), which particularly impacted certain regions in 2022. Occitanie also stood out with significantly higher proportion of "infrastructure failures" resulting in a higher share of late cancellations falling under infrastructure managers.

Figure 43 – Share of late cancellation causes per scheduled trains per region for TER services in 2022

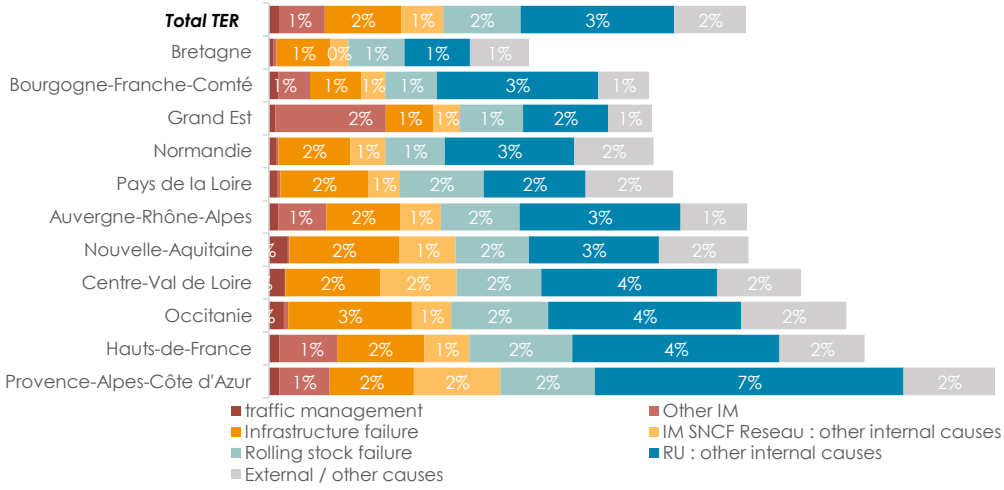


Source: ART according to railway undertakings

In 2022, causes of delays were evenly distributed across regions.

In 2022, railway undertakings were responsible for 48% of delays on average. Grand Est region stood out with a large share of "Other IM" responsibility due to cross-border connections, which represented 9% of supply in train-kmin 2022. It also explained a substantial part of delays in Hauts-de-France and Provence-Alpes Côte d'Azur. However, for these two regions, which recorded worse late-train rates than average in 2022, most delays fell under railway undertakings responsibility.

Figure 44 – Share of causes of delay per running trains per region for TER services in 2022



Source: ART according to SNCF Réseau

PSO REGIONAL SERVICES (TER) IN FRANCE (4/4)

Revenues for the TER activities fell due to the decline in public subsidies.

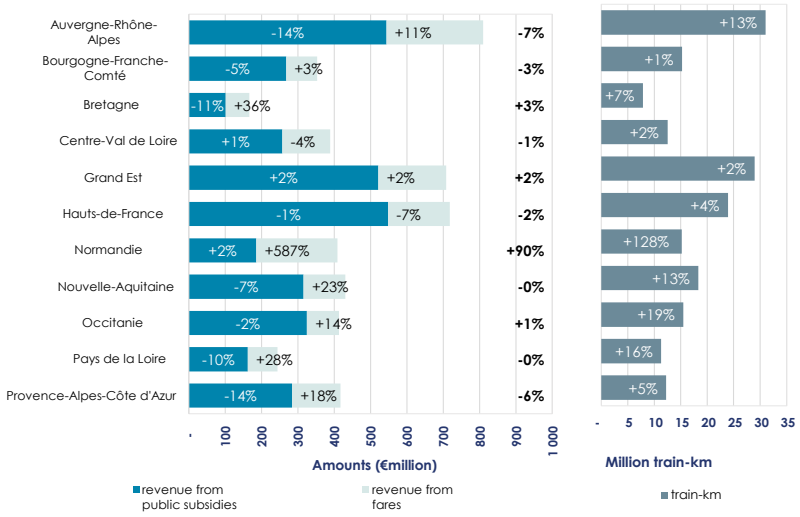
In 2022, driven by the increase in passenger numbers from non-subscribers, commercial revenue from TER services was 8%* higher (in constant euros) than in 2019. The Hauts-de-France and Centre-Val de Loire regions, for which demand is still down compared to 2019 (excluding in December), were the sole regions recording lower levels of commercial revenues.

The sharp increase observed for the Normandie region can be explained by the integration of the Normandie "Intercités" lines in 2020, representing a volume of activity (and revenue) much higher than that organised by the region until 2019.

Conversely, the amount of public subsidies decreased by 6%* in constant euros on average compared to 2019 for TER services, with contrasting trends by region (from -14% to +3%).

Due to the weight of public subsidies (71% in 2022, i.e. 3 points less than in 2019), **revenues in constant euros from the TER business were therefore down -2%*.** Apart from Normandie, which was affected by its change of scope, only the Bretagne, Grand Est and Occitanie regions recorded an increase of TER revenues.

Figure 45– 2022 breakdown of revenues from the TER activity *(in constant euros 2022)* **and supply by region in train-km**
(% change 2022/2019 in labels)

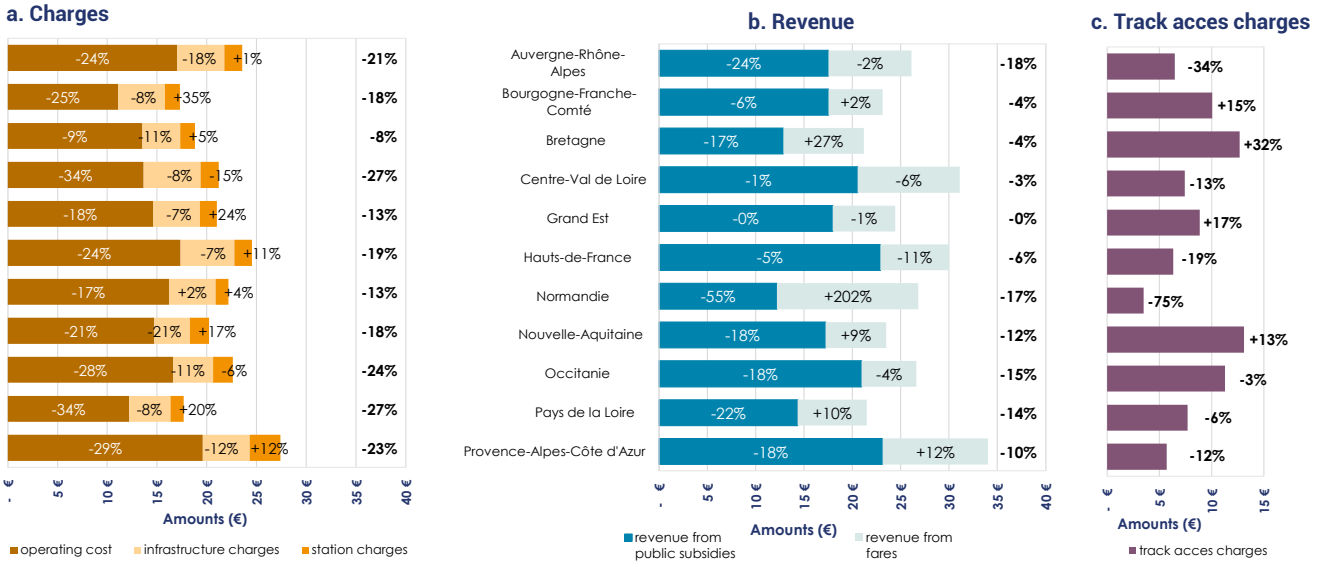


Scope: change of scope for the Normandie region due to the integration of the Intercités services after 2019.
Reading note: the Auvergne-Rhône-Alpes region saw a 13% increase of train-km in 2022 compared to 2019. At the same time, TER revenue in this region, which amounted to €810 million (in constant euros), fell by 7% overall (up 11% for the "fare revenues" component while the "public subsidies" component fell by 14%).
Source : ART based on SNCF Voyageurs

Expenses for TER services fell more sharply than the drop of revenues for all the regions concerned.

In 2022, the combined effects of the increase in train-km supply and the decrease in the level of charges lead to a decrease in charges per train-km for all regions, from -8% for the Bretagne region to -27% for the Pays de la Loire and Centre-Val de Loire regions. Operating expenses and infrastructure tolls fell by an average of 24%* and 11%* per train.km, respectively. With regards to operating expenses, this change was boosted for several regions in the context of renewals of their PSO contracts during this period. On the other hand, station charges per train.km increased by 9%* compared to 2019, in particular due to the transfer of the platform charge to station charges since 2020 (previously integrated into infrastructure tolls). The amount of access charges paid by the State (based on an estimated cost in 2011 and revised in 2017 to record the transfer of Intercités trains to the regions), compared to the trains.km, fell by 10% on average (4%*) with very contrasting trends by region.

Figure 46 – 2022 breakdown of TER revenue and expense volumes, per train.km *(in constant euros 2022)*
(% change 2022/2019 in labels)



Scope: change of scope for the Normandie region due to the integration of Intercités services after 2019.
Source: ART based on SNCF Voyageurs

**Statistics measured on the entire TER activity outside the Normandie region, for which the scope has changed*

09

Overview of PSO regional services in region Île-de-France (Transilien and RER) (1/2)

	Level (2022)	3-years change (2019-2022)	5-years change (2017-2022)
▪ Daily number of trains (SNCF)	5400	+ 2%	n/d
▪ Seat capacity of trains	803 seats	- 5 %	- 8%
▪ Train occupancy rate	32%	-1 pp	-
▪ Reliability rate (effective trains per scheduled trains)	89%	+0,5 pp	-6 pp
% of trains behind schedule (5 min threshold)	9%	-1 pp	-3 pp

Figure 47 – 2022/2019 change of supply and demand for "RER" lines

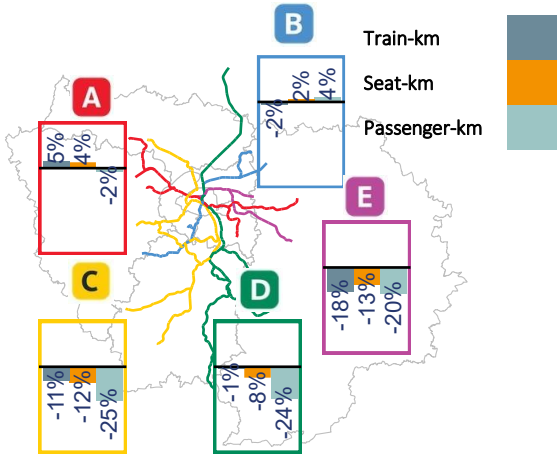
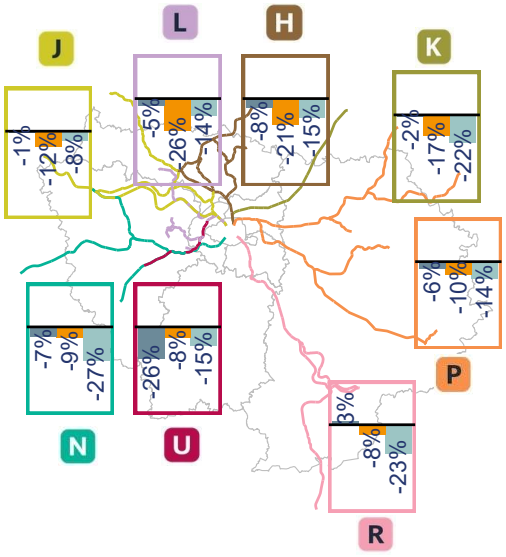


Figure 48 – 2022/2019 change of supply and demand for "Transilien" lines



Source : ART according to SNCF Voyageurs and RATP

Transport supply remained below 2019 level for almost all lines.

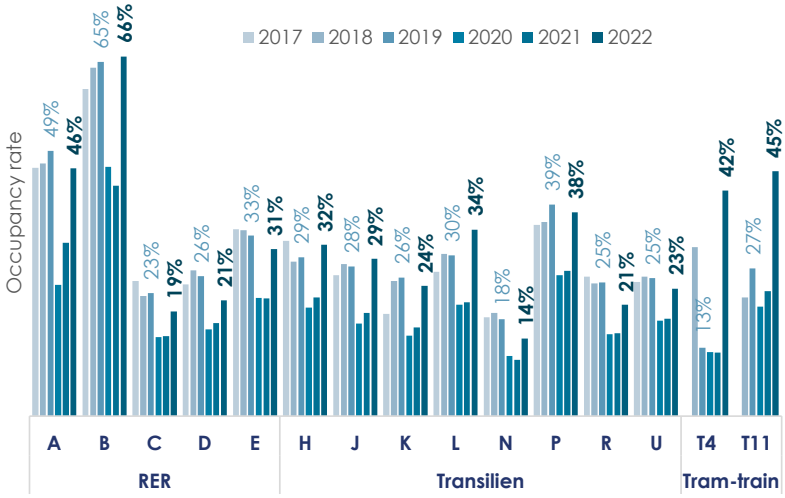
Transport supply for PSO service in île-de-France region ("Transilien" and "RER") remained lower than in 2019 for almost all lines. They are three notable exceptions : RER A (+5% of train-km), RER B (up in train-km and seat-km on the RATP sections only - see chapter 2) and, to a lesser extent, Transilien line R (+3% of train-km). Supply in train-km fell for every other lines (by 26% for line U), and supply in seat-km increased only for RER lines A and B. **On average, the amount of seat-km fell by 14% for Transilien lines compared to 2019. It is equivalent to the drop recorded between 2019 and 2020.**

Demand was still down sharply compared to 2019.

Traffic in passenger-km also remained below the 2019 level for all lines, except for RER B, where it increased by 4%. On average, there were 10% less passenger-.km than in 2019 for RER lines and 15% less for Transilien lines.

With 32%, the average occupancy rate of Transilien and RER lines got closer to 2019 level (-1 pp). Four lines exceeded their 2019 level. These are lines B, J and L, all three of them recording their highest occupancy rate over the period 2017 – 2022, and line H.

Figure 49 – Occupancy rate per line since 2017



Source : ART according to SNCF Voyageurs and RATP

OVERVIEW OF PSO REGIONAL SERVICES IN REGION ÎLE-DE-FRANCE (TRANSILIEN AND RER) (2/2)

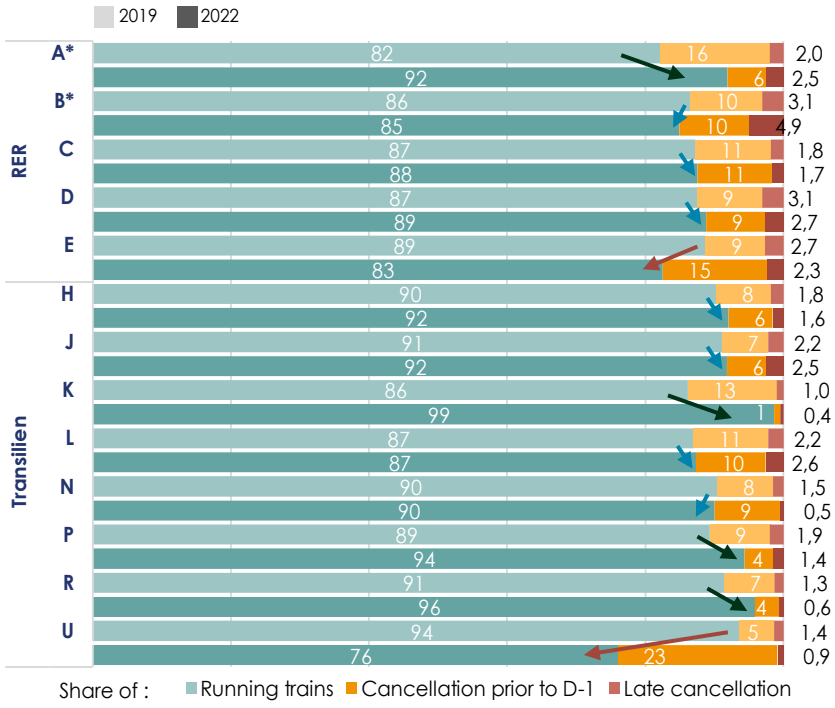
In 2022, the reliability rate increased by only 0,5 pp compared to 2019, yet highly affected by social movements.

Although there were no major disruptions in 2022, the rates of cancellation prior to D-1 and « last-minute » cancellation remained close to 2019 levels for Transilien and RER services. However, there were contrasting trends between lines.

Transilien line U and RER line E recorded a sharp decrease of their reliability rate due to cancellation prior to D-1 rate rising by 18 and 7 pp, respectively. Conversely, RER line A recorded the strongest improvement (+10 pp).

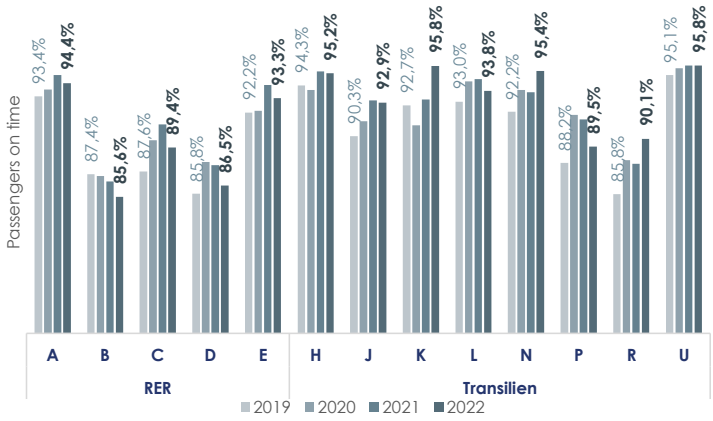
RER line B stood out with a record late cancellation rate of 5% (versus 2% on average for the other lines), up 2pp compared to 2019, while the other lines recorded annual changes ranging -1 to +0,5 pp.

Figure 50 – Reliability indicators of PSO services in region Île-de-France (excluding RATP)



Source : ART according to SNCF Voyageurs
*Scope : *calculated on the RFN only, excluding RATP for rer lines A and B*

Figure 51 – Passengers punctuality rate, at 5 min threshold, since 2019



Source : ART according to SNCF Voyageurs and RATP
Scope : December 2019 is excluded. January , april and may 2020 were calculated on the RFN only, excluding RATP for rer lines A and B.

In 2022, the punctuality rate of Transilien and RER passengers was higher than in 2019 for all lines, except the RER B.

The percentage of passengers behind schedule in RER line B, which is the only line where traffic in passenger-km increased compared to 2019, decreased over the past three years. It is the only line that didn't recorded any improvement since COVID-19 pandemic.

In 2022, the punctuality rate for RER B passengers decreased by 1.7 pp compared to 2019. Conversely, there was an improvement for the other lines, ranging from +0,6 pp for the RER line D to +4,3 pp for Transilien line R.

The RER B thus remained the service with the highest proportion of delayed passengers at 5min threshold (14,4%), ahead of lines D (13,5%) and C (10,6%).

ANNEX

Figure A1 – Indices used to deflate time series

Partie	Indicateur	Déflateurs
Part 02	Infrastructure charges (collected by SNCF Réseau and Lisea)	100% HICP
Part 02	Maintenance and surveillance costs (SNCF Réseau and RER RATP network)	50% TP01 ; 50% HICP
Part 02	Traffic management costs (SNCF Réseau)	80% CMA* ; 20% HICP
Part 02	Other expenses (SNCF Réseau)	50% CMA* ; 50% HICP
Part 02	Regeneration investments (SNCF Réseau)	80% TP01 + 20% HICP
Part 02	Other investments (SNCF Réseau)	80% TP01 + 20% HICP
Part 02	Investments (RER RATP network)	80% TP01 + 20% HICP
Part 08	Revenues and expenses (TER services)	100% HICP

*CMA : Average cost of SNCF Réseau workers. The index is sourced from the financial reports of the infrastructure manager.
HICP : Harmonized Index of Consumer Prices, published by INSEE. See glossary
TP01 : General index of public works - all categories of works, published by INSEE

DEFINITIONS/GLOSSARY

Wording	Acronym(s) / unit(s)	Definition
Average age of the rail network	years	For SNCF Réseau, the average age of a track corresponds to the average age of the components weighted by the economic weight of each (rail accounts for 22,6%, sleepers for 41,9% and ballast for the rest).
Cancellations	-	Traffic not carried out on D-Day, even though it was provided for in the transport plan set at D-1 5 p.m.
Candidate	-	An organization with commercial or public service reasons to acquire infrastructure capabilities. An applicant may be a railway undertaking (RU), a group of RUs, a mobility organising authority (AOM), a combined transport operator, a port, a shipper, a freight forwarder.
Average Carrying Capacity	Nb. seats	Number of seat places commercialized per train circulation.
SNCF Network classification of lines and tracks (SNCF Réseau classification follows a UIC method)	-	Classification of railway lines adopted by SNCF Réseau according to the traffic loads supported by the infrastructure as well as the type of traffic, following a UIC method. Group 1 corresponds to very busy lines and, on the other hand, group 9 corresponds to very lightly loaded lines. High-speed lines are classified separately. The structuring network is defined as all high-speed lines, the rail network in Île-de-France and all lines classified in UIC categories 1 to 6. Category 7 to 9 lines are often referred to as "small lines".
Government Contributions to RUs	€ excl. VAT	Public subsidies consisting of fare compensation (all activities are concerned) and flat-rate equilibrium compensation (for PSO services only: TER, Transilien, Intercités).
Deprogramming	-	Balance between scheduled circulations (open for commercialization) and scheduled circulations at D-1 5 p.m.
Network Reference Document	DRR(for « Document de Référence du Réseau »)	Document specifying the general rules for access to infrastructure, deadlines, procedures and criteria for charging and allocation systems for infrastructure capacity, including all other information necessary to enable applications for infrastructure capacity (train paths) to be submitted.
Railway undertaking	RU	Any company with a private or public status, which has obtained a licence and a safety certificate in accordance with the applicable legislation, providing services for the transport of goods or passengers by rail, the traction of which must be provided by this undertaking; This term also covers companies that only provide traction.
European Rail Traffic Management System	ERTMS	European Rail Traffic Management System allowing interoperability between the different European networks while ensuring train safety. It integrates two components: the Railway-Specific Radio System (GSM-R), and the Train Control System (ETCS). The latter has three levels of operation; the network defined as 'interoperable' in this report is the one that has achieved at least ETCS level 1 interoperability.
Infrastructure Manager	IM (french « GI »)	Any entity or undertaking responsible in particular for the management and maintenance of the railway infrastructure, including traffic management, and the signalling and control system. SNCF Réseau is the main IM in charge of the national rail network (RFN).
Service Schedule	French « HDS » (for « Horaire de service »)	Twelve-month period beginning on the second Saturday in December at midnight in year A-1. HDS 2019: from December 9, 2018 to December 14, 2019 HDS 2020: December 15, 2019 to December 11, 2020 HDS 2021: December 12, 2020 to December 10, 2021 HDS 2022: December 11, 2021 to December 9, 2022
Track Consistency Index	French « ICV » (for « indice de consistance des voies »	Indicator specific to SNCF Réseau, which allows infrastructures to be rated between 0 and 100. An index of 100 indicates infrastructure in new condition. An index of 10 indicates a theoretical end-of-life infrastructure (the remaining lifetime is zero). A grade of 0 is only achieved after an additional 5 years. SNCF Réseau considers that an ICV of 55 is an objective to be achieved for the sustainability of the track.

DEFINITIONS/GLOSSARY

Wording	Acronym(s) / unit(s)	Definition
Index of Consumer Prices (harmonised)	IPC(H)	A reference instrument for measuring inflation, which makes it possible to estimate, between two given periods, the change in the general level of prices of goods and services consumed by households in France. It is a synthetic measure of price changes at constant quality. The CPI and the HICP (designed for international comparison) have fairly similar trends in the case of France, reflecting their methodological proximity. https://www.insee.fr/fr/metadonnees/source/indicateur/p1654/description The HICP is also the index used in the DRR to express in current euros the forecast cost trajectories (personal OPEX for operating costs, maintenance cost per kilometre of track and Gopeq) resulting from the multi-year performance contract between the State and SNCF Réseau.
"Small lines" (LDFT for "Lignes de desserte fine du territoire")	LDFT	In contrast to the RFN's structuring network, the RFN's category 7 to 9 lines are the least used.
High-speed line/network	HSL (LGV for « Ligne à grande vitesse »)	The portion of the national rail network on which trains can travel at speeds of more than 220 km/h.
High-speed line "Bretagne-Pays de Loire"	HSL BPL	High-speed line under the scope of Eiffage Rail Express' infrastructure management (maintenance and renewal of the infrastructure).
High-speed line « Sud Europe Atlantique »	HSL SEA	High-speed line under LISEA's infrastructure management perimeter (path marketing, maintenance and renewal of infrastructure).
Classical line	(french « LC »)	The portion of the national rail network on which trains travel at speeds of less than 220 km/h.
(Investments of) compliance of the RFN		Capital expenditure related to safety (79%) (securing sites, pedestrian crossings, safety, cybersecurity, etc.), interoperability (ERTMS, 16%), environment and sustainable development (4%) and the adaptation of rail systems to (new) rolling stock.
Combined Transport Operator	CTO	Combined (road-rail) transport operator (in French OTC (for *oérateur de transport combiné*)). CTO are defined as authorised candidates and railway undertakings whose entire activity is dedicated to combined transport and which carry out handling services on combined transport sites.
Operational expenditure	Opex	
Passenger-kilometers	pax.km ou vk	Unit of measurement of rail service demand corresponding to the movement of a passenger over one km.
Charges paid by the RUs to SNCF Réseau	€ HT	Charges collected by SNCF Réseau from railway undertakings for the minimum access package (directly attributable costs and mark-up charge). This amount does not include the access fee, paid by the State (for TER and TET) and by IDF Mobilités (for Transilien), nor does it include the non-regulated services invoiced by SNCF Réseau.
Access charge	RA (for *redevance d'accès*)	Flat mark-up charge applied to PSO passenger services in accordance with Article 32 of Directive 2012/34/EU, directly paid by the State (for TER PSO services) and IdFM (for Transilien PSO services in Île-de-France)
Operating charge	RC (for *redevance de circulation*)	Charge for the minimum access package to cover the cost that is directly incurred as a result of operating the train service in accordance with Article 31 of Directive 2012/34/EU
Electric traction charge	RCE (for *redevance de circulation électrique*)	Charge for the minimum access package to cover the costs incurred as a result of operating electric traction trains - see annex 5.2 of DRR of SNCF Réseau
Electrical System Loss Charge (RCTE for *redevance pour le transport et la distribution de l'énergie de traction*)	RCTE-A (component A)	Charges for the transmission and distribution of traction energy, including the component A charge for the minimum access package - see annex 5.2 et 5.4 of DRR of SNCF Réseau

DEFINITIONS/GLOSSARY

Wording	Acronym(s) / unit(s)	Definition
Passenger Stations charge Paid by RUs	€ HT	Amount received by SNCF Gares & Connexions for the minimum package, excluding additional/optional services.
Market charge	RM (for Redevance de marché)	Mark-up charge applied in accordance with Article 32 of Directive 2012/34/EU
National Rail Network	RFN (for réseau ferré national)	The RFN covers all railway lines belonging to the State, the consistency and main characteristics of which are fixed by regulation (under the conditions provided for in Articles L. 1511-1 to L. 1511-3, L. 1511-6, L. 1511-7 and L. 1512-1 of the Transport Code). The RFN integrates the lines under SNCF Réseau management, as well as the HSL BPL, the HSL SEA and the Nîmes and Montpellier rail bypass (CNM). However, it does not integrate the RATP network.
Delay	-	Unless otherwise specified, passenger trains with a time difference of more than 5 minutes and 0 seconds on arrival at the train terminus shall be considered late.
Seat-kilometers	Seat-km	A unit of measurement for rail service that corresponds to the movement of a train seat over one km.
Train path	-	The infrastructure capacity required to move a given train from one point to another over a given period of time.
Commercial (or non-PSO) service	HST	Non-PSO train service operated on HSL or conventional lines.
High-speed trains	HST (or TAGV « for Trains aptes à la grande vitesse »)	Non-PSO high-speed train service operated on HSL or conventional lines. The service is operated in 2021 as a monopoly in France by SNCF Voyageurs for domestic routes, and by SNCF Voyageurs, SNCF Voyageurs' subsidiaries or by international agreements with other european RUs for international routes. The HST service is subdivided by SNCF Voyageurs into 4 geographical « axis » : Atlantic, Northern, Eastern and South-East.
Long-distance non-PSO trains	(TGL for « Trains grandes lignes »)	This is a distinction to HST services or trains, operating only on the conventional line network – this is particularly the case in 2022 for "Ouigo train Classique" services
Cancellation rate	%	Ratio of (total) cancellations to scheduled traffic
Deprogramming rate	%	Ratio of deprogramming to scheduled traffic
Rate of passengers compensated (for train delays)	%	Ratio of passengers affected by a train delay who have applied for compensation and have been awarded a compensation voucher or refund by the railway undertaking.
Effective train rate	%	Ratio of the number of effective train circulations to scheduled train circulations. The number of effective runs is equal to the differential (scheduled train circulations – deprogramming – cancellations).
Delay rate	%	Ratio of the number of late trips to scheduled trips on D-1 4 p.m.
Occupancy rate	%	Ratio passenger.km/seat.km
« Transport express régionaux »	TER	SNCF Voyageurs' trademark that applies to the trains and coaches operated under PSO agreements with the regions. The term TER is used to refer to the entire activity of regional transport or a train that is part of this activity (regional express train). All regional and local service trains operated by SNCF Voyageurs are TER trains, except in Île-de-France, where the Transilien brand is used.
« Trains d'équilibre du territoire »	TET	PSO rail services of national interest organised by the State in accordance with Article L. 2121-1 of the Transport Code. From the end-user's point of view, TET circulations are grouped together under the name "Intercités".
Trains.kilometres	trains.km	Unit of measurement of rail service supply corresponding to the movement of a train over one km.
Out-of-age track		SNCF Réseau determines a theoretical service life for each track component. The qualification "out-of-age track" is determined on the basis of the components of the route whose age is beyond the regeneration threshold defined in the regeneration policy that applies to them. See also the definition of network age.

METHODOLOGICAL GUIDE

WARNING

The results presented were obtained by statistical processing by ART-France, based on data transmitted as part of the regular data collection set up in application of the provisions of the legal Transportation Code. In this reporting process, it is the responsibility of railway undertakings, authorised applicants, infrastructure managers and the *Régie autonome des transports parisiens* (RATP) to transmit reliable and complete data to ART-France. The sources of the other data used in this report are systematically mentioned.

When using the data collected, ART-France services made every effort to correct any errors or inconsistencies detected in the data transmitted by successive iterations with the stakeholders. However, ART-France cannot guarantee the perfect reliability of all the data received.

Whenever possible, the data are subject to statistical processing by cross-referencing data from different sources to obtain indicators and graphs that are more robust to errors and inconsistencies in the data collected. However, this is data collection and processing for statistical purposes and not audits or surveys; under these conditions, the published data, indicators and graphs cannot be regarded as validated by ART-France. These data, indicators and graphs are of statistical value only and cannot be used against it in the context of any procedure.

The completion of this report has resulted in the updating of statistical data for fiscal years 2015 to 2021. All of this data relating to the rail passenger transport market for the years 2015 to 2021 has therefore also been updated in the statistics database accessible in Open Data in the website of ART-France and can be considered semi-definitive. The new data contained in this report, relating to the year 2022, are to be considered provisional.

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