Autorité DE RÉGULATION DES TRANSPORTS

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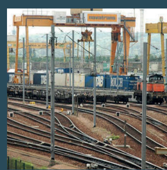
RÉPUBLIQUE FRANÇAISE

RAIL MARKET MONITORING REPORT IN FRANCE IN 2021

> OVERVIEW







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Introduction

6th Railway Report of the Transport Regulatory Authority

The sixth 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 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 2021. They are enriched with new indicators and thematic analyses regarding:

- the degree of use of the national rail network with regional grid;

- the economic results of infrastructure managers for RFN (annual investments) and for the RATP RER network;

- the balance of greenhouse gas emissions in France for passenger rail activities;

- the combined freight transport segment within the rail freight business.

The year 2021 is still affected by the impacts of the pandemic crisis on the transport sector, having strongly affected rail transport since 2020; Some analyses 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 analyses 2017-2021

2017
- Use of RFN during peak/off-peak hour

2018
- 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

Summary

Synthesis (1/2)

01. Characteristics and usage intensity of the national rail network

- On the same trend observed for several year, the national rail network (RFN) continued to shrink in 2021, with the exit from the operated network of more than 400 km of routes in two years, among the oldest and least used "small routes". Classic routes are 2 years younger in 2021 in comparison with 2015, due to the renewal and closure of the most obsolete lines. However, the average condition indicator for high-speed lines (HSL) always appears degraded, particularly on the most heavily trafficked axis (« Southeast » HSL), which will require important renewal work in the coming years.
- The usage intensity of RFN has been progressively returning to its pre-crisis level, and reached 95% of the 2019 levels at the end of 2021. The usage intensity of railway lines shows a high variability within the regions: while nearly 160 trains run every day on average on the Île-de-France rail network (and 400 on the RER network), the conventional lines of Nouvelle-Aquitaine, Occitanie, Normandie and Centre-Val de Loire record less than 40 daily trains (and less than 10 trains, all directions combined, on nearly or more than 20% of conventional lines in most regions).

02. Economic performance of infrastructure managers

- Infrastructure managers' revenues are 3.7% lower in 2021 than in 2019: the decline in rail traffic was thus cushioned by the sharp increase of public subsidies since 2019 for PSO and freight services, and by an increase of track access charges.
- Operating costs for the maintenance of the rail network are 5% lower than in 2019, but up for the tracks of the core network except the HSL.
- SNCF Réseau's investments in 2021 amount to €5.4 billion, up 12% compared to 2019, driven in particular by the renewal and upgrade of the network. However the volumes of "equivalent large programmed operations" (GOPEQ*) are nevertheless lower than in 2019, particularly in view of a decrease in expenditure on track categories 2 to 6 of the structuring network, while expenditure on major operations carried out on the HSL network has increased over the last two years.
- Maintenance costs of the RATP RER network represented €140 million in 2021, and an investment of €250 million.

* See page 11

03. Modal shares

- Rail passenger transport picked up on a less strong dynamic than road transport. Unlike rail transport for freight services, for which modal share has been increasing (10.4% in 2021), the modal share of rail passenger transport decreased by 1.3 percentage points (pp) since 2019 and reached 8.6% in 2021.
- The recovery in rail ridership in France appears to be more dynamic than in most European countries for passenger transport and, for freight transport, in line with the increases also observed in neighbouring countries.

04. Rail freight services

- Rail freight transport rebounded quite strongly in 2021, by +5.4% in tonnes.km compared to 2019. While unit revenues are down 2.5% compared to the level observed in 2017, the freight sector benefited in 2021 from an extension of State aids for the payment of railway infrastructure access charges. The incumbent's share fell again by 3 percentage points in a fully competitive market.
- The rebound in freight activity is driven by the strong momentum of combined transport, up 20% compared to 2019 and representing 39% of freight activity. Operating on long rail routes, this market segment is concentrated among few railway undertakings, but attracts a greater number of allowed applicants for the reservation of train path capacity. Combined transport, on the other hand, shows lower levels of punctuality than conventional transport.

05. Rail passenger services

- The supply of rail passenger transport (in train-km) recovered, in 2021, 94% of its 2019 level, with marked differences between services. While the TER offer exceeded its 2019 level, high-speed train (HST) services showed more progressive recovery, particularly for international services (back to 41% of the 2019 levels).
- Rail traffic (in passenger-km) reached, in 2021, 76% of its 2019 level, leading to further degraded occupancy rates, particularly for Transilien services (-10 percentage points). While the domestic HST services and TER activities recovered at the end of the third nation-wide lockdown, international activities stayed, as for Transilien services, 30% lower at the end of the year than their 2019 attendance..
- Within HST activities, the share of Ouigo services remained flat for the first time since their creation with one in four domestic commercial passengers carried in 2021. Among the geographic subdivision of SNCF Voyageurs of its HST activities (thereinafter called axis), the "Eastern axis" and "Northern axis", already more affected in 2020, showed slower recovery than the main "Atlantic axis" and "South-East axis" in 2021.

Synthesis (2/2)

05. Rail passenger services

- Since the effective opening to competition of domestic rail transport at the end of 2020, three new open access services are operated in France: one service operated by Trenitalia France (Paris-Lyon-Milan) and two services operated by SNCF Voyageurs (through a subsidiary OSLO) between Paris and Lyon and between Paris and Nantes via the conventional (non high-speed) line. The night train services also resumed in 2021 in France.
- The majority of regions validated a process and a timetable for opening up their PSO rail services to competition for the market., specifying for several of them the foreseen bundle of routes.
- In the context of a partial recovery of rail traffic, GHG emissions from rail transportation decreased more sharply than rail traffic (in train-km) in particular due to an increase in the use of dual-mode railway equipment by the TER services.

06. Economic performance of passenger rail transport

- Direct revenues from passenger rail transport decreased by 30% since 2019. The decline was more pronounced for international activities (-65%) than for domestic HST services (-28%). However, revenues from the TER and Transilien activities increased (by +6 and +4%), due to a sharp increase in public subsidies. The average revenue per passenger-km was up for TER (+4%) and Transilien (+13%), notably due to sharper decline of the demand of subscribers. Average price levels for HST services are lower in 2021 than those observed in 2019, but up in the second half of the year, in line with the stronger recovery in demand.

07. Quality of passenger service

- Nearly 10% of PSO trains and more than 20% of HST services underwent early-cancelling (prior D-1) during 2021 due to a new period of confinement. Punctuality of passenger traffic (monitored at the last train station) increased (+2 pp) compared to 2019. This improvement was observed in particular for domestic HST passengers and Transilien services. Only 42% of domestic and international HST passengers facing train delay equal or above 30 minutes late were compensated in 2021, even though this indicator has been on the rise since 2018.

08. Regional PSO services (TER)

- PSO regional rail supply increased compared to 2019 for five regions, while TER demand is still down sharply (-18%), particularly in the neighbouring regions of Île-de-France. This leads to lower occupancy rates than in 2019 but up in the second half of the year for all regional PSO services. However, the decline in passenger numbers is much more marked for subscribers than for non-subscribers, particularly in region Hauts-de-France (-37%), region Centre-Val de Loire (-36%), region Provence-Alpes-Côte d'Azur (-28%) and Occitanie (-21%).
- The reliability rate (cancellation before D-1 and late cancellations) for TER services returned to the level of 2019 (8%) with improvements affecting most regions. Similarly, the punctuality rate of TER traffic is higher, for all regions, than in 2019.
- TER revenues fell sharply for the majority of regions, and by more than 20% in Centre-Val de Loire, Provence-Alpes-Côte-d'Azur and Hauts-de-France. However, public subsidies kept revenues at 2019 levels for all regions but Centre-Val de Loire and Bourgogne-Franche-Comté.
- The increase in supply compared to 2019 led to a 9% decrease in operating expenses per train-km for the TER activity.

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

- Despite levels of supply close to the 2019 level for most RER and Transilien lines, 2021 traffic is down sharply, between -31% to -38% for RER lines and down to -41% for line N. Occupancy rates remained consequently at levels close to those of 2020, exception made of line A, which recorded a more important increase but for which the occupancy level (32%) remains far from that observed on average in 2019 (45%).
- In 2021, the completion rate (trains that have actually run compared to scheduled trains) for PSO services in Île-de-France is 86% (-2 pp versus 2019), and degraded notably for lines B, C and E. On the other hand, the punctuality rate improved, reaching 90% at the 5 minutes threshold.

01

CHARACTERISTICS OF THE RAILWAY NETWORK (1/3)

Characteristics of the national railway network (RFN), *(including the lines managed by SNCF Réseau as well as the HSL "SEA" and "BPL" and the bypass around Nîmes and Montpellier (see glossary)*	Level (at 31/12/2021)	2-years change (2019-2021)	5-years change (2016-2021)
▪ Route length of rail network operated	27,700 km	- 430 km	-630 km
▪ Track length of rail network operated	49,110 km	- 390 km	-125 km
▪ Age of rail infrastructure	28.6 y.o.	- 7 months	-2 y.o. , 3 months
▪ "Out of age" rail network (% of tracks excluding HSL)	20.6%	- 0.02 pp*	- 1.6 pp
▪ Electrified rail network (% of tracks)	70.8%	+ 0.6 pp	+1.5 pp
▪ Interoperable rail network ERTMS 1/2 (% of routes)	4.0%	+ 0.1 pp	n/d
▪ Interoperable HSL network ERTMS 1/2 (% of routes)	34.9%	- 0.0 pp	n/d
▪ 80% of rail traffic (train-km) is operated on…	41% of RFN	+ 2.0 pp	
▪ "Small railway lines" allowing passengers services ("7 à 9 AV")	12,025 km (tracks) 34.1 y.o. 20.6% electrified 10% of train-km	+ 437 km (tracks) - 2 y.o., 6 months + 2.0 pp + 1.0 pp	+ 13 km (tracks) - 4 y.o. , 1 month - 2.9 pp n/d

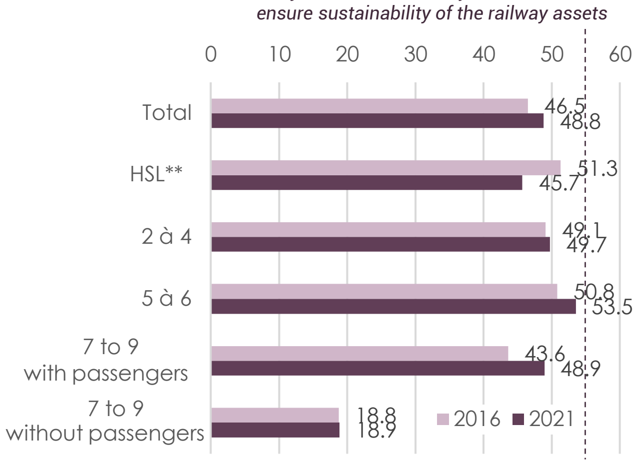
pp : percentage point(s)

The closing of the oldest routes of the national network continues in 2021

In 2021, the national rail network (RFN) contracted of about 150 km of track over one year, mainly concerning the oldest tracks (track categories "7 to 9 without passenger services"). Since 2016, nearly 1,200 km of "small lines" (category 7 to 9 tracks) have been closed. More than 900 km of category 2 to 4 tracks were downgraded in 2021 compared to 2020, while the high-speed network remained stable.

In 2021, **the RFN had 1,100 km of lines compatible with the European rail traffic management systems (ERTMS 1 and 2)**, i.e. 7% of the electrified network and nearly 35% of the high-speed line network. The deployment of these technologies on electrified lines remains heterogeneous within European countries: 2% in Germany, 6% in Italy, 25% in Spain, 83% in Belgium and 74% in Switzerland (source IRG-Rail).

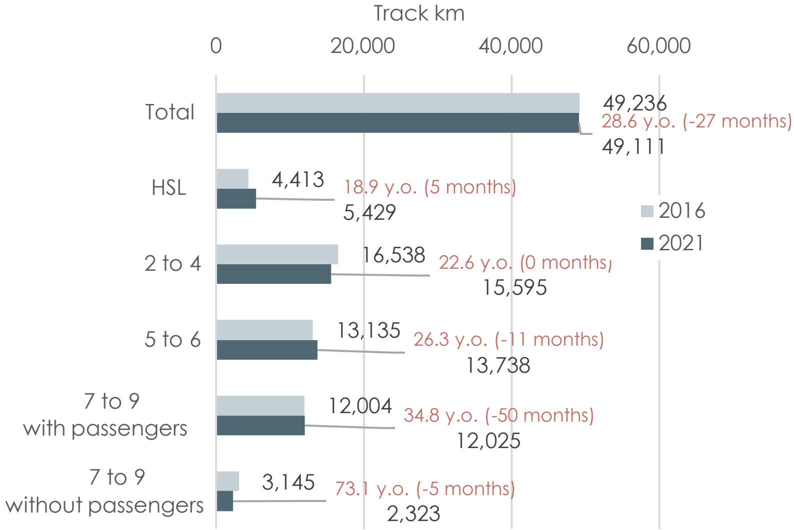
Figure 2 – Track Consistency Index (ICV*) in 2016 and 2021



Source : ART according to SNCF Réseau

*The ICV index is an indicator of the relative average age of the track in relation to its lifespan. The latter is based upon the characteristics of the track as well as its intensity of use. A new section is given a value of 100 and an end-of-life asset is scored 10 (the score 0 is only reached after 5 additional years).
**The ICV index is not measured by the IM of the SEA HSL and BPL HSL (the index is built by the main IM SNCF Réseau) and is not included in the global HSL average. The ICV index for these lines can be estimated however at above 60, given their recent opening in 2017.

Figure 1 – Track length and age of infrastructure of the national rail network (for each category of tracks of the IM SNCF Réseau), in 2016 and 2021



Source : ART according to infrastructure managers

The maintenance and renewal effort focuses on conventional lines

The RFN pathways was **28.6 years old on average** in 2021, 7 months younger year-on-year, meaning a rejuvenation of almost two and a half years since 2015. At the same time, the overall condition of pathways measured by the ICV index*, increased to the level of 48.8.

These two trends result both from the closing of the oldest routes and from **efforts to renew and maintain tracks, notably conventional tracks**. Indeed, the ICV index increased significantly since 2016 for tracks of categories "5 to 6" and "7 to 9 with passengers services", and remained stable for the "2 to 4" category. **The ICV index improved slightly for HSL in 2021 (from 44.7 in 2020 to 45.7) but still appears well below the 2016 level,** making it necessary to increase renewal efforts and work in the years to come, particularly for the oldest HSLs concerning the "South-East axis" and "Northern axis".

CHARACTERISTICS OF THE RAILWAY NETWORK (2/3)

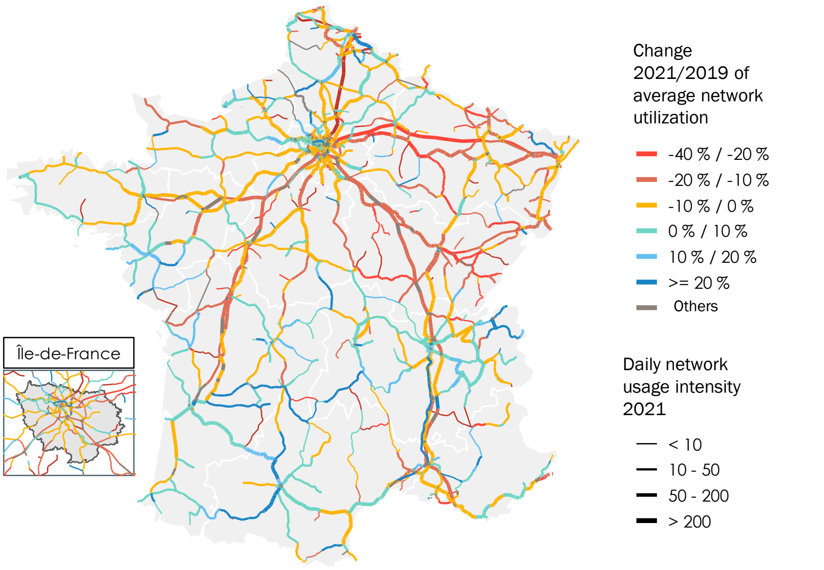
While the use of the RFN globally returned to a level close to 2019, rail traffic remained below pre-crisis levels on more than half of the railway routes

In 2021, rail traffic represented **438 million kilometres on the RFN**, up sharply (+19% year-on-year). This corresponds to a quasi-return to the level of 2019 (-6%) taking into account the month of December 2019 impacted by nation-wide strikes. Indeed, excluding December, the use of the RFN in 2021 remained lower than the level observed 2019 over all months, from -28% (in April) to -1% (in October). The recovery was stronger in the second half of the year with a level lower by 5% of the same period of 2019 (on average and excluding December), compared to -15% in the first half of the year.

The average network usage intensity was **43 daily trains per kilometre of route** (-4% compared to 2019), including 36 passenger trains which represented 83% of train-km in 2021.

In view of this progressive return of traffic to pre-crisis levels, 59% of the kilometres of routes of the RFN (which account for 67% of traffic in 2021) showed lower usage intensity in 2021 than in 2019. Rail traffic was even more than 40% lower on 5% of the km of routes. In contrast, more than a third of the RFN routes (34%**) recorded higher rail traffic than in 2019, up to more than 10% for 14% of the RFN.

Figure 3 – 2019/2021 change for network usage intensity (number of trains per track section)

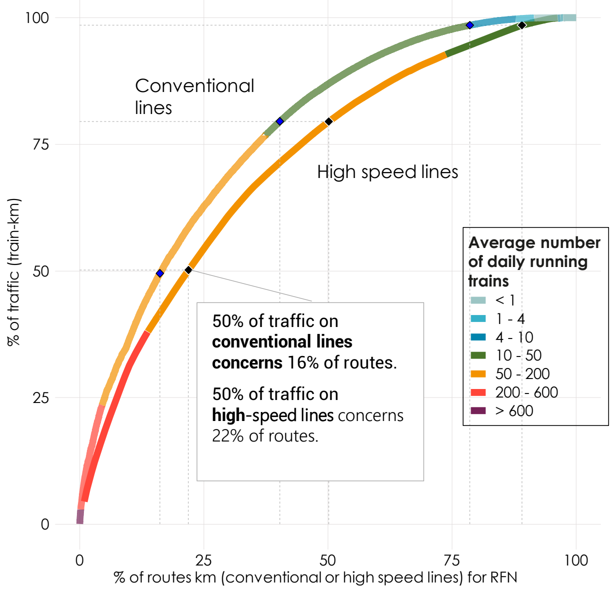


*** Other: traffic change not known due to variation for measure points between 2019 and 2021 (7% of route km)*
Source: ART according to SNCF Réseau

Heterogeneous usage intensity of the national rail network is observed among French regions

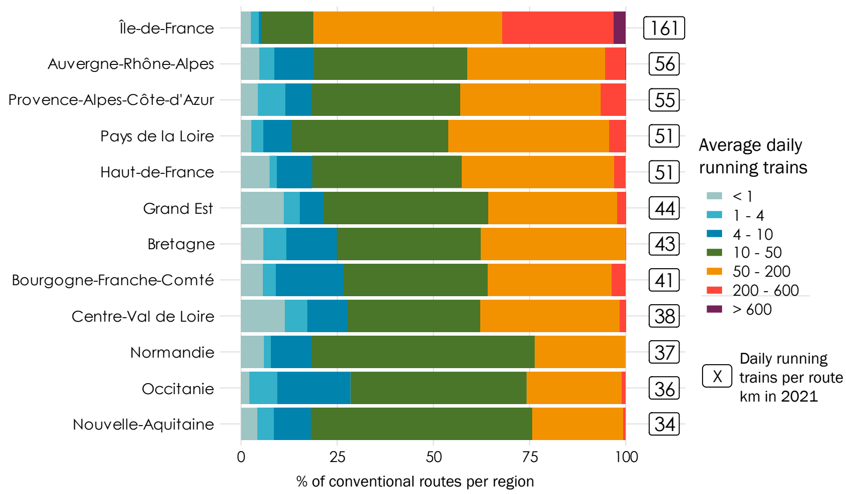
Rail network usage intensity appears relatively homogeneous for the high-speed line network (HSL): in 2021, 99% of high-speed train-km are operated on 89% of high-speed lines, and nearly 75% of high-speed lines record more than 50 trains per day. Regarding the conventional line network, 99% of traffic is operated on 79% of lines (78% of lines in the regions and 86% in Île-de-France). It should be noted that, on average for conventional lines, 21% of the routes record a level of traffic of less than 10 traffic (all directions combined) per day. The Nouvelle-Aquitaine, Occitanie, Normandie and Centre-Val de Loire regions report the lowest degree of use of their rail network with less than 40 daily trains on average across the entire network of conventional lines operated*, and less than 10 daily trains on more than a quarter of the rail network in Occitanie and Centre-Val de Loire (in comparison with the average value of 51 for the network of conventional lines operated* (44 outside Île-de-France)).

Figure 4 - Traffic density per kilometre of route on the RFN in 2021**



****as average number of daily running trais, regardless of the number of traffic lanes*
Source: ART according to SNCF Réseau

Figure 5 – Distribution per region of kilometres of conventional lines operated* in 2021, according to their level of use



**Note: Sections not operated during the year are excluded from the distribution presented by region for this Figure.*
Source: ART according to SNCF Réseau

CHARACTERISTICS OF THE RAILWAY NETWORK (3/3)

Apart from the national rail network (RFN), focus on the île-de-France RATP RER network

	Level (au 31/12/2021)	2-years change (2019-2021)
▪ Route length of the RATP RER network	123.4 km	-
▪ Track length of the RATP RER network	376.3 km	-
▪ Percentage of lifespan achieved by the RATP RER network*	62%	-
▪ Total traffic on the RATP RER network (million train-km)	12.6 M	- 49.6%
of which RER A	8.4 M	- 50.3%
RER B	4.2 M	- 48.2%

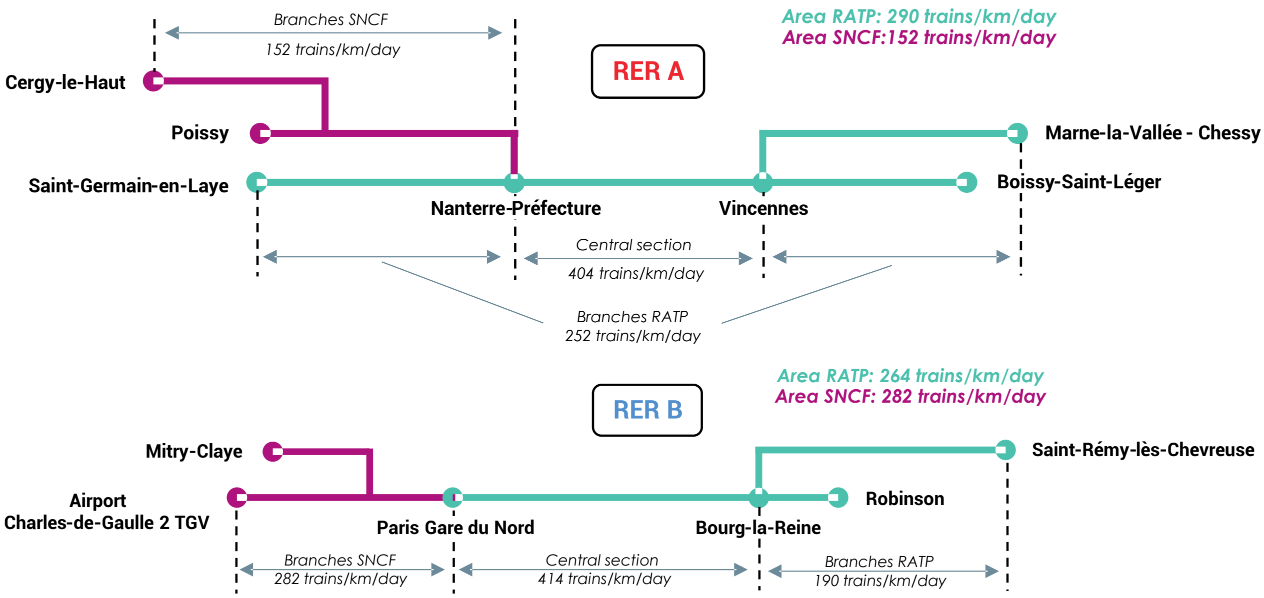
The RER network, for which track components significantly exceeded their "half-life*" lifespan, shows traffic density well above the average of the Transilien network, and very heterogeneous among the central sections and the branches of the RER lines A and B

Track access and infrastructure management of lines A and B of the RER Île-de-France is shared between RATP (IM and RU) and SNCF-Réseau (main IM of the RFN) and SNCF-Voyageurs (RU on the RFN). The perimeter of management and operational competence of RATP covers the central section of both lines plus half of their branches, i.e. more than 120 km out of 200 km for lines A and B. The RATP RER network represented 13 million train-km of traffic in 2021, half of 2019 levels despite a 12% increase over one year.

The track components of the RATP RER network reached, in 2021, 62% of their lifespan (for comparison, the average ICV index of the RFN of 47.8 approximates** 57% of the lifespan of track components, i.e. a level lower than the relative age of the RER RATP network).

Traffic density is very high on these lines: the central section records about 400 daily trains on average per km of line, compared to an average of 161 trains per day for the Transilien network and 200 trains for the most used conventional lines of the RFN (category 2 tracks). On average in 2021, 281 RER A and B trains are operated per day per km of line on the sections of the network operated by RATP, compared to 223 on the sections of the RFN under SNCF-Réseau management.

Figure 6 – Number of daily trains per kilometre of line in 2021 for lines A and B of the RER in Île-de-France



Source : ART according to RATP and SNCF Réseau

*The relative age of the RER RATP network in relation to its lifespan is the average of the ages of each asset (track, switches and crossings) in relation to their respective lifespan, then weighted by the product of the size of each asset and its renewal cost.
**The track consistency index (ICV) measured by SNCF Réseau varies decreasing from 100 to 10, 100 being the threshold assigned to a new infrastructure, 55 the threshold for reaching the half-life, and 10 the threshold assigned to an infrastructure at the end of its life. This can thus be compared to the percentage of lifetime reached established by RATP (indicator increasing between 0% and 100%). Achieving a lifespan of 50% (or an ICV of 55) can thus be considered the optimal threshold to ensure the sustainability of the rail assets.

Additional analyses available in the ART report (available as French version only):
- Breakdown of the characteristics of the national rail network and their evolution by category of track SNCF Réseau
- Mapping of actors by activity (freight and passengers)

02

Economic performance of the infrastructure managers (1/3)

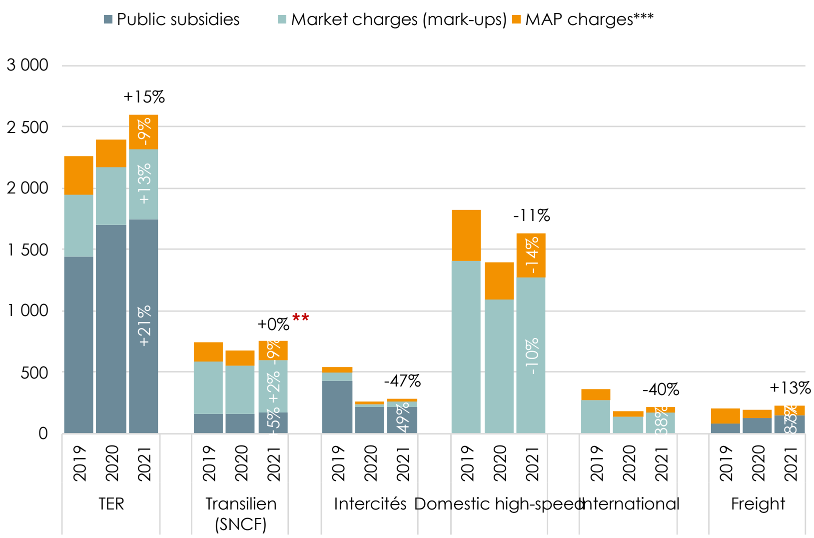
	Level (2021)	2-years change (2019-2021)	5-years compound annual growth rate (2016-2021)
▪ Infrastructure manager's revenues	€5.7 billion	- 3,7%	+0,7%
Of which, charges paid by passenger railway undertakings	€3.4 billion	- 9,4%	-3,2%
public subsidies (incl. Subsidies for PSO charges)	€2.3 billion	+8,3%	+10,9%
▪ SNCF Réseau'soperating costs	€4.8 billion	+3,9%	+1,1%
Of which, maintenance costs	€2.6 billion	-5,1%	- 0,6%
▪ SNCF Réseau's investment	€5.4 billion	+11,6%	n/a (scope changed)

€5.7 billion of revenue was collected by infrastructure managers (SNCF Réseau and Lisea) in 2021

This represents a lower level of revenue of 3.7% compared to 2019 after a decline of more than 10% in 2020. Public subsidies went up sharply for the second year in a row and represented 40% of revenues (+5 percentage points compared to 2019), while track access charges (TAC) remained almost 10% lower than their 2019 level linked with the partial recovery of traffic. The decline of revenues from domestic HST services was particularly strong for both international (-40%) and domestic (-11%) services.

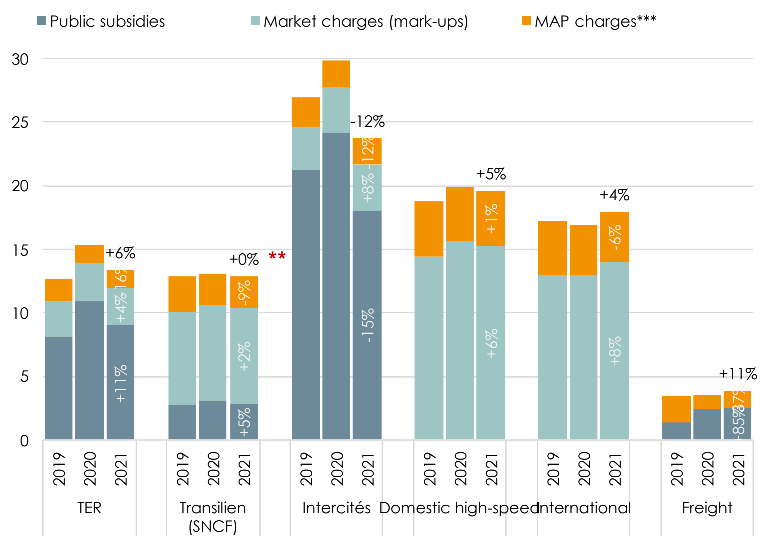
For freight services, public subsidies increased by 13% in 2021. Indeed, since the second half of 2020, the State directly funded SNCF Réseau a share of the freight TAC.

Figure 7 – Infrastructure managers' revenues (in million € – labels: 2019/2021 change)



Source: ART according to infrastructure managers

Figure 8 – Infrastructure managers' revenues (in Euro per train-km billed – labels: 2019/2021 change)**



ART according to infrastructure managers

The relatively limited drop of revenue for the infrastructure managers compared to the change of traffic since 2019 is explained by both the increase of track access charges and public subsidies:

- For PSO services (TER and Transilien), the increase in 2020 and 2021 in the access fee (established on a flat-rate basis and not affected by the COVID-19 pandemic) largely offsetted the decline of track access charges per train-km.
- Non-PSO services saw their average track access charges level per train-km increase by +5% and +4% respectively for domestic and international services compared to 2019, also limiting the decline of revenue for these activities.
- For freight transport services, the strong growth of revenue per train-km since 2019 (+11%), is explained bythe growth of public subsidies.

*** TACs billed by SNCF Réseau are based upon capacity allocations (scheduled traffic and train-km) for the RFN and not only upon effective train-km. The access fee ("redevance d'accès") levied by SNCF Réseau's was consequently partially affected by the adjustment of train supply especially during the COVID-19 pandemic. Waivers of reservation and cancellations lead to regularizations or penalties, in particular by applying 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)*

ECONOMIC PERFORMANCE OF THE INFRASTRUCTURE MANAGERS (2/3)

€4.8 billion of operating costs in 2021

In 2021, SNCF Réseau's operating costs reached their highest level since 2016 (excluding scope effects related to the transfer of assets to SNCF Gares & Connexions in 2020 for an amount of €320 million).

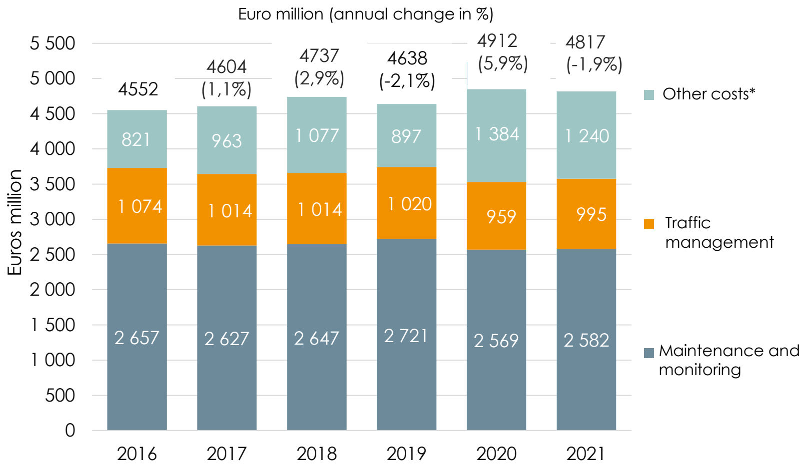
In line with the 2021 traffic level, operating costs related to traffic management as well as those related to the marketing of train paths (€120 million), were 3% lower than their 2019 level.

Network maintenance and monitoring costs were stable year-over-year (+1%) and about 5% below 2019 levels. SNCF Réseau did not experience a decrease in the number of production days due to the COVID-19 pandemic in 2021 as government measures were less restrictive in 2021 than in 2020 (source: SNCF Réseau financial report, 2021).

Maintenance and monitoring costs per kilometre of track (and excluding costs not assigned per line) went up in comparison with 2019, particularly for the track categories "2 to 4" (category of track with the highest rail usage) (+15%) as well as for track categories "7 to 9 without passenger services" (+31%).

Their annual amount ranged from €15,000 per kilometre of track for the track categories with the lowest rail usage ("7 to 9 without passenger services") to nearly €70,000 for track categories "2 to 4".

Figure 9 – Current operating costs of SNCF Réseau



*Other costs: Sale of services to external third parties or other SNCF entities outside SNCF Réseau (€726 million), Non-incorporable costs (€131 million), Opex on Projects (€279 million), Train paths and marketing (€120 million), Others (-€15 million).

Source : ART according to SNCF Réseau

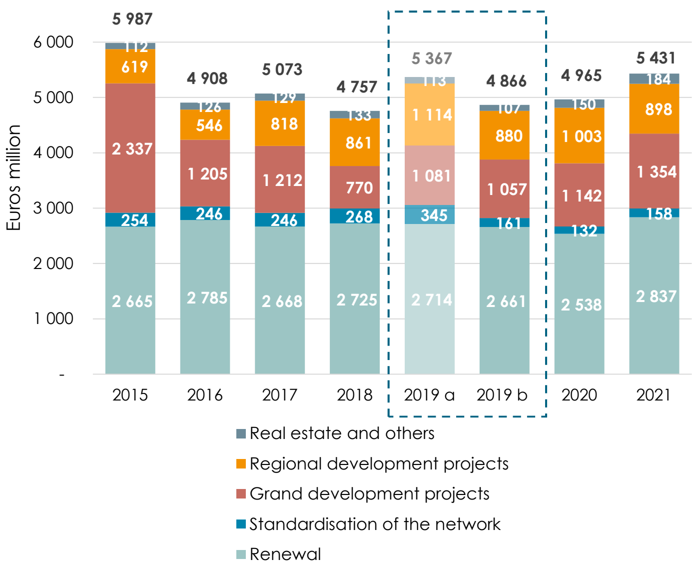
€5.4 billion of rail investments in 2021

Investments expenditures in 2021 by SNCF Réseau went up more than 9% year-on-year, and +12% compared to 2019 (on a like-for-like basis**). This increase mainly concerns national development projects (EOLE, CDG Express) as well as projects of standardisation and renewal of the network.

Investments regarding track renewal represented in 2021 a number of 787 "equivalent large programmed operations" (GOPEQ***) for the core network (excluding the track categories "7 to 9"), a level below the average level observed since 2015. While the number of track regeneration operations for HSL increased in 2020 and 2021, it decreased significantly for the tracks with the highest rail usage for the conventional network (track categories "2 to 4"), which still represented 50% of GOPEQ.

The Île-de-France region alone concentrated 151 and 180 GOPEQs in 2020 and 2021 respectively, a volume higher than that devoted to HSL.

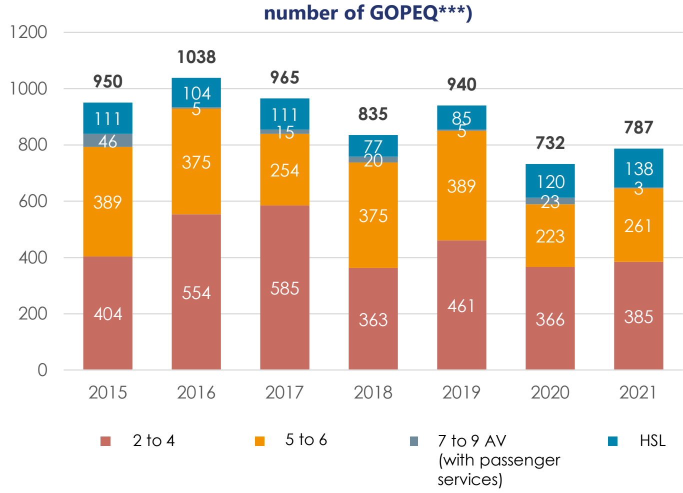
Figure 10 – Rail Investments of SNCF Réseau



a/ Amounts before the transfer to SNCF Gares & Connexions
b/ Amounts after the transfer of assets to SNCF Gares & Connexions

Source : ART according to SNCF Réseau

Figure 11 – (Volume of "equivalent large programmed operations" for the renewal of tracks by SNCF Réseau on the core network in number of GOPEQ*)**



*** GOPEQ is a volume of equivalent unit for track renewal work that corresponds to the renewal of one kilometre of all track components: rails, sleepers and ballast. Track categories 7 to 9 without passenger services (SV) are not included in the number of « GOPEQ ».

Source : ART according to SNCF Réseau

Additional analyses available in the ART report (available as French version only):
- Change of the costs of GOPEQ

ECONOMIC PERFORMANCE OF THE INFRASTRUCTURE MANAGERS (3/3)

Focus on the RATP RER network (not included in the national rail network RFN)

	Level (2021)	Annual change (2020-2021)
▪ Maintenance costs for RER RATP network	€142.1 million	- 5,0%
Of which, costs for RER A	€62.8 million	+ 12,3%
costs for RER B	€28.9 million	+ 5,7%
▪ Investment in the RER RATP network	€252.3 million	+ 11,1%
Of which investments for RER A	€147.5 million	+ 9,3%
investments for RER B	€99.5 million	+ 17,3%

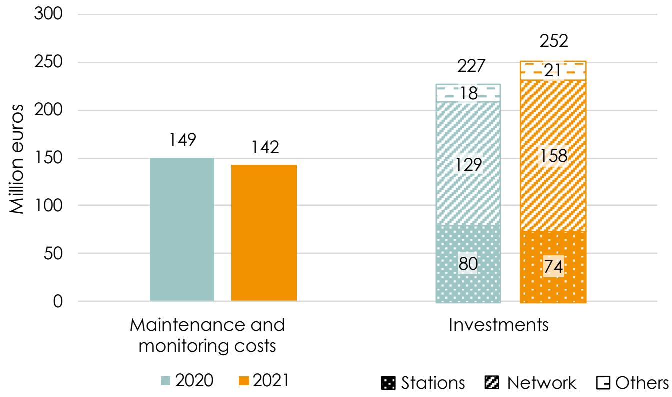
More than €250 million invested for RER lines by RATP

Maintenance and monitoring costs for RATP's RER lines A and B amounted to more than €140 million in 2021, down 5% year-on-year. This mainly concerns structural expenses (due to changes in taxation for the year 2021) without reducing the expenses associated with the volume of maintenance carried out.

The maintenance costs allocated to the RER lines increased by 12% and 6% respectively for RER A and RER B. The maintenance costs of RATP for the RER lines amount to more than 377,000 euros per kilometre of track.

More than €250 million in investments were allocated by RATP to the RER A and RER B lines in 2021: this represents an increase of 11% over one year, and a share of 9.3% of the overall envelope of investments allocated in 2021 by the RATP group. Investments in stations accounted for around 30% of the amount allocated to the two RER lines (including €50 million for RER A in 2021), while investments for network lines accounted for nearly 60% (including €43 million for RER B, including the renewal of the signalling system, the lengthening of the turning tracks, the building of a rectifying workshop, etc.).

Figure 12 – RATP maintenance and monitoring costs and investments for RER A and B



*Others: mixed station/network and workshop investments

Source: ART according to RATP

03

RAIL TRANSPORT MARKET SHARES (FREIGHT AND PASSENGERS)

	Level (2021)	2-years change (2019-2021)	5-years change (2016-2021)
▪ Part modale du transport ferroviaire de voyageurs	8.6%	-1.3 pp	-0,7 pp
▪ Part modale du transport ferroviaire de fret	10.4%	+0.7 pp	-0,1 pp (2017)

**pp : percentage point(s)*

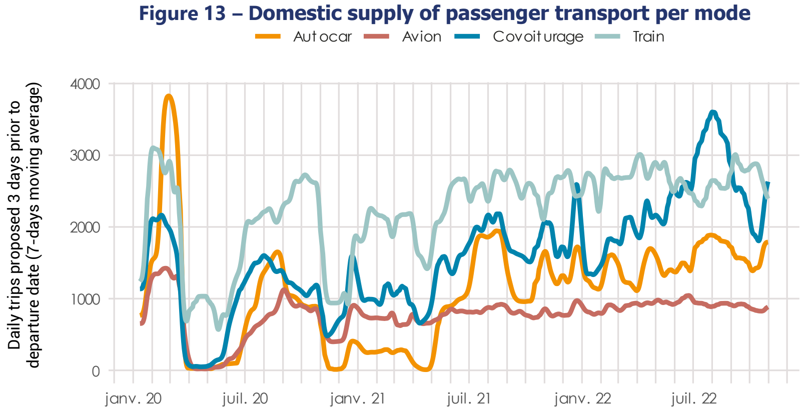
A more dynamic recovery of the passenger rail mode ahead of air and coach but behind the road mode

Passenger rail transport rebounded in 2021 on a similar dynamic to that of domestic air transport (more impacted however by the 2020 crisis). The two modes returned to nearly 76% and 62% of their 2019 levels, respectively. This is a more dynamic recovery than for "Macron" coaches (41% of the 2019 level), but lower than for urban public transport (buses and metros), which reached 77% of the 2019 levels.

Overall, public transport is still well below its pre-crisis use (72%), while individual road transport recovered 90% of its 2019 traffic, and increased its modal share (+3 pp in two years), to the detriment, in particular, of the rail mode.

On the other hand, rail captured the recovery in freight transport in 2021 (overall return to 99% of its 2019 level), with a rebound to 105% of the 2019 level for rail against 99% for road (and 94% for inland waterways). The modal share of rail freight transport, although still low in France in comparison with European countries, reached its 2017 level.

Figure 13 – Domestic supply of passenger transport per mode



Source : ART based on data collected from transport offer comparators on a sample of the top 140 domestic routes in terms of traffic

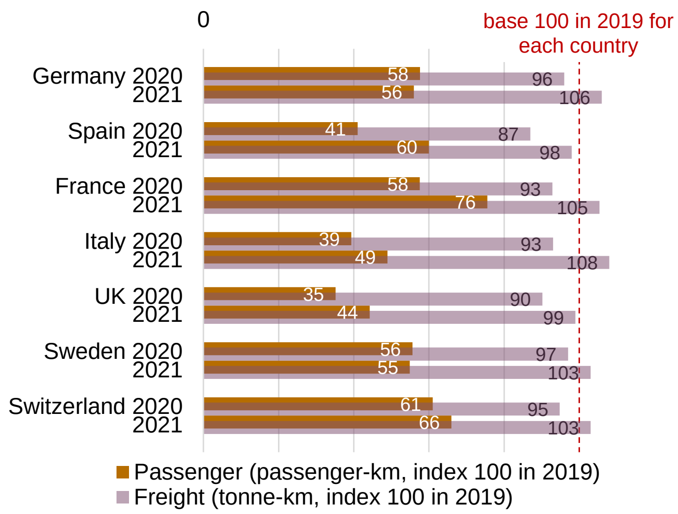
The monitoring of several modes of public transport for the top connections in terms of traffic shows, since the COVID-19 pandemic, the rather slow recovery of transport offers in 2021 or even 2022, especially for coach and air modes. Carpooling offers are characterized by a very dynamic recovery since mid-2021 and reached (or even exceeded) the levels observed in early 2020.

France recorded the strongest recovery in rail passenger transport among European countries

In 2021, French rail transport showed a rather quick recovery for passenger services in comparison with other European countries, as it returned to 76% of the 2019 level (at 71% excluding the effect of December 2019 affected by strikes). Neighbouring European countries showed virtual stagnation (Switzerland) or even further decline (Germany, Sweden) compared to 2020 levels, or a recovery from very low levels in the United Kingdom, Spain and Italy.

Domestic rail freight transport, less impacted in 2020 by the COVID-19 pandemic, also returned to the level of 2019 or even higher for most of the France's neighbouring countries. The strongest growth in rail freight transport in 2021 was observed in Italy with a 14% growth in volumes transported compared to 2019.

Figure 14 – European trends 2020 and 2021 for rail passenger and freight transport volumes



Source : ART, Eurostat, IRG-Rail

Additional analyses available in the ART report (available as French version only):
- Tables of changes per transportation mode

04

THE RAIL FREIGHT MARKET IN FRANCE (1/2)

	Level (2021)	2-years change (2019-2021)	4-years change (2017-2021)
▪ Freight trains-km	59.5 million	+ 1.2%	- 7.5%
▪ Net tonne-km transported	35.7 billion	+ 5.4%	+ 0.8%
▪ Load factor (tonnes per train)	600	+ 4.2%	+ 9.0%
▪ Revenues from commercial traffic	€ 1,145 million	+ 4.2%	- 2.5%
▪ Share of combined transport (tonne-km)	38.9%	+ 5 pp	NA
▪ Punctuality at 15 minutes	76.9%	+ 0.3 pp	+ 0.1 pp

pp : percentage point(s)

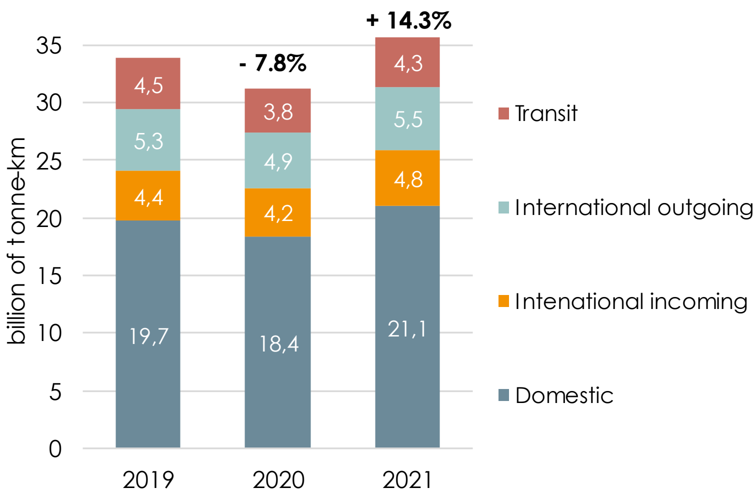
A strong rebound for rail freight transport in 2021...

Rail freight services picked up strongly in 2021, with a rebound of 5.4% (for tonne-km) compared to the levels of traffic observed in 2019, and a catching-up of the level observed in 2017. This rebound particularly concerned domestic traffic, up more than 7% over 2 years, and international traffic (+3.6%).

At the same time, the number of freight train movements on the RFN increased quite moderately compared to 2019 (+1.2%) and fell sharply compared to 2017 (-7.5%). The strong growth in traffic can be explained by the continuous massification of freight trains and the increase of the average load factor of nearly 50 tonnes per train since 2017.

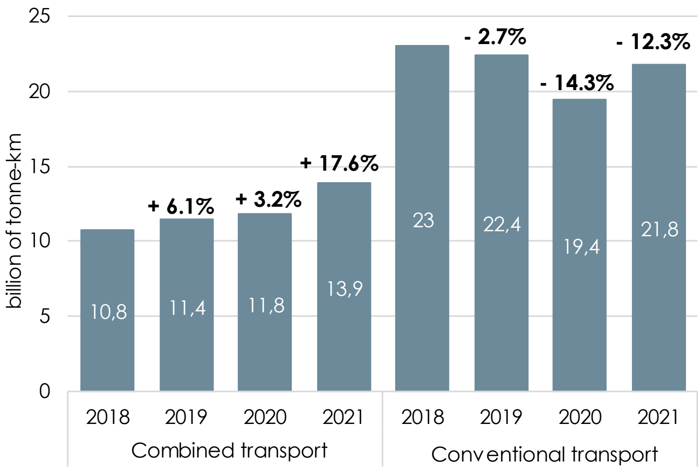
This growth of freight traffic was also driven by the combined transport services, which increased by more than 20% since 2019 (of tonne-km) while conventional transport decreased by 3%. Combined transport (including trucks on train transport) thus represented 39% of tonne-km in 2021.

Figure 15 – Freight rail traffic in tonne-km per type of services (and annual change)



Source: ART according to railway undertakings

Figure 16 – Freight rail traffic in tonne-km per type of transport (and annual change)



Source: ART according to railway undertakings

... But a level of revenue that remains below its level of 2017

In 2021, the revenue of railway undertakings increased of 16%, after a 10% drop in 2020.

However, this revenue remains down 2.5% compared to the level of 2017, due to a trend of decrease of revenue per tonne-km observed during the previous 4 years (the revenue dropped from 3.3 to 3.2 Eurocent per tonne-km between 2017 and 2021).

The exceptional public subsidies for train access charges and the "freight compensation"** were renewed in 2021 for an amount of €54.2 million and €98.7 million respectively.

The State also introduced a new aid for individual wagons in 2021, for an amount of €70 million***.

** "Freight compensation" is paid by the State and should cover the difference between the charges paid by infrastructure users and the costs directly incurred as a result of operating freight services. This aid aims at reducing the trains access charges paid by the railway undertakings and other allowed applicants for the reservation of train path capacity

*** Senate Finance Committee, according to the budget annexes to the finance and settlement bills.

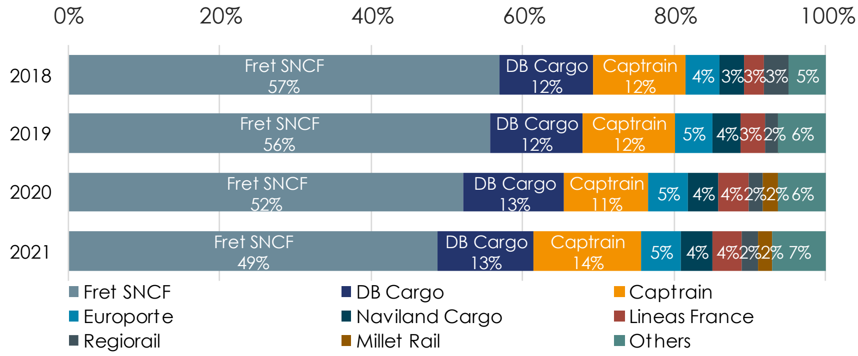
THE RAIL FREIGHT MARKET IN FRANCE (2/2)

Fret SNCF kept losing market share in 2021, and Captrain France ranked second biggest freight railway undertaking

In 2021, the incumbent operator Fret SNCF lost (for the second year in a row) 3pp market share, to the advantage of Captrain France, subsidiary of the SNCF group. Captrain France ranked second RU in 2021 with 14% of the overall tonne-km carried out. Meanwhile the relative shares of the other RUs remained stable. The "market deconcentration" for freight services increased, with a concentration index (HHI*) of 28 in 2021, in comparison with 35 in 2019.

*see glossary

Figure 17 – Share of tonne-km carried out by railway undertakings



Source: ART according to railway undertakings

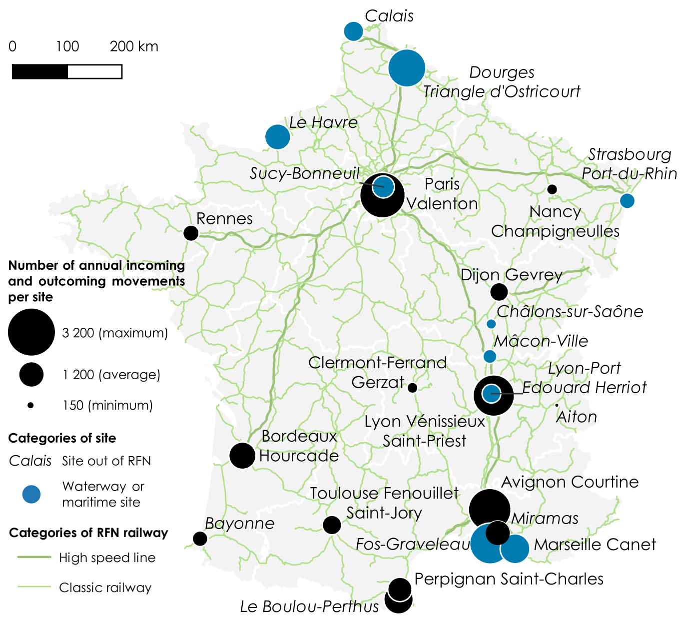
Thematic study

Combined transport

Combined transport* is, by definition, the combination of several modes of transport for the transport of goods, which haulage is in most cases used for the pre- and/or post-journey over a short distance, in addition to another mode of transport (rail or inland waterway) used for the central part of the journey. Combined road-rail transport accounts for the largest share of combined transport traffic in France (around 70% of intermodal transport units in 2020**).

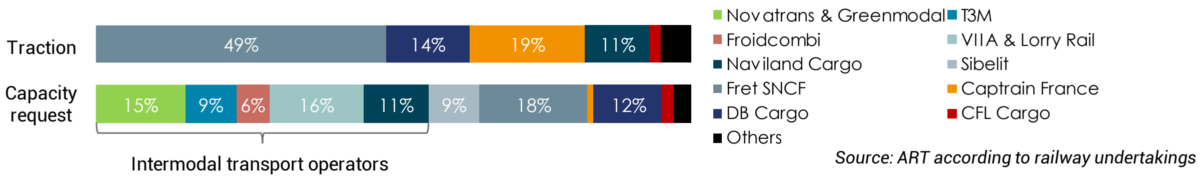
- Combined transport services reported the more dynamic trend within rail freight transport. It represented 13.9 billion of tonne-km in 2021 (it was 10.8 billion in 2018) and 39% of total freight rail activities. Combined transport is operated for longer distances on average than conventional transport (556 km compared to 335 km).
- Whereas very few railway undertakings provide "traction services" fot combined trasport (four RUs concentrate 93% of the tonne-km carried on the RFN), the requests for infrastructure capacity are made by a lot more of applicants which share the shipping contracts: seven combined transport operators*** were in charge in 2021 of 56% of tonne-km of the total rail combined transport. Their activity is mainly operated close to metropolitan areas and along the North Sea-Mediterranean corridor.
- Regardless of the distance travelled, the punctuality rates of combined transport are lower than conventional transport: 32% of combined transport movements are behind schedule at the terminus station at the 30-minutes threshold (in comparison with a 14% rate for conventional transport). Although this punctuality rate has remained stable for conventional transport, it worsened for combined transport (+4 pp of trains behind schedule since 2017).

Figure 18 – Distribution of annual movements made by combined transport operators per combined transport site in 2021



Source: ART according to SNCF Réseau.
Note: sites with less than 150 annual train movements are excluded.

Figure 19 – Combined transport traffic (tonne-km) per railway undertaking (in charge of traction) and per allowed applicant requesting infrastructure capacity



Source: ART according to railway undertakings

* Combined transport is identified here regarding the type of packaging identified by rail traffic (containers and swap bodies, unaccompanied semi-trailers, accompanied semi-trailers). This identification, including piggyback transport in combined transport, may lead to overestimate the strict combined transport activity.
** « DGITM – *appels à manifestation d'intérêt relatifs à l'aide à l'exploitation des services réguliers de transport combiné de marchandises* ».
*** Combined transport operators are defined as allowed applicants and railway undertakings focused only on combined transport activity and provides handling services on combined transport sites.

Additional analyses available in the ART report (available as French version only):

- Freight activity per NST category
- Punctuality of freight trains

05

THE RAIL PASSENGER MARKET IN FRANCE (1/4)

	Level (2021)	2-years change (2019-2021)	5-years change (2016-2021)
Rail passenger transport supply (train-km)	361 million	-6%	-10%
Rail passenger transport supply (seat-km)	194 billion	-7%	-9%
Train capacity (seat-km per train-km)	542	0%	+2%
Demand (passenger-km)	74 billion	-24%	-19%
Rail occupancy rate	38%	-7 pp	-5 pp
Share of non-PSO services	27% (train-km) 59% (pass-km) 64% (occ. rate)	-5 pp -1 pp -7 pp	-6 pp +2 pp +1 pp

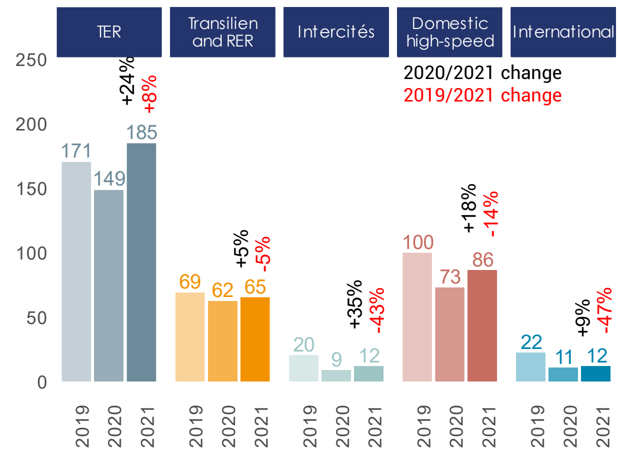
**pp : percentage point(s)*

Train supply for passenger services reached the 2019 levels, for regional PSO services only

Rail supply for passenger services reached 361 million of train-km in 2021, **down 6% from 2019.** However, the trend is very different among services:

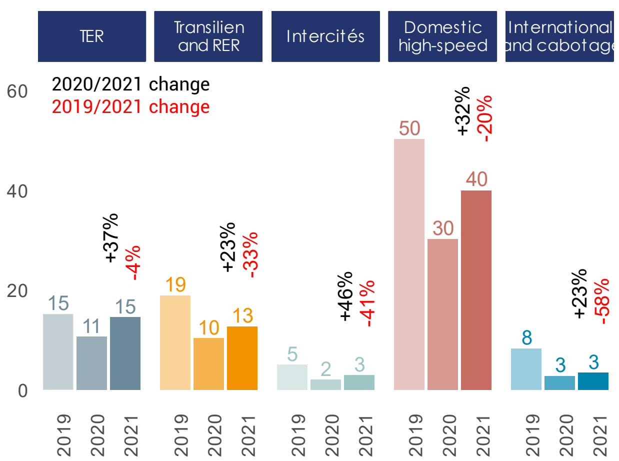
- **Supply for PSO services exceeded its 2019 level:** for regional PSO services, the offer was up 8% (and 4% at constant perimeter*). PSO services in Île-de-France region ("Transilien" and "RER") operated in 2021 95% of their 2019 supply (91% outside the month of December affected by strikes in 2019). The national PSO services supply, reduced in 2020 due to the transfer of competence for lines in Normandie region, increased significantly in 2021 (+35%), thanks to the reopening of national night train lines.
- Regarding non-PSO services, **the supply of international train services only returned to 53% of its 2019 level.** The supply of domestic HST services increased but only returned as well to 86% of the levels observed before the COVID-19 pandemic.

Figure 20 – Passenger train supply in train-km (million)



Source: ART according to railway undertakings and RATP

Figure 21 – Passenger demand in passenger-km (billion)



Source: ART according to railway undertakings and RATP

Passenger demand fell more sharply than supply

In 2021, passenger demand for rail transport amounted 74 billion passenger-km. All services combined, it reached 76% of its 2019 level.

In spite of the partial recovery regarding the supply of train-km, demand for regional PSO services showed a rather weak recovery in 2021: for regional PSO services, the observed recovery is largely a statistical effect caused by the transfer of competences from national to regional PSO services for the Normandie region. At constant perimeter*, regional PSO demand remained 14% below the 2019 level

2021 was also marked by the resumption of national PSO night services, for which supply increased by +12% between 2019 and 2021 after several years of decline.

** Regional PSO services evolutions at constant perimeter: measure of indicators with the integration, in the perimeter of regional PSO services and for the 2019-2021, of the national PSO lines taken over by the regions before 2021 (this concerns over the period 2019-2020 the lines transferred in 2020 to the regional PSO services of the Normandie region)*

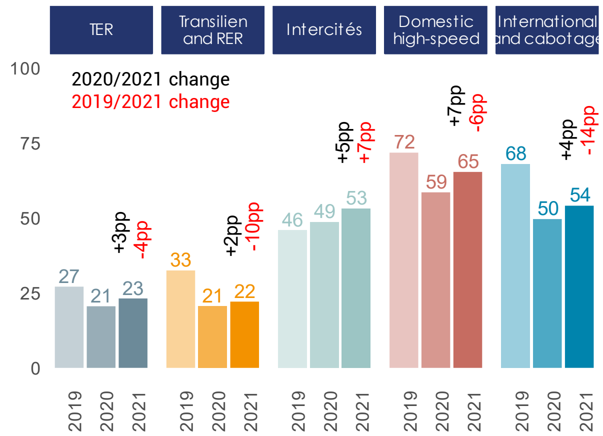
THE RAIL PASSENGER MARKET IN FRANCE (2/4)

The average occupancy rate of trains if 38% in 2021, down 9 percentage points compared to 2019

As rail demand appeared less dynamic than train supply between 2019 and 2021, the occupancy rates of trains remained in 2021 below their 2019 levels, but up in comparison with 2020. The drop of occupancy rate appeared more significant for PSO services in Île-de-France region ("Transilien" and "RER"): the occupancy rate for this service was 10 pp below the 2019 level, close to the average occupancy rate of regional PSO services.

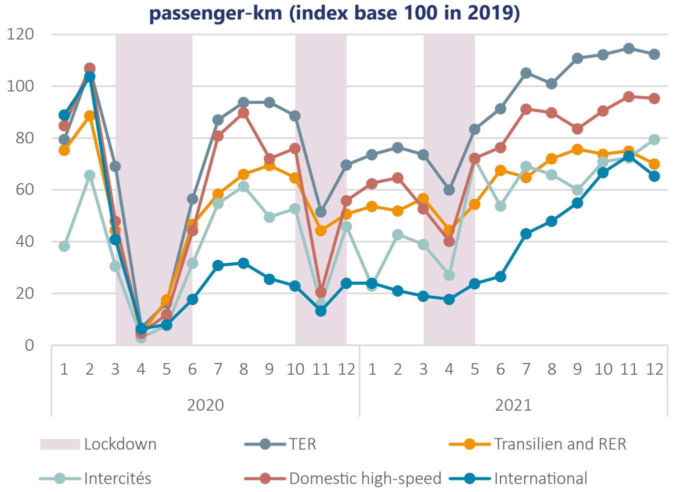
In 2021, international services remained the most affected by the consequences of the COVID-19 pandemic, with an occupancy rate down 14 pp compared to 2019. The average occupancy rate of domestic HST services showed an important increase between 2020 and 2021, but it did not return to the 2019 level of 72%.

Figure 22 – Average occupancy rate per passenger services (annual change in %)



Source : ART according to railway undertakings and RATP

Figure 23 – Monthly rail service demand in passenger-km (index base 100 in 2019)



Source : ART according to railway undertakings and RATP
Note: comparison to November 2019 for the months of December to correct for the 2019 year-end strike effect
Purple bars: periods of nation-wide lockdown and travel restrictions in France

Rail traffic increased significantly in the second half of 2021

Regional PSO and domestic HST services were impacted by the third period of lockdown in France (from March to May 2021), but returned to 90% of the 2019 levels since mid-2021. PSO services in Île-de-France region ("Transilien" and "RER") recorded a slower return of demand, which peaked at less than 80% of the pre-pandemic level during the second half of the year. Demand for international services progressively recovered in 2021 but were still 30% below the 2019 level of traffic demand at the end of the year.

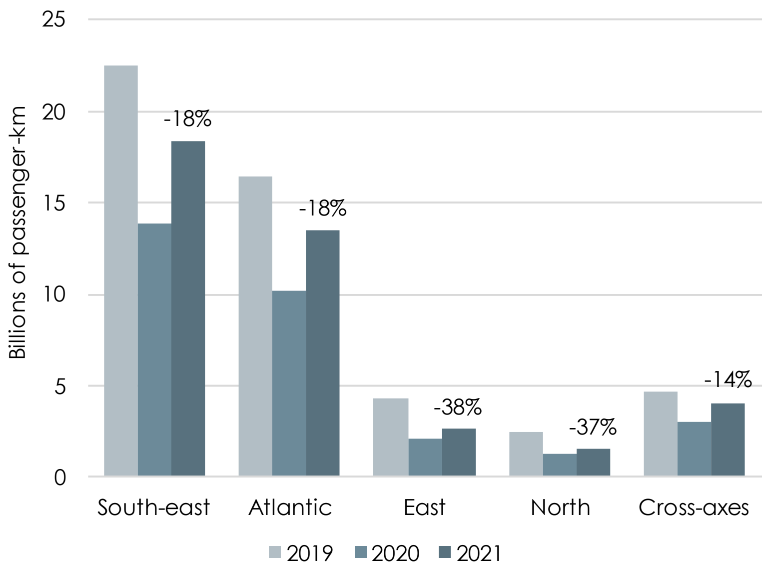
This very progressive return of rail ridership was observed as well in neighbouring countries: despite supply levels close to or above 2019 levels, train demand in Germany, Italy, Spain and Sweden reached only 50% to 60% on average of 2019 levels in 2021, leading to significantly lower occupancy rates in most countries.

The main domestic high-speed services showed a more dynamic recovery than the secondary axes

The "Eastern" and "Northern" clusters of domestic HST routes, which were the most affected in 2020, also showed slower recovery in 2021 (in terms of rail demand) than the "Atlantic" and "South-East" clusters of routes.

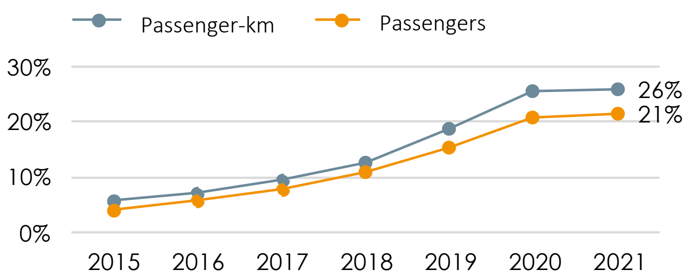
For the first year since the starting of the Ouigo service in Fance (in 2013), the share of theses services did not increase in 2021 compared to 2020, with traffic demand stabilised at around 20% of (in passengers) and 26% (in passenger-km) of the total domestic HST services.

Figure 24 – Demand per clusters of domestic HST (non-PSO) routes (in passenger-km)



Source : ART according to railway undertakings

Figure 25 – Market share of Ouigo services among domestic commercial services



Source : ART according to railway undertakings

THE RAIL PASSENGER MARKET IN FRANCE (3/4)

Overview of the opening to competition for domestic rail passenger transport

Three new non-PSO services are operated in France since the effective opening to competition at the end of 2020: the Paris-Lyon-Milan high-speed line operated by Trenitalia France (in direct competition with the operator SNCF Voyageurs), and the two conventional lines Paris-Lyon and Paris-Nantes operated by SNCF Voyageurs (through the subsidiary RU OSLO).
Three night train lines also reopened in 2021 (Paris-Nice, Paris-Tarbes-Lourdes and Paris-Vienne).

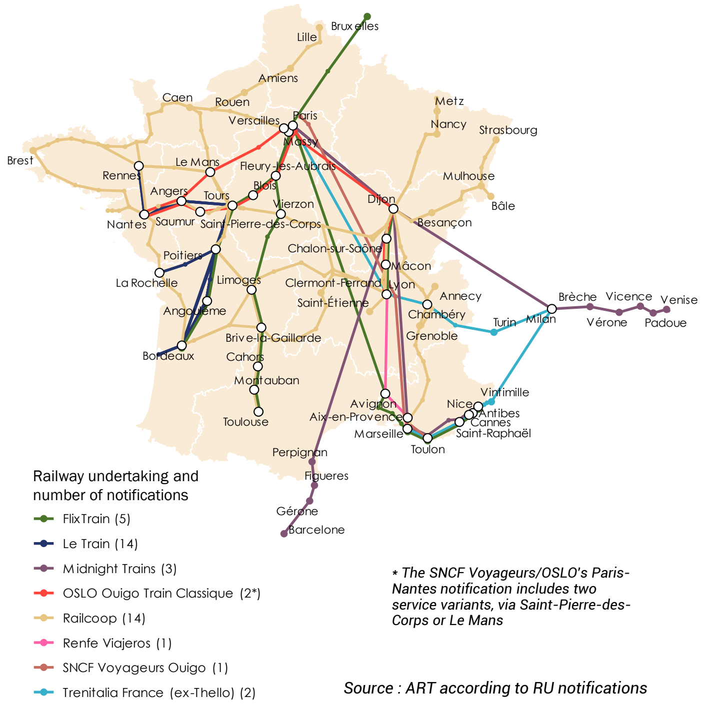
The majority of regions engaged in a process and a timetable for opening up their rail services to competition:

- in 2022, the Sud-PACA region launched a call for expressions of interest for several intra- and inter-regional PSO lines, following the award in 2021 of the first two lots to Transdev and SNCF Voyageurs;
- the Hauts-de-France region announced the opening in four batches of all PSO lines between 2025 and 2028. Four candidates expressed interest (SNCF Voyageurs, Transdev, Régionéo and Renfe);
- the Pays de la Loire region launched a first call for tenders in 2021 (lot « Tram-train » et « Sud Loire »), for commissioning at the end of 2024;
- the Grand-Est region published a call for tenders for seven cross-border lines at the end of 2021 (for commissioning at the end of 2024) and plans to open up other lines to competition from 2023;
- Île-de-France Mobilités plans to progressively open the Transilien-RER lines from the end of 2023 (tram-trains T4 and T11) to 2031/2032.

Three other regions announced in 2022 the provisional timetable for opening up their rail services to competition:

- by 2027 and 2029 in the Bourgogne-Franche-Comté region for the two first lots, and the rest of the lines before 2033;
- from 2027 in Normandie (lot "Étoile de Caen") and in full on five lots by the end of 2029;
- from 2027 possibly in Nouvelle-Aquitaine, with a gradual opening of four lots.

Figure 26 – Notifications (mid-2022) of new, non-PSO railway services



Source : ART according to RU notifications

Dispute settlement by the Authority in the context of the opening up of rail services to competition

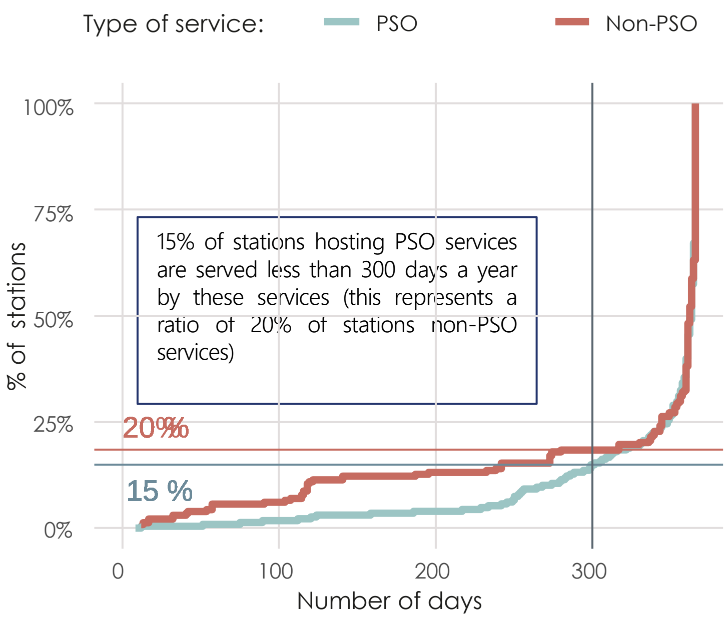
The French regulator body closed, in June 2021 ([Décision n° 2021-032 du 17 juin 2021]) and July 2022 ([Décision n° 2022-051 du 12 juillet 2022]), disputes between SNCF Voyageurs and the Sud-PACA region and the Hauts-de-France region respectively, requiring the operator to transmit essential information for the preparation and organization of the opening up to competition of the PSO rail services in the two regions.

15% of train stations were served less than 300 days in 2021

2,800 passenger rail stations were regularly served in 2021. Among these, the vast majority of stations host PSO services, while only 180 stations host domestic HST services.

While the majority of train stations hosting PSO services are served without interruption during the year (i.e. at least once a day), 15% of them were served for less than 300 days in 2021. For non-PSO services, this rate reached 20% of train stations, which are served less than 300 days a year by these services. The stations occasionally served thus accommodate for the most part seasonal services: this is the case, for non-PSO services, in particular for stations located on the line of the Arve valley (during the winter season) or, for PSO services, for stations of the line linking Auray to the Quiberon Peninsula (during the summer season). Other PSO services are provided throughout the year but some train stops are served only a few days of the week (for example the regional PSO line between Metz and Trèves). This explains the low level of service at some stations.

Figure 27 – Distribution of stations according to the number of days they are served by PSO or non-PSO services



Additional analyses available in the ART report (available as French version only):
- Analysis of night trains (« Intercités de nuit »)

THE RAIL PASSENGER MARKET IN FRANCE (4/4)

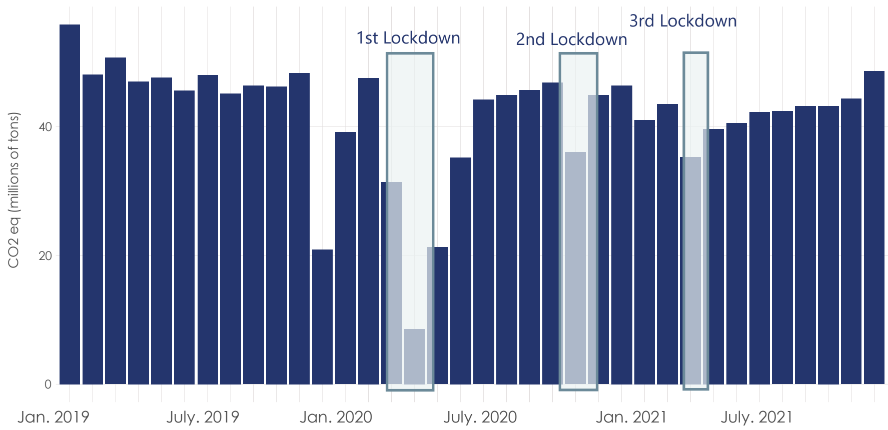
Thematic study - Greenhouse gas emissions from rail passenger transport

- **Due to the supply contraction during the pandemic, greenhouse gaz emissions from passenger rail transport activity decreased of 7.2% compared to 2019**

The observed changes of the level of greenhouse gas emissions from passenger rail transport reflect the impact of the successive lockdowns introduced to limit the spread of the COVID-19 pandemic. Passenger rail transport generated about 511,000 tonnes of CO2 eq. in 2021: an increase of +15% compared to 2020 (446,000 tonnes) due to the recovery of rail activities. However, this remained under the level observed before the pandemic (550,000 tonnes of CO2 eq. in 2019).

While this evolution is naturally explained by the decrease of rail activities, it was slightly more important than the decrease observed for train-km (-3.5% between 2019 and 2021 on the scope of the train services of SNCF Voyageurs).

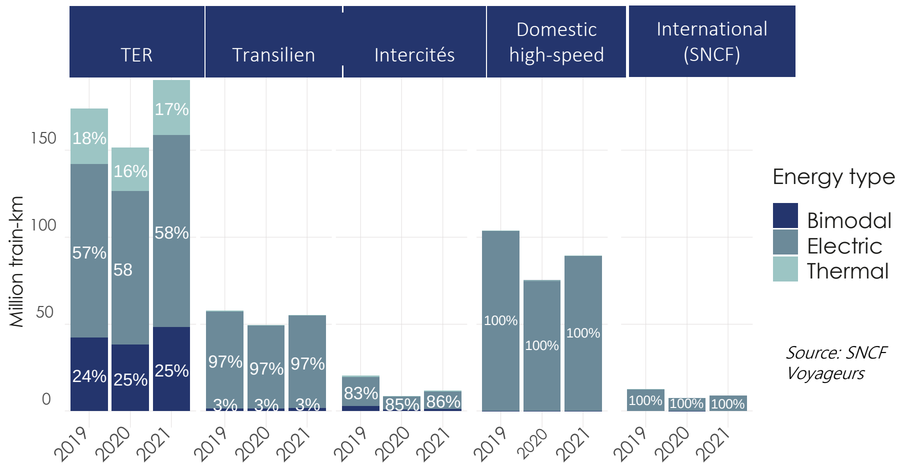
Figure 28 – Greenhouse gas emissions from passenger rail transport (thousands of tonnes CO2 eq)



Source: SNCF Voyageurs
Note: thermal and electric consumption from billing data

- **More than 75% of passenger train-km are operated with electrical equipment**

Figure 29 – Passenger rail transport supply (train-km) per energy type



Source: SNCF Voyageurs

Electric powertrain accounted in 2021 for 77% of train-km from passenger rail transport (excluding dual-mode (electric/thermal) trains), a decrease of 1.8 pp compared to 2019 among the energy mix. This is explained by the decline of domestic HST and Intercités services.

63% of greenhouse gas emissions from passenger rail transport are generated by thermal or dual-mode train-km. While thermal train-km accounts for small proportion of Transilien and Intercités services, it is significant for TER services (17% in 2021).

- **The increased usage of dual-mode trains contributed to slight improvement regarding greenhouse gas emissions in 2019**

The energetic performance (in terms of energy consumption level per train-km) of self-propelled thermal trains, representing 97% of thermal train-km, appeared relatively stable since 2019. The more important decrease of greenhouse gas emissions compared to changes for train-km might therefore be explained by an increased use of dual-mode trains among TER activity, and a lower diesel consumption of dual-mode trains, or their optimized usage on the electrified/non-electrified network, compared to thermal trains.

06

ECONOMIC PERFORMANCE OF PASSENGER RAILWAY UNDERTAKINGS (1/2)

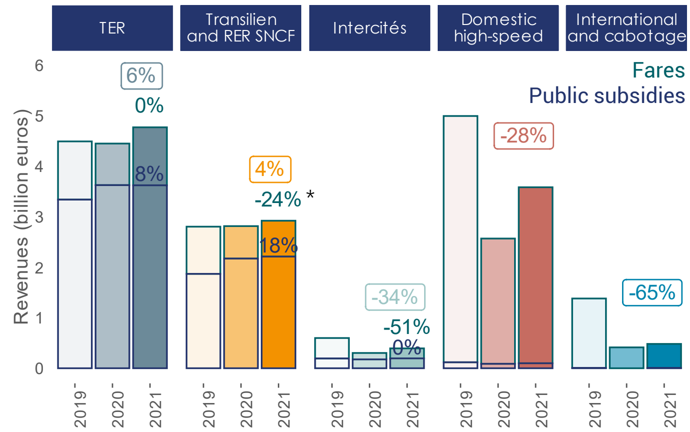
Financial results (restricted to usage of national rail network) *(RATP perimeters of RER lines A and B, and sections outside RFN of international traffic are excluded)*	Level (2021)	2-years change (2019-2021)	5-years change (2016-2021)
▪ Railway undertakings revenue from passenger services	€12,2 billion	-14%	-8%
from fares	€6 billion	-30%	-24%
from subsidies	€6,1 billion	+11%	+14%
▪ Average revenue per passenger-km	€ cents 17	+13%	+12%
▪ Average revenue from fares per passenger-km	€ cents 9	-8%	-7%
▪ Average revenue from fares per train-km	€16,8	-27%	-17%

Revenues from domestic and international non-PSO services in 2021 remained down compared to 2019

Revenue for **domestic HST services** increased in 2021 compared to 2020, thanks to the progressive recovery in traffic but remained well below the level of 2019 (-28%). Revenue per passenger per 100 km also remained down 10% compared to 2019, indicating sluggish demand compared to its level before the COVID-19 pandemic. The low level of revenue per passenger and a lower occupancy rate led to a drop (-17%) in revenue per train-km between 2019 and 2021 for domestic non-PSO services.

The rebound of **international traffic** was moderate in 2021, leading to a level of revenue still significantly lower than in 2019 (-65%). In addition to the low level of attendance, this sharp decline is the result of a level of revenue per passenger-km down for the second year in a row (-16% in 2021 compared to 2019). However, as the decline in supply was more important than that in rail demand, revenues per train-km increased in 2021 compared to 2020, but remained below the level of 2019 (-14%).

Figure 30 – Railway undertaking from passenger rail services in France (on the RFN part of journeys) (and 2019/2021 change)



**for the Transilien and RER services, revenue from fares have been collected directly since 2020 by Île-de-France Mobilités and no longer by SNCF Voyageurs. The amount of revenue presented in this Figure can only be considered as an indicative part of the amount paid by users*
Source: ART according to railway undertakings

The trend of revenues from PSO services was controlled by public subsidies

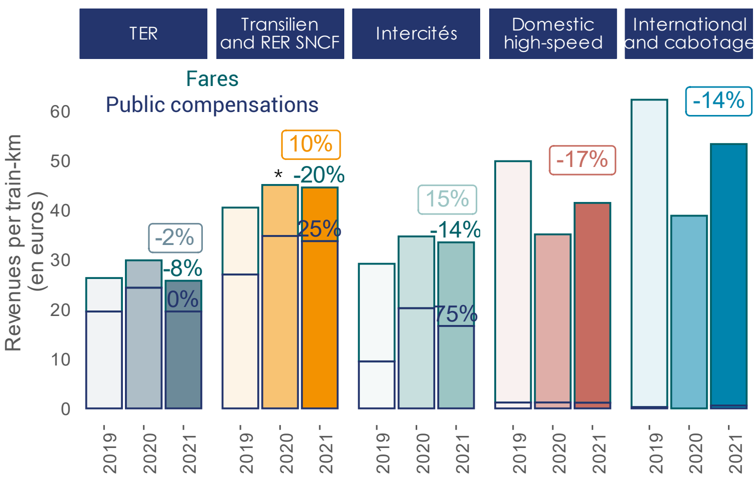
Revenues for the regional PSO services were up 6% and 4% respectively in 2021 compared to 2019. This growth is explained by a sharp increase since 2020 of public subsidies to maintain a high level of supply despite the drop in rail demand. This increase of subsidies represented +8% for TER services and +18% for PSO services in Île-de-France region ("Transilien" and "RER") between 2019 and 2021.

While the level of commercial revenue per passenger-km of the **regional PSO services (TER)** increased by +4% (+2% at constant perimeter**) over the period (see next page), the decline in the occupancy rate for the activity led to a drop of the level of commercial revenue per train-km (-8%).

The level of commercial revenues of the **PSO services in Île-de-France region** was down 24% in 2021 compared to 2019 due to the sharp drop in traffic (-33%). The increase of commercial revenue per passenger-km (+13%) and the increase of public subsidies allowed the activity to benefit from revenues per train-km up 10% despite a drop of occupancy rate.

The **national PSO services (Intercités)** also recorded an important increase of revenue per train-km (+15%) in 2021 compared to 2019 thanks to public fundings. This level of fundings remained stable, despite the transfer of competence of lines to the Normandie region in January 2020, which significantly reduced the traffic of the Intercités services.

Figure 31 – Passenger revenue of railway undertakings per train-km (portion of revenue on the RFN sections of journeys) [% change 2021/2019]

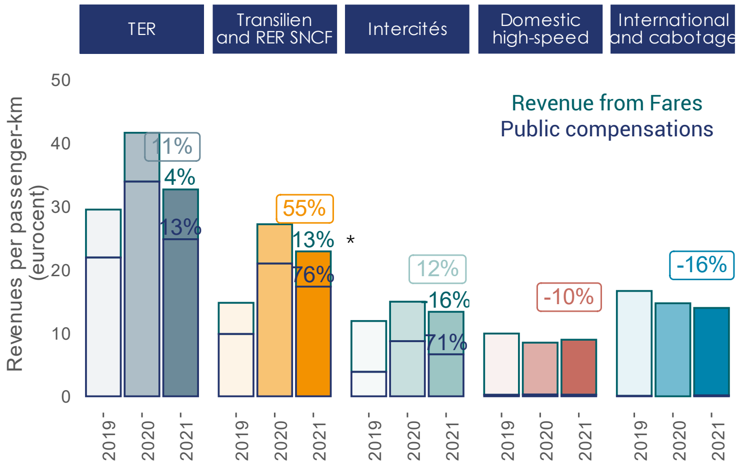


**cf. note Figure 30*
Source: ART according to railway undertakings

** TER evolutions at constant perimeter: *cf note page 16*

ECONOMIC PERFORMANCE OF PASSENGER RAILWAY UNDERTAKINGS (2/2)

Figure 32 – Revenue per passenger-km of passenger rail services in France (on the RFN part of journeys) (and 2019/2021 change)



*cf. note Figure 30
Source : ART according to railway undertakings

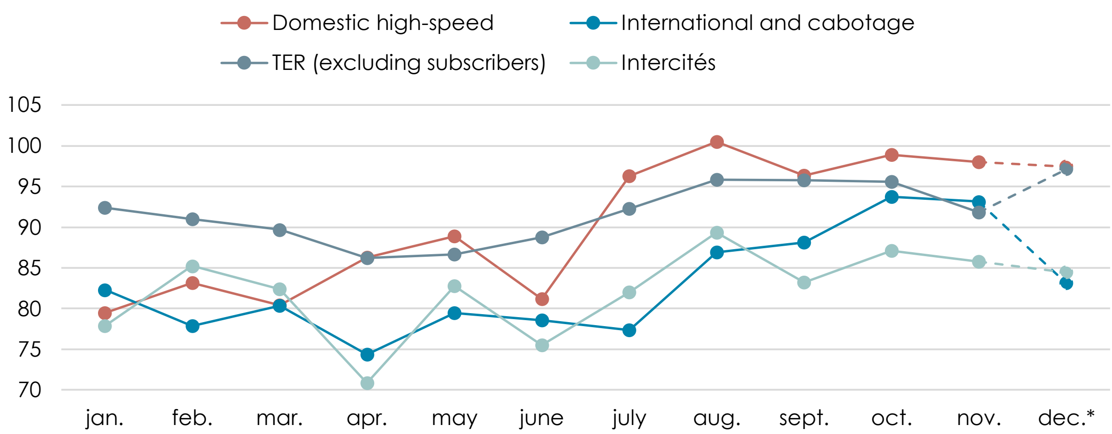
Revenues from fares per passenger-km remained down for all passenger services during the first half of 2021 compared to 2019 but picked up again in the second half of the year

Revenue from fares per passenger-km dropped in 2021 compared to 2019 for domestic (-10%) and international (-16%) non-PSO services, indicating that average fare levels did not seem to return to their pre-crisis level.

Average revenue from fares per passenger-km for regional PSO services was up 4%, mainly due to the integration of the Normandie national PSO lines (for which the average revenue was 2% higher at constant perimeter**). In addition, the proportion of subscriber passengers (for whom the average commercial revenue is relatively low) fell to 39% (-7 pp), while the level of revenue per non-subscriber passenger-km fell by 8%.

The revenue from fares per passenger-km was significantly low in the first half of 2021 compared to the same period in 2019 for all services. A starting recovery was observed in the second half of the year, with levels of revenue per passenger-km on the rise for all services. This appeared more significative for domestic non-PSO services with a monthly index hovering above 95% over the period.

Figure 33 – Revenue from fares per passenger-km in 2021 compared to 2019 (index 100 = same month in 2019)



*December 2021 compared to November 2019 to correct the strike effect
Source: ART according to railway undertakings

07

QUALITY OF SERVICE OF PASSENGER RAILWAY UNDERTAKINGS (1/2)

	Level (2021)	2-years change (2019-2021)	4-years change (2017-2021)
▪ Cancellation rate prior to D-1 (before D-1, 4pm)	10.1%	+1.5 pp	+7.1 pp
▪ Late cancellation rate (after D-1, 4pm)	1.7%	0 pp	+0.2 pp
▪ Reliability rate (effective trains per scheduled trains)	88.0%	-1.6 pp	-7.4 pp
▪ % of trains behind schedule (5 min threshold)	9.1%	-2.1 pp	-4.1 pp
▪ Reliability and punctuality (5 min threshold) for non-PSO trains	78.2% effect. running 18.4% behind schedule	-15.9 pp -4.7 pp	-20.3 pp -6.1 pp

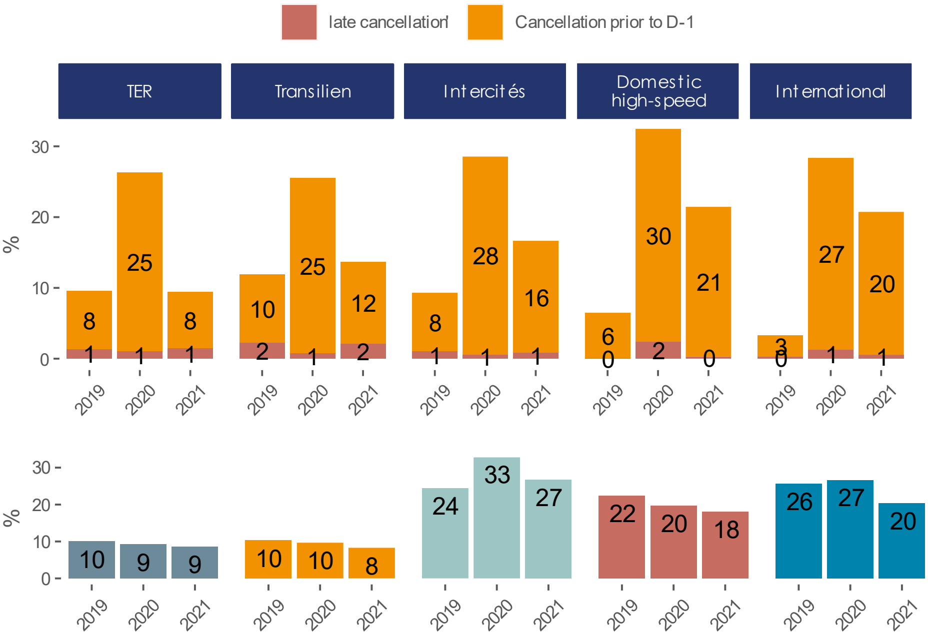
**pp : percentage point(s)*

About 10% of PSO services and more than 20% of high-speed services were cancelled before D-1 in 2021

Due to the third nation-wide lockdown in the first half of 2021 (see below), the **reliability rate** (proportion of trains operated compared to the schedule) remained worsened compared to 2019 and even more compared to 2017 (last year with no major impact of strikes or lockdown period for rail services) for all services. Long distance services were more affected by the 'early' (prior to D-1) cancellations.

However, the rates of **late cancellations** and **trains behind schedule** improved in 2021, specially for high-speed services that showed an increase of +4 pp of the punctuality rate compared to 2019.

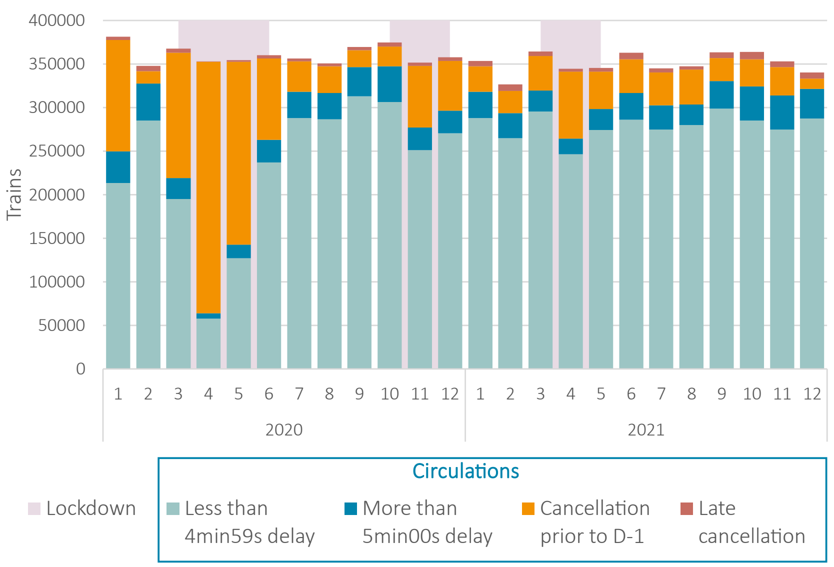
Figure 34 – Cancellation (prior to D-1) rate and late cancellation rates (upper figure), and proportion of train behind schedule at terminal station (5min threshold) (lower figure)



Source: ART according to SNCF Réseau and railway undertakings

Note: TER and Transilien services, exclude tram-train.

Figure 35 – Monthly split of scheduled passenger trains on the french national network per final status (2020-2021)



Source: ART according to SNCF Réseau and railway undertakings

The three successive lockdowns generated an important number of cancellations of scheduled trains. The rate of early cancellations (prior to D-1) appeared as a consequence high for 2020 and 2021 (10% of scheduled trains all year long, and 8% during the second half of 2021).

On the contrary, while the punctuality rate slightly increased during lockdowns thanks to less constrained management of trains, it appeared to worsen at the end of 2021: reaching 8.5% and 11.4% during the third and fourth semesters.

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

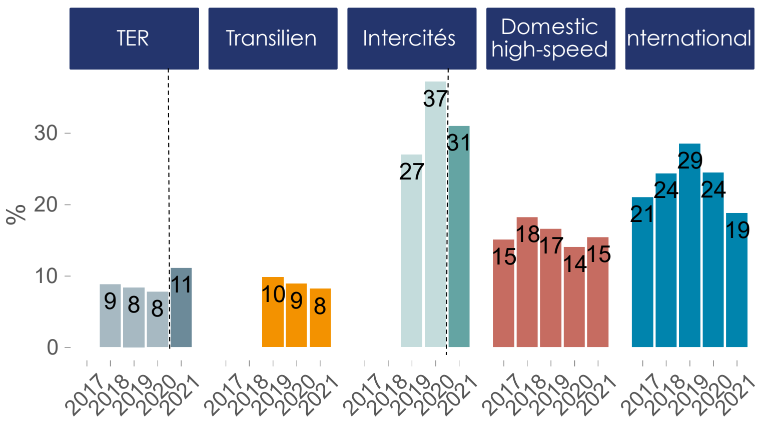
	Level (2021)	2-year change (2019-2021)	4-year change (2017-2021)
▪ Proportion of passengers experiencing delays of 5 minutes or more at destination	9.1%	-2.3 pp	-
▪ Proportion of compensated passengers for delays exceeding 30 minutes for HST services	42%	+8 pp	-

The proportion of passengers arriving « on time » (at 5 minutes threshold) ranged between 63% and 92% across services

In 2021, the punctuality of passengers at their arrival train station appeared improved compared to 2019, in line with the increased punctuality of trains.

This trend concerned especially the Transilien and domestic HST services (respectively +1.7 pp and +1.2 pp of punctuality rates compared to 2019) as well as international services which experienced an important decrease in their supply and demand.

Figure 36 – Share of passengers behind schedule at train arrival (5min0sec threshold) per service and year



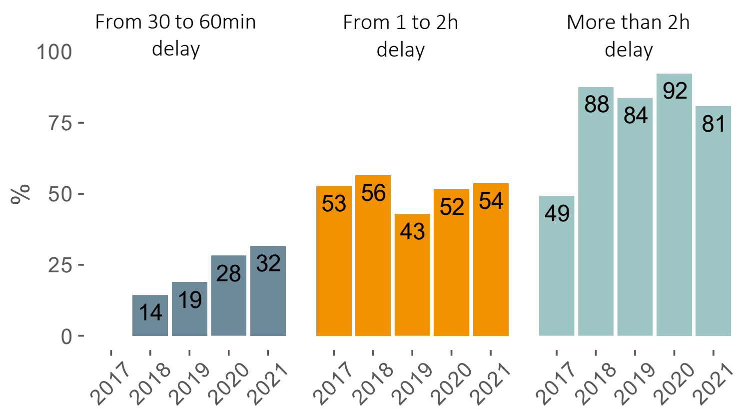
Source: ART according to railway undertakings and RATP
Scope: Regional services (TER) including tram-trains, high-speed services uncluding Ouigo
Note: due to a methodological change in the way passengers are computed, there is a break in series for TER and intercités services in 2021

Almost 42% of HST passengers behind schedule (30 minutes threshold) were granted a compensation

In 2021, among non-PSO services (domestic high-speed, except Ouigo and international trains), a quarter of passengers behind schedule arrived at their destination with a delay higher than 30 minutes and were consequently eligible for compensation ("G30 guarantee" proposed by SNCF Voyageurs).

Among the passengers behind schedule of 30 minutes or more, 42% were compensated. This share varies greatly depending on the extent of the delay. One third of the passengers that experienced a delay between 30 and 60 minutes were compensated. This rate reached 80% for delays exceeding 2 hours.

Figure 37 – Share of compensated passengers per year and per delay threshold



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

Additional analyses available in the ART report (available as French version only):
- Detailed analysis of punctuality of passengers per high-speed axis and delay threshold

08

PSO REGIONAL SERVICES ("TER") IN FRANCE (1/3)

	Level (2021)	2-years change (2019-2021)	5-years change (2016-2021)
▪ Daily number of trains	7400	+4%	n/d
▪ Seat capacity of trains	340 seats	+ 3 %	+11%
▪ Train occupancy rate	23%	- 4 pp	- 2 pp
▪ Proportion of subscribers in total traffic in passenger-km	40%	- 6 pp	-
▪ Proportion of public subsidies in total revenues	76%	+ 2 pp	+ 2 pp
▪ Reliability rate (effective trains per scheduled trains)	92 %	0 pp	- 8 pp
▪ % of trains behind schedule (5 min threshold)	9%	- 1 pp	- 3 pp

pp : percentage point(s)

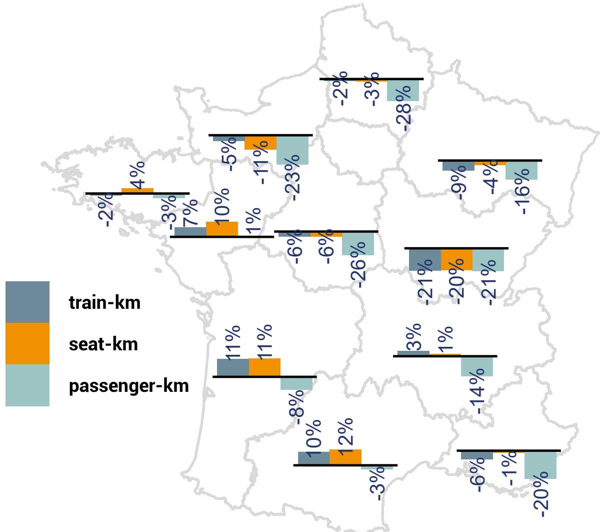
Regional PSO services ("TER") demand was well below 2019 levels

Rail transport supply (in seat-km) increased in five regions compared to 2019. The regions with the highest growth in suply were Pays de la Loire, Occitanie and Nouvelle Aquitaine. Conversely, Bourgogne-Franche-Comté recorded the more important decrease (-21% in train-km and -28% in seat-km).

TER services traffic, in passenger-km, was down compared to 2019 (-14% on a like-for-like basis), with difference between region. The regions close to Île-de-France recorded drops in demand ranging from -16 to -28%. Meanwhile, the regions where supply increased the most were also the regions where demand appeared best maintained.

The occupancy rate of regional PSO services remained lower than in 2019 in all regions. However, occupancy rate progressively recovered from the very low rate recorded during the second quarter of 2020.

Figure 38 – Supply and demand 2021/2019 change for TER services



Source : ART according to SNCF Voyageurs

Scope: There has been a merge between TER services and Intercités services for region Normandie in 20202. In order to keep a like-for-like basis, the analysis includes Intercités lines for this region in 2019. Values for December 2019 have been corrected to neutralize the effect of the strike.

Figure 39 – Average occupancy rates per region in 2021 (and 2021/2019 change)

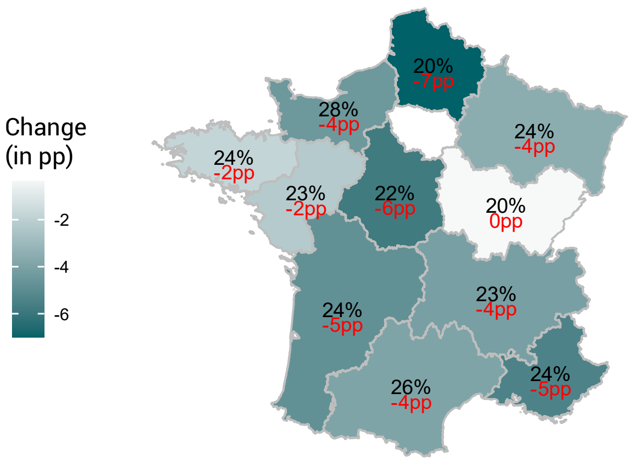
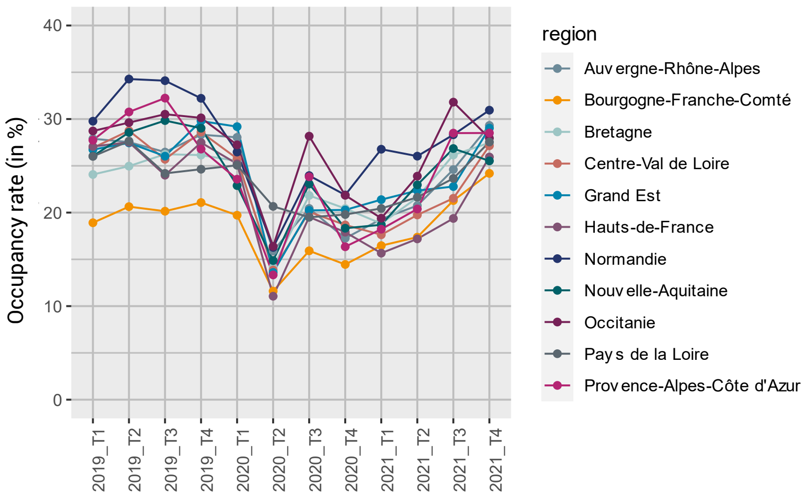


Figure 40 – Occupancy rates per quarter per region since 2019



Source : ART according to SNCF Voyageurs

Scope: A merge between TER services and Intercités services for region Normandie occured in 2020. In order to keep a like-for-like basis, the analysis integrates the Intercités lines for the region Normandie in 2019. Values for December 2019 were corrected to neutralize the effect of the strike.

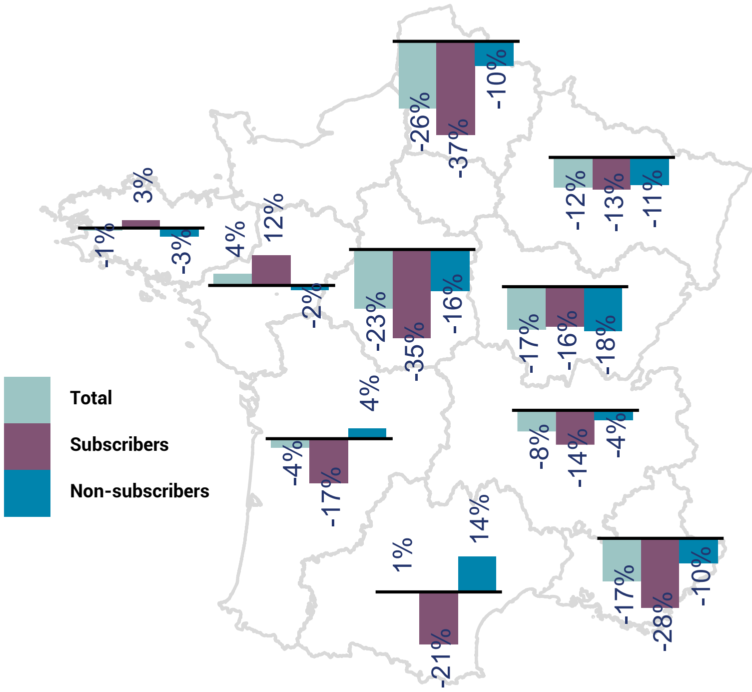
PSO REGIONAL SERVICES ("TER") IN FRANCE (2/3)

Demand for regional PSO services dropped… …especially for subscribers

The analysis of demand for regional PSO services shows very different trends between subscribers and non-subscribers. **Seven regions recorded a drop in subscriber traffic (in passenger-km) greater than 13%.** It is an even more significant slump in the regions close to Île-de-France. This could be a sign of decline in commuter travel by train between these regions and Île-de-France, which will have to be confirmed in the long term.

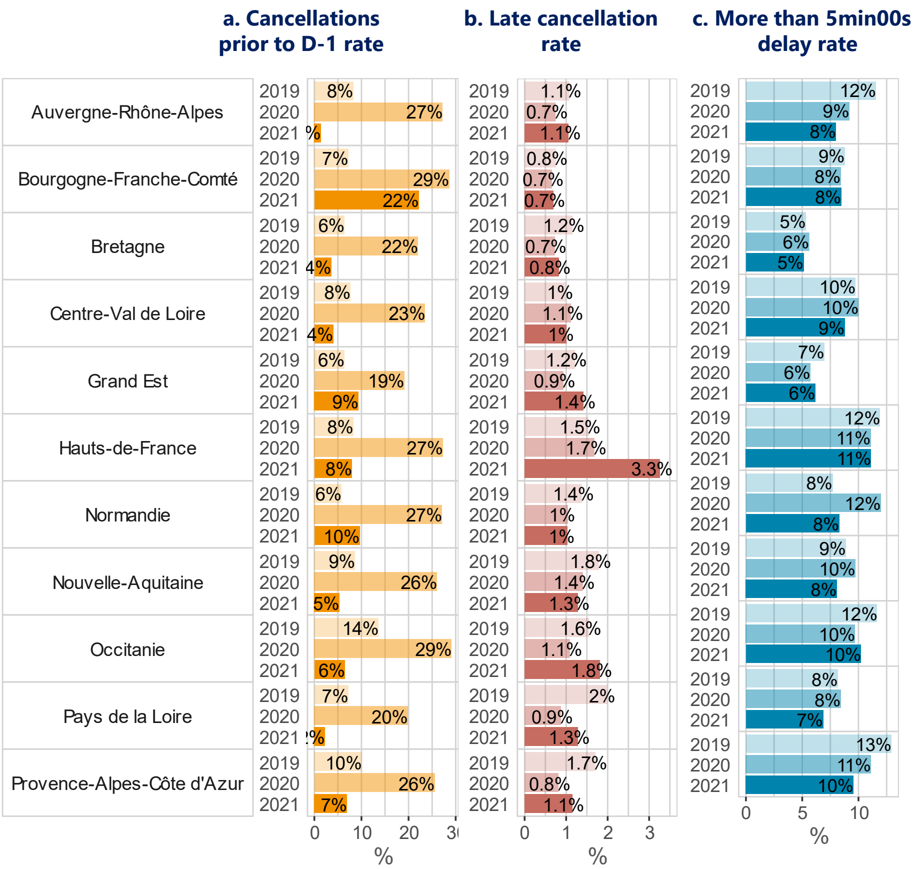
Meanwhile rail traffic for non-subscribers slighly decreased (by less than -10%) in a mjority of regions. In addition, two regions sticked out with a slight increase in total demand compared to 2019: Pays de la Loire (+4% rise of passenger-km, driven by an increase of subscriber demand) and Occitanie (+1% due to the increase of non-subscriber traffic).

Figure 41 – 2021/2019 change of demand for regional PSO services for subscribers and non-subscribers



Source : ART according to SNCF Voyageurs
Scope: Including cars and trains.

Figure 42 – Reliability and punctuality of regional PSO services



Source: ART according to SNCF Réseau
Scope: Regional PSO services (TER) excluding tram trains. Cancellations refer to full cancellations and not partial ones.
Methodology: The cancellation rate is calculated considering total number of planned trains. The delay rate refers to more than 5min00s delay at terminal station.

"Cancellations prior to D-1" rate returned to 2019 level for regional PSO services

On average, the rate of early cancellations (prior to D-1) improved compared to 2020 and returned to the average level reported for 2019 (8%). However, differences important differences between regions can be noted. The regions Auvergne-Rhône-Alpes and Pays de la Loire increased their supply compared to 2019 and recorded cancellation rates of 1% and 2% respectively. On the contrary, Bourgogne-Franche-Comté adapted its transport plan due to measures taken due to COVID-19 pandemic, and so showed the highest early cancellation rate (22%).

The late cancellation rate remained below 2019 level in most regions. As a notable exception, Hauts-de-France ratio had been increasing continuously since 2020 and stood at 3.3% in 2021 (1.9 pp above the average).

Punctuality rate improved in most regions

The proportion of trains with more than five minutes delay at terminal station was lower in 2021 than in 2019 in all regions. Provence-Alpes-Côte d'Azur and Auvergne Rhône-Alpes stood out, with a continuous decline of this ratio since 2018. Over the years, the punctuality of regional PSO services improved and disparities between regions narrowed.

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

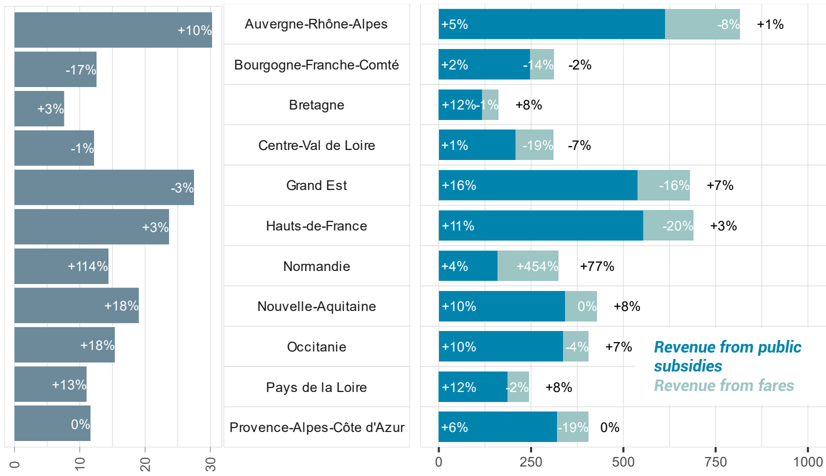
Global revenues for regional PSO services ("TER") increased despite lower revenue from fares

In 2021, revenue from fares for TER services were 12% under 2019 level (excluding Normandie region for which the scope changed). This reflects the impact of the COVID-19 pandemic on rail passenger demand, especially in the first half of the year. Revenue from fares remained below 2019 levels for all regions (ranging from -0.3% to -20%).

Conversely, public subsidies increased compared to 2019 to maintain global incomes despite the low demand level. Fundings of regional PSO services increased from +1% in Centre-Val de Loire, up to +16% in Grand Est.

Therefore, global revenues for regional PSO services rose by +3% (excluding Normandie). Global revenues decreased only in Bourgogne-Franche-Comté and Centre-Val de Loire.

Figure 43 – Global revenue (from fares and public subsidies) for regional PSO services in 2021 (labels: change 2021/2019)



Source : ART according to SNCF Voyageurs

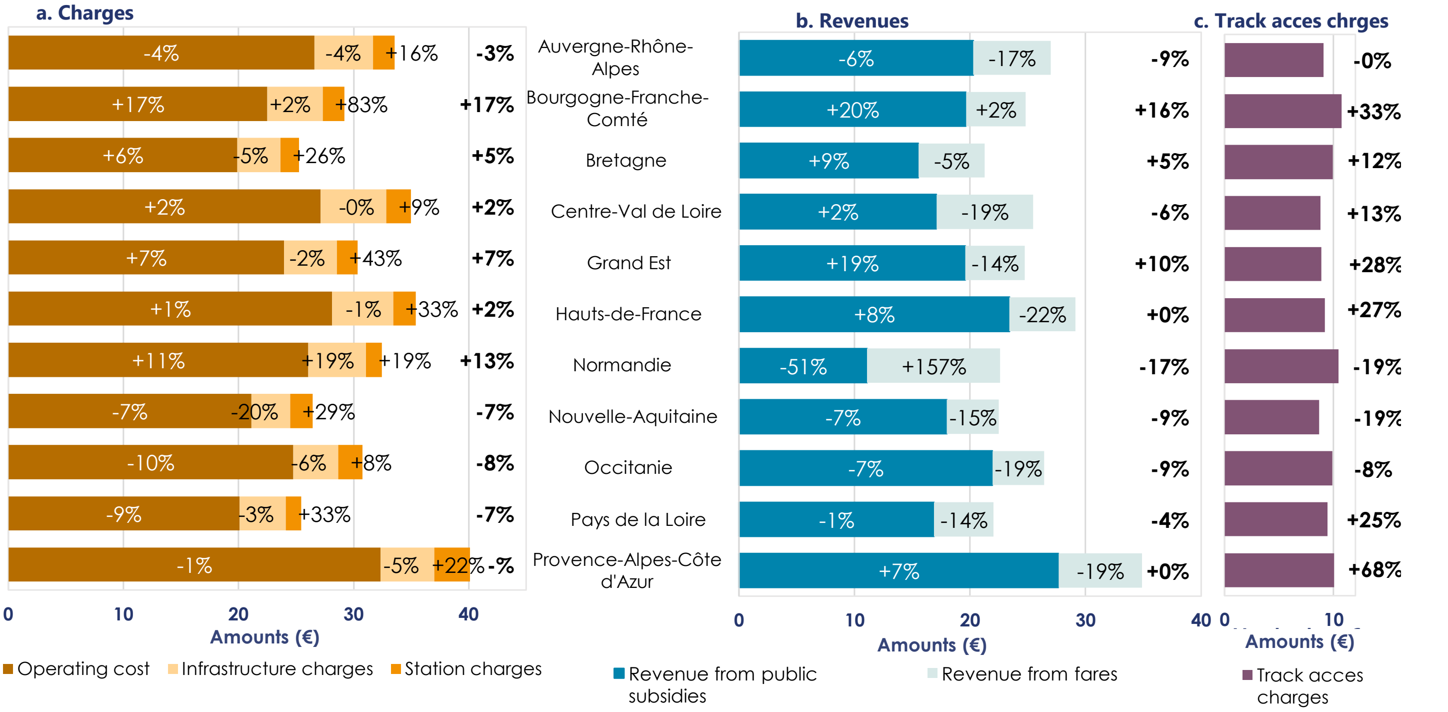
Scope: change of perimeter for Normandie region in 2020 due to the merge between TER services and Intercités services

Reading example: Auvergne-Rhône-Alpes recorded a 10% rise in train-km in 2021 compared to 2019. Global revenues for this region increased by 1% and amounted €816 million in 2021. Revenue from fares decreased by 8% while public subsidies rose by 5% compared to 2019.

On average, charges per train-km were stable, but showed heterogeneity between regions

In 2021, the average operating costs per train-km for regional PSO services remained stable compared to 2019. It decreased in five regions but increased sharply in Bourgogne-Franche-Comté (+17%), which is the region where the supply shrank the most in 2021 (by 21% compared to 2019). Infrastructure charges per train-km decreased by 3%, whereas station charges per train-km increased by 26% compared to 2019. This is partly due to the merge between platform charges and station charges in 2020 (platform charges used to be integrated into infrastructure charges). These results must be analysed with caution due to the impact of the 2019 strike on supply and the change in the scope of study for Normandie region. Track access charges per train-km, which are based on the scheduled train supply, rose in most regions.

Figure 44 – Charges and revenue per train-km (in euros) for regional PSO services in 2021 (labels: change 2021/2019)



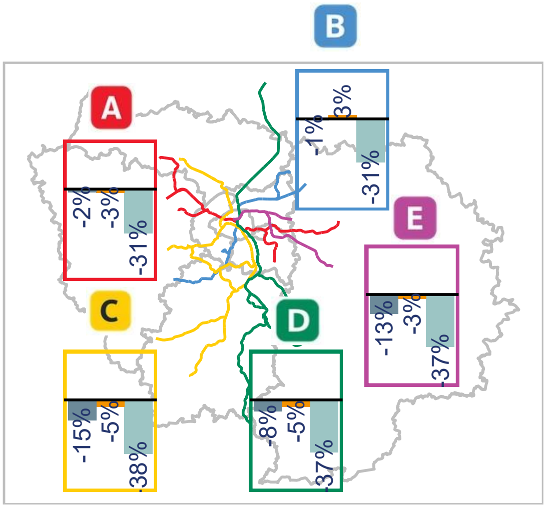
Source : ART according to SNCF Voyageurs
Scope: change of perimeter for Normandie region in 2020 due to the merge between TER services and Intercités services

09

PSO services (“Transilien” and “RER”) in region Île-de-France (1/2)

	Level (2021)	2-years change (2019-2021)	5-years change (2016-2021)
▪ Daily number of trains (SNCF)	5,400	+2%	n/d
▪ Seat capacity of trains	806 seats	+4%	+2%
▪ Train occupancy rate	22%	-10 pp	-10 pp
▪ Reliability rate (effective trains per scheduled trains)	86%	-2 pp	-8 pp
▪ % of trains behind schedule (5 min threshold)	8%	-2 pp	-3 pp

Figure 45 – 2021/2019 change of supply and demand for “RER” lines



Source : ARTaccording to SNCF Voyageurs and RATP

Transport supply remained below 2019 level for almost all lines

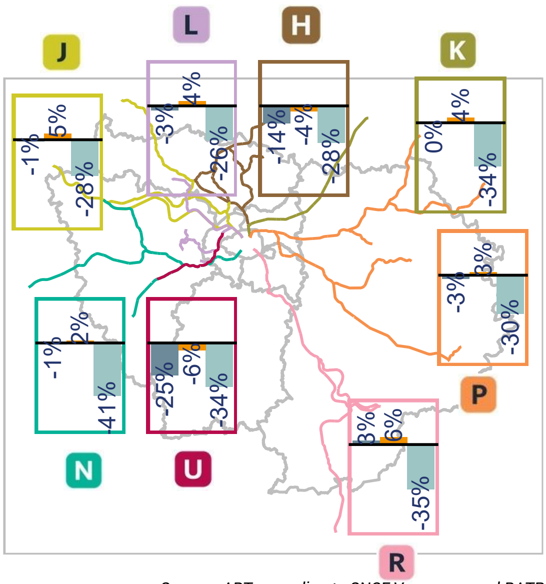
Supply in train-km was close to the levels observed in 2019 for six of the eight “Transilien” lines and for “RER” lines A and B. For most lines, supply in seat-km was less affected than supply in train-km. ‘Seat per train’ rate appeared therefore stable or increased (from +0% for line A, to +26% for line U compared to 2019).

Demand kept at low level compared to 2019

In 2021, demand was still heavily impacted by COVID-19 related restrictions. As a result, traffic in passenger-km for PSO services in region Île-de-France was one-third below 2019 levels.

Occupancy rates were close to 2020 levels for most of the lines (less than 2 pp difference). Two exceptions: Line A, which recorded the sharpest drop in 2020 (-21 pp) but an increase of 8 pp in 2021, while Line B lost again 4 pp in 2021.

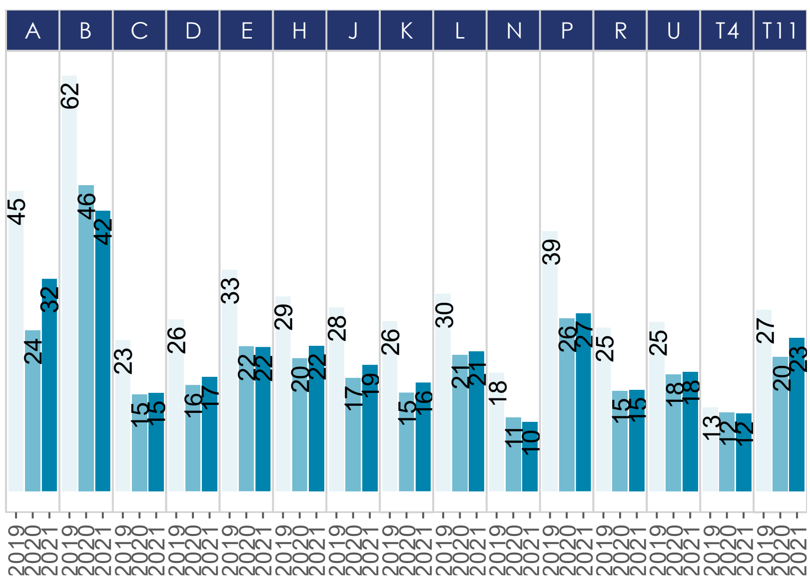
Figure 46 – 2021/2019 change of supply and demand for “Transilien” lines



Source : ART according to SNCF Voyageurs and RATP

Train-km Seat-km Passenger-km

Figure 47 – Occupancy rate per line since 2019



Source : ART according to SNCF Voyageurs and RATP

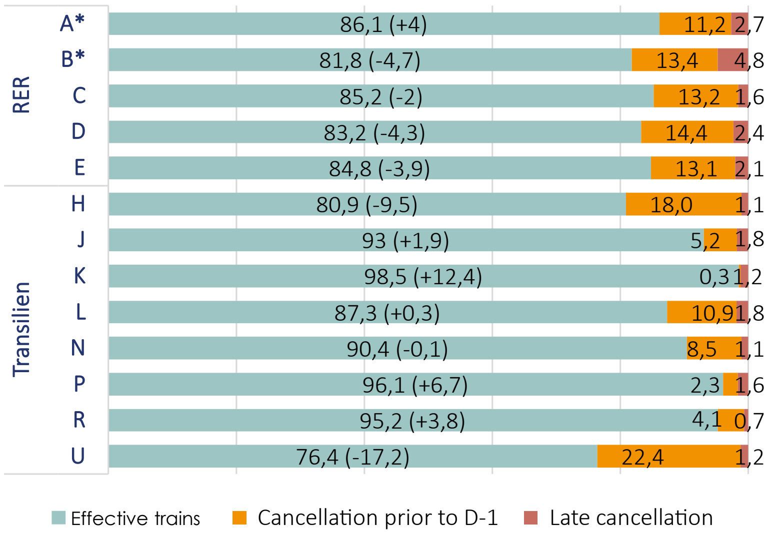
PSO SERVICES ("TRANSILIEN" AND "RER") IN REGION ÎLE-DE-FRANCE (2/2)

In 2021, the rate of effective trains for PSO services in region Île-de-France got closer to 2019, but train frequency kept reduced

In 2021, the rate of effective trains (compared to scheduled trains) was 86% (-2 pp versus 2019). Prior to D-1 cancellation rate was still higher than in 2019 for all "RER" lines except for line A and for half "Transilien" lines. It was also higher for RER than for Transilien if excluding "Transilien" line U that recorded the highest rate (22%).

The late cancellation rate was 2.2%, 0.1 pp lower than in 2019. It was heightened by "RER" line A and "RER" line B. Indeed, these lines recorded the highest late cancellation rates and were the only ones, with the "Transilien" line K, to show increased rates compared to 2019.

Figure 48 – Reliability of PSO services in region Île-de-France (excluding RATP) (2019/2021 change in percentage points (pp))

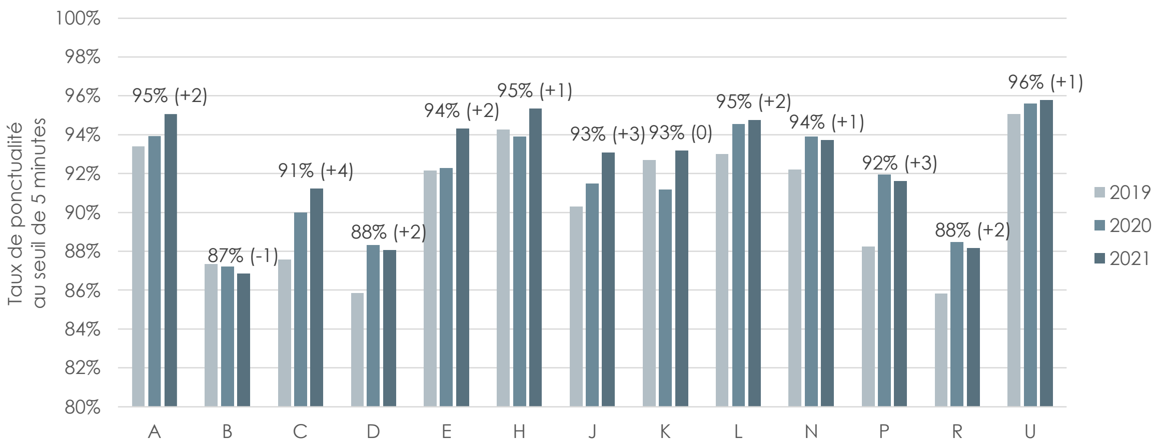


Source : ART according to SNCF Voyageurs
** excluding RATP*

In 2021, punctuality rate for PSO services in region Île-de-France improved and exceeded 90%

The positive impact of supply and demand slump on service quality was still visible in 2021. Punctuality rate improved for 8 out of 13 "Transilien and RER" lines compared to 2020 (and for all lines except line B if referring to 2019).

Figure 49 – Passengers punctuality rate, at 5 minutes 0 second threshold, (and change 2021/2019)



Source : ART according to SNCF Voyageurs
(X) 2019/2020 change in percentage points (pp)

Additional analyses available in the ART report (available as French version only):
- Financial results of the Transilien activity

ENGLISH / FRENCH GLOSSARY

- ART (for *Autorité de Régulation des Transports*): French Transport Regulatory Authority
- DRR (for *Document de Référence du Réseau*): Reference Document of the network published by the main IM SNCF Réseau
- CNM (for *contournement ferroviaire de Nîmes et de Montpellier*): railway section managed by the IM Oc'Via
- DGITM (for *Direction générale des infrastructures, des transports et des mobilités*): department of the Ministry of Ecological Transition and Territorial Cohesion, in charge of the preparation and implementation of the national policy regarding land and river transport
- ERTMS: European Rail Traffic Management System, including 3 levels of ETCS component (European Train Control System)
- GHG: greenhouse gases (in French GES (for *gaz à effet de serre*))
- GOPEQ (for *Grandes Opérations Programmées Equivalent*): Large programmed operation equivalent. GOPEQ is a volume equivalence unit for track renewal work that corresponds to one kilometre of renewal of all track components: rails, sleepers and ballast. Category "7 to 9 without passenger traffic" routes are excluded for the number of GOPEQs.
- HDS (for *horaire de service*) : annual railway period (starting in mid-december of each year)
- HHI: Herfindahl-Hirschmann Index, used to assess the level of concentration of the rail transport sector (in this report for freight services), corresponding to the sum of the square of the market shares of all railway freight undertakings – the index varies between 100/n and 100, with n the number of railway undertakings
- HSL: high-speed line (in French LGV (for *ligne à grande vitesse*))
- HSL BPL: high-speed line Bretagne-Pays de Loire (managed by the IM Eiffage Rail Express)
- HSL SEA: high-speed line Sud Europe Atlantique between Tours and Bordeaux (managed by the IM LISEA)
- ICV (for *indice de consistance des voies*): track consistency index
- IdFM (for Île-de-France Mobilités): transport organisation authority in Île-de-France region
- IM: infrastructure manager (in French: GI (for *gestionnaire d'infrastructure*))
- LC (for *ligne classique*): conventional lines
- LDFT (for *lignes de desserte fine du territoire*): small railway lines, as opposite to the core network
- NST: standard goods classification for transport statistics, as defined by Eurostat
- 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.
- Opex: operational expenditure
- PSO: public service obligation (in French *service conventionné*) as opposite to open access (or non-PSO) services (in French SLO (for *service librement organisé*))
- 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)
- 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
- 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
- RCTE (for *redevance pour le transport et la distribution de l'énergie de traction*): 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
- RFN (for *réseau ferré national*): national railway network. 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.
- RM (for redevance de marché): mark-up charge applied in accordance with Article 32 of Directive 2012/34/EU
- RU: railway undertaking (in French: EF (for *entreprise ferroviaire*))
- HST service: high-speed train service (in French TAGV (for *train apte 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.
- TER (for *Transports Express Régionaux*): regional PSO service (organized by the regions, and operated in 2021 as a monopoly in France by SNCF Voyageurs
- TET (for *Trains d'Équilibre du Territoire*): national PSO service (organized by the State, and operated in 2021 as a monopoly in France by SNCF Voyageurs under the « Intercités » brand)
- RER (for *Réseau Express Régional*): specific PSO service in region Île-de-France (organized by IdFM), and operated by SNCF Voyageurs and the RATP on dedicated sections

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