



# **New competition on high speed line in France: can the new Frecciarossa Trenitalia high speed train Milano – Lyon – Paris be successful?**

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1	Introduction .....	148
2	Attractiveness for an increasingly strong open access competition in Europe .....	149
3	Trenitalia on Milan - Lyon - Paris.....	152
4	Competition with the SNCF TGV.....	153
5	Price, positioning of the offer.....	154
6	Operation and track access charges.....	156
7	Conclusion.....	158
8	References .....	159

## *Abstract:*

*Since December 18, 2021, Trenitalia has been serving Lyon and Paris in open access as an extension of the Milan - Turin - Lyon - Paris line. Goodbye monopoly (Laroche, 2022b) in the French high speed market expected for long time. It is the result of the 2011 white paper E.U. (2011) where European transport policy aims at strengthening the dynamics of competition in passenger rail transport in the E.U. For the moment, the offer concerns five relations between Paris and Lyon (and two continuing to Milano). Offices and ticket vending machines have been installed in the Lyon and Paris stations. Our paper will focus on the start-up of this service by attempting to evaluate the first six months of operation*

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# 1 Introduction

In 2011, the white paper on European transport policy recommended liberalizing the rail transport sector, reinforcing the competitive logic (White paper, 2011). Adapted to the rail sector, the implementation of competitive logics in this sector first requires a segmentation of rail activities into centers of competence. The core of this segmentation is a vertical separation between network activities (the IM or infrastructure manager) and railway operations (the action of the RUs or railway undertakings). This is the framework of Guideline 91/440, which is at the origin of the major railway reform in Europe. The main objectives are: limiting the level of subsidy of the railway transport, promoting sustainable development and fostering the European integration through improving cross boundary connections. The whole system remains under strong control of regulating authorities in the member states of the European Union. On the agenda of research and European authorities is today the question of a European regulating agency to accelerate the integration of railway operation, mainly in cross – boundaries transport (fostering European night trains for example).

On the infrastructure side: promote TEN-T and freight corridors, interoperability (ERTMS standard of signaling), Safety and cross border links.

On the operational side: service innovation, liberalization through competition (open access and tendering) but also public service obligation in rural areas and less populated areas.

Obviously, competition does not appear directly at the network level, which takes the form of a natural monopoly, and therefore requires strong regulation, carried out in France by the A.R.T. (Autorité de Régulation des Transports). On the operating side, competition takes two forms (graph 2):

- Either intermodal competition, between two modes of transport in a fairly traditional way, rail and air for example. This form of competition is widely used in Europe today, for instance between airlines company, intercities coaches (Flixbus and Blablabus) or simple cars.
- A second form is intramodal competition, within the same mode. There are two approaches to implementing this intramodal competition in the rail sector:
  - o **Open access competition** : on the open access side, the big news at the end of 2021 was the launch of Trenitalia's competitive offer on the Milan - Lyon - Paris route, competing head-on with SNCF's InOui and Ouigo on the Paris - Lyon high-speed line (also on Milan – Lyon – Paris relation). In June 2022, Trenitalia's offer will include three Paris - Lyon round trips and two Milan - Lyon - Paris round trips, i.e. 5 trains per day, or about 20% of the Paris - Lyon offer. This is a major change on the busiest high-speed route in France. The

paper of Beria, Crozet and Guihery (2022) and Tomes (2022) give us a good outlook of the situation in Europe.

And

- **Competition through tenders** for regional passenger rail transport, where the regional service offer can be segmented into lots (Guihéry, 2014). In 2022 in France, after many years of procrastination and preparation, these two approaches are now at work: on the regional rail passenger transport side, the Transdev group has won the tender for the Southern region to operate the Marseille-Nice line in 2025 : double services than SNCF before tendering, new maintenance site, new rolling stock materials. SNCF retains various lots in the region.

## **2 Attractiveness for an increasingly strong open access competition in Europe**

Rail competition in high-speed rail and open access is currently experiencing a real boom worldwide, but especially in Europe: Italy was the first to initiate this movement by subscribing to the recommendations of the European Commission on rail liberalization and its famous 4ème rail package with a start of Italo-NTV in April 2012. The covid19 pandemic has put a strong brake on this trend but has not reversed it. The success is there for the new entrant NTV-Italo as well as for the incumbent, with an increase of 120% between 2011 and 2019 (Giuricin, 2022). More than 30 million passengers have been transported by high-speed rail in Italy, with profits for both companies. In the last 5 years, Italo has doubled its fleet of high-speed trains (AVG) and high-speed pedolino (EVO). Trenitalia has reacted vigorously to this new competition, lowering its prices (see graph 1) and increasing its range (equipment, quality of service, punctuality). This reactivity facing this new competition in Italy has led Trenitalia to enter the European market rapidly, and today it is a major player in high-speed competition in Europe, especially in France and Spain.

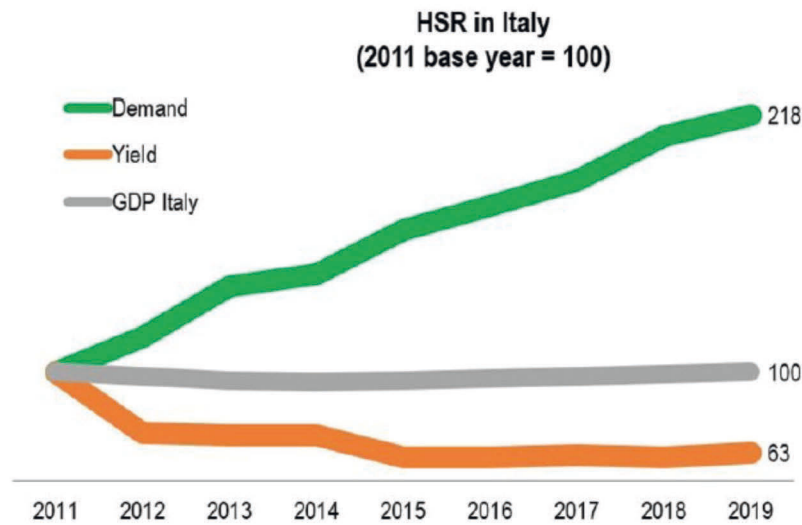


Figure: HSR results for Italy ; source : Global Railway Review, Giuricin, 1.03.2022 ; le Yield est la recette tarifaire par voyageur.km

Trenitalia is studying the development of its activities in Spain within the company IRYO with 45% of the company's capital. Spain has a more complex development with lots assigned to RENFE, the historical operator, to ILSA - IRYO commercial brand - and OUIGO (SNCF). In France, OUIGO reaches a revenue level of 5.1 cent € per trip, less than half that of the SNCF's Inoui services. Between Madrid and Barcelona, despite the pandemic, traffic has increased significantly with a real success of Ouigo (graph 2).

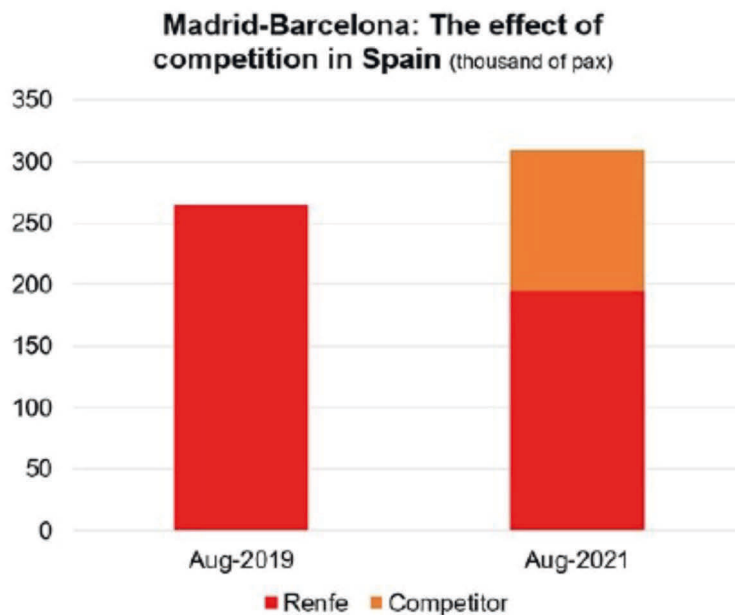


Figure 4: Effect of competition in HSR in Spain ; source : Global Railway Review, Giuricin, 1.03.2022

In France, Ouigo experiences a real success with the public with 9.76 million voy.km in France next to the top-of-the-range service of SNCF Inoui, which has a record of 41 billion voy.km in 2021, a revenue in cent € per voy.km of €10.8 and a load factor of 71%.

In Korea, competition has also emerged in the Korean high-speed rail market with the arrival of SRT against Korail (Giuricin, 2022).

In general, high-speed rail is moving towards increased competition between European operators. The system of agreements that existed until now seems to be increasingly outdated. For example, SNCF has denounced its cooperation with RENFE in the joint venture Elypsos. *“These links with Spain have never been profitable”, according to SNCF. Due to COVIDs, but not only, the demand for seats had even fallen by 72% in 2020 compared to 2019, and then again by 59% in 2021. So now RENFE is planning to operate in France on the relation between Barcelona – Marseille and Lyon and is testing high speed trains on the high speed line beginning of 2023.*

The only thing left for SNCF is the Aléo cooperation with Germany, but it is little known to the public. The Lyria joint venture with Switzerland is in name only, as SNCF is responsible for almost the entire offer. As for Thalys and Eurostar, they are no cooperation but companies in their own right.

In short, *open access* competition now seems to be the driving force behind the upheaval of high-speed rail in Europe. New operators are showing their willingness to enter this market: Le Train in the French Atlantic Region has ordered high speeds train from CAF. But above all Getlink, which operates the Channel Tunnel and wishes to acquire high-speed trains to make them available to rail companies that could compete with Eurostar. The project is well advanced and the first trains could be running in 2026. RENFE seems to be the most interested in this new service, which could compete with Eurostar, which is 55% owned by SNCF. "The objective is to circulate "2 to 3 million additional passengers" per year across the Channel, that is to say an increase of "20% of the level of traffic before" the health crisis, thanks to "ten trains" that would make "four to five round trips" per day, according to Jacques Gounon (Source: AFP, March 21, 2022).

### 3 Trenitalia on Milan - Lyon - Paris

Trenitalia<sup>1</sup> has launched a new service between Milan and Paris via LYON with a superb ERT 1000 frecciarossa rolling stock (Bombardier Hitachi). These are 260,000 seats that will be offered for sale between Milan and Paris. This should also represent 284 million seats.km between Paris and Lyon until an increase in rotations in June 2022. This superb train offers 462 seats (compared to 556 seats for the new SNCF TGVs with the elimination of the “carré” (510 on the classic TGVs<sup>2</sup> and 1020 if multiple units) and 617 for Ouigo - 1288 if multiple units).

Three classes are offered to the customer:

- a) executive comfort (two rows of 5 large recliners that can be adapted to the direction of travel: introductory price: 139 € on Paris-Lyon and 165 € on Milan-Paris with a meal and a snack; note the presence of a meeting room with screen, closet, etc. .... )
- b) Business comfort in cars 2 and 3 equivalent to 1st class TGV. Two ambiances are available: Silenzio and Allegro. With introductory prices starting at 29 € on Paris - Lyon and 36 € on Milan - Paris. With a welcome snack.
- c) Standard comfort for second class cars, also with the silenzio or allegro option, with introductory prices of €23 on Paris-Lyon and €29 on Milan-Paris.

The success is there, with a very good occupancy rate in the first months of operation - 150,000 passengers have been carried since the launch at the end of December 2021 until March - and very good feedback from customers: *"We are very satisfied. We can say that the results are very encouraging. During the school vacations, we had a very good occupancy rate for the trains. They were almost completely full with a rate of occupancy of 98%, knowing that due to the restrictions linked to Covid, the saleable seats did not exceed 80% of the capacity of the trains. There was a great deal of curiosity on the part of our passengers, who had the opportunity to try a completely*

<sup>1</sup> Fully owned subsidiary of FS (Ferrovie dello Stato Italiane). Trenitalia operates in Greece, the United Kingdom, Germany, France and Spain. It carried 600 million passengers in 2019 compared to 1.1 billion for SNCF. Its profit was €593 million in 2019 while SNCF recorded a €301 million loss. The modal share of rail in passenger transport, in % of voy.km, is 5.9% in Italy (against 10 for France). The tolls and charges paid by Italian railway companies (in €/train.km) amount to 3.2 € per train.km (against 10.4 € per train.km in France). Fare revenues amount to 7.3 € cents per train.km (compared to 9.2 € cents per train.km in France). Finally, the public subsidies received by the railways amount to 5 cents per km-trip (compared to 5.7 cents per km-trip for France). The Italian network consists of 19,982 km of railway lines, 67% of which are electrified (compared to 28,710 km for France and 58% electrified). It declined by 7.3% between 2012 and 2017 (compared to -6.3% in France). 963 km of high-speed lines in Italy compared to 2,640 km in France. 19 active railway companies in Italy (90.4% of the market to Trenitalia) compared to 4 in France (99.9% market share to SNCF). 320 million train-km in Italy compared to 407 million train-km in France.

<sup>2</sup> And 370 if single TGV and 740 if multiple unit: this is the TGV put into operation by SNCF on Milan - Turin - Paris.

*different service, and that's our spirit. We had very good feedback on social networks, but also live through our crews." (mediarail Belgium, 11.02.2022).*

Recruitment at Trenitalia France is witness to this initial success: on February 13, 2022, on the Trenitalia France website, one job was offered in Chambéry, four jobs in Lyon and thirteen in Paris.

#### **4 Competition with the SNCF TGV**

Trenitalia first came to occupy a niche left aside by the SNCF, namely serving Lyon directly between Paris and Milan. Indeed, the SNCF TGV link between Milan and Paris does not stop in Lyon since it takes the high-speed line at Saint-Quentin-Fallavier before Lyon, whereas Trenitalia will serve the Lyon Part-Dieu station. In addition, the SNCF TGV stops at several stations in Italy, without being able to use the high-speed line between Turin and Milan (which requires ERTMS on the 143 km of high-speed lines). Trenitalia uses this high-speed line (300 km/h) and does not stop at intermediate stations. Finally, the terminus station in Italy of the SNCF TGV offer is Milan Garibaldi and not Milan Centrale like Trenitalia.

Between Modane - impossible to board a Trenitalia train for a regional route in Auvergne Rhône-Alpes - and Chambéry, the route is the same for both operators at the exit of the Mont-Cenis tunnel. The Modane - Lyon link remains very slow and sometimes uncertain in terms of service quality, while waiting for the Lyon - Turin high-speed link.

In the long term, the question arises as to whether the SNCF should keep this Paris-Milan route, which is clearly less valued than the Trenitalia route, which is supported by recent and effective communication. The rolling stock used is very close to being decommissioned and studies are underway to redirect the service to a Marseille – Nice - Milan route that was abandoned by Thello (former French subsidiary of Trenitalia).

In June, Trenitalia is completing its offer with an extended round trip range throughout the day. Unlike the current two daily frequencies, which also serve Chambéry, Modane, Turin and Milan, the additional frequencies to be introduced will be limited between Paris Gare de Lyon and Lyon Perrache, with service to Lyon Part Dieu station. A third round trip will be offered from April 5, then two more from June 1. This means that in total, Trenitalia will be offering 4,600 additional seats. On the SNCF side, SNCF will operate 24 daily round trips between Paris and Lyon (22 Inoui and 2 Ouigo).

Thus, taking into account the 24 connections proposed by the SNCF, the market will have almost 30 daily high-speed connections between Paris and Lyon on certain days.

## 5 Price, positioning of the offer

Trenitalia's service offer is well positioned and has received very good feedback from customers, according to the first surveys conducted by the Italian company: on the positive side, we note: the quality-price ratio, the simplicity of purchase, the hospitality (coffee, drinks, snacks, goodies), the quality coffee, a lot of on-board staff, the WIFI (quality connection and press content), the very accessible waste garbage cans, the signaling of the seats, ... Weaknesses: bar rather unpleasant (no view, no seat), luggage management in 2<sup>ème</sup> class (see picture), very bright room,...

### Wednesday 20 april 2022

En €		Paris-Lyon	Paris-Lyon-Milan
TRE-NITALIA	Standard	23 - 49	79
	Business	89 - 29	125
	Executive	139	Epuisée
SNCF	Second cl.	58-65	79
Inoui	first cl.	60-80	99
Ouigo		22 - 39	

### Wednesday 4 may 2022

En €		Paris-Lyon	Paris-Lyon-Milan
TRE-NITALIA	Standard	23	45
	Business	29	49
	Executive	139	165
SNCF	Second cl.	56	39
Inoui	First cl.	64	64
Ouigo		22 - 19	

Table 3 : Example of prices between Trenitalia and SNCF



On average, in December and January, prices were €37 between Paris and Lyon and €51 between Milan and Paris (in standard class). Nearly 40% of seat reservations are made the week before the trip. The<sup>3</sup> train occupancy rate is very good: 98% in December for the launch month and 83% in December-January and 81% in February. 79% of passengers are connected to the WIFI portal.

According to the director of the French subsidiary of Trenitalia, Mr. Rinaudo, since 18/12/2021, date of the launch of the PARIS - LYON - MILAN routes, that is to say in 3 months and a half, Frecciarossa has already transported nearly 150,000 passengers with an average load factor of 87%.

Trainline, an independent European platform for booking train tickets, offers all SNCF and Trenitalia trains for sale, which gives it a fairly complete view of the Milan - Lyon - Paris market. At the beginning of April 2022, Trainline published a study of sales on the Paris-Milan route, in both directions. Here are some of the results<sup>4</sup> :

- Ticket sales on the Paris-Milan route (in both directions) have tripled since the launch of Trenitalia on December 18, 2021 (+216% of reservations). On the Paris-Lyon-Milan route alone, the increase is 106%. On the Paris-Lyon route alone, the increase is 14%.
- 50% of tickets sold for travel from Paris to Milan are for stays of 1 to 3 nights, the other half for stays of 4 to 7 nights and 8 to 15 nights.
- Trips from Milan to Paris are generally shorter, with a higher frequency of trips of 1 to 3 nights. The most popular destinations on the route are, in order: Paris, Milan, Lyon and Turin. The most booked routes on this line are Paris - Lyon, Paris - Milan and Lyon - Paris.
- 16% of tickets purchased on Trenitalia services are in Business & Executive class (both ways).
- The average price of a ticket sold on this route is €48 for Paris - Milan and €38 for Paris - Lyon. Average prices paid on the Paris-Lyon route, the busiest in France, have dropped by 23% in the Paris-Lyon direction and by 30% in the Lyon-Paris direction (mobilités magazine, April 7, 2022).

These elements confirm the success of the link operated by Trenitalia: in the first three and a half months of operation, the occupancy rate has reached 87%. 75% of customers are international and 25% national (mobilités magazine, April 7, 2022).

The main update research of the TRENITALIA Service Lyon and Paris was published recently by Laroche (2022b). His analysis is based on a large database ( $n = 971$ ) collected from September 2019 to July 2022. One of the main challenge he faced was to isolate the COVID-19 pandemic effect from the competition. A similar route without competition (Paris-Bordeaux) have been selected to control the effects. The method

<sup>3</sup> This is the saleable capacity currently limited to 80% of the train capacity for COVID reasons.

<sup>4</sup> Study conducted from December 24, 2021 to February 5, 2022.

relies on a descriptive analysis with an original timetable dynamic approach in the discussion. The results of Laroche (2022b) highlight an increase of the frequency by 5% and decrease for price by 10%. The prices by the newcomer are lower to the incumbent (-30% to -40%) with not enough volume to change the global equilibrium. It is far from a big bang but the comparison with the control route suggests a positive effect on price to moderate the economic catch-up effect after the COVID-19 pandemic in an inflationary context. In the detail, the SNCF is few sensible to the competitive pressure from Trenitalia. It did not move significantly its price to the contact of the new offer and maintained its trains (Laroche, 2022b).

## **6 Operation and track access charges**

Regarding the operation of the rail line, observed between December 18, the date of the launch, and January 16, it shows a very good punctuality in Lyon: thus no delay at the departure of Paris over this period (SNCF Réseau; Paris-> Milan axis). On the Italian side, it was a great success because the entry on the French network is generally on time in Modane in the Milan - Paris direction. On the Milan - Paris route precisely, a 41 minutes delay at Modane due to a long customs and police control and a fire alarm on board (on January 10) and two 11 minutes delays due to rather long customs/police controls (on 25/12 and on January 7). In general, the customs/police control in Modane takes 10 minutes but is well caught up in Lyon because 20 minutes of parking are foreseen before leaving on the LGV Paris-Lyon. No incidents on the rolling stock were observed in either direction. Finally, single-track operation between St-André-le-Gaz and Chambéry is rather chaotic. According to SNCF Réseau, most of the delays are due to "background noise" caused by SNCF Réseau, infra-regional incidents or "other RUs", plus customs and police controls. To date, the main observation is that Trenitalia's Frecciarossa trains do not experience, and are not the cause of, any delays, including traffic in Italy (SNCF Réseau).

Interesting is also the level of the track access charges for the use of the infrastructure on the Paris-Lyon network. They are very high compared to those charged in Italy.

They represent between 30 and 40% of the ticket price. Rail tolls on Paris-Lyon range from 26 to 39 euros per train.km against 8 € per train.km in Italy (Les Echos, 19.10.2021). This observation is the subject of much criticism from the new entrant Trenitalia, which is asking for a rebate with a reduction in the cost of train paths.

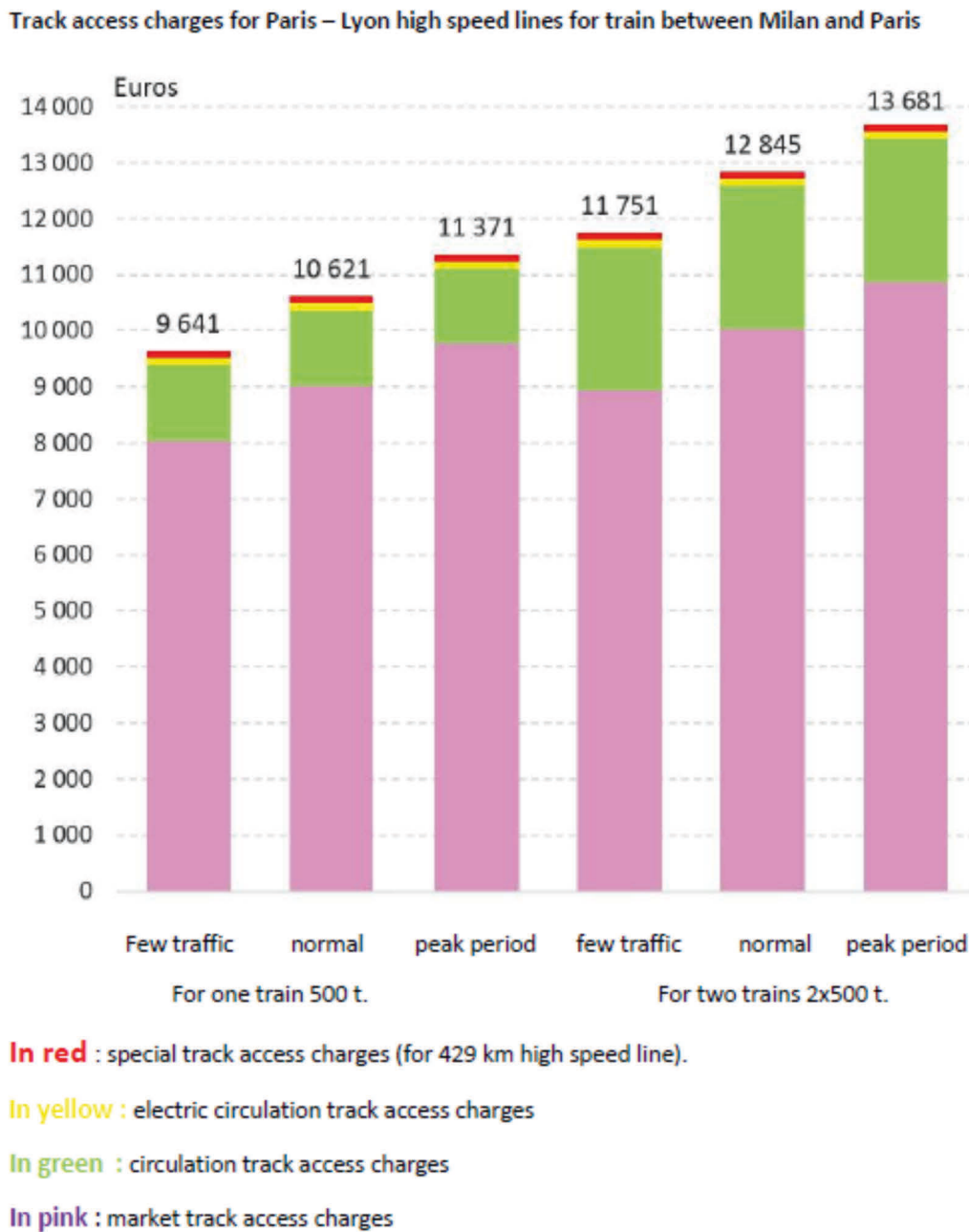


Figure 4: track access charges for Paris – Lyon high speed track

These access charges are essential for SNCF Réseau. They represent nearly 90% of the income of the infrastructure manager in France (SNCF Réseau), whereas they cover, on average, about 50% of the expenses of infrastructure managers in other European countries. The distortion of competition is almost institutional. "The dependency link between SNCF Réseau and SNCF Voyageurs means that by 2030, nearly 20% of SNCF Réseau's investments must be financed by SNCF Voyageurs' dividends. The infrastructure manager is thus strongly interested in the success of the incumbent operator, much more than in that of the new entrants," deplores the ART.

According to an article in Le Parisien (April 5, 2022), Trenitalia has received "substantial discounts" on the price to be paid for rail access charges: 37% in the first year,

16% in the second and 8% in the third. This toll has three components (see graph 3): an access fee, a circulation fee and a market fee on which SNCF Réseau's rebate will be based. This seems to be in line with the "differentiated pricing" provisions<sup>5</sup> laid down by the French Transport Regulatory Authority (ART), which will also decide whether or not this rebate is appropriate. This facility is making critics from SNCF passengers, which must pay 60% of its profits to the network as part of a fund to help finance infrastructure projects. (Le Parisien, 5.04.2022). The main idea is to make the French network more attractive, to get more TGVs to run and thus potentially increase the revenues of the infrastructure manager. This also aims to lower prices. This is also a signal to RENFE, which is expected to be on the French high-speed network in the next few years.

In April 2022, Trenitalia is experimenting with the coupling of two TGVs: the tests, which are intended to obtain approval for commercial service on the French network for the ETR.1000's dual compositions, should last from December 2022 to July 2023. Regular services between Paris and Lyon should begin by the end of 2023.

## 7 Conclusion

Open access rail competition on the Paris-Lyon route finally places France among the member states that have implemented the recommendations of the major European rail reform. Trenitalia's first operating results in France are positive and call for an extension of the offer, which will take place in June. SNCF has already reacted by keeping a closer eye on its service quality, strengthening its premium and Ouigo commercial offer, and positioning its future TGV M on this network as a priority in 2024.

Will France follow in the footsteps of the successful competition between NTV - Italo and Trenitalia in Italy? Across the Alps, NTV has taken 35% of the high-speed market in a market that has doubled between Milan and Rome. Trenitalia has increased its frequencies and greatly improved its quality of service. And the incumbent's fares have dropped by 40%! Let's hope that the lessons learned from the successful experience in Italy will be applied in France.

In a broader European context, the question arises of the level of competition - cooperation between Trenitalia and SNCF. Indeed, RENFE and ITALO - NTV could aspire to insert themselves on the Paris - Lyon route in a much more competitive perspective than the current positioning of Trenitalia, which announces: "Trenitalia's intention is not to take market share from SNCF" (Les Echos, 17.12.2021). This admission makes it possible to imagine a market distribution that is more cooperative than

<sup>5</sup> Guaranteed by the European Union directive 2012 / 34. Moreover, the RU Le Train has made a similar request to SNCF Réseau and Lisea (Vinci), the private concessionaire for the high-speed line between Tours and Bordeaux.

competitive, in other words, a maximum occupation of the train paths to prevent any non-cooperative entries. In fact, according to various sources, the withdrawal of Thello from the Southern region could lead SNCF to reposition its TGV Paris - Milan (via Chambéry), which is in sharp decline, on a Marseille - Nice - Milan route abandoned by Trenitalia. Clearly, cooperation or even agreement remains a resistant bias of the historical operators. The only difference is that two very different offers are still available to customers on the busiest route in France.

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