

The information presented in this summary is an integral part of the Portuguese Rail Ecosystem – 2017. The full version is available on the AMT site.

The 2017 Portuguese Rail Ecosystem Report gathers together information which is considered essential regarding this ecosystem. This report intends to offer a valuable contribution to technical and scientific knowledge in this sector with the aim of providing a more inclusive, accessible and equitable mobility. It is also intended that it should play a major part in decision making.

The report covers a broad spectrum of factors which impact the ecosystem at present and analyses the main indicators for action, such as: the development of transport supply and demand, quality of service, and the respective perception by the client, the evolution of prices and the comparative advantages with other forms of transport in terms of sustainability (environmental and energy), mobility, and the level of digitalisation. An economic-financial balance is made of the sector as well as the impact of implementing and putting into operation the Fourth Railway Package.

NEW LEGISLATIVE PACKAGE

THE 4TH RAIL TRANSPORT PACKAGE - OPENING OF THE MARKET IN 2019

National legislation transposed and adapted through **Decree-Law No. 124-A/2018**, 31st of December, the legislative alterations imposed by the **Fourth Railway Package** – more specifically those that are impacted by the **Market Pillar** – namely the full liberalisation of Passenger Rail Transport and the consequent **opening of the domestic passenger market to competition as from the 1st of January 2019** and the strengthening of the role of national regulatory entities.

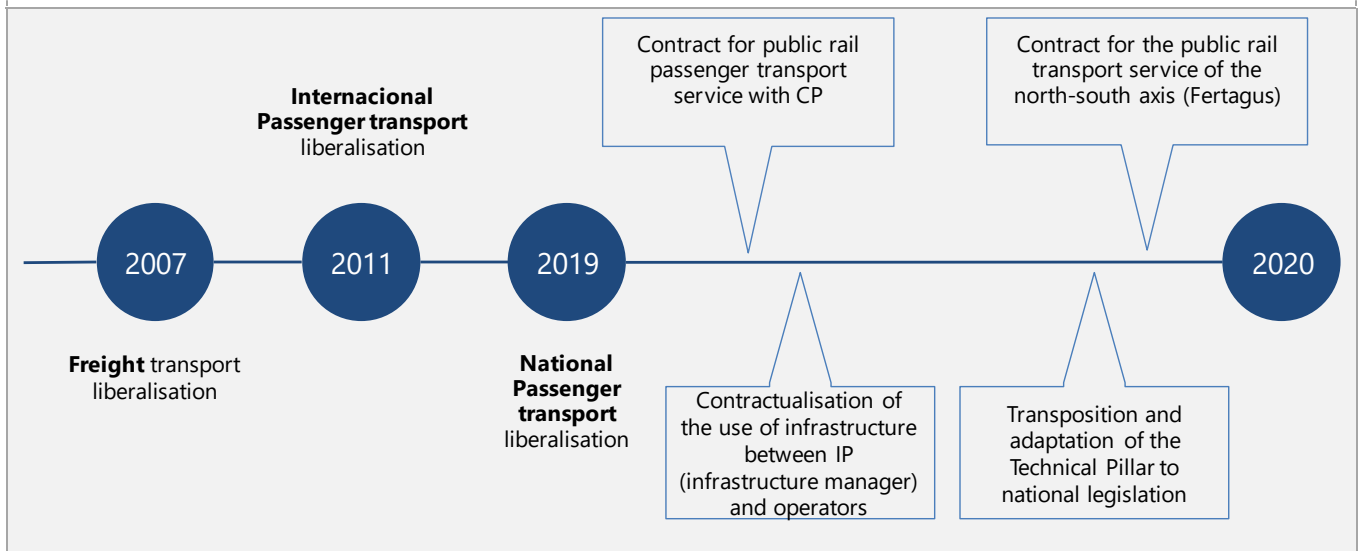
From this date, any licenced and certified railway undertaking may request access to the railway infrastructures of any Member-State for the provision of any rail transport service including national transport of passenger services.

Thus, the total liberalisation of the rail transport market is complete following the full opening-up of the rail network to freight transport services in January 2007, and international passenger transport services in January 2010.

If access to the infrastructure by a certain (new) operator compromises the economic equilibrium of a current public service contract in this itinerary or an alternative itinerary the (new) operator request may be denied or limited. As a regulatory authority, **AMT will be responsible for assessing such situations on request, and through an objective economic analysis** based on predefined criteria, will determine the conditions under which, access to infrastructure can be achieved.

The Fourth Railway Package also reinforces the **obligation to honour public service contracts** for rail passenger transport, which should be awarded through public tenders. From the end of 2023 the award of these services by direct adjustment in the European Union is only possible in situations involving internal operators or in situations of risk of breakdown or emergency.

Timing of the main milestones in terms of liberalization of the rail transport market stemming from the European Union Railway Packages.



INFRASTRUCTURE

THE BEGINNING OF AN INVESTMENT CYCLE IN THE NATIONAL RAILWAY NETWORK

The national rail network did not change

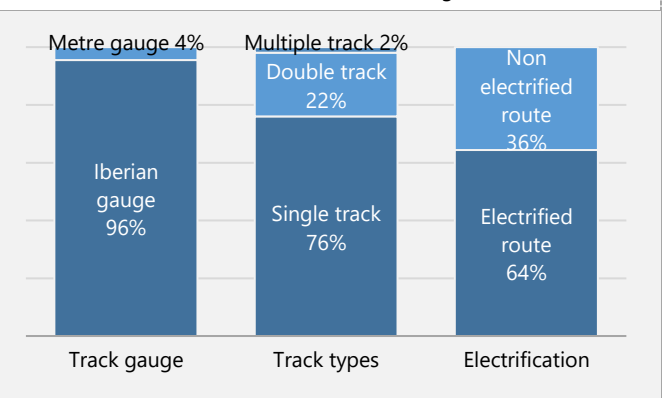
significantly in 2017. It is an electrified network for 64% of its extension, and is used mainly for the transport of passengers, having double or multiple tracks in the metropolitan areas of Lisbon and Porto and in the respective connecting corridor.

With regard to European countries' rail networks, the national network is characterised by an **above-average of electrification**, and a **below-average density**, both in terms of area (2.8 km of track per 100 km²) and population (2.5 Km of track per 10,000 inhabitants), and one that has lower intensity of use (39 trains per day per route km).

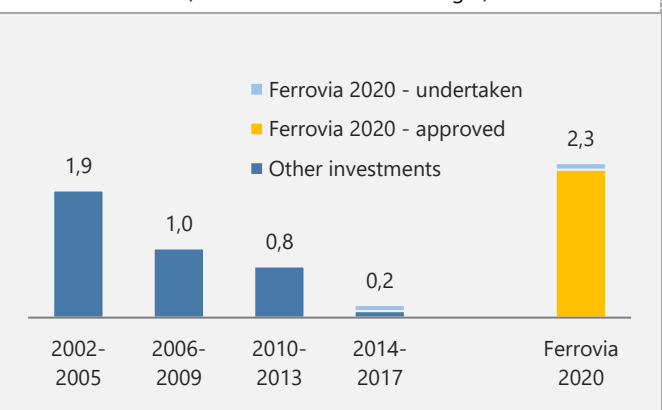
In terms of investment, considering the plans presented, everything indicates that we are at the beginning of a robust cycle of investment in the railway infrastructure. € 2.3 billion is foreseen by 2023 within the **Ferrovía 2020** Investment Plan. The 2030 National Investment Plan (PNI 2030) provides € 4 billion for investments in the railways.

In 2017, the average Track access charges (TAC), in euro per train.km, billed by the infrastructure manager to passenger transport operators was about 6% below the average value of 2012, but 1% above the value of 2016. According to IRG-Rail data, the amounts charged in Portugal are below the European average both for passengers and freight.

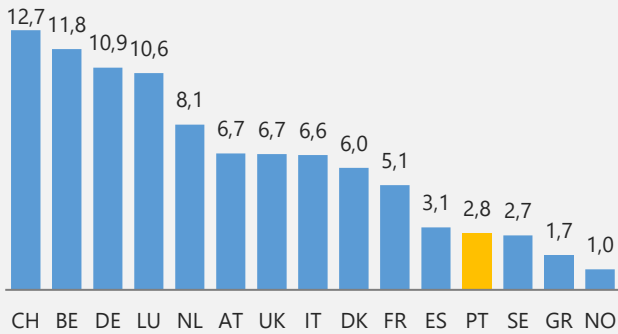
General characterisation of the National Railway Network, regarding the type of track, gauge and electrification (Source: Infrastructure manager)



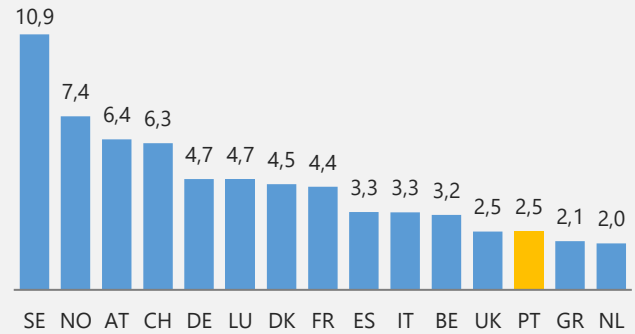
Infrastructure manager investment in Long-Term Infrastructures (Source: Infrastructure manager)



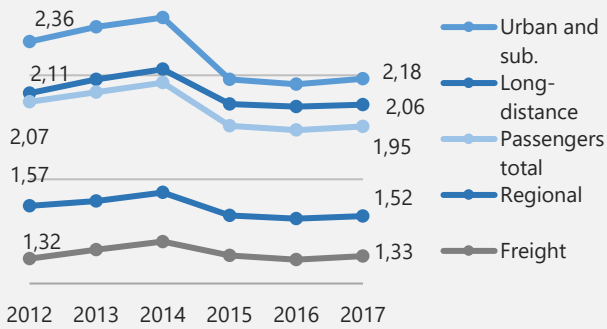
Density of the rail network in relation to the area of the country in km/100km² (2016) (Source: IRG-Rail)



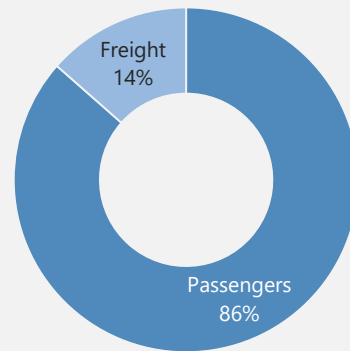
Density of the rail network in relation to the population, in km/10,000 Inhabitants (2016) (Source: IRG-Rail)



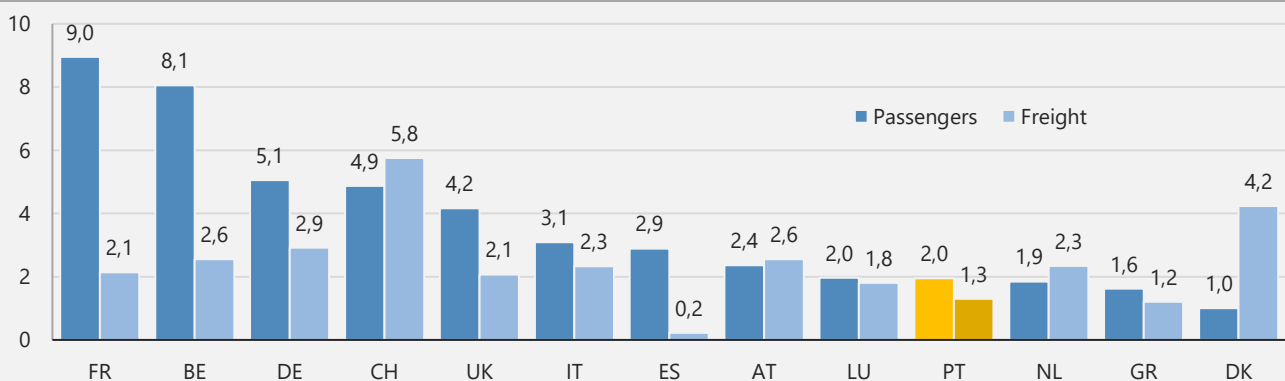
Average track access charges (in euro per train.km), by type of service (Fonte: AMT)



Distribution of track access charges revenues collected by the infrastructure manager (2017) (Source: AMT)



Track access charges (minimum access package), in euro per train.km, by type of service (2016) (Source: IRG-Rail and AMT for data in Portugal)



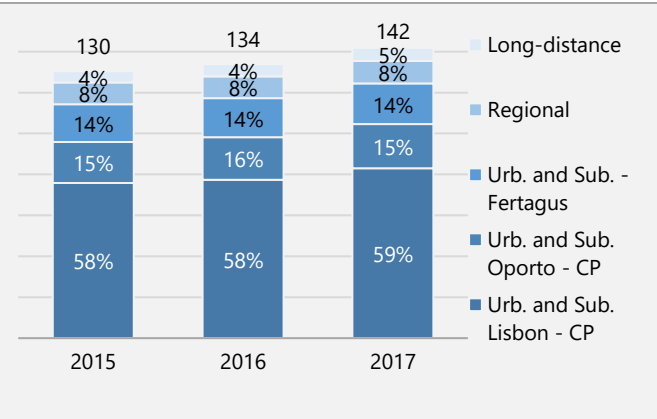
PASSENGER TRANSPORT

GROWTH OF DEMAND AND PRICES

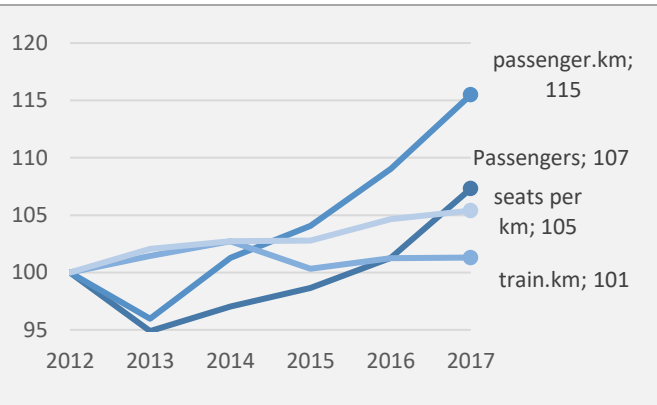
In passenger rail transport, the number of passengers and passenger.km is **increasing**, with increases of 7% and 15%, respectively, between 2012 and 2017. The overall occupancy rate in 2017, considering the two operators, rose to 28%, highlighting 61% of long-distance services. Compared with other European countries, the still small modal share of rail transport stands out (4.2% of total passenger land transport, which corresponds to around 12 trips a year per inhabitant), and the small amount of financial compensations received by the transport operators (the compensations correspond to 2% of the tariff revenues of the services with PSOs).

The passenger operators' revenues per passenger.km presented different behaviours for the different services. Analysing its evolution between 2012 and 2017, the growth in the region of Lisbon, in the order of 10% in the CP and 7% in Fertagus, stands out. However, in the long-haul segment it showed a clearly decreasing trend, around -7% compared with 2012.

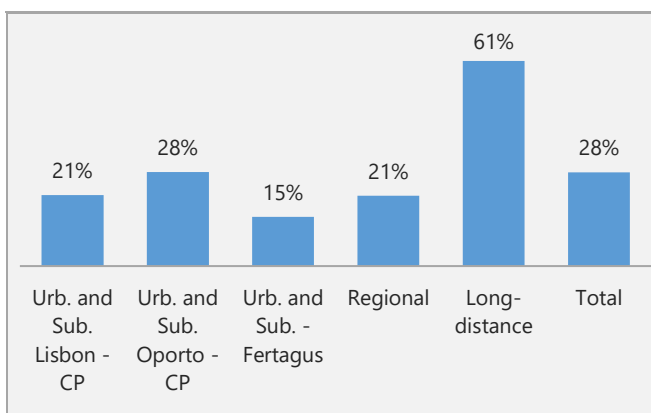
Evolution and characterisation of the demand by type of service in terms of Passengers (x10⁶) (Source: Operators)



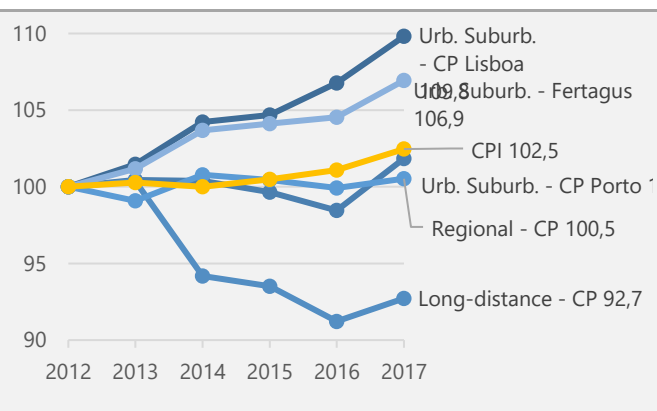
Evolution of supply and demand: passengers, passenger.km, seats and standing places per km and train.km, as indexes for the year 2012 (Source: AMT)



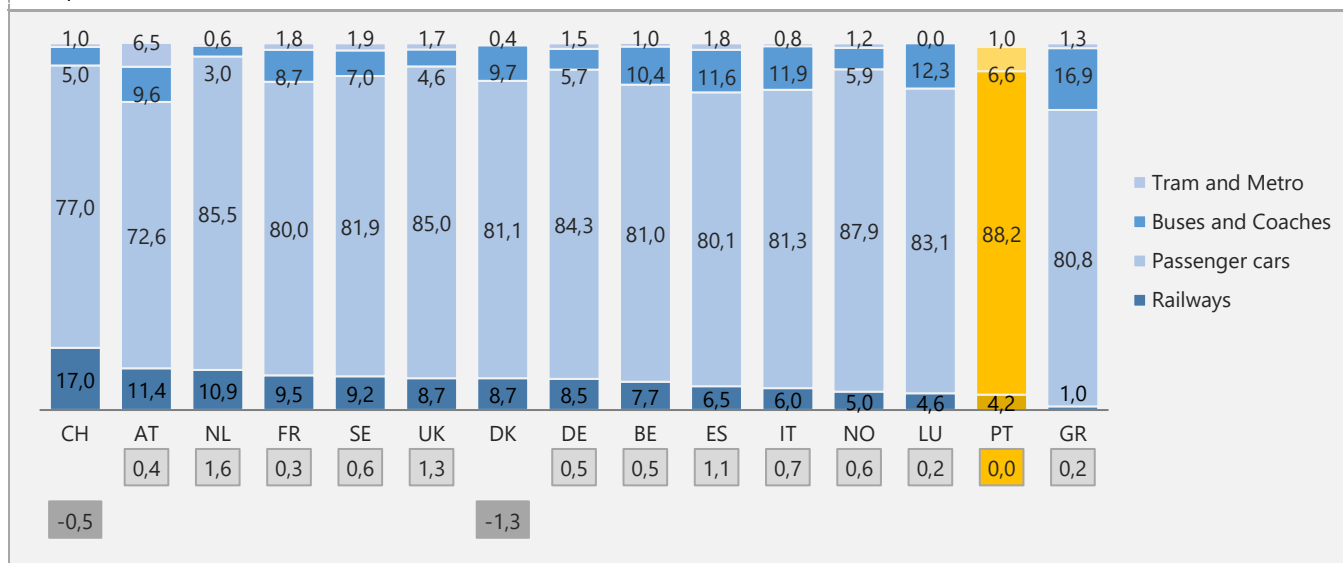
Occupancy rate by type of service in 2017 (Source: Operators)



Index on the evolution of the passenger operators' revenue per passenger.km per service (period 2012-2017) (Source: AMT; IPC: INE)



Modal distribution of passenger land transport in 2016, as a percentage of PKm, and the respective percentage change in the share of rail transport between 2011 and 2016 (Source: Statistical pocketbook, EU Transport in figures, of the European Commission)

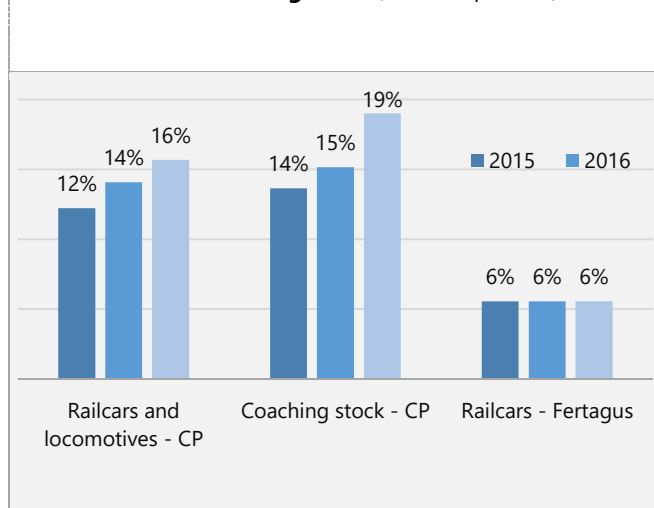


ROLLING STOCK

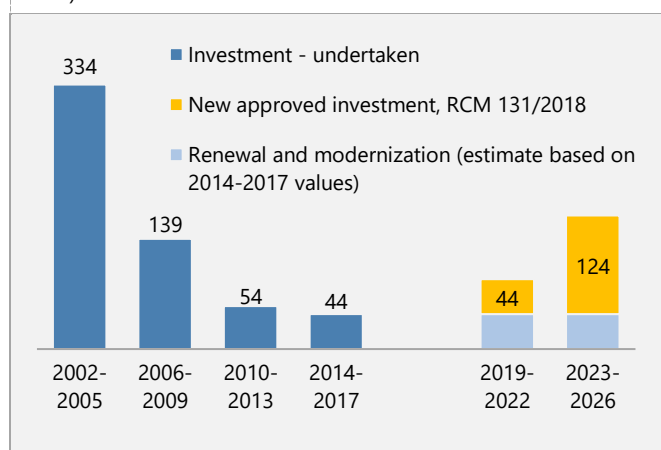
The rolling stock dedicated to passenger transport services remained relatively stable between 2015 and 2017. Diesel power, used only for regional services, exhibited a downtime of 26%, which is

significantly higher than electric power, 12% (considering CP and Fertagus). This refers to a 4 percentage points increase in the global downtime rate of CP traction rolling stock from 2015 to 2017.

Downtime rate of rolling stock (Source: Operators)



CP investment in rolling stock, undertaken and approved in millions of euros (Source: PORDATA; Operators; AMT)



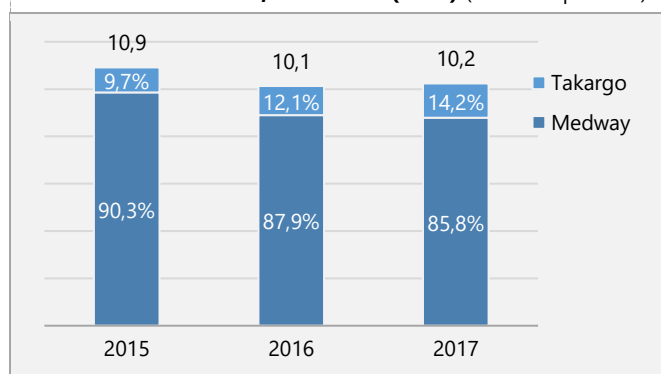
FREIGHT TRANSPORT

THE IMPORTANCE OF INTEROPERABILITY WITH SEA PORTS

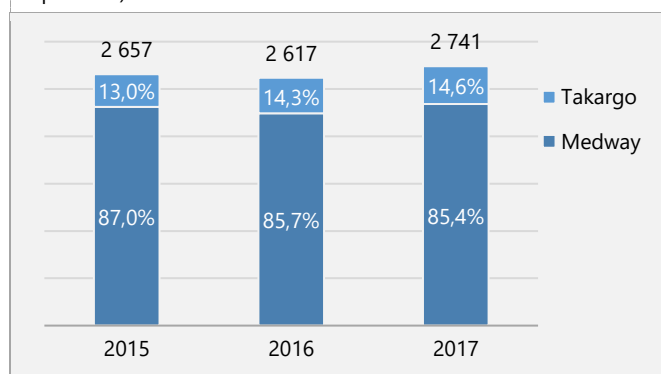
Between 2015 and 2017, **goods transport** showed a **slight reduction** in tonnes transported (-6%) and train.km (-5%). However, tonne.km showed a slight increase (3.6%), which shows an increase in demand of longer routes. Despite the dominance of the Medway operator (85-86% of transport), there was a slight increase in the share of the Takargo operator.

Regarding the **interoperability with sea ports**, rail transport is responsible for 9.2% of the Ton and 20.5% of the TEU which enter and leave the ports by land. The ports of Setúbal (18.9%) and Sines (15.3%) stood out in terms of tonnes transported, with the port of Sines standing out in TEU (75.6%). Ports contributed 61% of the tonnes and 80% of the TEUs of goods transported by rail.

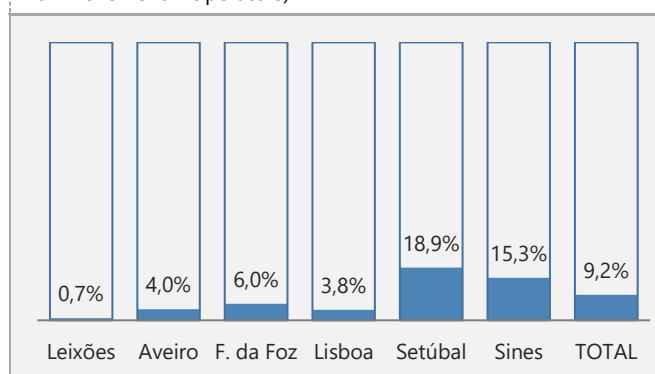
Evolution of demand, in Tonnes (x10⁶) (Source: Operators)



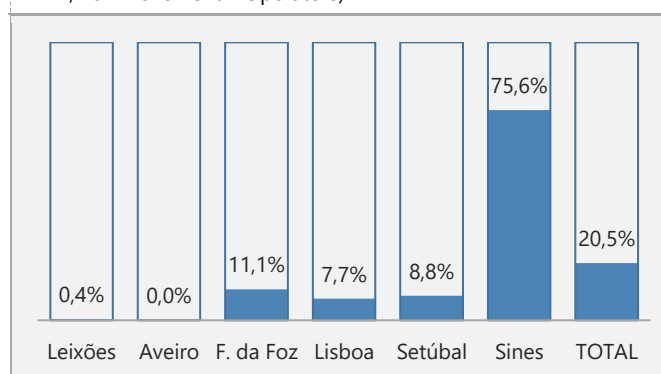
Evolution of demand, in tonne.km (x10⁶) (Source: Operators)



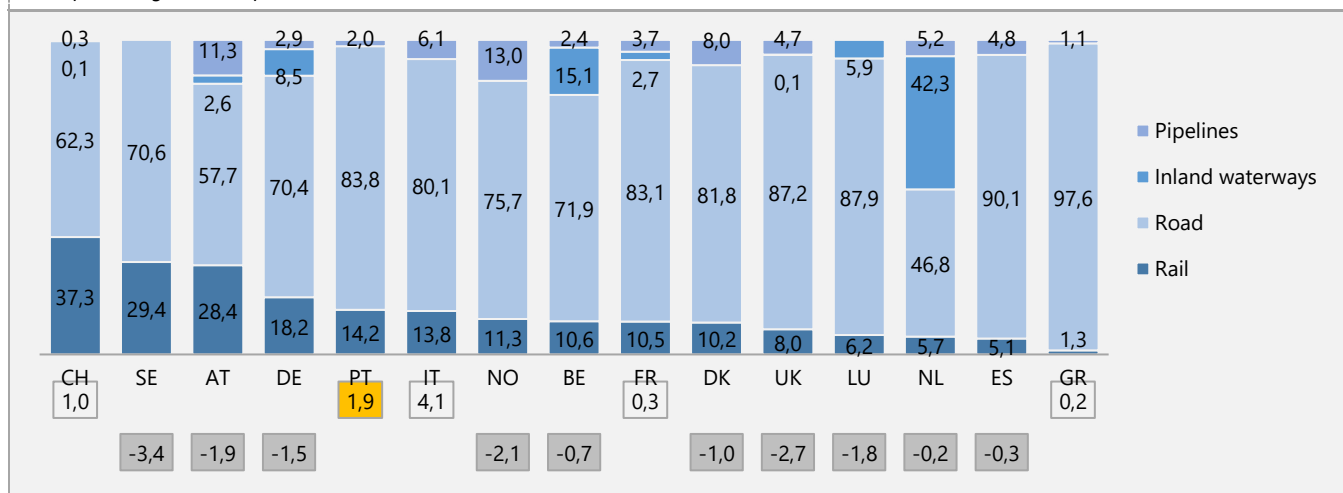
Quota of rail freight transport (Ton) that entered and left from the principal Portuguese ports in 2017, excluding transshipment (Source: Port Movements – AMT; Rail Movement – Operators)



Quota of rail freight container transport (TEU) that entered and left from the principal Portuguese ports in 2017, excluding transshipment (Source: Port Movements – AMT; Rail Movement – Operators)



Modal distribution of goods transport in 2016, in % of tonne.km, excluding transport by sea, and the respective variation in percentages of the rail transport modal share between 2010 and 2016 (Source: Statistical pocketbook, EU Transport in figures, European Commission)



QUALITY OF RAIL SERVICE

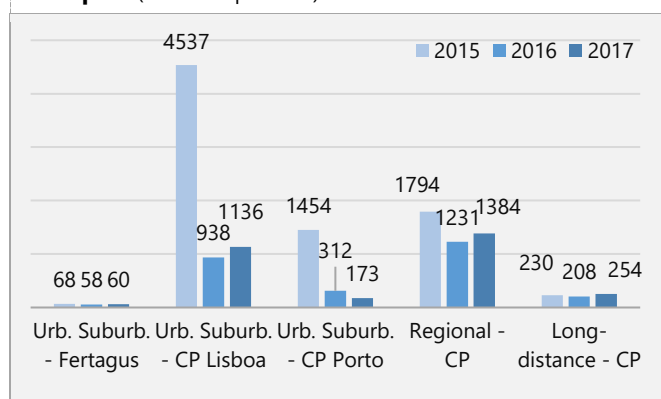
PUNCTUALITY, REGULARITY, SECURITY & CLIENT SATISFACTION

The quality of the service provided to the customer during the period 2015-2017 is noteworthy, on the one hand, the positive evolution of the number of **suppressed passenger trains** (-60%) but, on the other hand, the increase in the number of trains delayed both in passenger transport and in freight transport.

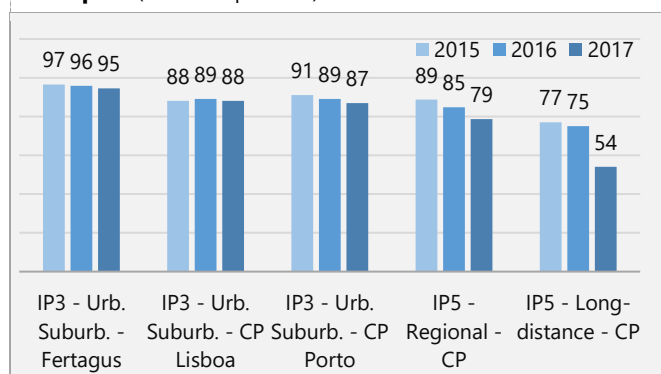
Regarding **complaints**, in 2017, there was an increase of approximately 20% compared with the previous year with a total of 4,295 being made. The long-distance services suffered the greater number of complaints per passenger, being 10 times greater than the other services. Compared with other European Union countries, Portuguese passengers demonstrate satisfaction indices greater than the average, however accessibility for passengers with reduced mobility in stations showed less satisfactory results.

In the context of its responsibilities for the protection of the rights and interests of consumers of the ecosystem, in particular the quality of the services provided, the report presents a table summarising the **main Rail Passengers' Rights** established in the European and Portuguese legislation respectively:

Suppressed trains by type of service of passenger transport (Source: Operators)



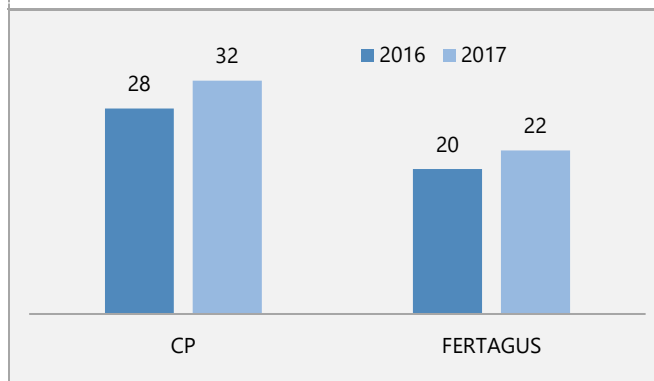
Punctuality indices of 3 and 5 min, in %, in passenger transport (Source: Operators)



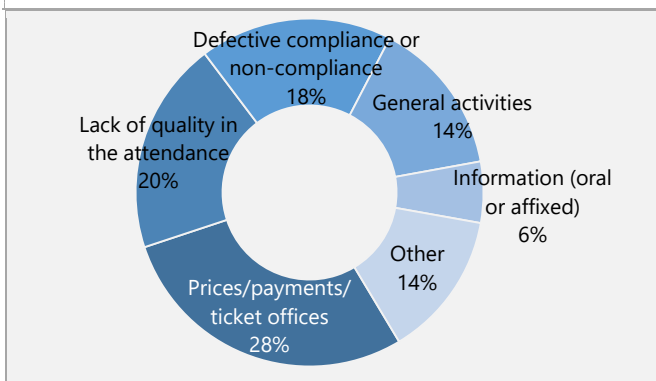
Regulation (EC) No 1371/2007 and Decree-Law no. 58/2008, amended and republished by Decree-Law no. 124-A / 2018.

In terms of **safety**, the number of significant railway accidents (-24%) and the number of precursors to accidents (-8.5%) decreased by 2017 compared with 2016.

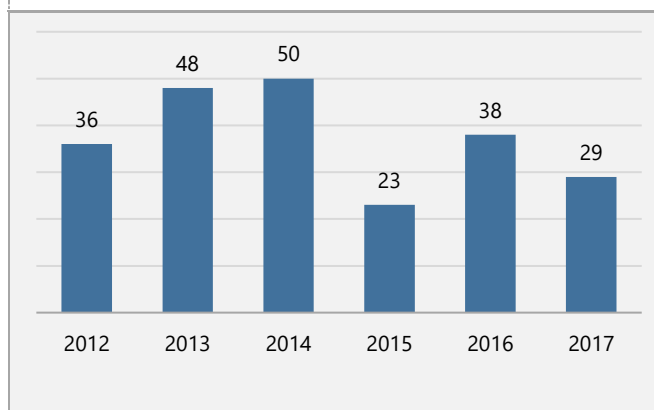
Number of complaints per million passengers transported (Source: AMT)



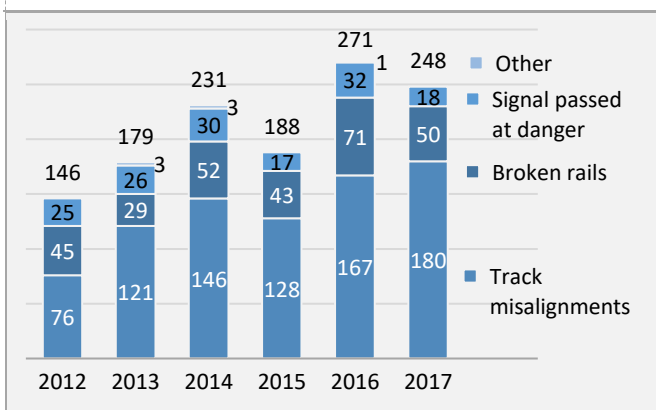
Distribution of complaints by main motive (2017) (Source: AMT)



No. of significant railway accidents (2012-2017) (Source: IMT)



Evolution of the number of precursors to accidents (2012-2017) (Source: IMT)



DIGITALISATION

Digitization, as an essential factor in the provision of modern and quality transport services, is addressed in the report, with special emphasis on the **services offered to passengers**. Thus, in terms of digital services currently available to customers, there is the provision of information regarding routes, schedules, prices and the rights and obligations of passengers, as well as tools to simulate travel, submit complaints and even validate tickets.

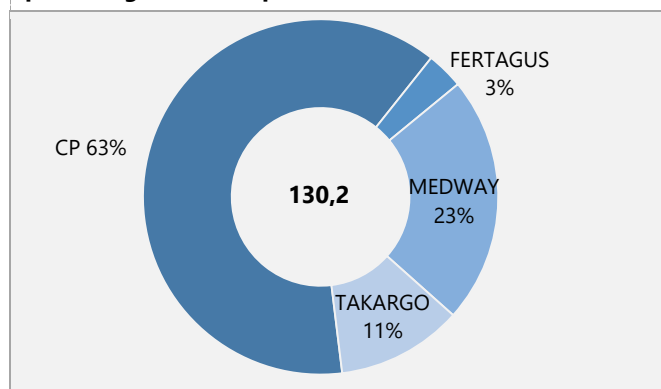
Consequently, the development of new services, such as the sale of tickets for urban and suburban transport, the provision of real-time information and the possibility of evaluating the services provided, are feasible. In the area of digitization, there are also important challenges for infrastructure, including the implementation of the European Rail Traffic Management System (ERTMS).

DECARBONISATION

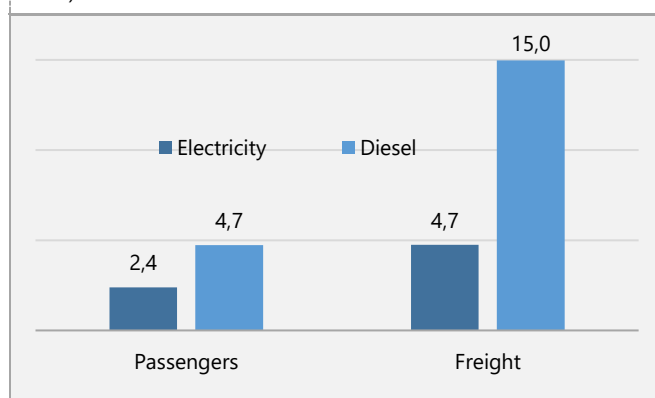
RAIL TRANSPORT - POSITIVE CONTRIBUTION

Decarbonisation of the Economy is on the media agenda and public policy, for which the rail transport contribution is highly relevant. Hence, regarding greenhouse gas emissions (GGEs), it should be noted that diesel locomotives registered emissions per train.km significantly higher than electric ones (the difference being above 98% in passenger transport and 216% in freight), with Takargo being the operator with the greatest relative impact in terms of emissions (11% of emissions per 3% of the train.km). Additionally, in accordance with AMT methodology, for the freight transport, road transport has a significantly higher impact, showing emissions per tonne.km 11 times higher than electric rail transport and 3.3 times higher than diesel rail transport.

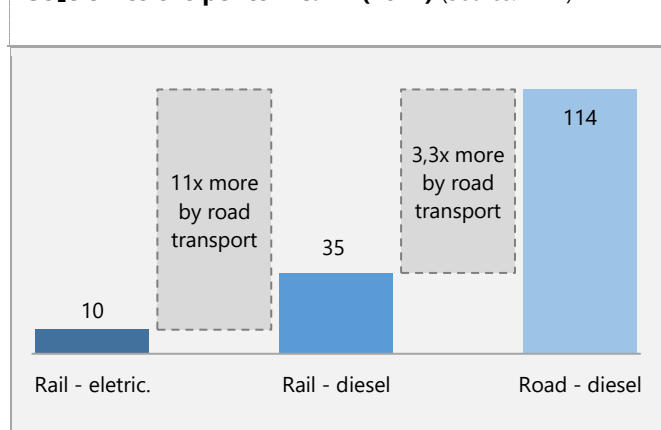
Total Rail Transport CO₂e emissions, in 10³ Ton, and percentage of each operator (2017) (Source: AMT)



Emissions of kg of CO₂e per train.km (2017) (Source: AMT)



CO₂e emissions per tonne.km (2017) (Source: AMT)



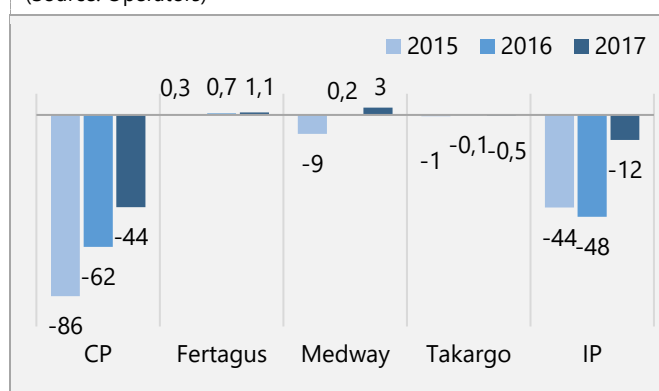
ECONOMIC-FINANCIAL RESULTS

The economic-financial analysis of the ecosystem highlights the **improvement in operational results** of 58 million euros, from 2016 to 2017, supported to a large extent by the increase in financial compensations paid to the infrastructure manager, IP (an increase of 28 million euros), and by the increase in passenger tariffs (increase of 21 million euros).

The ecosystem **debt reduction** of the (infrastructure operators' manager) rose at the end of 2017 to 8.257 million euros, which represents a **reduction** of 487 million in comparison with the previous year. The State remains the greatest financer (52% of the total debt). The largest reduction results from the conversion of financing obtained by CP into capital amounting to 375 million euros. Between 2012 and 2017, the State transferred 6.5 thousand million euros to CP and IP, which allowed the repayment of 4.2 thousand million euros of bank financing and bonds, the realization of investments in the order of 350 million euros and to meet the needs generated by the negative results.

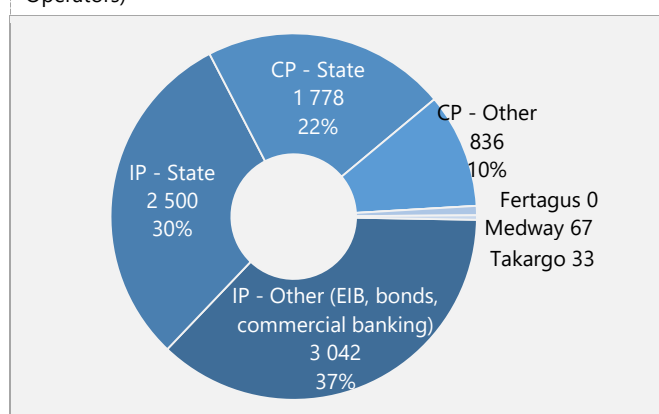
Operational result, in millions of euros, per operator

(Source: Operators)



Total interest-bearing debt (millions of euros)

(Source: Operators)



ART. 59. DECREE-LAW 217/2015

The inclusion of a chapter on the implementation of Decree-Law no. 217/2015 in compliance with the provisions of Article 59 of that decree establishing the publication of an annual report by the AMT on the execution of the same should be noted. In this context, the most relevant activities and events occurring in the years 2015 to 2017 are detailed, of which the following stand out: the signing of the Program Agreement between the State and IP (infrastructure manager), the AMT's consultation

with the representatives of users of the rail freight and passenger transport services, the decisions on appeals lodged within the network directories, as well as the various statements, opinions and information published by this entity relating to the railway ecosystem.

AMT - Mobility and Transport Authority
Observatory of the Ecosystem of Mobility and Transport