

SNCF, YOUR GLOBAL TRANSPORT PARTNER



[sncf.com](https://www.sncf.com)





JEAN-PIERRE FARANDOU

Chairman and CEO, SNCF Group

FOREWORD

SNCF is Europe's undisputed champion in high-speed rail. Our total rail network is the world's second densest, and we rank second in mass transit. In short, we're a leader in passenger transport and freight logistics around the globe.

We do business in every area of rail operations and travel, and we're already generating a third of our revenue outside France.

In addition to operating transport networks, SNCF offers time-tested know-how in engineering for infrastructure and rolling stock. Our teams are involved in half the world's high-speed rail and metro projects, and 60% of all driverless metro projects.

All of these areas of expertise—and our skill in combining them—are clearly visible in the talents of our 275,000 employees in 120 countries.

They are an integral part of the disruptive innovation that SNCF has practised for more than 80 years. Every day, all of us are working to make transport more accessible, more convenient and more sustainable.

Around the world, the need to move passengers and goods is growing. Markets are more and more globalized, and the digital services we're developing for our customers can benefit people everywhere. For all of these reasons, we're stepping up our growth outside France, aiming to set the gold standard for every area of our business, both at home and around the globe.

In these pages you'll learn more about who we are, what we do and what we can do for you. With a rare combination of expertise, commitment and flexibility, we have what it takes to help you reach your goals.

Jean-Pierre Farandou

LEARN ABOUT SNCF GROUP'S
GLOBAL OPERATIONS



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SNCF WORLDWIDE

SNCF is a leader in passenger transport and freight logistics, in France and around the world.



15 million (m)

passengers carried daily, in France and around the world, all modes combined

11 €bn

Over €11bn in investment planned in 2020

OUR SKILLS ARE CENTRED AROUND SIX CORE BUSINESSES

MASS TRANSIT

LONG-DISTANCE TRANSPORT — HIGH-SPEED AND CONVENTIONAL

LOGISTICS AND FREIGHT

NETWORK OPERATION AND MAINTENANCE

STATIONS

REAL ESTATE



MASS TRANSIT

We deliver integrated public transport solutions that promote regional development and meet everyone's needs.

€8.1bn in revenue and nearly **5m** passengers per day for TER regional rail and Transilien services in the Paris Region in 2019.

€6.1bn in revenue and over **3.5bn** passengers annually for Keolis in 2019, with nearly 50% on international markets for both figures.

No.1 operator of driverless metro and light rail systems worldwide

Key players
transilien.com
keolis.com
TER (scan QR code)



HIGH-SPEED AND CONVENTIONAL LONG-DISTANCE TRANSPORT

We deliver cost-effective travel solutions—shared and door-to-door—that cater to all passenger needs and budgets, raise the bar for service, and help protect the planet.

€8.1bn in revenue in 2019

27.2m passengers on international markets in 2019

11 high-speed lines covering 2,700 km in France, plus high-speed subsidiaries and alliances elsewhere in Europe:

United Kingdom—Eurostar, 55% share

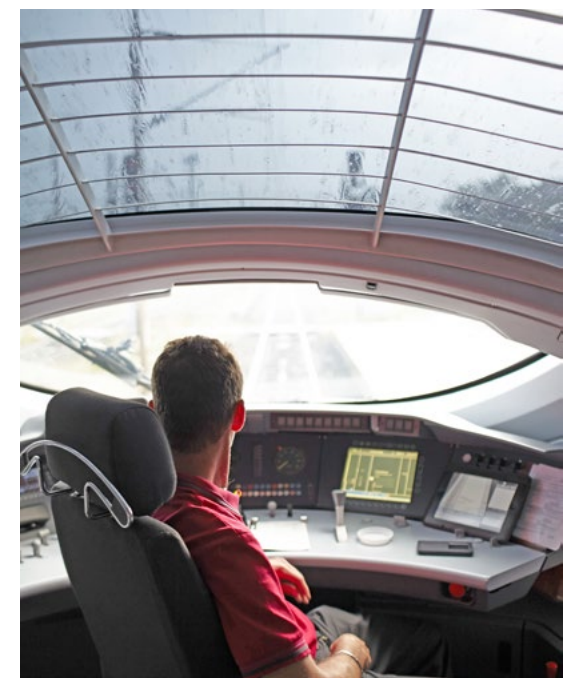
Belgium—Thalys, 60% share

Switzerland—Lyria, 74% share

Italy—SNCF Voyages Italia, 100%

Germany—DB-SNCF alliance, 50% share

Spain—Renfe-SNCF alliance, 50% share



LEARN ABOUT EUROSTAR



HIGH-SPEED RAIL IN FRANCE



Key players
oui.sncf.com
eurostar.com
thalys.com
tgv-lyria.com
renfe-sncf.com

FREIGHT TRANSPORT AND LOGISTICS

Delivering made-to-measure multimodal solutions to customers the world over, combining business performance with environmental protection and safety.

€10.2bn in revenue, with over half generated outside France in 2019.



No.8

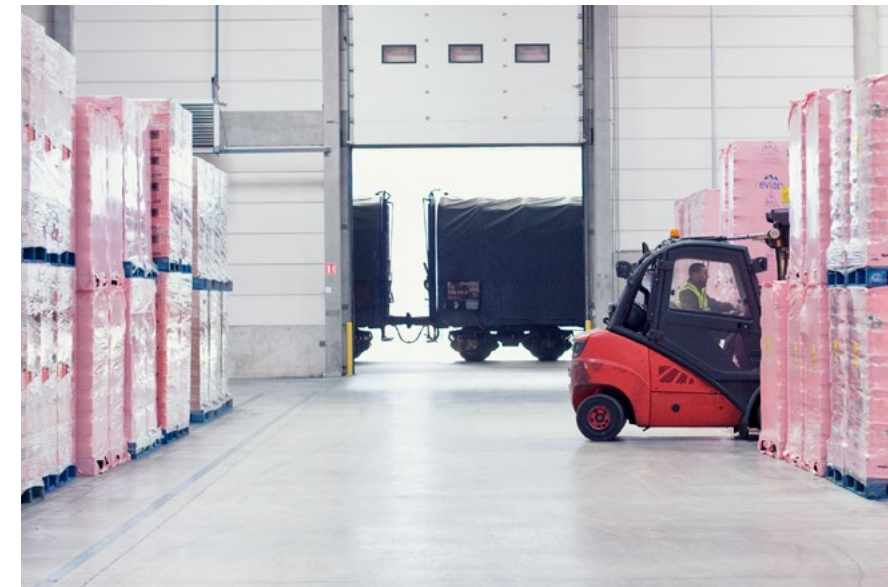
worldwide for freight transport and logistics

Key players

geodis.com
fret-sncf.com
naviland-cargo.com
viia.com
vfli.fr
forwardis.com
captrain.com
ermewa.com

upply.com

The first all-digital logistics marketplace.
(See p. 33).



TFMM, our rail and multimodal freight subsidiary, offers a wealth of expertise and know-how in freight forwarding, rail transport and multimodal transport.

- **Fret SNCF** is the top rail freight business in France, and no. 3 in Europe via the Captrain network. It designs customized transport solutions adapted to clients' businesses and priorities.
- **Captrain** is SNCF Logistics' pan-European brand for long-distance freight services, along with access to ports and last-mile stations outside France. Building on its decade-long experience of European markets, it is present on major north-south and east-west corridors.
- **VIIA** provides customized, multimodal transport solutions via a network of rail motorways. A ground-breaking loading technique allows VIIA to carry any European-standard semi-trailer by train—an economical, eco-friendly solution for long-distance delivery that's ideal for crossing mountain chains and other natural barriers. The company offers customers an innovative, cost-effective and responsible method for transporting goods, combining the pace and capacity of rail with the flexibility of road.
- **Naviland Cargo** is a transport operator and freight forwarder that combines rail with road. The company carries cargo between major

seaports—including Le Havre, Marseille, Fos-sur-Mer and Rotterdam—and business and manufacturing hubs throughout France and Europe.

- **Forwardis** is a freight-forwarder facilitating access to rail throughout Europe.

VFli operates rail freight services throughout Europe. The company transports cargo, handles logistics for industrial sites, and supplies locomotives and drivers for trains and track-works vehicles.

GEODIS designs innovative, customized solutions that keep your supply chain at its best—financially, operationally and environmentally. And it has global reach, with a direct presence in 67 countries and a network that connects more than 120. Dedicated units handle freight forwarding, road transport, supply chain optimization, contract logistics, and distribution and express deliveries.

ERMEWA manages and leases strategic rail assets for the global supply chain. Specializing in locomotives and freight wagons for Europe and tank containers worldwide, it leases equipment to customers in industries as diverse as steel, oil & gas, food, chemicals and construction.

NETWORK OPERATION AND MAINTENANCE

We manage, maintain, modernize, and sell access to the French rail network.

€6.5bn in revenue in 2019

5.6 €bn invested in 2019

30,000 km of network, including 2,700 km of high-speed lines

20,000 train paths delivered daily

15,000 passenger and freight trains running on the French rail network every day

Systra (in partnership with RATP)*

The benchmark for transport solutions worldwide. Leading the charge as French railway engineering wins markets around the globe, this top designer of rail and metro transport infrastructures continues to expand on international markets.

Systra provides global engineering services for:
50% of the world's high-speed rail projects
50% of all metro projects
60% of all driverless metro projects.

Learn more
systra.com

Learn more
snCF-reseau.com



LEARN MORE
ABOUT AREP

* Neither RATP, SNCF, nor the French State exercise control or exert predominant influence over the decisions taken by Systra's management, particularly in countries where Keolis and RATP Dev are potential candidates for network operation.

STATIONS

We provide solutions for maintaining and deriving value from station assets, and boosting regional economic growth.

Over €1.5bn in revenue in 2019

Over 3,000 stations in France

10m people passing through French stations every day

Hubs & Connexions provides station management, commercial real-estate development, flow analysis, and transport-hub revenue optimization services to customers outside France.

SNCF Retail & Connexions manages and leases 180,000 sq metres of retail space in town- and city-centre railway stations, as well as a portfolio of 9,000 billboards throughout France.



AREP, a wholly owned subsidiary of SNCF Gares & Connexions, is an interdisciplinary architecture practice specializing in urban development and spatial planning for resilient cities, low-carbon architecture, and eco-friendly design using the latest generation of digital tools.

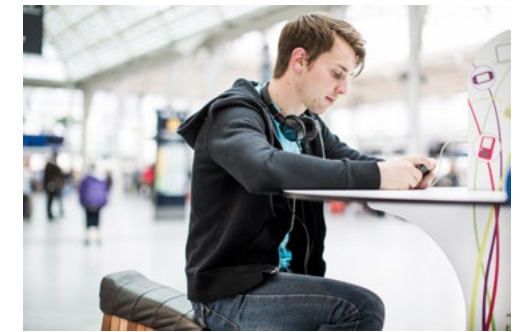
Ranked 25th on the World Architecture 100 list, it reported revenue of €122 million in 2019, with 25% of the total from outside France.

AREP is expanding rapidly in China, with offices in Beijing, Shanghai, Shenzhen, Wuhan and Chengdu. Employing 900 people representing over 30 nationalities, its success rests on its unparalleled versatility, with expertise spanning civil engineering, design and signage, urban development, management of very high-volume crowd flows, and project management and coordination.

AREP is a recognized leader in station design and renovation, deploying its City Booster program to shape hubs that are more open to their host cities, driving growth for shops and services.

More generally, the company is committed to projects that create lasting benefits for the local economy, help protect the planet, and scale as user habits evolve—both now and in the future.

Learn more
gares-sncf.fr
arepgroup.com



REAL ESTATE

SNCF Immobilier is a business partner for SNCF Group operations and an active player in the transformation of towns and cities, providing solutions for managing land and buildings.

8.5m square metres of buildings managed and optimized

90,000 housing units in France

20,000 hectares of land—twice the size of Paris—managed and optimized

INNOVATION IS OUR DRIVER



SNCF Group has always been at the forefront of innovation in France. Today our goal is simple: embrace digital technologies to revolutionize the way we run our business and deliver our services.

How? By doubling down on our priorities—making travel safer, boosting service standards, improving on-time performance, and keeping passengers better informed.

TECH4RAIL PROGRAMME

Under our Tech4Rail programme, we're harnessing the power of innovation to modernize France's rail system and tackle the five big issues facing our industry: putting customers first, cutting costs without sacrificing performance, becoming more agile and forward-looking, acting responsibly and sustainably, and embracing the future of mobility.

One key challenge in the Tech4Rail programme is the driverless train—a project we've been working on for two years with industrial partners including Alstom (see p. 21).



HIGH PERFORMANCE NETWORK

Our priorities for our network are two-fold:

- **better understand** the condition of our network, so we can refine our maintenance policy and shift towards a predictive model
- **ensure greater resilience** for our network and the trains it carries in the face of extreme weather conditions

We're also breaking new ground through our partnership policy, forging alliances with other key rail-industry players in France, Europe and beyond, and with partners in sectors such as automotive, avionics and aerospace.

TECH4RAIL FOCUSES ON ENACTING CHANGE IN FIVE AREAS



Simplifying our infrastructure



Scaling our assets as user practices evolve



Spearheading integrated traffic management and driverless technologies



Delivering a better customer experience and integrating multimodal interfaces.



Improving energy performance



LEARN MORE ABOUT TECH4RAIL



THE FREEDOM OF MOBILITY FOR ALL

Mobility gives people the freedom to work, study, travel and live life to the fullest. It brings individuals and communities together. Through our multimodal model—spanning rail and beyond—we’re developing mobility solutions for one and all.

SAFETY— OUR #1 PRIORITY

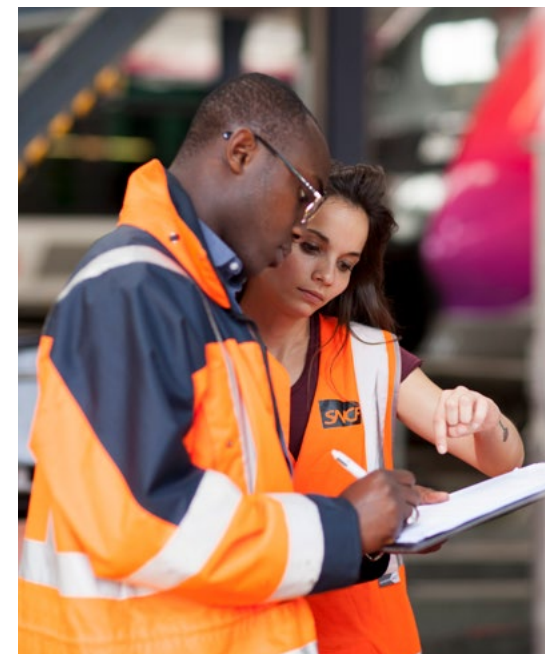
SNCF is known around the world for its leadership on safety. But we launched a new Group-wide safety policy in 2015 because we want to be even better.

NETWORK UPGRADES FOR TOMORROW’S RAIL SYSTEM

We’re boosting capacity across our network to bring passengers even greater freedom of mobility. By upgrading our existing train operation and signalling systems, we’ll be able to carry more trains on the same network:

- In 2024 we’ll be launching NExTEO, a new train operation system that combines automatic train protection (ATP), automatic train operation (ATO) and automatic train supervision (ATS+) technologies. With this system, hourly capacity on the stretch of our RER E line crossing central Paris will rise from 16 to 22 trains—travelling at 120 km/h.
- We’re also deploying Level 2 European Rail Traffic Management System (ERTMS) technology on our Paris-Lyon high-speed line, raising capacity from 13 to 16 trains an hour.

Over the next ten years, we plan to expand network traffic capacity by 25%, measured in passenger-kilometres.



CITY BOOSTER STATIONS

We want to reinvent the customer experience in our stations, providing commuters and other passengers with an everyday service they can rely on.



MASS TRANSIT

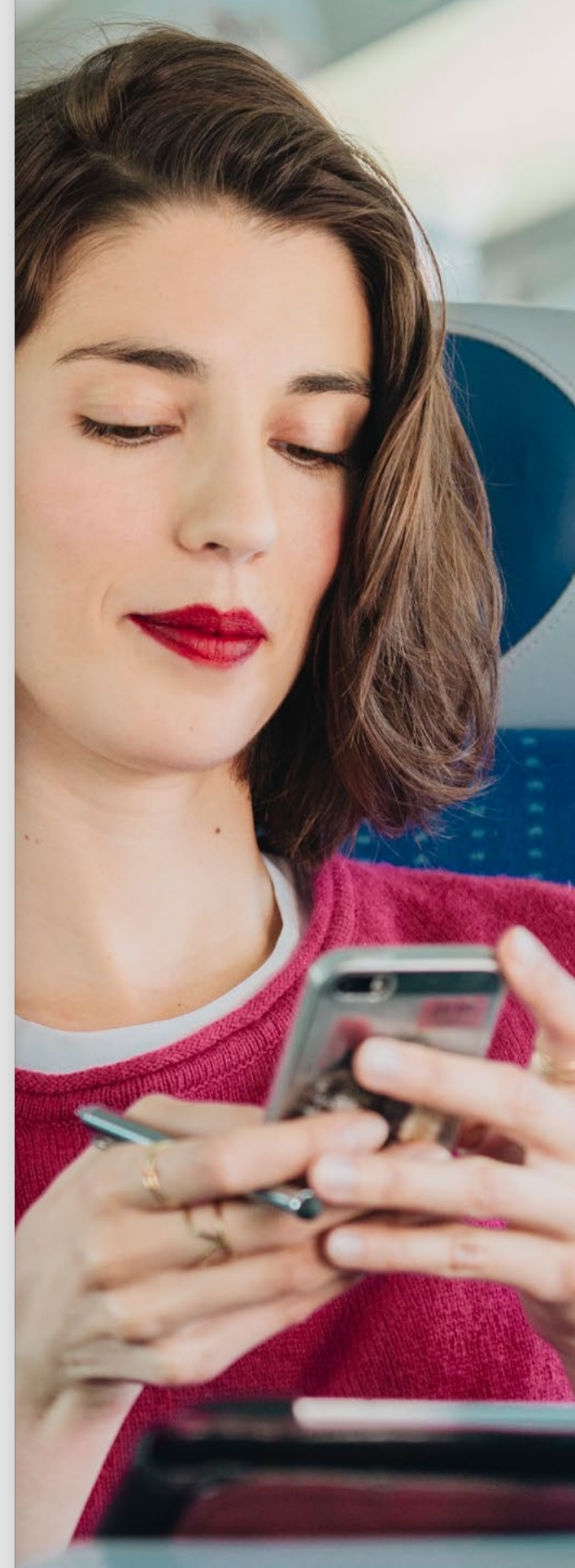
SNCF is one of the world's leading mass transit operators.

Every day, our Transilien network carries 3.5m passengers in and around the Paris Region—1.5 times the city's population. And we're investing even more in upgrade and extension work, more than doubling the network between 2015 and 2020.

3.5_m

passengers carried each
day in the Paris Region

LEARN MORE
ABOUT SNCF
TRANSILIEN
IN GREATER
PARIS



LONG-DISTANCE RAIL— MORE SPEED, MORE CHOICE

OUIGO, basic high-speed service at unbeatable fares—is central to SNCF's bid to win new customers in France (see p. 30).



TGV INOUI, our premium high-speed service, delivers comfort, on-board connectivity and outstanding customer care and comfort (see p. 31).



Intercités, our conventional long-distance rail service, rounds out our high-speed offer throughout France (see p. 31).





EFFORTLESS MOBILITY FOR ALL

If we want customers to embrace sustainable travel, it can't just be greener. It has to be effortless, too. That's why we're using technology to bring all our products and services together in one place.



MOBILITY AS A SERVICE

At SNCF we know that intermodality is a priority for customers, and we're putting them first by harnessing the power of digital technology to make it easier and more convenient to travel sustainably on our network and beyond. Our new mobile app is nothing short of a **personal mobility assistant**. With a single device, travellers will be able to plan their journeys, reserve their seats, and buy and store their tickets.



LEARN MORE ABOUT OUR
PERSONAL MOBILITY ASSISTANT



DRIVERLESS SHUTTLES AND TRAINS

At SNCF, we're forging alliances to build the driverless vehicles of the future, as we look to bring more frequent, more flexible and more affordable door-to-door mobility to all. For instance, Keolis is working with its local partner to develop Navly, a driverless electric shuttle, and we're planning to launch the first driverless train prototype in 2023.



LEARN MORE ABOUT OUR
DRIVERLESS TRAIN



ENVIRONMENT AND CLIMATE

Travelling by train generates up to 50 times less pollution than making the same journey by car. At SNCF, we believe that rail is the backbone of sustainable mobility and the key to combining effortless travel with a healthy planet.

1st Régiolis hybrid train
scheduled to start up in

2020



HYBRID TRAINS

Hybrid trains combine a diesel engine and catenary power with batteries that recover, store and recycle energy from regenerative braking. The technology can be installed in existing trainsets and requires only minor adjustments to infrastructure and operational rules.

HYDROGEN-POWERED TRAINS

These trains run on so-called “clean” hydrogen made from water electrolysis. They produce no CO₂, NO_x or particulate emissions, and have a similar range to conventional diesel-powered trains. What’s more, local urban transport operators can share the costs of hydrogen production and refuelling facilities.

We plan to have our first prototypes ready in early 2022.

SELECTIVE ELECTRIFICATION

Our selective approach to electrification means that we’re only installing overhead wires on the segments of our network where it’s easiest and most cost-effective. We’re also exploring ways to cut costs over the whole life cycle of our infrastructure, from design and installation to operation and maintenance.

And we’ll maintain that infrastructure focus in the future, by switching from catenary-diesel to catenary- and battery-powered hybrid locomotives as we look to keep our environmental footprint as small as we can.

CIRCULAR ECONOMY AND RESPONSIBLE PROCUREMENT

At SNCF, we’re embracing eco-design principles ever faster across our operations—not least at SNCF Réseau, where we’re recovering and reusing more dismantled track and other equipment. We’ve also included sustainability criteria in our tender specifications, and we routinely assess our suppliers’ CSR performance.

SOCIAL ENGAGEMENT

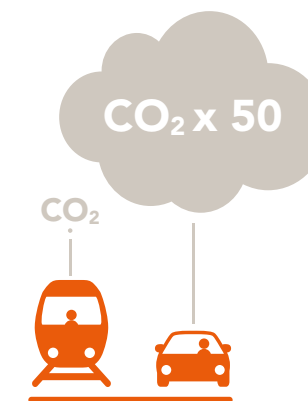
Our social engagement policy is shaped by four priorities: provide sustainable mobility for passengers and freight, shrink our environmental footprint, put people first, and bring communities together and promote regional growth. Through our SNCF Foundation, we’re supporting education, culture and community outreach projects that help us deliver on our commitments.

SUSTAINABLE SPATIAL PLANNING

Through SNCF Immobilier, we’re using social innovation to build sustainably, reshape our cities and make a real difference to people’s lives. This includes bringing communities together by building intergenerational housing and erecting future-ready reversible and modular homes.



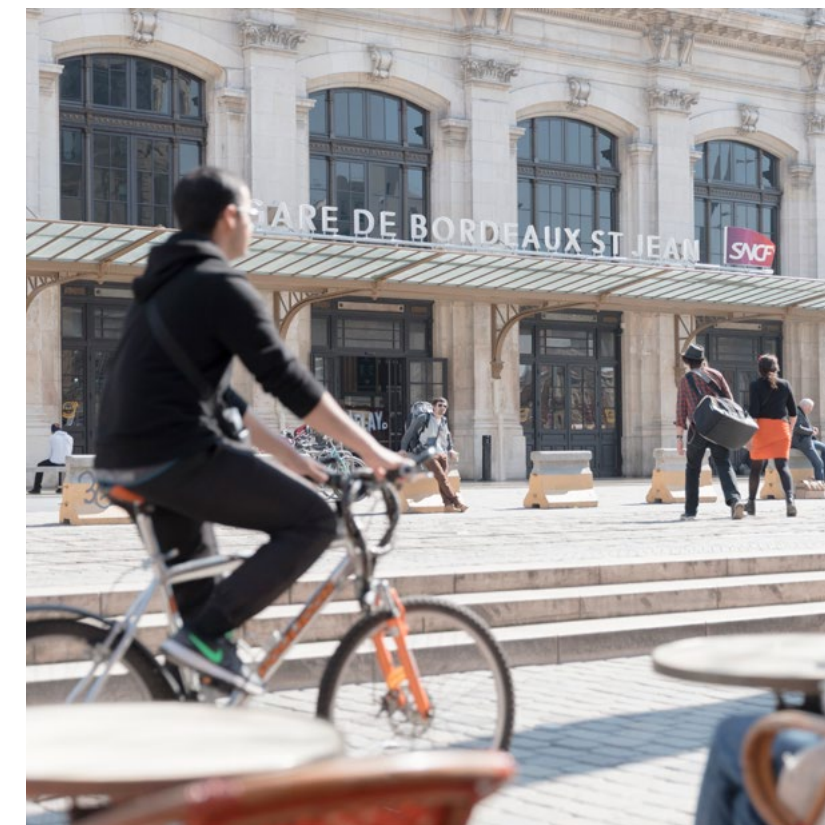
LEARN MORE
ABOUT SNCF
IMMOBILIER



Travelling by train generates up to 50 times less pollution than making the same journey alone in your car.



LEARN MORE
ABOUT
SNCF'S CSR
REPORT



CERTIFIED TO DEMANDING STANDARDS

VIGEO EIRIS

At the request of investors, Vigeo Eiris has rated SNCF since 2007. In 2017 we scored 66/100 (Advanced), up 13 points over the previous evaluation, and we ranked first out of a total of 15 companies evaluated in our sector. Also in 2017, SNCF Réseau scored 66/100 in the transport and logistics category.



ECOVADIS

In response to many client requests, Ecovadis—a neutral, independent platform—has rated our performance in the area of corporate social responsibility several times. In October 2017, SNCF earned a score of 75/100, unchanged from the previous evaluation and up from 70/100 in 2014. Ecovadis puts our non-financial performance at the Advanced level (level 4 of 5).



We've rolled out Environmental Management Systems (EMS) in all entities where risk is present.

This includes:

- ISO 14001 certification for rolling stock and industrial maintenance depots, and for infrastructure-related industrial facilities
- ISO 14001 certification or equivalent (BREEAM In-Use) for major rail stations
- purpose-designed EMS for other entities that our business lines have identified as presenting scope for risk.



BESPOKE SERVICES

FROM DESIGN TO OPERATION

Drawing on our long experience in passenger and freight transport, SNCF Group can develop and execute all of your complex projects, from logistics to long-distance rail, mass transit and station creation and operation.

SAFETY



As recognized experts in rail safety, SNCF can help at any stage of your project—whether you're designing a new network or operating an existing one.

More specifically, we can:

- analyse existing structures and recommend improvements
- design a safety management system
- deliver essential training in railway operation basics
- set up the processes and draft the safety documents and procedures you need to secure authorizations to operate rolling stock and/or infrastructure.

Why should you choose SNCF for your safety needs?

- Because we know key rail technologies inside out, and we understand how they've evolved over time.
- Because we recognize that human and organizational factors are critically important.
- Because we study adverse events to identify where processes need to be improved to minimize safety risk.
- And because we practise what we preach: through careful analysis, we've cut the number of major safety events by 30% in three years using Prisme, our in-house safety programme.

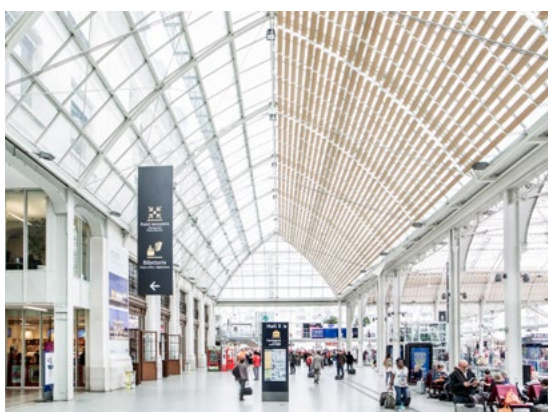


LEARN MORE ABOUT
SAFETY MANAGEMENT
WITH SNCF

STATION DESIGN, DEVELOPMENT AND MANAGEMENT

In its role as a station operator, service provider and asset manager, SNCF:

- manages **15,000** departures from 3,000 multimodal hubs used by **10m** passengers each and every day
- designs and operates efficient, attractive stations and puts station spaces to work for the cities and regions they serve
- is transforming stations into appealing, exciting destinations in their own right



Our wealth of experience means we understand stations in all their facets, from financial engineering and retail development through to project and facility management. We believe that stations should make life easier—for users and operators alike—and work hard to achieve that.



Through SNCF Hubs & Connexions, a subsidiary of SNCF Gares & Connexions, we're helping our partners rethink how stations are designed, developed and managed around the world.

We're experts in:

- planning store locations to achieve the best fit for passenger/pedestrian flow
- assessing each station's commercial potential according to the same metric
- launching and managing tenders
- managing building and fit-out work
- handling facility management issues
- managing spaces at transport hubs.

AREP

AREP has made a name for itself as a leader in station design and renovation, harnessing cutting-edge expertise to create hubs that are open to the surrounding city and promote growth in commerce and services. More generally, the company takes on projects that create lasting benefits for the local economy, help preserve the planet, and adapt to changing user needs and habits—both now and in the future.

Working with SNCF Hubs & Connexions, AREP has comprehensive expertise in architecture, urban development, design, engineering, programming and crowd flow. The firm's holistic vision of station and station-surround design gives it a unique capability to manage complex projects and turn transport hubs into the heart and soul of the communities they serve.



LEARN MORE
ABOUT SNCF HUBS
& CONNEXIONS



MASS TRANSIT

KEOLIS

SNCF operates the Paris Region's mass transit system, second only to Tokyo's by ridership, and our Keolis subsidiary designs and operates multimodal public transport networks around the world.

As the world's leading light rail and automated metro specialist, Keolis carries more than 3.5bn passengers a year in 17 countries, operating and maintaining a dozen transport modes for some 300 transport organizing authorities (TOA). From Boston to Bordeaux, Melbourne to Manchester,

and Stockholm to Shanghai, our Thinking Like a Passenger programme helps us meet passenger and TOA expectations and needs, delivering an integrated network that combines human and digital solutions tailored to each region.

And with SNCF, you know your people will get the right training. Drawing on the experience, engagement and responsiveness of Keolis and our entire group, we've set up our Mass Transit Academy to equip our own employees with the professional skills they need to develop and operate mass transit systems in large cities. Courses cover both infrastructure and rolling stock.



LEARN MORE
ABOUT KEOLIS



LEARN MORE
ABOUT MASS TRANSIT
ACADEMY

LONG-DISTANCE RAIL SERVICES

High speed (300–320 km/h) and classic (200–220 km/h) long-distance rail services: more speed, more choice.



Basic high-speed service with low fares.

Total passengers carried in France rose from **7.7m** in 2017 to **17m** in 2019.

In 2019, half of all OUIGO customers preferred the train to the road.

In 2020, OUIGO is targeting **25 million** passengers, or 25% of total TGV traffic in France.

OUIGO connects **41 French cities** to central Paris by high-speed rail.

15_m

more passengers carried by high-speed rail—that's our 2020 target.



DISCOVER OUIGO



Our premium high-speed service, delivering comfort, on-board connectivity and outstanding customer care.

TGV INOUI is popular with passengers on our Paris-Bordeaux and Paris-Toulouse routes, with customer satisfaction up by 10 points.

INOUI trains currently run on routes between Paris and nine French cities:

Bordeaux	Toulouse
Lyon	Lille
Strasbourg	Montpellier
Metz	Perpignan
Nancy	

By year-end 2020, INOUI trains will also serve destinations in Italy.



DISCOVER TGV INOUI



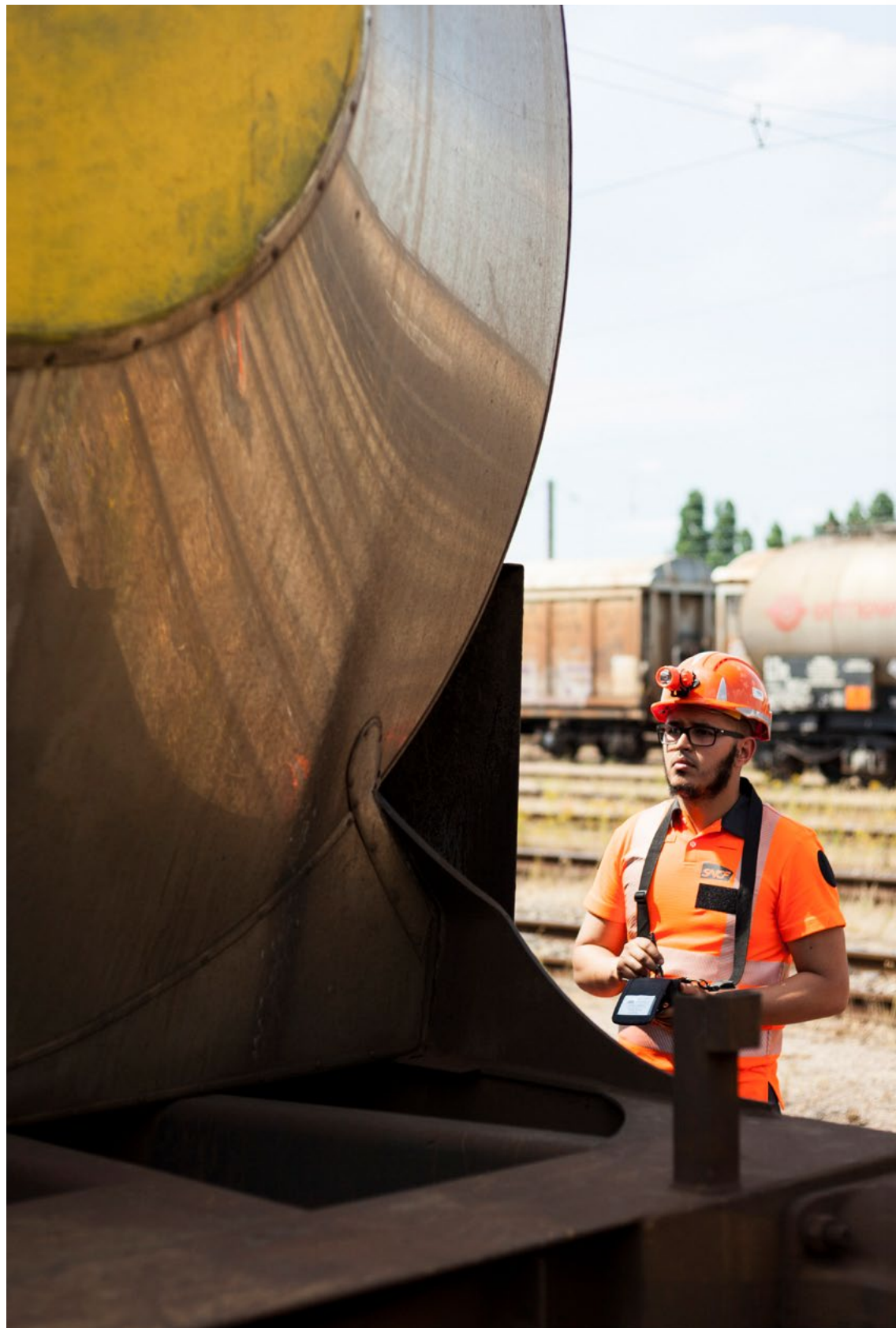
DISCOVER INTERCITÉS

LONG-DISTANCE CONVENTIONAL RAIL SERVICES

Our conventional intercity express service to **150** towns and cities throughout France, with **80** trains a day carrying **22,000** passengers a day.



SNCF's broad-based expertise makes us the partner of choice for all long-distance rail travel. And because France's rail network is so densely packed, we've become specialists in combining the competing demands of urban, suburban and long-distance services, especially for door-to-door mobility solutions.



CUSTOMIZED FREIGHT AND LOGISTICS SOLUTIONS



Upply is an all-digital logistics marketplace, created by Geodis to reset the fundamentals of the supply chain, pioneer a simpler, more efficient and transparent market, and enable shippers, carriers, consultants and other industry professionals to make pivotal decisions instantly.

Its first set of features, named "Smartscan", provides instant freight quotes for up to 100,000 lines and dispenses automatic data-driven market price and trend alerts.

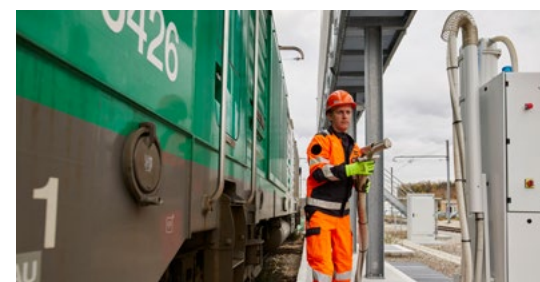
Upply covers a uniquely wide market: air (worldwide), sea (worldwide) and road (for Europe and the US). This is a genuine market that matches supply and demand in transport capacity.



DIGITAL FREIGHT TRAIN BY FRET SNCF

Simplifying delivery of seamless, flexible services to shippers

At Fret SNCF, we've developed the Digital Freight Train to bring a host of new high value-added services to the entire rail freight community. This advanced technology includes geolocation and arrival notifications, consignment condition and status monitoring, remote-controlled loading and unloading features, plus wagon management and predictive maintenance. By turning conventional wagons into smart wagons, we're building a safer, more modern and more efficient rail freight system.



LONG TRAINS BY FRET SNCF

To make rail freight a more attractive option, Fret SNCF operates 850-metre trains. This solution has been used since 2012 on the Luxembourg-Perpignan-Le Boulou "rail motorway", and is now also used for other operators of combined rail-road solutions, as well as for conventional service on the north-eastern corridor. Studies are under way to extend train length to 1000 m by 2021, boosting maximum load to over 5,000 metric tonnes.



LEARN MORE ABOUT OUR
DIGITAL FREIGHT TRAIN



Systra*—a world leader in transport infrastructure design

Systra's specialists plan, design, supervise, test, commission, deliver and maintain mass transit and mobility solutions in 80 countries around the globe. Over the past 60 years, the company has built up a store of expertise that spans all areas of transport, from project management to system integration. Its engineers have played a key role in half of the world's high-speed rail and metro projects, and in 60% of driverless metro systems around the globe.

[systra.com](https://www.systra.com)

* Neither RATP, SNCF, nor the French State exercise control or exert predominant influence over the decisions taken by Systra's management, particularly in countries where Keolis and RATP Dev are potential candidates for network operation.

STANDALONE SERVICES

EXPERTISE ACROSS THE ENTIRE SERVICE CHAIN

If you need highly specialized expertise, SNCF's engineers can deliver solutions in a wide range of areas, from design & build to operation and maintenance of infrastructure and rolling stock. But also project management, assistance, traffic projections and development of transport plans, yield management, customer service, safety and training.

RESEARCH AND INFRASTRUCTURE ENGINEERING



At SNCF Réseau, we design and maintain every part of our infrastructure, using a systems approach to keep France's rail network running smoothly and efficiently. Our engineers:

- design, monitor and maintain train operation and signalling systems
- are well-versed in high-speed rail design and maintenance standards, designing track and line-side equipment and conducting post-incident reviews
- design the SNCF catenaries, and conduct post-incident reviews and inspections
- design, maintain and monitor non-standard structural works.



LEARN MORE ABOUT OUR
CATENARY SOLUTIONS

INFRASTRUCTURE MAINTENANCE



At SNCF Réseau, we keep the French network safe, operational and profitable by:

- drafting and reviewing corrective, scheduled, condition-based and predictive maintenance policies for every part of our conventional and high-speed network
- using Artificial Intelligence (AI) to analyse and process infrastructure measurement data
- modelling upgrade and ageing rules for our systems and components, so we know our predictive maintenance policies are based on reliable data.

We use the latest technologies to measure and predict the health of our network, so we can refine our maintenance policies and practices accordingly. Those technologies allow us to:

- measure track geometry and inspect signal boxes and catenaries without disrupting commercial service
- inspect GSM-R signalling systems at 140km/h
- check network health using sensors fitted to commercial high-speed trains
- use drones to inspect catenaries and structural works, and process the data they collect.

These services are performed by SNCF Réseau, and by our Eurailscout and Altametriz subsidiaries.

Because safety comes first, our SFERIS subsidiary has devised a range of solutions to keep our engineers safe as they maintain and upgrade our network while trains are running.



LEARN MORE ABOUT IRIS 320 TRAINSET



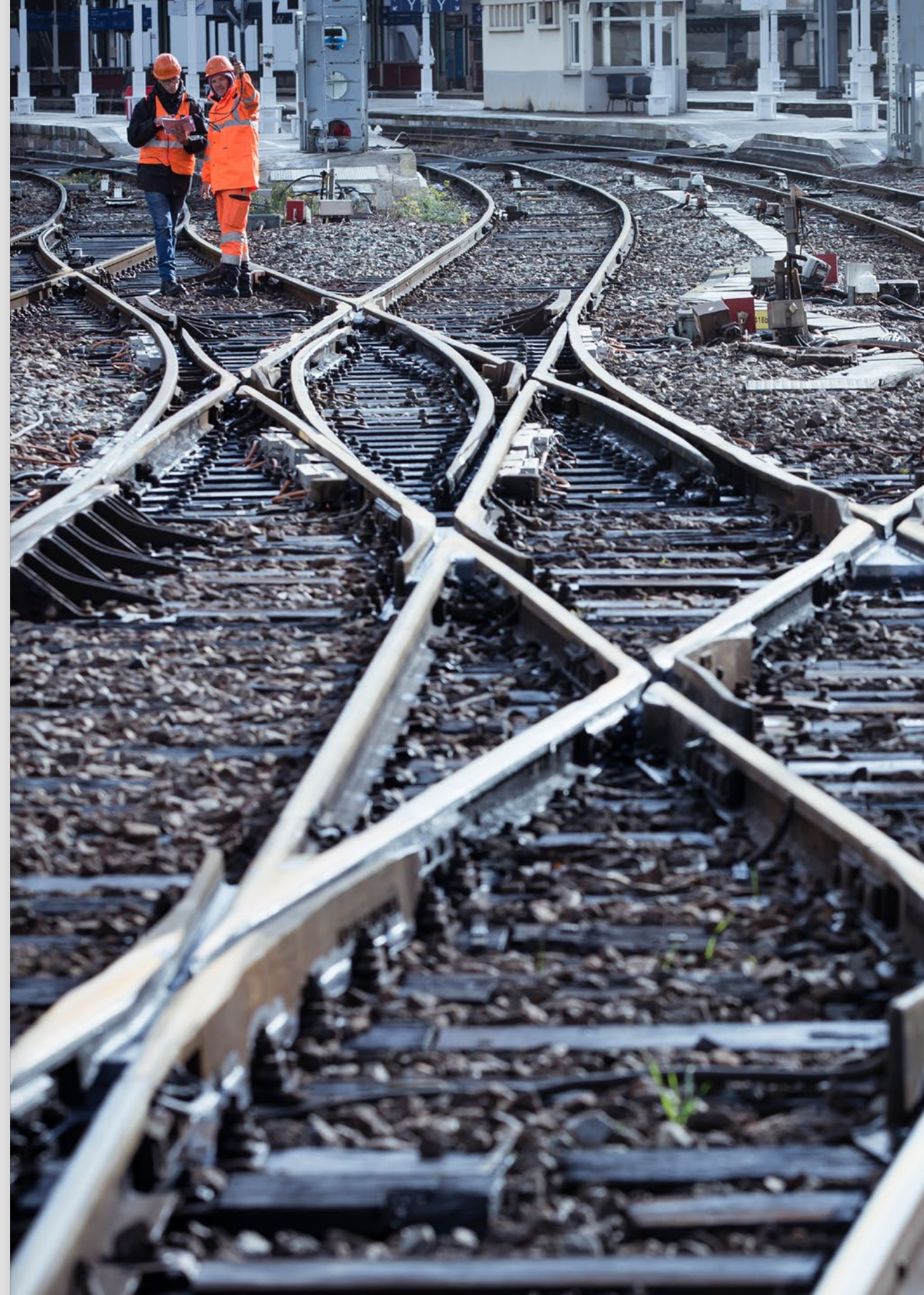
DISCOVER ALTAMETRIS



DISCOVER SFERIS



Learn more
sferis.fr
altametriz.com
eurailscout.fr



ROLLING STOCK ENGINEERING AND MAINTENANCE



We have extensive experience in specifying operator requirements, setting maintenance rules, analysing performance, and conducting every conceivable kind of test. We're experts in rolling stock:

- safety
- reliability
- maintenance
- interoperability
- comfort.

over 180

customers outside SNCF Group proper, including rail operators, leasing companies and civil engineering contractors, turn to MASTERIS—in France and around the world.

MASTERIS keeps rolling stock in peak condition

A wholly-owned SNCF subsidiary, MASTERIS helps customers address maintenance issues throughout the life of their rolling stock, from upgrades, refurbishing and repairs to commissioning and certification.

In addition to SNCF, MASTERIS serves 180 leasing companies and contractors in France and throughout Europe, helping them extend the lifespan of their rolling stock and keep operating costs down.

masteris.com

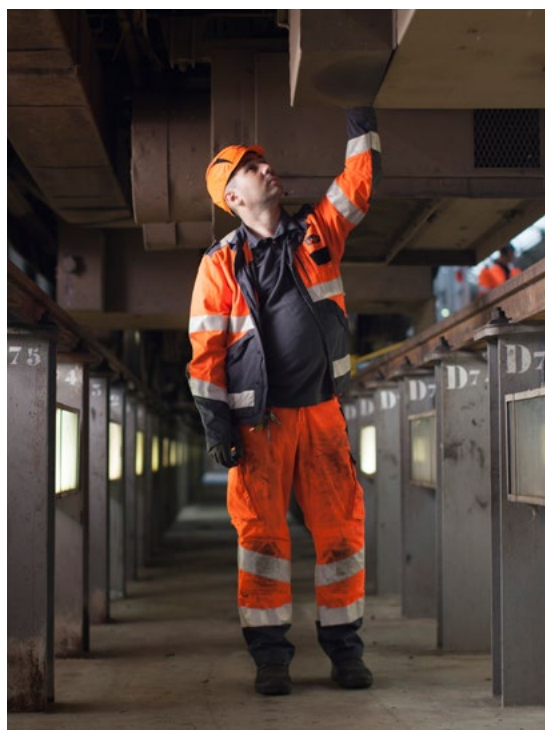
LEARN MORE ABOUT ROLLING STOCK & MAINTENANCE



CONSULT OUR CATALOGUE OF EQUIPMENT ENGINEERING SERVICES



LEARN MORE ABOUT HS TRAIN OF THE FUTURE



SNCF TECHNICENTRES—THE FACTORIES OF THE FUTURE

At our 35 maintenance depots across France, engineers maintain 17,000 rolling stock units spanning every part of our operations, from mass transit (Transilien and TER regional trains) and long-distance services (Intercités and high-speed rail), to logistics and network maintenance. We are constantly adapting our maintenance policies and practices to make sure our rolling stock is safe, comfortable and ready when it's needed. This includes:

- deploying mobile maintenance teams
- introducing new digital tools, using more remote telediagnosics technology and smart devices
- rolling out operational excellence standards
- refurbishing and repairing parts
- large-scale upgrades and refurbishments

We take each trainset apart after it's been in service for 15-20 years, inspect the components, and refurbish or replace them to give our rolling stock a new lease of life.

And each time, we retrofit new design features and technologies developed by our engineering teams—making our trains easier for disabled passengers to access, installing on-board Wi-Fi and passenger information systems, or revamping carriage interiors. All told, we refurbish and upgrade some 1,300 units every year. Thanks to this refurbishment and upgrade policy, our rolling stock stays at the cutting edge of technology and in tune with the times—and we deliver safer, smoother mobility for all.

PARTNERING TO PRODUCE THE TRAIN OF THE FUTURE

At SNCF we meet customers' current requirements but also consider how their needs will evolve in years to come. And we're innovating and rethinking rolling stock design to build the trains of the future. In 2016, for instance, we teamed up with Alstom to design a greener, more cost-efficient high-speed train that will be running on our network in France by 2023.



KEY FACTS ON ROLLING STOCK MAINTENANCE



LEARN MORE ABOUT PREDICTIVE MAINTENANCE AND TELEDIAGNOSTICS



ROLLING STOCK ENGINEERING

With 1,700 engineers and technicians, the rolling stock engineering team is hard at work improving trains' operational performance through a system-based approach that ensures full control of all interfaces.

Thanks to digital technologies—big data and the Internet of Things—and innovative methods, SNCF is involved in every stage of its rolling stock's life cycle:

- R&D and engineering studies
- Pre-purchase specifications
- Performance and other tests
- Predictive maintenance
- Parts replacement
- Regeneration and upgrades



ROLLING STOCK ENGINEERING AT A GLANCE

TESTING, TRIALS AND COMMISSIONING

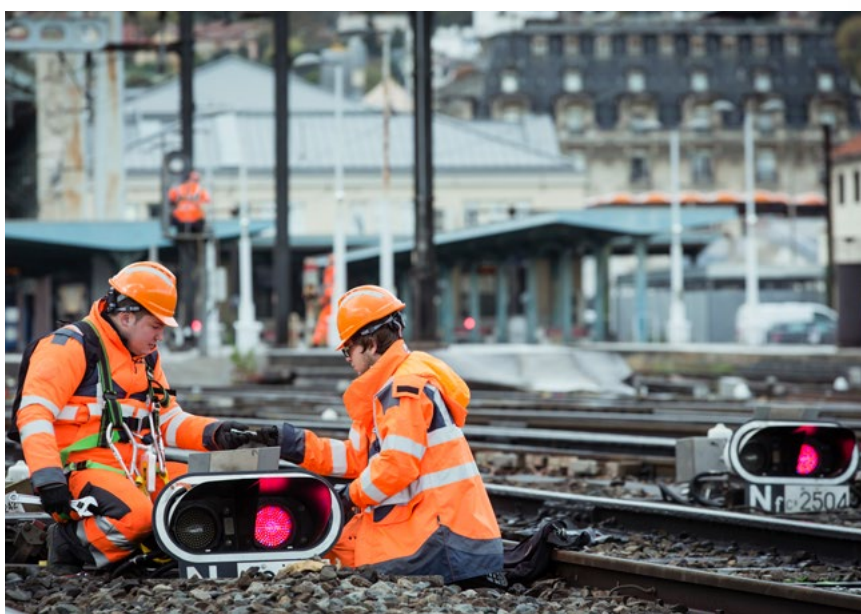
We handle testing and commissioning of all railway components—infrastructure, rolling stock and equipment.



Eurailtest is an Economic Interest Grouping (EIG) founded by SNCF and RATP to market their combined expertise in testing heavy and urban light rail systems and sub-systems.

It offers two kinds of service:

- Type approval and qualification for rolling stock and infrastructure. Eurailtest's specialists can guide clients through the complex, demanding regulatory process—selecting and performing tests, compiling relevant documentation, providing expert opinions, and securing type approval for their equipment or rolling stock.
- Metrics, consultancy and expert analysis. Eurailtest's expertise spans mechanics, electrics, physics-chemistry, acoustics, and health, safety and the environment.



ASSISTANT PROJECT OWNER (APO)

SHADOW OPERATOR SERVICES

We oversee and advise on infrastructure development and management, as well as on "rail operator" aspects of complex conventional and high-speed projects.

Over the past 40 years, SNCF has pioneered high-speed rail in France, opening a total of 11 lines. And we've been operating rail services across every segment of the market for more than 80 years. Our deep understanding of the rail system, coupled with our holistic approach, makes us the natural choice for managing complex rail projects. We recently formed a public-private partnership with two well-established private infrastructure management firms to build two LGV Atlantique lines linking Paris to Brittany and to south-western France. Both new lines opened in mid-2017, demonstrating our ability to handle complexity and embrace new ways of working.

Learn more
eurailtest.com



AFRICA'S FIRST HIGH-SPEED LINE

SNCF acted as a shadow operator for ONCF, Morocco's national rail operator, helping plan, build and launch the country's first high-speed line. The 200-km double-track line, which opened at the end of 2018, carries trains at 320 km/h between Tangier and Kenitra and is expected to raise ridership to 6 million—a four-fold increase.

We've been working with ONCF for more than 10 years, shadowing its operations every step of the way and transferring relevant knowledge and expertise to its teams on the ground. But our involvement didn't end once the line

opened. We'll be supporting ONCF in the years ahead in four ways:

- opening a joint training centre in Rabat, which will accommodate over 5,000 trainees each year
- forming a joint venture (40% owned by SNCF) in Tangier to maintain high-speed trainsets
- providing infrastructure maintenance and on-going traffic management support for at least two years through SNCF Réseau
- assisting with technical aspects of conventional and high-speed rail systems.

LEARN MORE ABOUT SNCF'S CONTRIBUTION
TO AFRICA'S FIRST HSR LINE



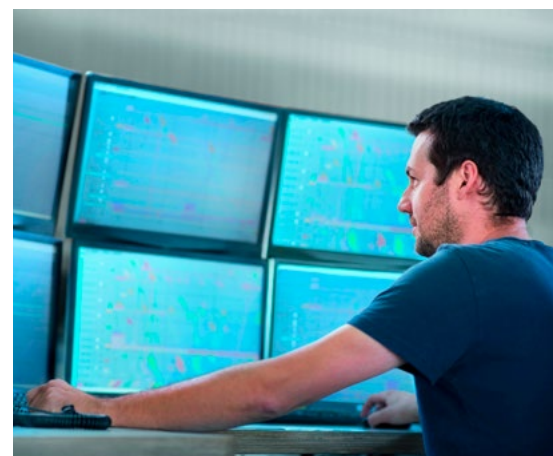
MODELLING TRANSPORT

SERVICES TO MEET EVERY NEED

We employ time-tested modelling methods to forecast traffic patterns and predict rail project profitability. This includes:

- predicting trends and forecasting demand elasticity in response to various mobility drivers
- modelling traffic for specific projects or substantial changes to short-, medium- and long-distance rail offers, and estimating shifts from one mode to another
- modelling how traffic will be shared between operators
- assessing the reliability of traffic forecasts so that operators planning a new project or intending to overhaul rail provision are fully aware of the risks and opportunities
- using modelling to inform decision-making around new station projects.

Building on our solid track record on rail projects in France, we've deployed our expertise across all these areas elsewhere in the world—in Morocco (Tangier-Kenitra high-speed line), in the United Kingdom (East Coast Main Line), in India (Mumbai-Ahmedabad High Speed Rail Corridor), and in Italy (NTV).



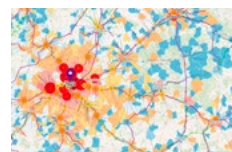
LEARN MORE ABOUT
SNCF RÉSEAU'S
CONSULTANCY
SERVICES

DESIGNING AND IMPLEMENTING TRANSPORT PLANS

As recognized experts in every aspect of rail operations, from timetabling and transport planning through to real-time traffic management, we:

- work with transport organizing authorities and operators
- stress-test transport planning arrangements
- draw up contingency plans to keep services running when network performance is affected by extreme weather, reduced capacity, rolling stock availability or other factors
- optimize track occupancy in stations
- assess punctuality and identify ways to improve on-time performance
- assist with technical aspects of railway system operations.

LEARN MORE ABOUT TRAFFIC MODELLING



DISCOVER HOW TO SIMULATE TRANSPORT PLAN ROBUSTNESS



DISCOVER HOW TO OPTIMIZE TRACK OCCUPANCY GRAPHICS



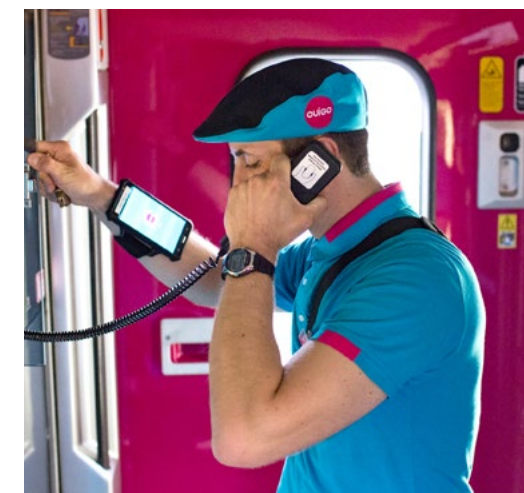
OVERVIEW OF
MODELLING SOLUTIONS
FOR RAILWAY
OPERATIONS



DELIVERING FAST, RELIABLE PASSENGER INFORMATION

We're using digital technologies and tapping into our customer database to keep passengers better informed. This includes:

- sending passengers real-time text-message alerts to let them know about delays, route changes and other incidents and events affecting high-speed trains
- giving customers the option to report delays and overcrowding issues via the SNCF app, so we can keep other passengers informed
- measuring how quickly we let our customers know about delays across our network, and how reliable that information is—each and every day
- sending daily push notifications via our SNCF app to ask passengers whether they're satisfied with the information they receive about Transilien and TER regional services
- making on-board announcements from our Transilien operations centres
- installing next-generation operations centres in major stations to manage on-time performance and passenger information.



YIELD MANAGEMENT

Yield management involves allocating service capacity according to current and potential demand with a view to maximizing revenue, and is widely used in the airline, car rental and hospitality industries.

At SNCF, we've been honing our expertise in this area for nearly 30 years. Striking just the right balance between supply and demand is vital in an industry such as ours, where fixed costs are high. As a rail operator, we face a two-fold challenge: to extract maximum value from a finite resource (the number of seats on our trains), and to cater as best we can to different classes of demand (such as peak and off-peak journeys, low-cost fares, and passenger services).

By practising yield management, we're boosting train occupancy rates, maximizing our revenue, preventing overcrowding on peak trains, and encouraging more people to choose off-peak services.

As a result, less than 15% of our trains are under-occupied. And because we're running a more efficient service, we're also doing our part to protect the planet.



15%

Less than 15% of SNCF trains
are under-occupied



DEVELOPING CUSTOMER SERVICE

We're mainstreaming data-driven services and digital technologies across our operations.

For SNCF, customer service lies at the heart of everything we do. That's why we've developed a whole suite of services for our passengers:

- the SNCF app, our personal mobility assistant for door-to-door mobility
- Junior & Cie, our service for unaccompanied children
- home luggage pickup
- on-board catering
- our Ector valet parking service
- on-board Wi-Fi on all new and upgraded high-speed trainsets (21m passengers have used this service since its launch 4 years ago).

Other services include:

- a seamless electronic ticketing system for commuters with NFC*-enabled smartphones, replacing the Navigo pass and paper tickets in the Paris Region
- a new top-up feature built into travel card and pass readers (coming soon)
- emails and push notifications, via the SNCF app, to keep us in close touch with each customer in our constantly updated Customer Relationship Management (CRM) database
- ticket barriers that tell passengers how much credit remains on their pass when they scan it.

At Transilien, we're using digital technologies to nudge customers in the right direction—encouraging them to treat their fellow passengers considerately and showing them how everyone has a part to play in making mass transit a seamless, enjoyable experience for all.

* NFC: Near Field Communication

LEARN MORE ABOUT ONBOARD WIFI



LEARN MORE ABOUT NFC TICKETING



LEARN MORE ABOUT RAIL SECURITY BY SNCF



RAILWAY SECURITY

At SNCF, we've adopted stringent security measures—drones, sniffer dogs for illegal drugs and explosives, strict access control systems, comprehensive incident review, and our own remote security operations centre.

We can review your existing arrangements or advise you on how to:

- set up a security team
- keep your premises secure
- prevent security breaches along a section of track or line.

SNCF TRAINING

We provide comprehensive training for railway professionals.

Until now, we've designed most SNCF Group training programmes for our own employees.

Taught by a network of corporate universities and training centres, courses cover the structure and operation of railway systems, safety, driving, maintenance, and more, including highly technical subjects such as infrastructure design.

Today we are delighted to offer our most essential programmes—a core component of the operational excellence that has won recognition around the world—to professionals throughout the rail sector.

LEARN MORE ABOUT
SNCF TRAINING



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