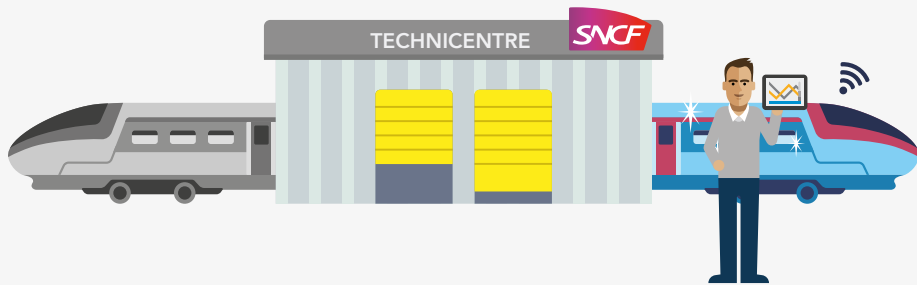


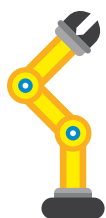
ROLLING STOCK DIVISION

# INDUSTRIAL PERFORMANCE EVERY DAY

FOR THE BENEFIT OF CUSTOMERS



# MAINTENANCE OF SNCF ROLLING STOCK



**70 PRODUCTION FACILITIES THROUGHOUT FRANCE**



**€2.7 bn DEDICATED EVERY YEAR TO RAILWAY MAINTENANCE**

SNCF is one of the world leaders in passenger travel and freight transportation. The group pursues two key priorities: the safety and the satisfaction of all of its customers (passengers or shippers). Within the production chain that provides this mobility to passengers and goods, the Rolling Stock link has a decisive role to play, chiefly by maintaining 17,000 items of rolling stock.

It conducts maintenance operations for SNCF's business units (Transilien, Voyages, Intercités, Fret and Infra), to guarantee total safety through its technical expertise, the maintenance and refurbishment of vehicles and the supply of replacement parts.

The Rolling Stock Division also supports its clients in the procurement engineering of new rolling stock.



Its two-billion-euro purchasing budget (rolling stock and spare parts combined) make SNCF an essential partner in the industrial railway sector.

Through its missions, Rolling Stock contributes to guaranteeing the safety, quality, regularity and travelling comfort of rolling stock, for the benefit of its customers.

The broad range of SNCF maintenance services is provided by 22,000 employees throughout France, spread between the Rolling Stock division, its engineering entities (including CIM and AEF), 38 technicentres and support entities (Technicampus and CLI).

# TECHNICENTRE NETWORK



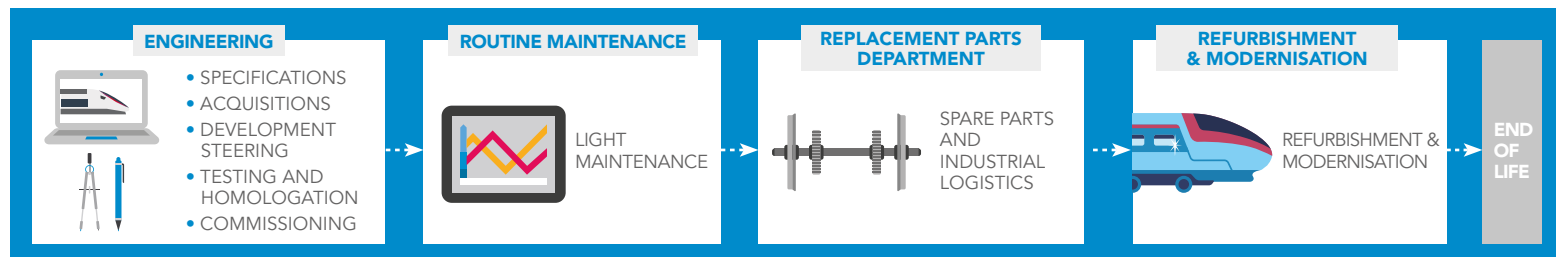
## TECHNICAMPUS

This Rolling Stock "university" located in Le Mans provides technical and cross-disciplinary training courses both in-house and on block release. These courses are aimed at all SNCF Rolling Stock maintenance staff.

### The Technicampus in figures

- 80 employees including 36 full-time teaching staff
- 40,000 trainee-days delivered every year
- 1,000 training initiatives
- 13,000 sqm of surface area, 2,000 sqm of workshops

## ROLLING STOCK LIFE CYCLE



## ROLLING STOCK ENGINEERING CENTRE (CIM)

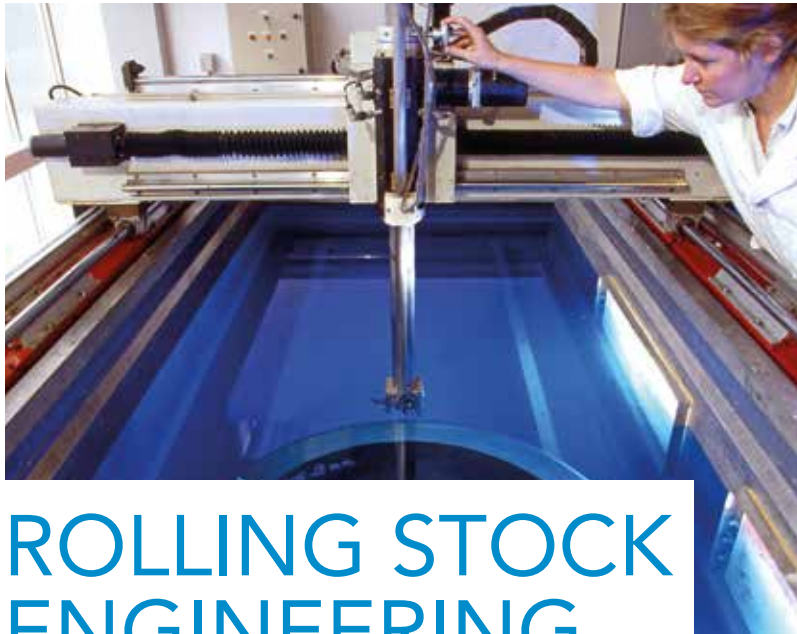


**280 ENGINEERS  
AND TECHNICIANS**  
**60 TECHNICAL  
SPECIALITIES**

Located in Le Mans, the CIM offers its clients its unique know-how and expertise in all train-related disciplines.

### MAIN ACTIVITIES

- Appraisals and diagnostics
- Research and development
- Homologation
- Project ownership for rolling stock procurement and conversion



# ROLLING STOCK ENGINEERING

WORKING FOR CUSTOMERS AND INNOVATING  
TO PREPARE THE FUTURE

The Engineering department is a crucial part of the Rolling Stock division. Working for its clients to meet or anticipate their needs, it also deploys innovations and adjustments for the trains of tomorrow.

**By formulating technical specifications** of operator requirements and maintenance rules, and by analysing performance and conducting a varied range of tests, the Rolling Stock Engineering

department offers decisive expertise in the fields of safety, reliability, maintenance, interoperability and customer comfort.

The Rolling Stock Engineering department draws on the know-how and expertise of its teams spread between the Rolling Stock division, the engineering units, the Rolling Stock Engineering Centre (CIM) and the Railway Testing Agency (AEF).

**250 ENGINEERS  
AND TECHNICIANS**  
**15,000 MEASURING  
DEVICES**  
**10,000  
TASKS / YEAR**

**THE RAILWAY TESTING AGENCY (AEF)**, located at Vitry-sur-Seine, offers SNCF business units a broad spectrum of test engineering services.

### MAIN MISSIONS:

- expertise in rolling stock testing issues
- responses to requests for analysis and testing in the areas of industrial hygiene, environment and occupational health
- organisation of test trains and related convoys



# ROUTINE MAINTENANCE

GUARANTEEING SAFETY, VEHICLE RELIABILITY  
AND PASSENGER COMFORT

**Routine maintenance of rolling stock** is conducted on a daily basis in 28 maintenance technicentres coordinated by SNCF's business units and spread throughout France. Vehicles are maintained by 12,000 employees with proven skills on all types of rolling stock, from the oldest to the most recent (Francilien, REGIOLIS, REGIO 2N).

**With the deployment of mobile teams, the provision of digital tools, the implementation of operational excellence standards or the development of remote diagnostics and the installation of connected objects**, maintenance is constantly evolving to offer best rolling stock availability and optimal travelling conditions for customers.

### MASTERIS, THE SNCF SUBSIDIARY

PROVIDES CUSTOMISED SOLUTIONS TO 120 CLIENTS IN FRANCE AND ALL OVER EUROPE

MASTERIS offers railway undertakings, mass transit operators, rolling stock rental firms, etc.:

- maintenance services close to operations
- industrial capabilities to extend the life span of rolling stock and its components
- best-in-class engineering services

ROLLING STOCK DIVISION



A TRAIN VISITS A  
TECHNICENTRE  
**EVERY  
3 DAYS**  
ON AVERAGE



MAINTENANCE IS  
PROVIDED  
**AROUND  
THE CLOCK**  
IN MOST  
TECHNICENTRES



# INDUSTRIAL MAINTENANCE REFURBISHMENT & MODERNISATION

GIVING A NEW LEASE OF LIFE TO ROLLING STOCK



**1,300**  
CARBODIES  
PER YEAR



AT MID-LIFE STAGE,  
IT TAKES  
**ON AVERAGE**  
**3 MONTHS**  
TO MODERNISE  
A TGV TRAIN

Refurbishing and modernising rolling stock is a way of anticipating new customer expectations, adopting the latest technological breakthroughs and innovating to achieve better safety and operational performance.

When rolling stock is overhauled after 15 to 20 years of service, all of the parts are dismantled, checked, reconditioned or replaced to offer vehicles a new lease of life.

With refurbishment and modernisation, rolling stock also receives the benefit of new technological, computer-based or design features, developed upstream by Engineering: fixtures for people with reduced mobility, Wi-Fi, passenger information systems, new interior fittings, etc. These major renovations are carried out in industrial technicentres by more than 8,000 SNCF employees.

# REPLACEMENT PARTS SERVICE

OPTIMISING SUPPLIES TO GIVE THE BEST SERVICE TO OPERATIONS



Industrial technicentres are responsible for servicing or repairing parts such as axles, couplings, electric engines or HVAC units.

Located all over France, these centres of industrial excellence each specialise in part categories; their team members have a unique strand of expertise. They benefit from cutting-edge facilities to develop the optimal management of spare parts and thus keep vehicle downtime to a minimum.

Anticipation, the standardisation of working methods and computer-aided maintenance management all help to ensure that parts are always in supply.



**20,000**  
REPAIRABLE  
PART NUMBERS

**450,000**  
PARTS REPAIRED  
EVERY YEAR

THE SUPPLY CHAIN organises the availability of parts required for the maintenance of rolling stock at the right time and cost-effectively.

- **70,000 sqm** of storage area
- **NEXT-DAY** delivery from supply platform to 70 locations
- **150,000** part numbers on catalogue

**DIRECTION DU MATÉRIEL**

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FRANCE

**MASTERIS**

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