



# Alstom in Spain and Portugal

May 2021

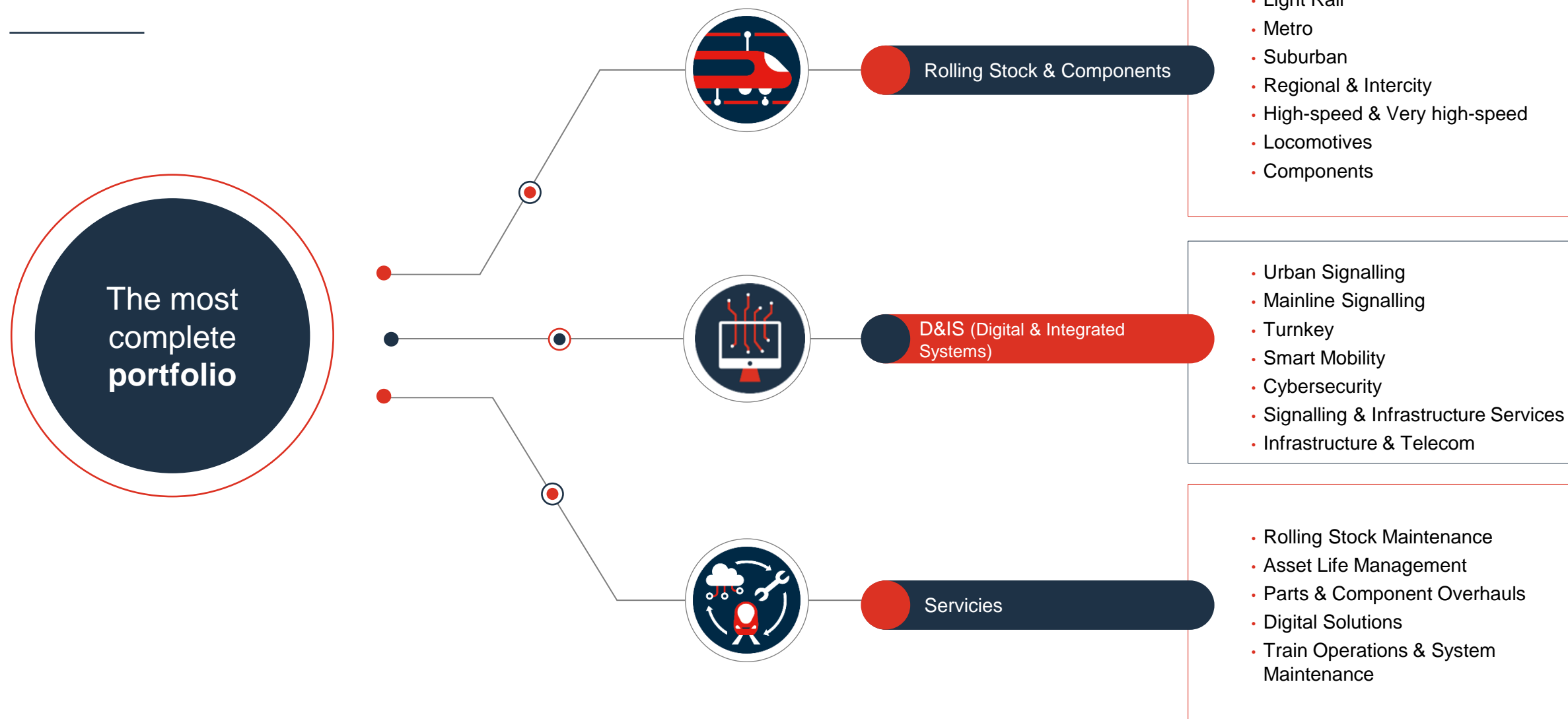
01

## Alstom Group

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Leading the way to greener and smarter mobility worldwide

# A comprehensive portfolio of **mobility solutions**



# We are where mobility is needed

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Over  
**70,000**  
employees  
worldwide

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**70**  
countries

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Over  
**250** sites

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Over **150,000** vehicles in  
commercial service

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**17,500**  
engineers

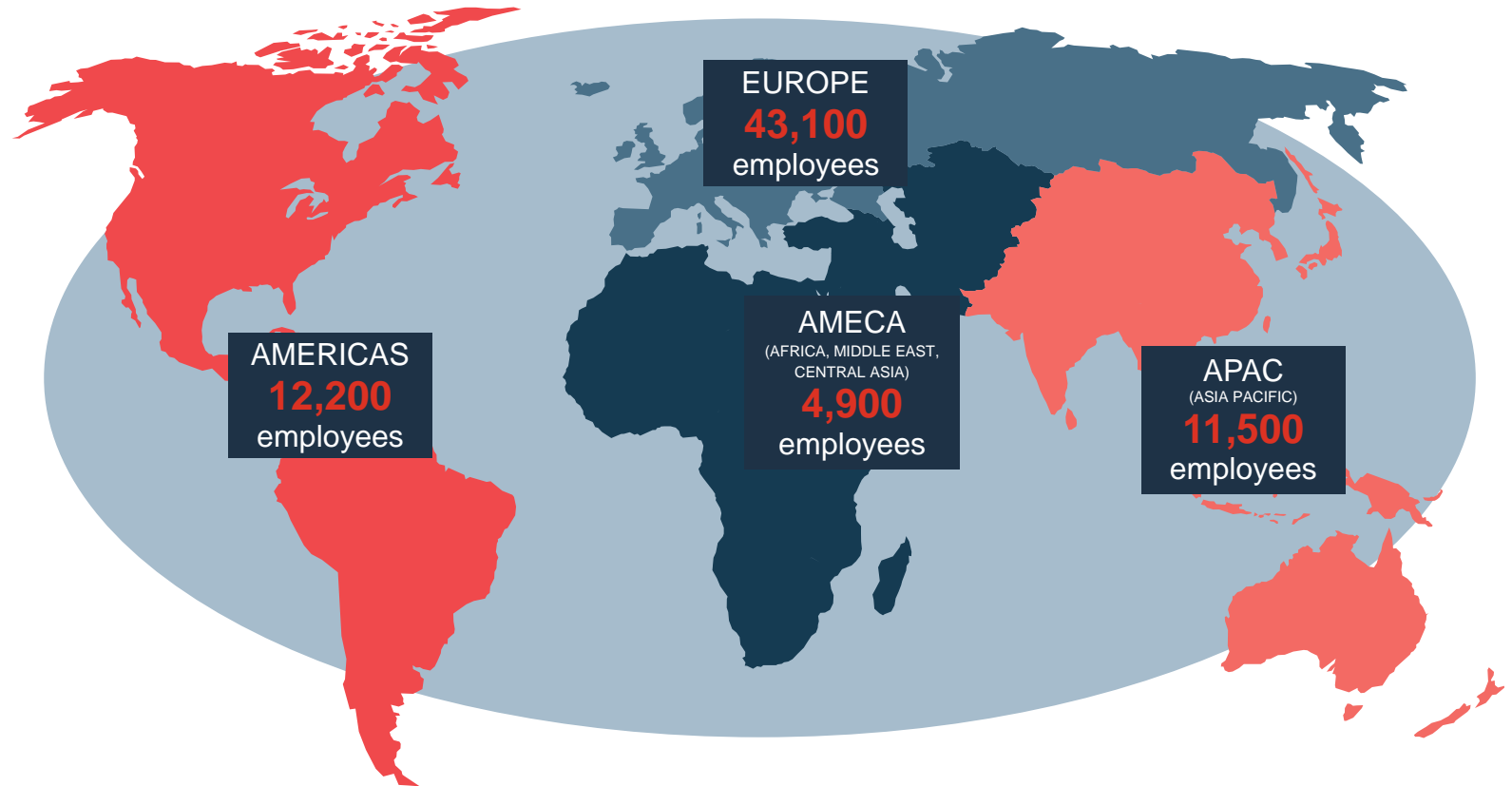
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More than  
**9,500**  
patents

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Partner to  
over  
**300** cities

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**2020/21**  
**financial**  
**highlights**

**€14bn**  
**combined**  
**proforma sales**

**€9.1bn**  
**orders**



**€74.5bn**  
**order backlog**

# AiM | Alstom in Motion: our strategic plan for 2019 - 2023

To be the leading global innovative player for sustainable and smart mobility



02

## Alstom in Spain and Portugal



# Alstom in Spain

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A large history of  
innovation and  
commitment with the  
economical and  
industrial development  
in Spain



€700  
Million  
Income\*

Unaudited consolidated figures for all Group companies  
in Spain



60%  
Exporting



Nearly  
3,000  
Employees



# Industrial and technological presence in Spain and Portugal

**3,000** employees

**+90%** permanent contracts

**€700M** Billing\*

**60%** exports

## **4** Innovation & Technology

- S.S. de los Reyes, Madrid (D&IS)
- MV 49 \_ Madrid (D&IS)
- Santa Perpetua, Barcelona (Services)
- Santa Perpetua (CSR)

## **4** Industrial Centres

- Santa Perpetua, Barcelona  
Train manufacturing (RSC)
- Trapaga, Biscay  
Traction systems (RSC)
- Getafe (Services) – 2 centres
- Pinto (Services)

## **2** Joint Ventures with Renfe

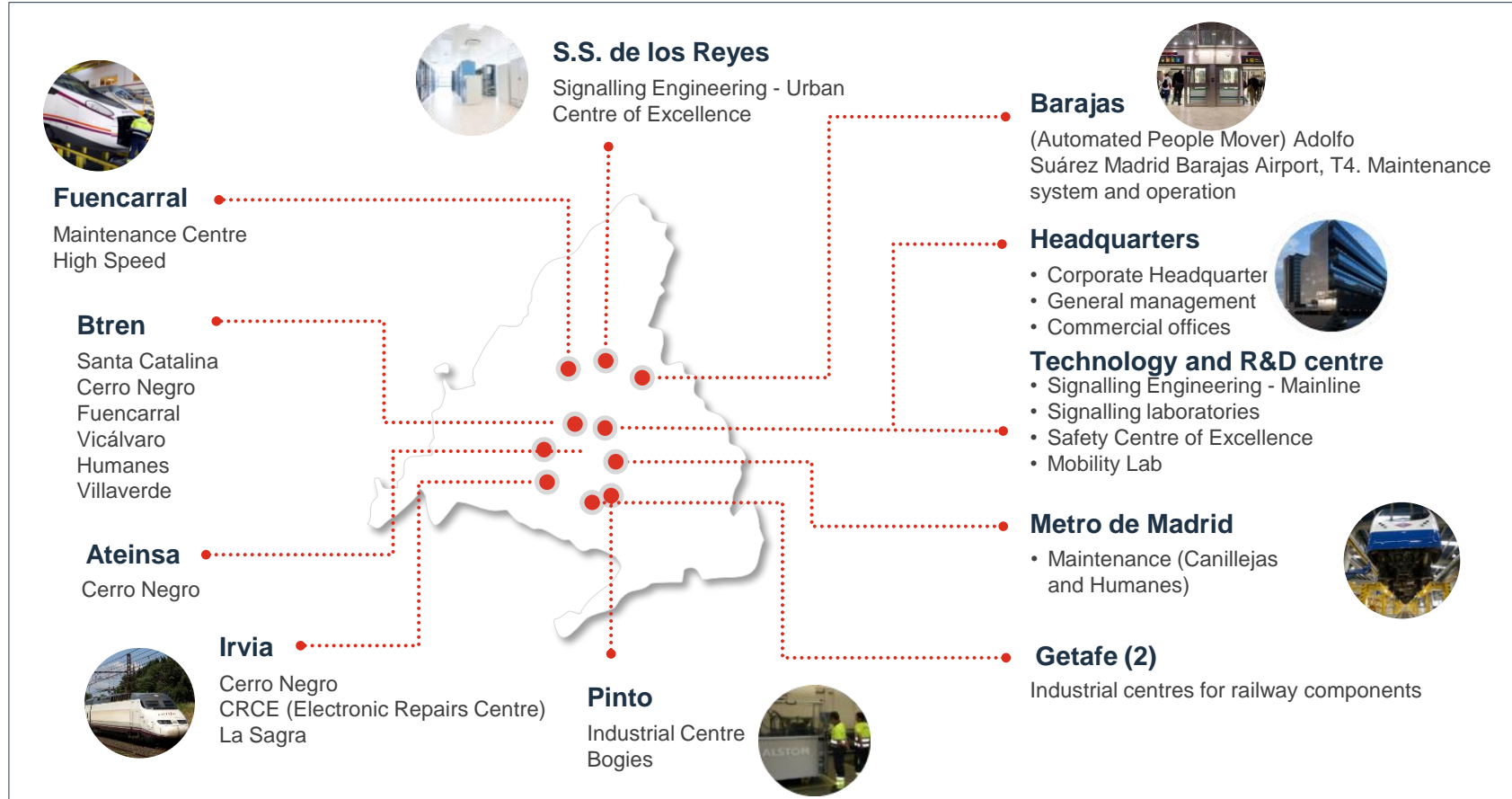
- Irvia
- BTren

**27** Work centres



\*Unaudited consolidated figures for all Group companies in Spain

# Alstom in the Community of Madrid



**+1500**  
employees

**2** Engineering  
centres

**2** Industrial  
centres

**Corporate**  
Headquarters for  
Spain and Portugal

**R&D**  
Global innovation  
centre

# Alstom in Catalonia

**+1,000**  
employees

**1** Rolling stock  
factory

**9** Maintenance  
centres

**2** Innovation &  
Technology

**1** Signalling  
engineering  
centre

## R&D - Santa Perpètua

- Rolling stock: Engineering and R&D Centre (comfort and ergonomics)
- Services: Railway R&D and Maintenance Centre



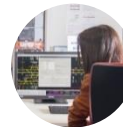
## Santa Perpètua

Train manufacturing



## Sitges

Signalling



## Sant Joan Despí. Trambaix

Maintenance



## Irvia

- Mataró
- Montcada i Reixac
- Vilanova
- Can Tunis



## Btren

- Can Tunis and San Andrés Condal

## Rubi - Triangle-ZAL

Maintenance centres



## Ateinsa

Can Tunis

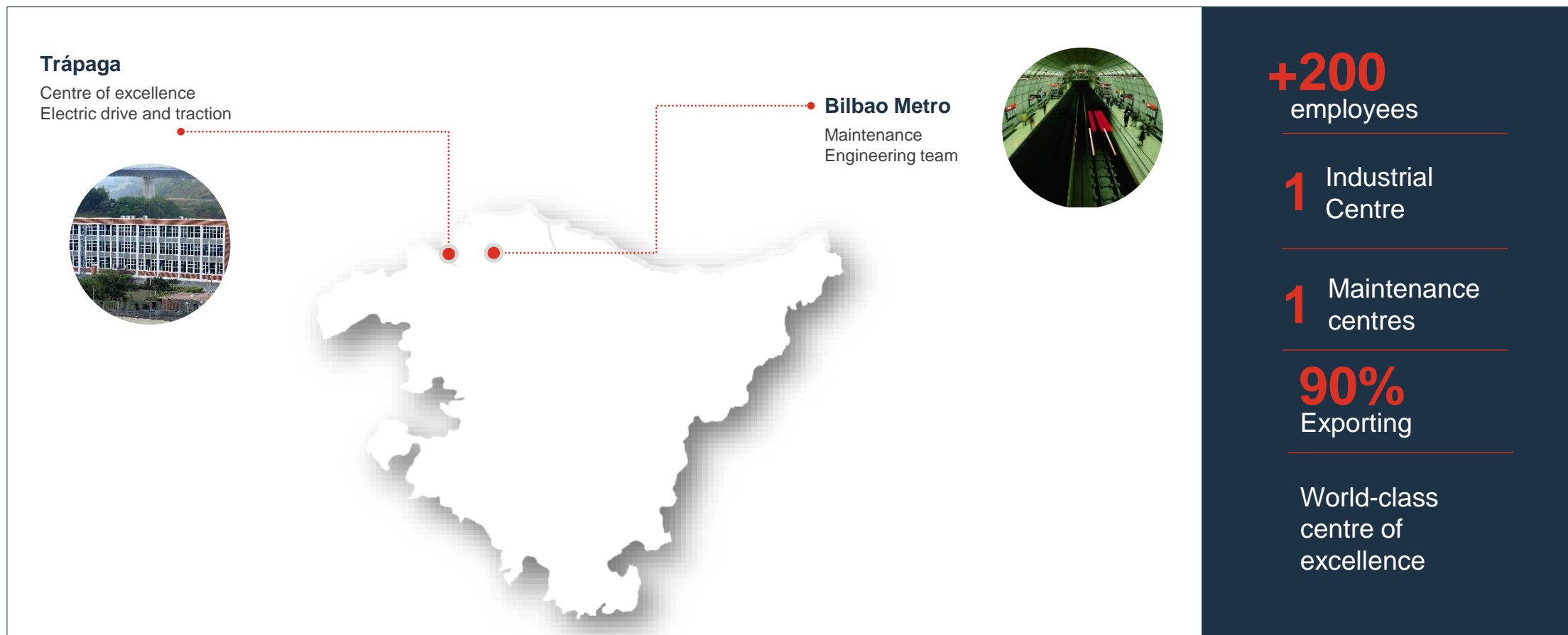
## Sant Adrià de Besòs. Trambesòs

Maintenance





# Alstom in the Basque Country



# Industrial and technological presence in **Portugal**



## Work centres

### Lisbon

Corporate headquarters and commercial office

### Porto

Porto Metro signalling engineering and Maintenance Centre

### 1 Joint Venture

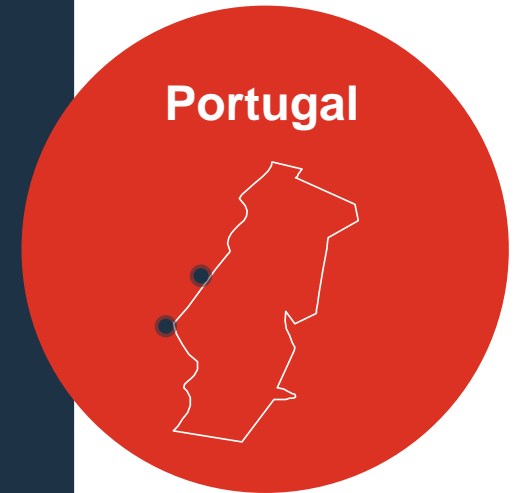
JV Nomad Digital and EMEF, for digital solutions for maintenance (CBM-Condition Based Monitoring) and energy efficiency.

### 550

On-board ATP systems in service and 16,000 balises installed (main lines)

### 15

Porto metro interlockings and 130 trains





# Projects and references in Portugal



## Infrastructure National Railway Network

- Electrification of the North and South lines
- Automation of 52 level crossings - Vouga Line



## Rolling Stock

### CP – Comboios de Portugal

- 2600 series electric locomotives
- 10 "Alfa" pendular trains (high speed)
- 12 double-decker trains (IGBT technology)



### Fertagus - Barraqueiro

- 18 double-decker trains (IGBT technology)



## Signalling

- **IP (infrastructures of Portugal S.A.)** - On-track ATP - Intercity lines -
- **Porto Metro:** On-board ATP systems and two line extensions.
- **Convel** on-Board (all Portuguese operators)



## Services

- Signalling maintenance **Porto Metro**
- Renovation of rolling stock for **CP** (Comboios de Portugal)
  - 57 TJV – SI –
  - 34 TJV/UQE (123 coaches)-
  - Y32 bogies for 58 Corail es coaches

# A tractor company

## Strengthening the industrial network



We are committed to local companies development, promoting the **growth and internationalization** of our **network of national suppliers**

**450 M€**

Alstom in Spain anual purchases



**80%**

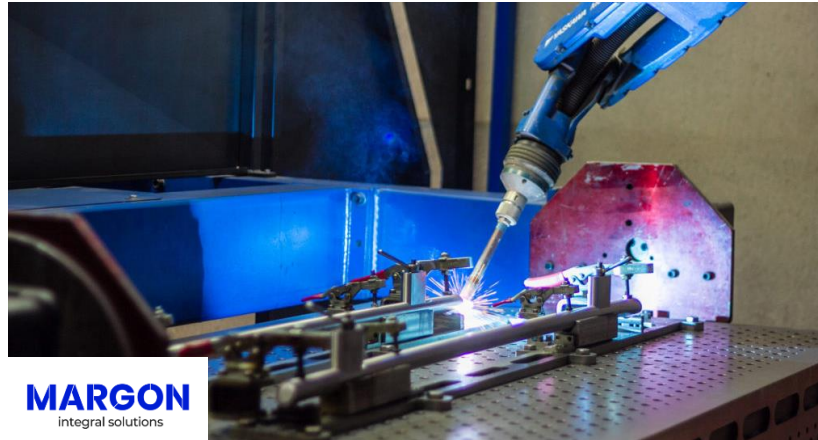
Spanish suppliers



# A tractor company

## INTERNACIONALIZATION

Global suppliers for Alstom,  
worldwide



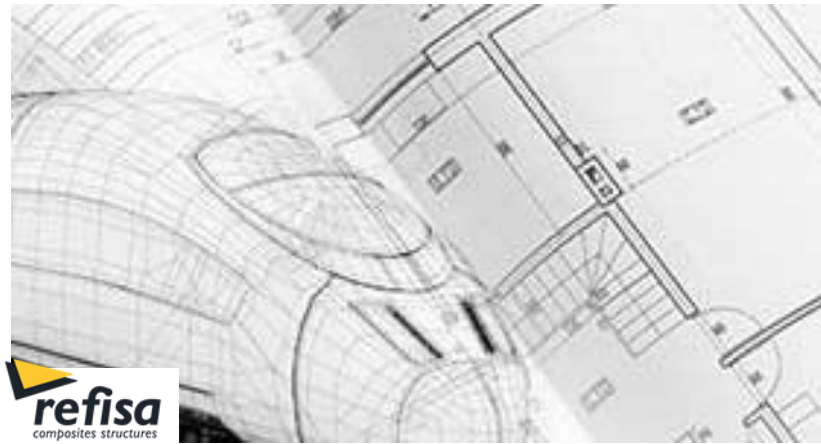
**MARGON**  
integral solutions



**quadrotek**  
electrical systems



**TalleresCorral**



**refisa**  
composites structures

## PARTNERS



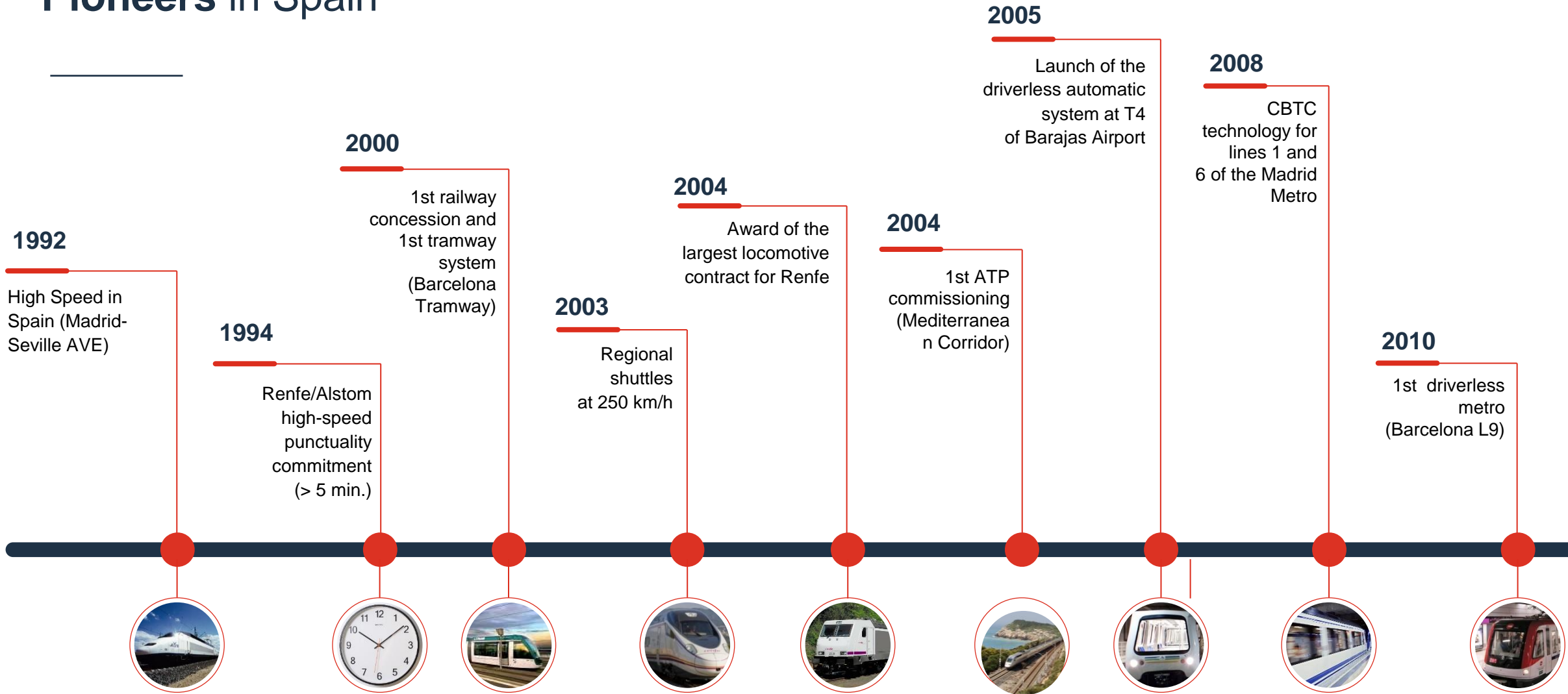
Joint developments.  
Integration into corporate  
processes



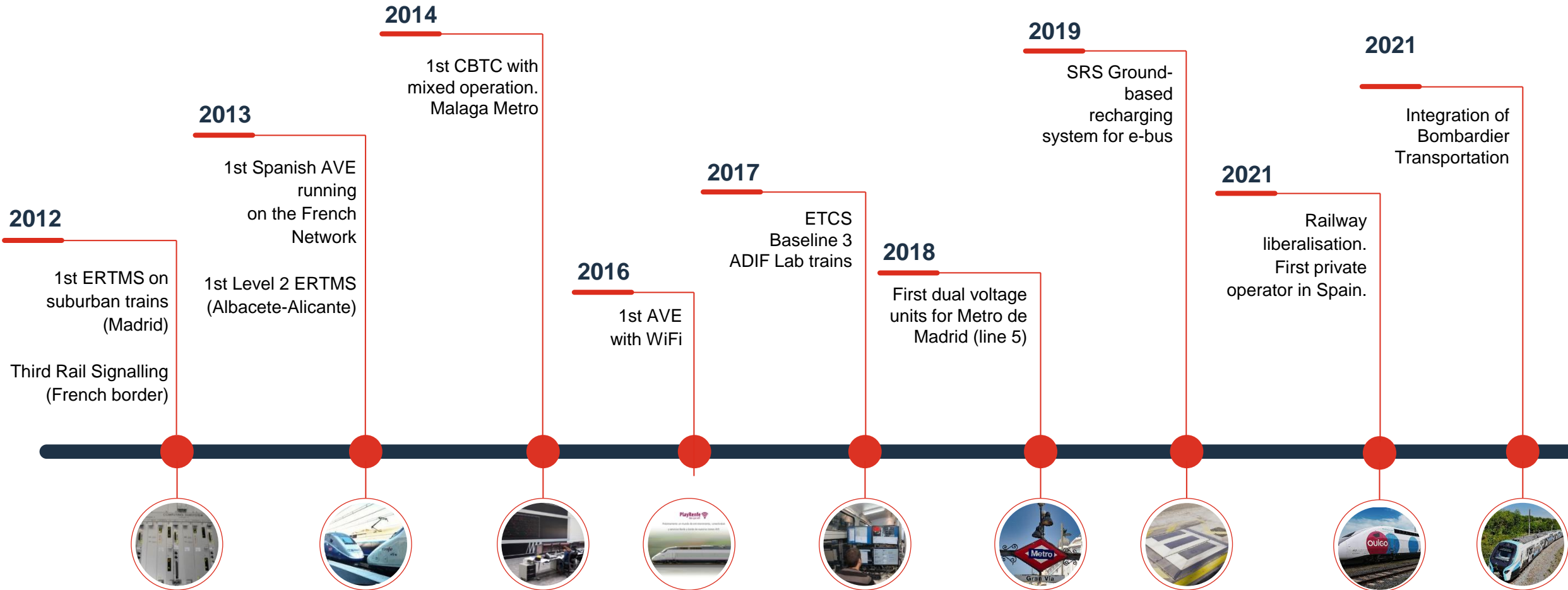
# 03

## Projects

# Pioneers in Spain








# Pioneers in Spain





# Alstom in Spain. Main projects on going

Metros & Tramways	Regional & Commuter	Traction systems	Signalling ERTMS	Maintenance
Urban benchmark	Over 30 years of experience	For all train and power types	Technological leadership	Digitalisation and efficiency
 <ul style="list-style-type: none"> <li>• Singapore Metro</li> <li>• Barcelona Metro</li> <li>• Santo Domingo Metro</li> <li>• Lusail Tramway</li> <li>• Frankfurt Tramway</li> <li>• Athens Tramway</li> </ul>	 <ul style="list-style-type: none"> <li>• ingle- and double-decker</li> <li>• Chile</li> <li>• Luxembourg</li> <li>• RENFE Cercanias Gran Capacidad</li> <li>• Hydrogen</li> </ul>	 <ul style="list-style-type: none"> <li>• V300 Zefiro (very high speed trains) propulsion</li> <li>• OMNEO (Double-decker trains for French regions) propulsion</li> <li>• Monorail São Paulo</li> <li>• São Paulo metro</li> <li>• High power converters for locomotives and regional trains</li> </ul>	 <ul style="list-style-type: none"> <li>• Albacete Alicante (N2)</li> <li>• Valladolid-León-Burgos (N2)</li> <li>• Plasencia-Cáceres-Badajoz (N2)</li> <li>• Atlantic Corridor</li> <li>• Barcelona Commuter trains</li> <li>• Commuter (on-board)</li> <li>• AVE (on-board)</li> <li>• Haramain Saudi Arabia (on-board)</li> <li>• Talgo-Avril (on board)</li> <li>• Adif laboratory trains</li> </ul>	 <ul style="list-style-type: none"> <li>• Healthhub</li> <li>• Energy Management</li> <li>• Components</li> <li>• Ouigo: High speed fleet</li> <li>• Renfe: high-speed trains, commuter trains and locomotives</li> <li>• Barcelona Metro</li> <li>• Barcelona tramway</li> <li>• Automatic People Mover (Barajas Airport)</li> </ul>

04

## Main Sites

# Santa Perpètua, Barcelona

First 4.0 factory in Spain



SURFACE AREA  
**360,000m<sup>2</sup>**

CONSTRUCTED  
**65,000m<sup>2</sup>**



PRODUCTION CAPACITY  
**Tramways**  
**Metros**  
**Commuter trains**  
**Regional**

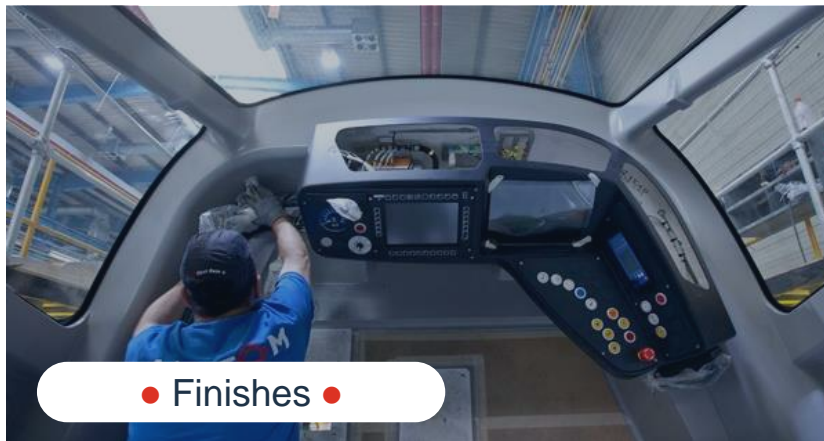
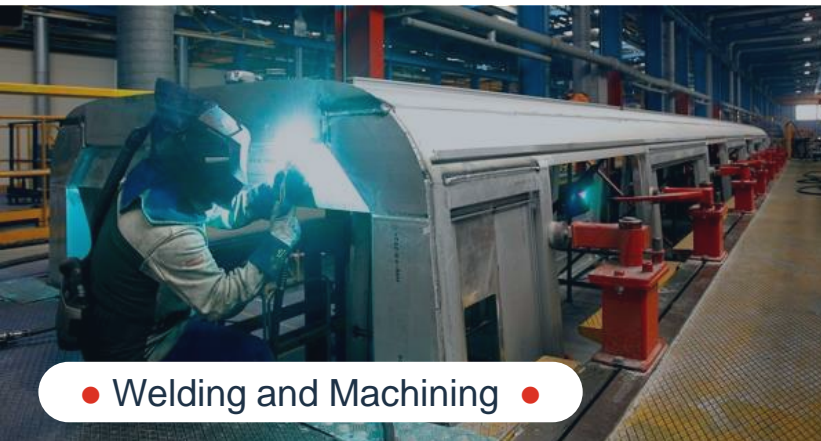


WORKERS  
**+900**



# Santa Perpètua, Barcelona

## Integrating factory. Whole trains





# Trapaga, Biscay

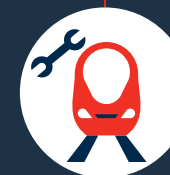
## Propulsion and control systems



RSC



SURFACE AREA  
**45,000m<sup>2</sup>**



**Design and  
manufacture** of  
propulsion and  
control systems for  
all train types



WORKERS  
**+200**



# Trapaga, Biscay

World-class centre of excellence



## Manufacturing of

Electronic power  
converters for  
traction

Converters for  
powering other  
auxiliary equipment



## Developed

Train unit control and management software

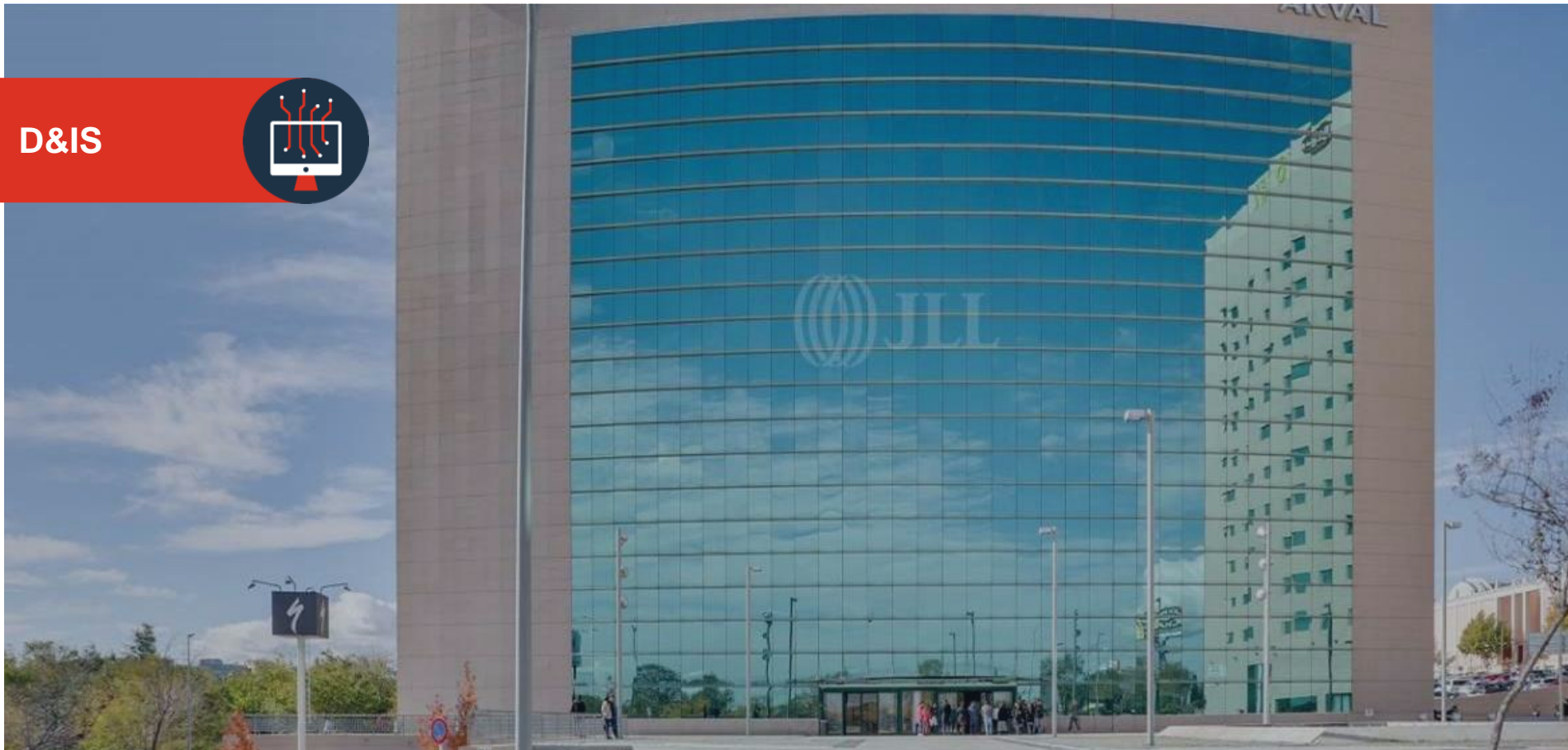
## Projects

Madrid Metro, Rome Metro, Renfe freight, FGC, PhD,  
NAT, Sao Paulo Monorail, TRAXX Locomotives, ILSA



# Centre of excellence, San Sebastián de los Reyes

## Signalling engineering



OPENED IN  
**2010**



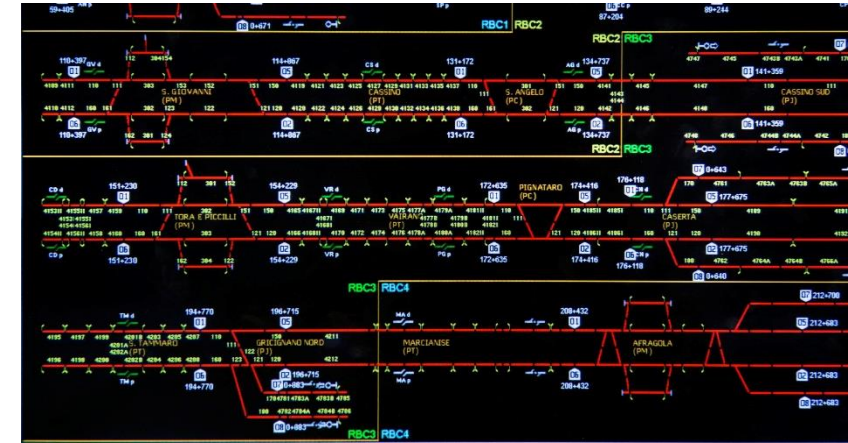
SKILLS  
**+220**

# Centre of excellence, San Sebastián de los Reyes



## Urban Signalling- CBTC

Development of signalling systems for Metro systems in Madrid, Bilbao, Turkey, São Paulo, Barcelona, Seville, Quito, Lima, Salvador de Bahía, Porto



# 50%

of Madrid Metro passengers travel under the supervision of signalling systems developed at this centre



## ERTMS systems

- **South America:** Rancagua and El Teniente (Chile) and Rio de Janeiro (Brazil)
- **Spain:** Valladolid - Burgos, Extremadura, Barcelona Suburban trains and Mediterranean Corridor



# Centre of Excellence, Madrid

## ERTMS and Security engineering and laboratories



**PROJECTS**  
for signalling, safety  
and infrastructure in  
20 different  
countries



**SKILLS**  
**+400**

# Centre of Excellence, Madrid

Projects in more than 20 countries



## Security Laboratory

World-class centre of excellence:

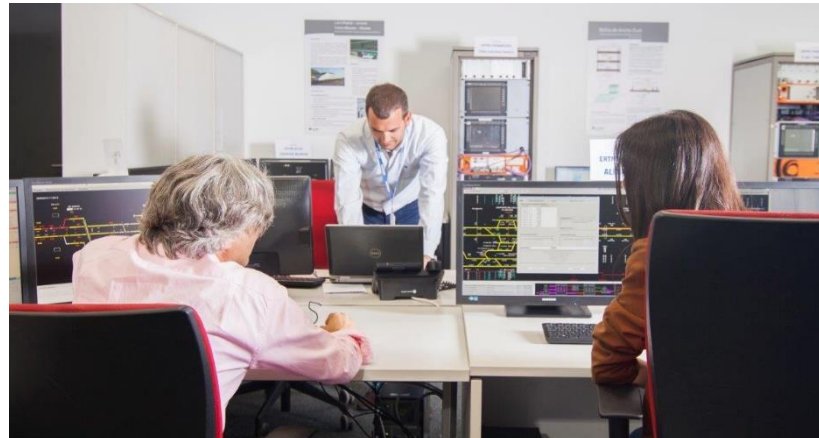
- Video surveillance
- Control centres
- Passenger information systems
- Telecommunication networks



## Signalling Laboratory

Alstom Group's largest interlocking laboratory

- Railway safety system validation
- Control system simulations
- Reproduction of behaviour of on-board equipment



## ERTMS

- On-board and trackside
- On-board signalling centre of excellence



# Madrid Smart Mobility Lab

## Digital mobility solutions



MULTI-MODE  
**Mastria**



Analytics to improve  
operation and  
maintenance  
**Smart Data**

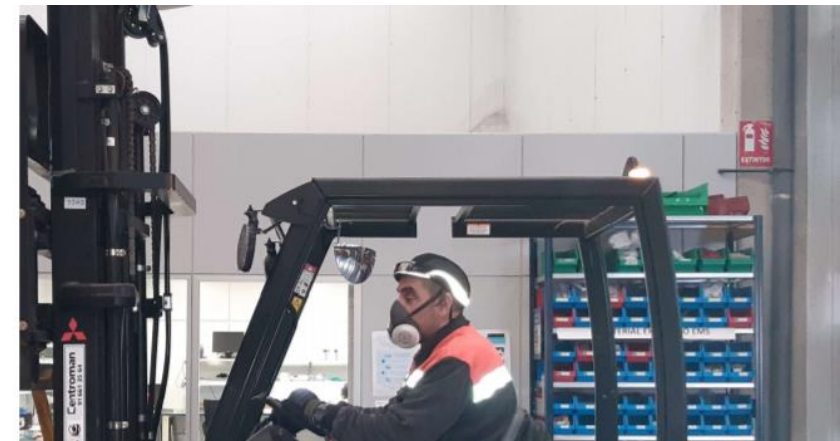


R&D TEAM  
**+100**

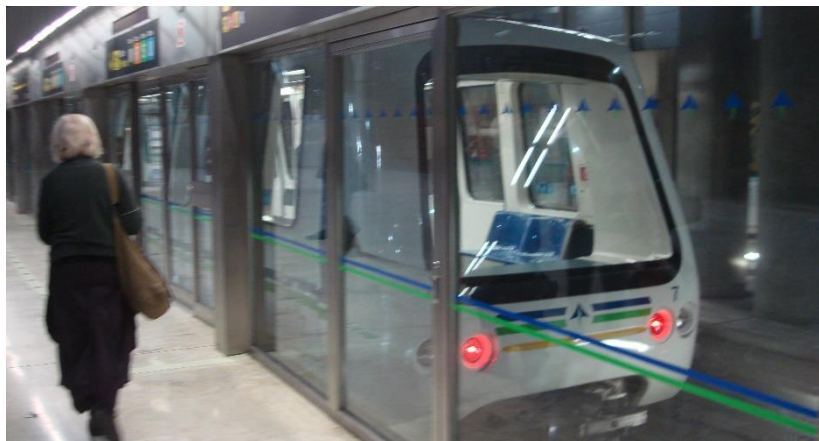
# Services



## Automated People Mover Madrid Barajas Airport



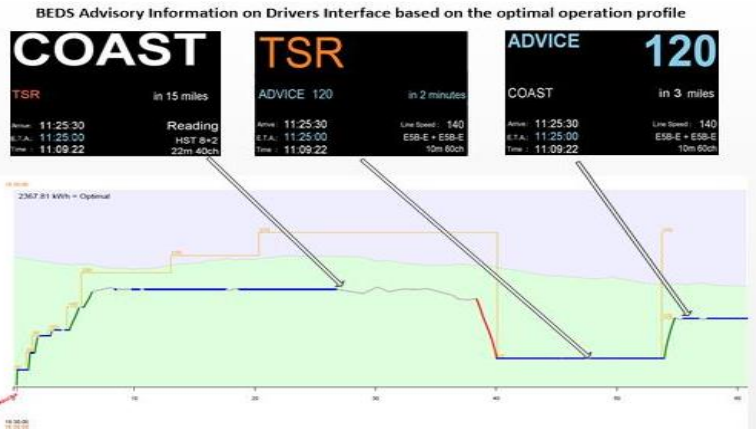
## Components repair centre, Getafe



## CRO Getafe



# Energy measurement systems:



## Energy efficiency systems

Energy measurement system (EMS)  
Control station (DCS)  
Efficient driving systems (BEDS and OMS)



# 17%

Energy savings achieved in high-speed fleets



## EMS Projects

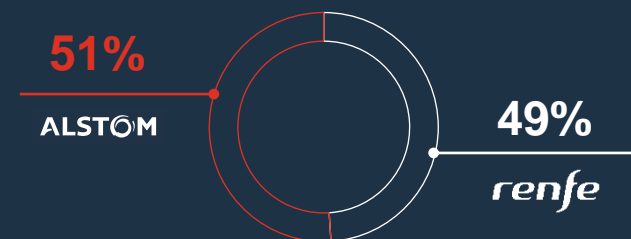
- High-speed
- Medium distance
- Commuter trains
- Metros

05

## Joint ventures



## Alstom / Renfe joint venture



### Centres

**Madrid:** headquarters and 4 workshops

**Barcelona:** 2 workshops

**Malaga:** 2 workshops

**Valencia:** Valencia J. Sorolla station

**Bilbao:** Abando station



# Btren Projects



● Maintenance **S-102+112** (92 power cars) ●



● Maintenance **S 130-730** / (90 power cars) ●



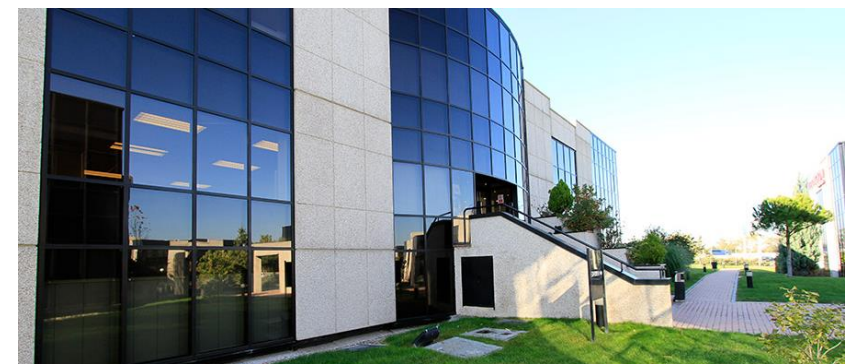
● Maintenance **78 TRAXX** locomotives ●



● Maintenance **78 S446 EMUs** ●



● Maintenance **S470** / 14 units ●

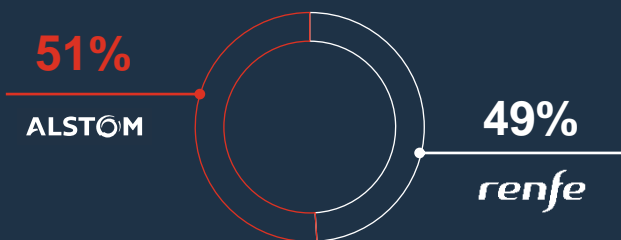


● Other maintenance activities ●





## Alstom / Renfe joint venture



### Centres

**Madrid:**  
headquarters,  
CRCE and 2  
workshops

**Barcelona:**  
3 workshops

**Toledo (La Sagra):**  
1 workshop



### Electrical components repair centre CRCE

Repairs of more than  
2000 references

Specific projects for  
Morocco, Portugal,  
France and USA.

# Irvia Projects



● Maintenance S 104 / 15 trains ●



● Maintenance S 447 / 40 trains ●



● Maintenance S 464-465 (Civia) / 47 trains ●



● Maintenance S 450-451 / 19 trains ●

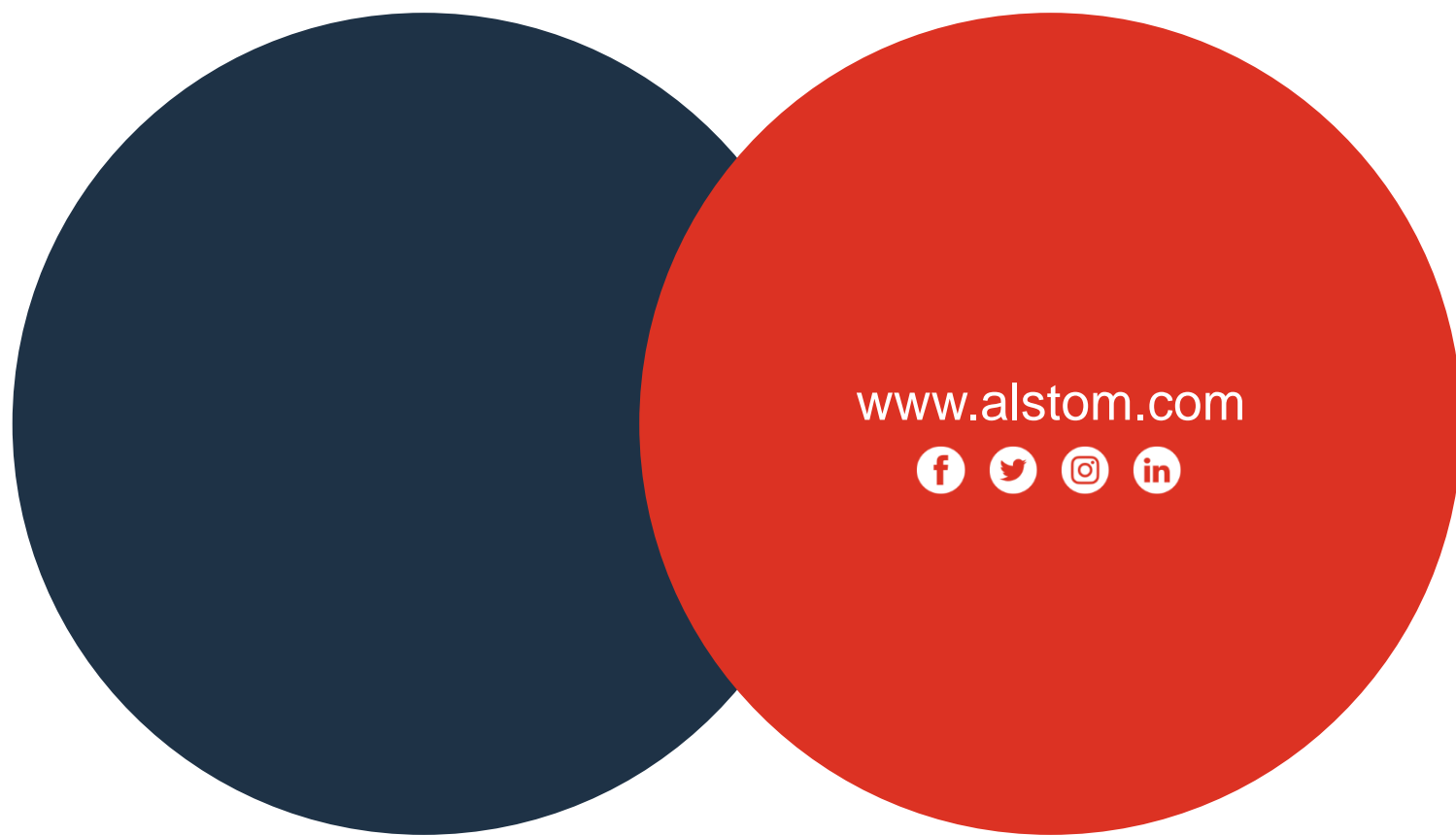


● Maintenance S 252 / 9 locomotives ●



● Maintenance S 100 / 24 trains ●





**ALSTOM**  
• mobility by nature •

# One Alstom Team



OUR VALUES

**agile**  
We act quickly, anticipate, learn and adapt continuously

**inclusive**  
We embrace differences

**responsible**  
We are a responsible company towards our employees, our customers and society

**ALSTOM**  
•mobility by nature•