Shift2Rail Dialogue on the Future of Rail Research & Innovation
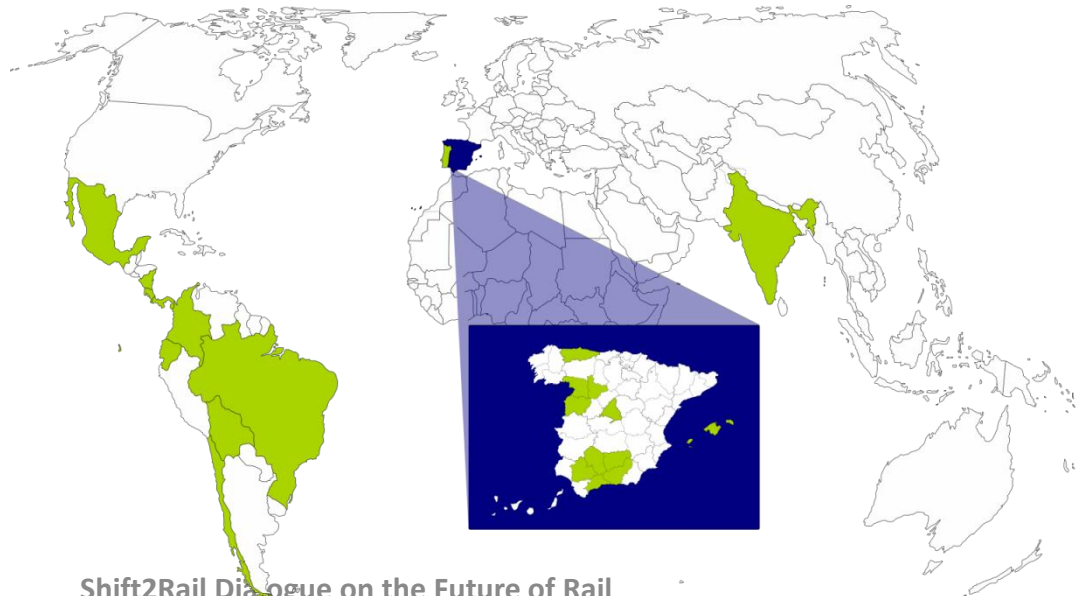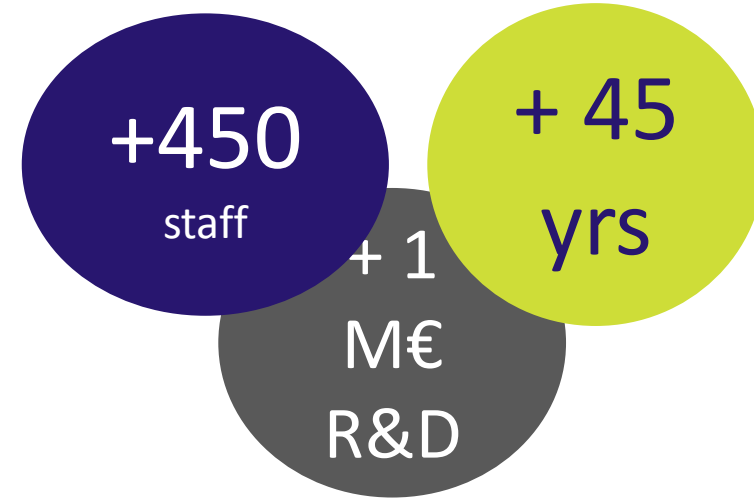## Spanish Event

12th February 2019

Dr. Noemi Jiménez-Redondo

Head of R&D division

Basic company information

- **Engineering** Consultancy and Quality Control company in the **field of Transport Infrastructures** and buildings

- **Multidisciplinar** staff (engineers, architects, chemist, physics & geologist graduated, etc).

- **10 national** offices and **5 international** offices providing **services in 12 countries**

+450 staff

+ 45 yrs

+ 1 M€ R&D

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Our role in Shift2Rail

S2R IP3: Cost efficient and reliable high capacity **infrastructure**
Total members: 71
Spanish members: 11 (only us in Andalusia)

CEMOSA is an **AM** through **Smart DeMain Consortium**

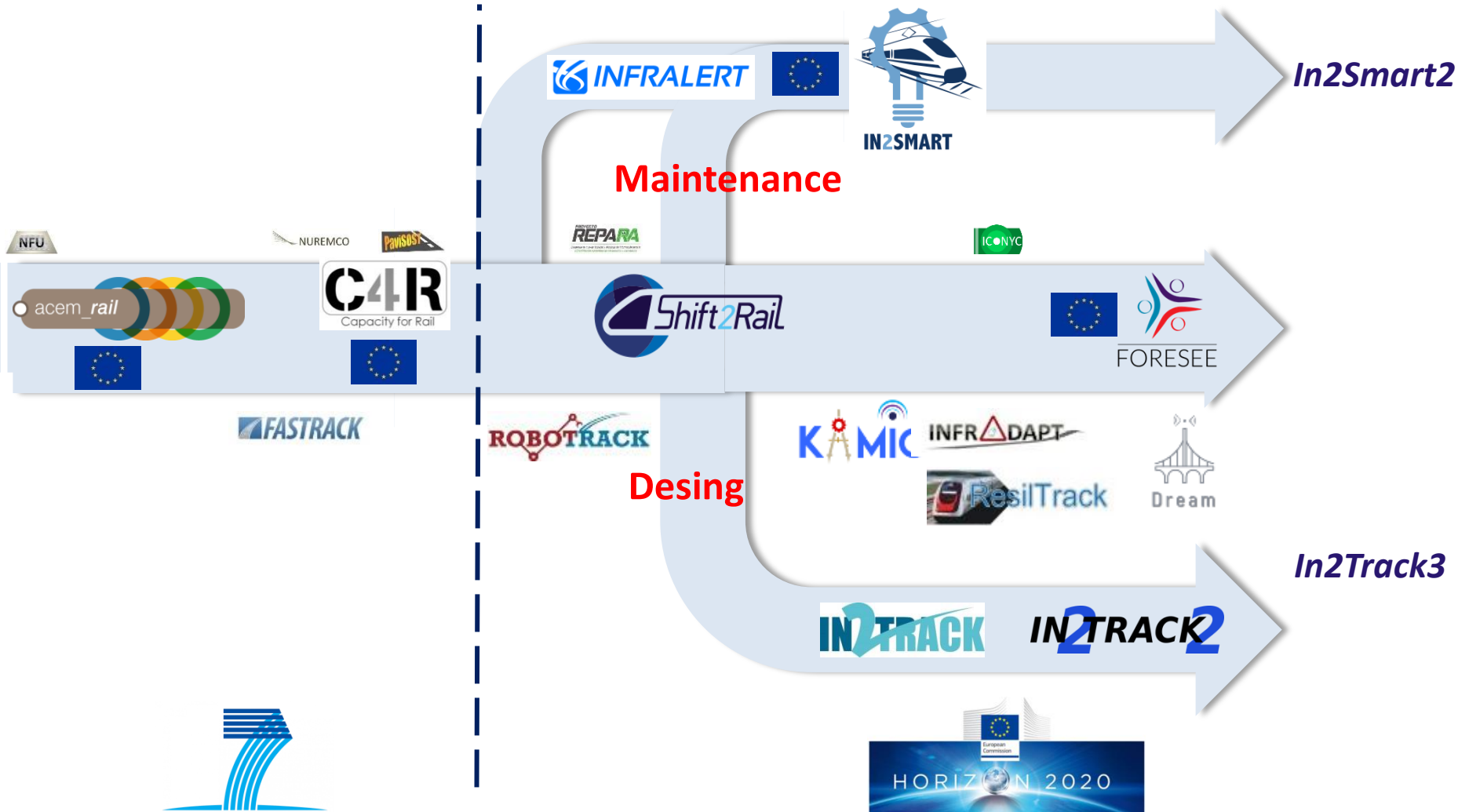**Smart DeMain**: : **Smart De**sing and **Main**tenance for the railwys of tomorrow:

- STRUKTON Rail (Maintenance)
- ACCIONA (Design)
- **CEMOSA (Design & Maintenance)**
- DLR (Maintenance)
- Fraunhofer (Maintenance)

CEMOSA's role

- **Design:**
  - **TD3.3, TD3.5**
  - **Track + Tunnels and Bridges**
- **Maintenance:**
  - **TD3.6**, **TD3.8**
  - **Data analytics + Decision support**

Our evolution in transport infrastructures research

Maintenance

Desing

In2Smart2

In2Track3

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Our activities in S2R projects: In2Track

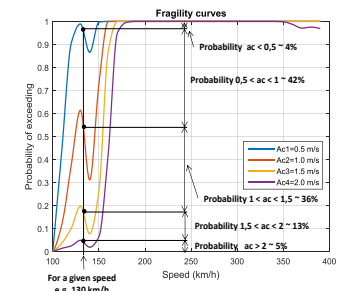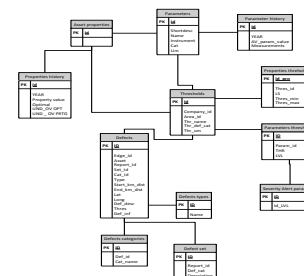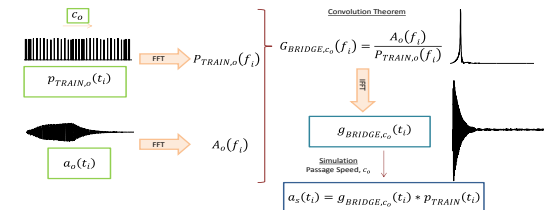**Coordinator: TRAFIKVERKET**   **19 partners**   **Duration: Sep2016 – Feb2019**

Objective

Increase in the capacity, reliability, and reduction of life cycle costs

- Track devices
- Subestructure
- Tunnels and bridges

Results from CEMOSA

- Definition of **database** cost-effective oriented to **RAMS&LCC** analysis

- **Simulation** models for predicting the **remaining useful life in railway bridges**

- Development of **fragility curves** for **risk modelling**

Our activities in S2R projects: In2Smart

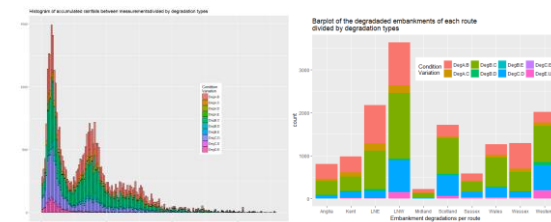**Coordinator: ANSALDO**   **22 partners**   **Duration Sep 2016-Aug 2019**

Objective

Development of **Intelligent Innovative maintenance systems and strategies** for railway infrastructures

- Monitoring
- Data Analytics
- Decision Support Tools

Results from CEMOSA

- **Data analytics techniques** to support maintenance planning

- **Prescriptive models** to guide decision making and maintenance planning

- **Use Case on Earthworks (analytics + decision support)** for NR

- Generic **decision support framework**

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Our activities in S2R projects: In2Track 2

Coordinator: NETWORK RAIL   **28 partners**   **Duration: Nov 2018 – Apr 2021**

Objective

To continue the strategic research line starting during In2Track, providing **new developments** and **tests in real environments**

- Optimisation of track devices
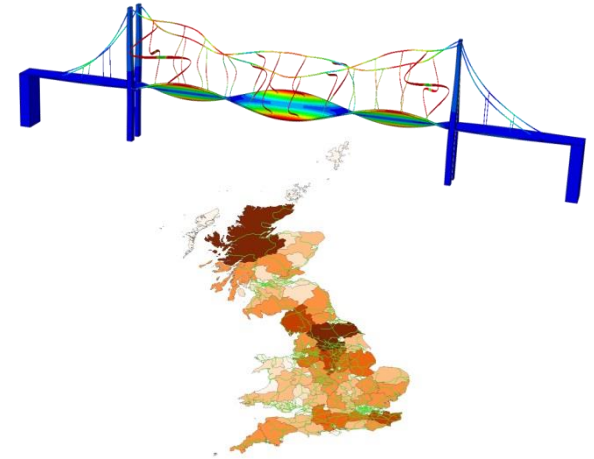- Substructure
- Tunnels and bridges

CEMOSA's role

- Sustainable solutions for **support layer** in **slab track** solutions (3MB) → **test in Sweden**

- **BIM** Model for **maintenance in bridges**

- **Probabilistic** models for **structural analysis**

- Development of new generation of **seismic dampers** → **test in Portugal**

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Our gains due to Shift2Rail

Technical benefits

- **Consolidation** of our **railway research strategic plan**

- Development of **new tools** in the field of **maintenance and assessment** of **bridges and tunnels**

- New tools in the **data analytics** and **decision support systems**

- Close **contact** with the **main Railway Infrastructure** Players in Europe

Business benefits

- Creation of a **Brand image** in the sector of engineering consultancy at European level

- **Increase the service portfolio**

- **Raise of the competitiveness** regarding the competitors

- **Access to new markets and new customers** at European level

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Conclussion

- We believe in Shift2Rail

- We have grown and developed with S2R

- We want to be involved in S2R 2

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Thank you for your kind attention

Dr. Noemi Jiménez-Redondo

Head of R&D division