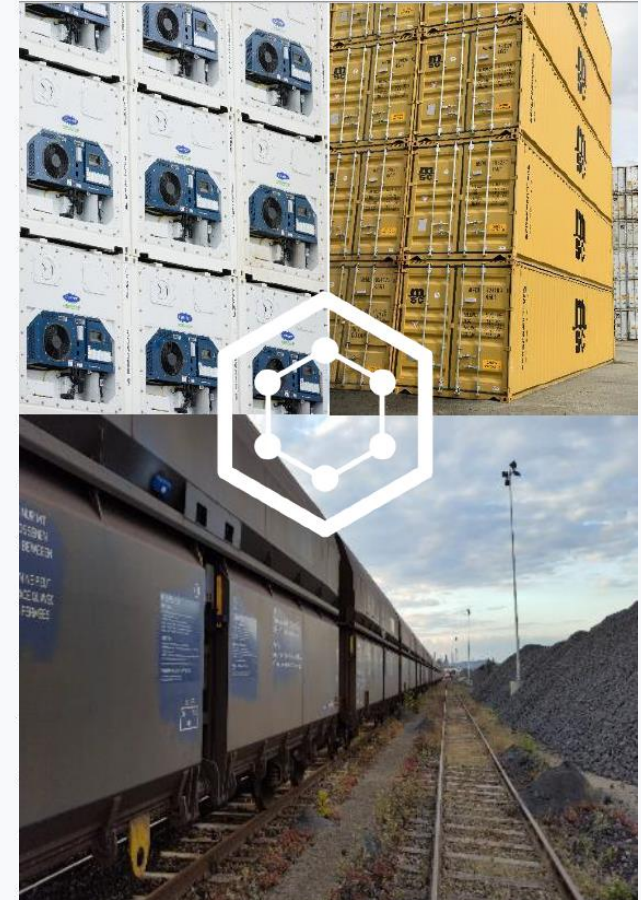


**IPIC 2019**

# INNOVATIVE IOT SERVICES FOR A RAIL FREIGHT CONNECTIVITY

*9th-11th July, 2019*



# TRAXENS DIGITAL TRAIN SOLUTION

- Based on **Industry know-how and expertise**
- Designed to work **worldwide**, in severe environment and manage any type of assets
- Fast Time-to-Market: 2 years from design to implementation
- Designed for **multimodal** containers and already adopted by MSC, CMA CGM and SNCF Logistics
- Building a **turnkey solution** on existing not powered logistic asset



# CONNECTED FREIGHT TRAIN

EUROPE'S FIRST FREIGHT TRAIN TO USE INNOVATIVE IOT-BASED SYSTEM



- STRENGTHEN EVERY LINK OF THE SUPPLY CHAIN
  - More reliable and **cost-effective** Rail Freight Transport
  - **Mutualization** of the energy consumption & solution cost
- EASY IMPLEMENTATION
  - Connect, Collaborate, and Scale
  - Composed of **smart devices capable of communicating with each other** using wireless digital network creating a mesh network
- OPTIMIZING OPERATIONS AND BETTER RAIL TRANSPORT SAFETY
  - **Automating train** preparation operations
  - Each box can be paired with **specific sensors** installed on the wagon

<https://vimeo.com/217955948/2811ddcdda>

5000 wagons equipped with TRAXENS-BOX  
135 wagons equipped with Break Test Sensor in 2018



Performance, Reliability, Safety and Security  
while optimising cost over the full life cycle.

# DIGITAL FREIGHT TRAIN

## DIGITAL ASSISTANCE TO ALL RAIL STAKEHOLDERS

Delivering **personalized journey information** and **strengthening the Supply Chain**, the Digital Freight Train offers Added Value for all stakeholders:

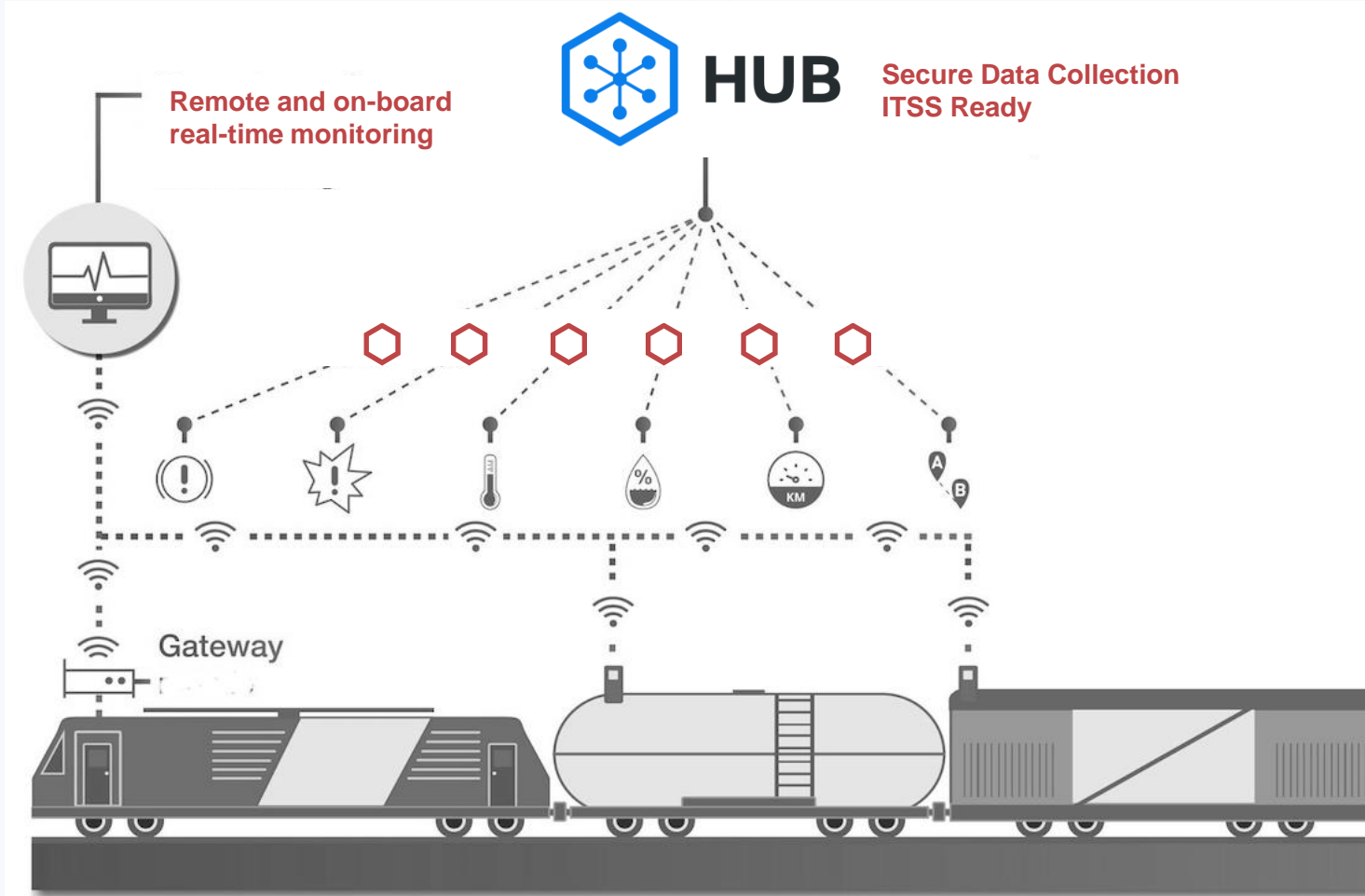
- Railway Undertaking Companies
- Wagon Keepers
- Cargo Owners / Shippers
- Car manufacturers

In the future, with **transport schedules integrated** into digital devices, railway undertakings will be able to advise shippers of the specific consequences of hazards on the route.



# EXTENDED REACH & ENERGY SHARING

TECHNOLOGY DEVELOPED TO BE EMBEDDED IN MOBILE PHONES CONTROLLERS, 5 PATENTS – PCT



Extended reach capacity on board trains allows messaging via GSM

Very low power communication through TRAXENS-Net Gateways

Enhanced Reach and power economy by sharing communication through the device having the best connection to GSM and the best battery

Cargo Monitoring by pairing a comprehensive range of secure, on-demand sensors to the smart wagon





# DIGITAL FREIGHT TRAIN ASSISTANCE BENEFITS

## NEW WAY OF OPTIMIZING WAGON FLEET MANAGEMENT

Data collection and analysis enables **optimization of wagon rotations**, offering a direct economic benefit:

- **Mileage monitoring**

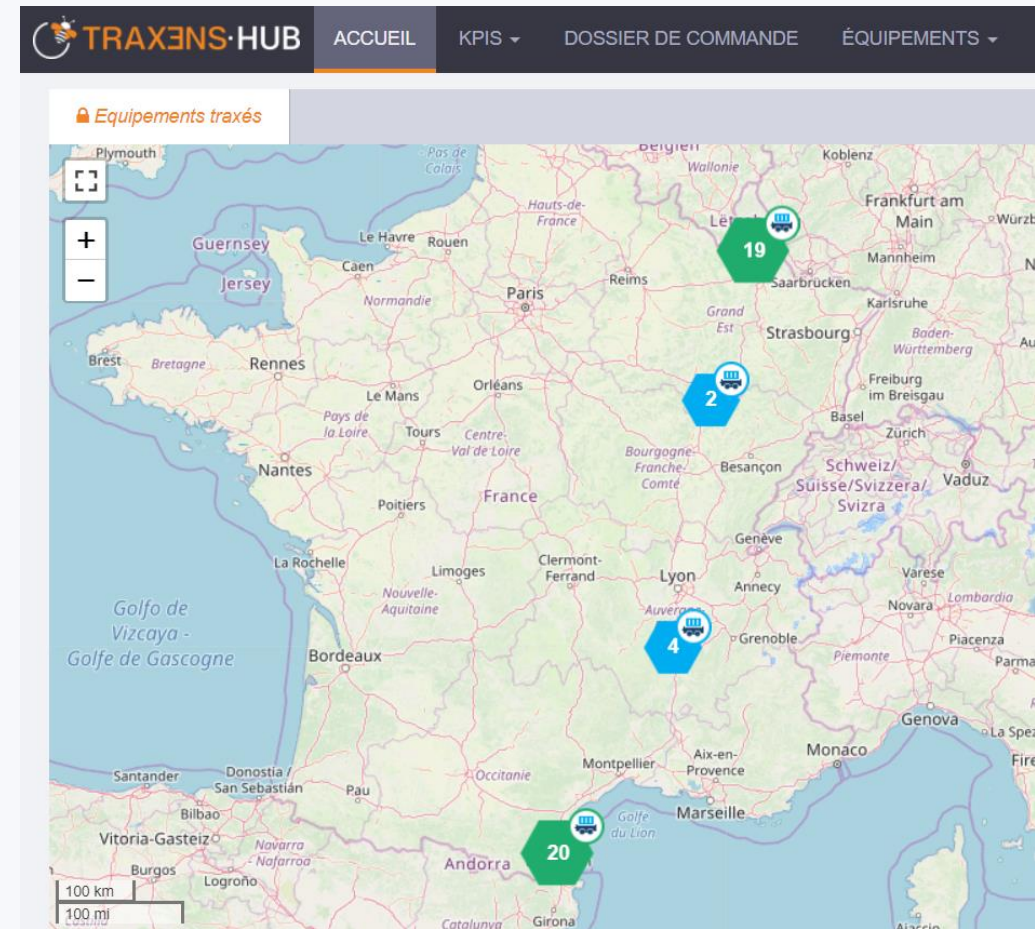
Whether empty or loaded, the distance travelled by the wagons is monitored, facilitating a preventive maintenance approach.

- **Maintenance**

Monitoring of critical wagon components and optimization of maintenance scheduling

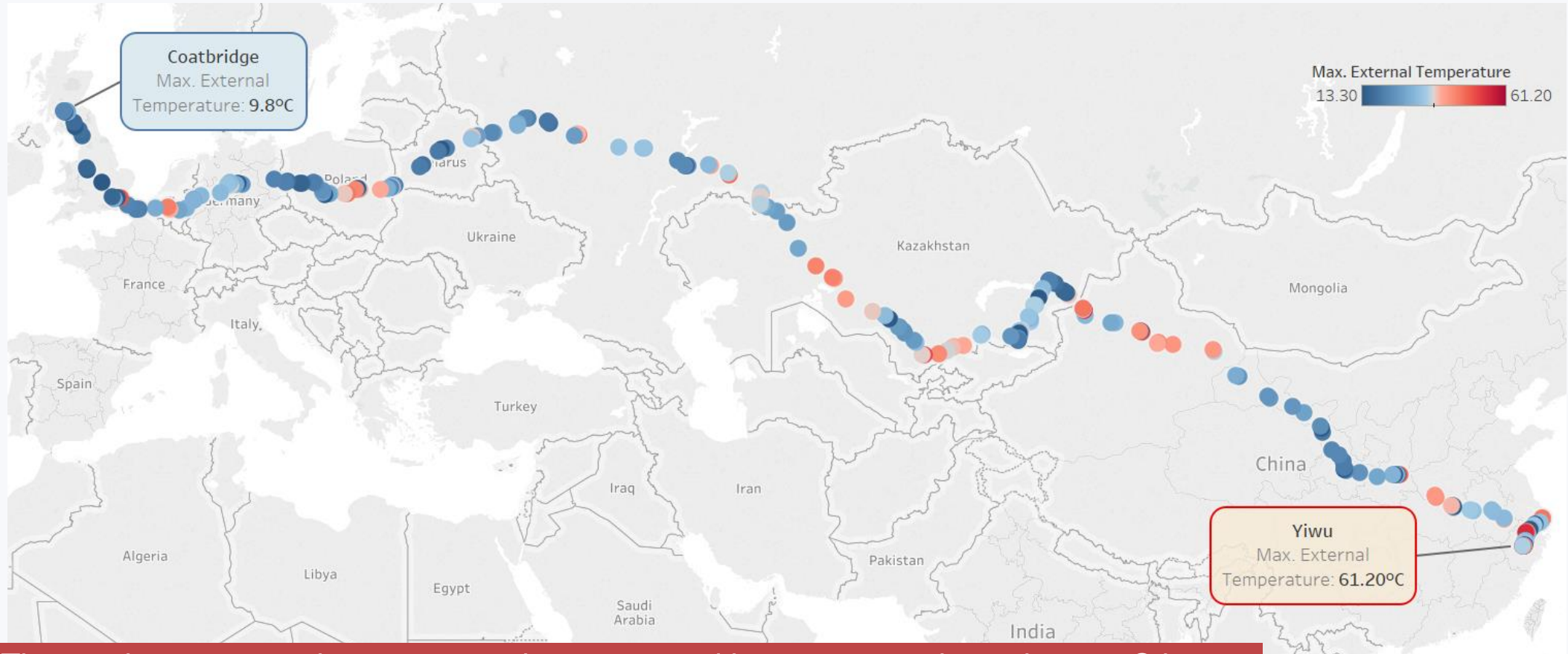
Online information on rolling stock behavior helps wagon Fleet Managers to:

- Improve Wagon **availability and rotation** for its traffics
- Optimize **maintenance engineering** and avoid “over-maintenance”



# DOOR TO DOOR BENEFITS

## Extreme External Temperatures



The maximum external temperature the wagon and its cargo experience is 61.2°C in July in Yiwu, China, while the minimum Maximum External Temperature was of 9.8°C in Scotland.

# Q & A

Thank you for your attention

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