

CONNECTING THE DIGITAL FREIGHT TRAIN WITH OTHER TRANSPORT MODES

IBS Congress 2019

Trieste, 17-18 October 2019

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RAIL & INTERMODAL @SNCF LOGISTICS

3rd
operator in
Europe

1.8G€
turnover

33
billions of
tons-km

10000
employees

1000
locos



DIRECTION INNOVATION & DIGITAL

2 – FRIDAY, NOVEMBER 22, 2019



**30% OF RAIL
FREIGHT IN 2030**

CHALLENGES IN RAIL FREIGHT BUSINESS



FINDING A
SUSTAINABLE BUSINESS
MODEL



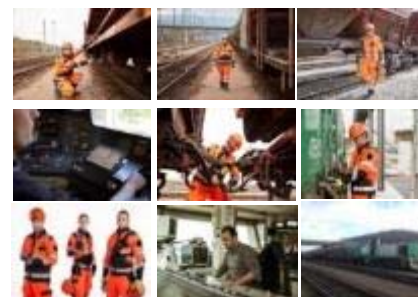
MODAL SHIFT / LONG DISTANCES
MULTIMODALITY



CUSTOMERS WANT
BETTER QUALITY AND
NEW SERVICES



FACING
AUTONOMOUS ROAD
VEHICLES



LESS PAINFUL JOBS
NEW SKILLS

AN OPEN-INNOVATION PARTNERSHIP, BETWEEN AN “OLD RAILWAY COMPANY” AND A “ADVANCED IOT” START-UP WITH MARITIME / MULTIMODAL EXPERIENCE

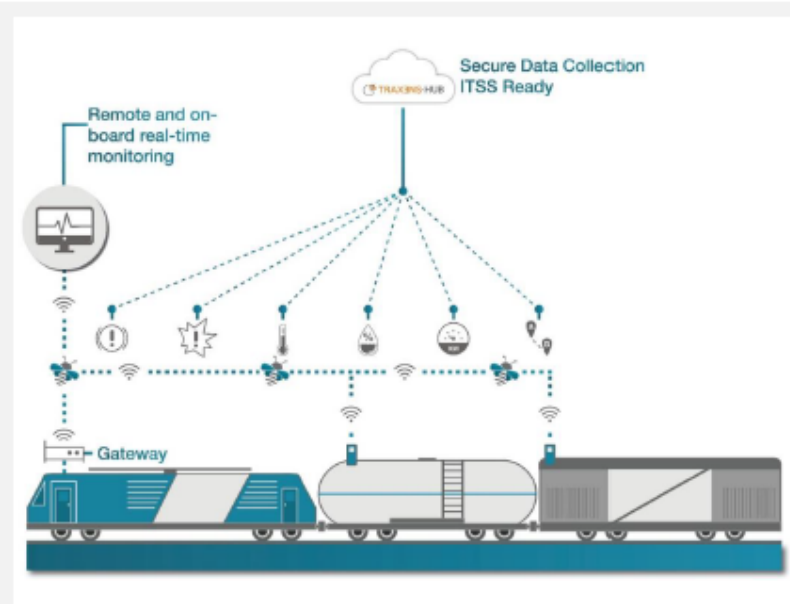


EUROPE'S FIRST FREIGHT TRAIN TO USE INNOVATIVE IOT-BASED SYSTEM

- Composed of smart devices capable of communicating with each other using wireless digital network creating a **mesh network**
- Allowing **digitalization of operations** and **mutualization of the energy consumption**
- Each box can be paired with **specific sensors** installed on the wagon
- Data is accessible **locally** for the driver and **globally** via the cloud

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

<http://vimeo.com/traxens/BrakeTest>

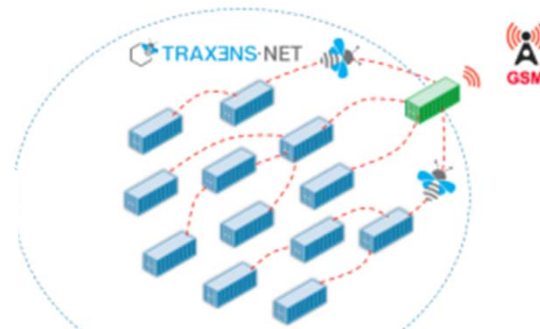


Performance, Reliability, Safety and Security while optimising cost over the full life cycle.

CONNECTING THE WAGONS AND LOCOMOTIVES CREATES FULL INTELLIGENCE



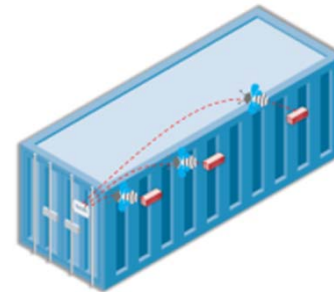
CONNECTING WAGONS ALONG THE TRAIN



LESS ENERGY CONSUMPTION
BEST TELECOM & GPS REACHING

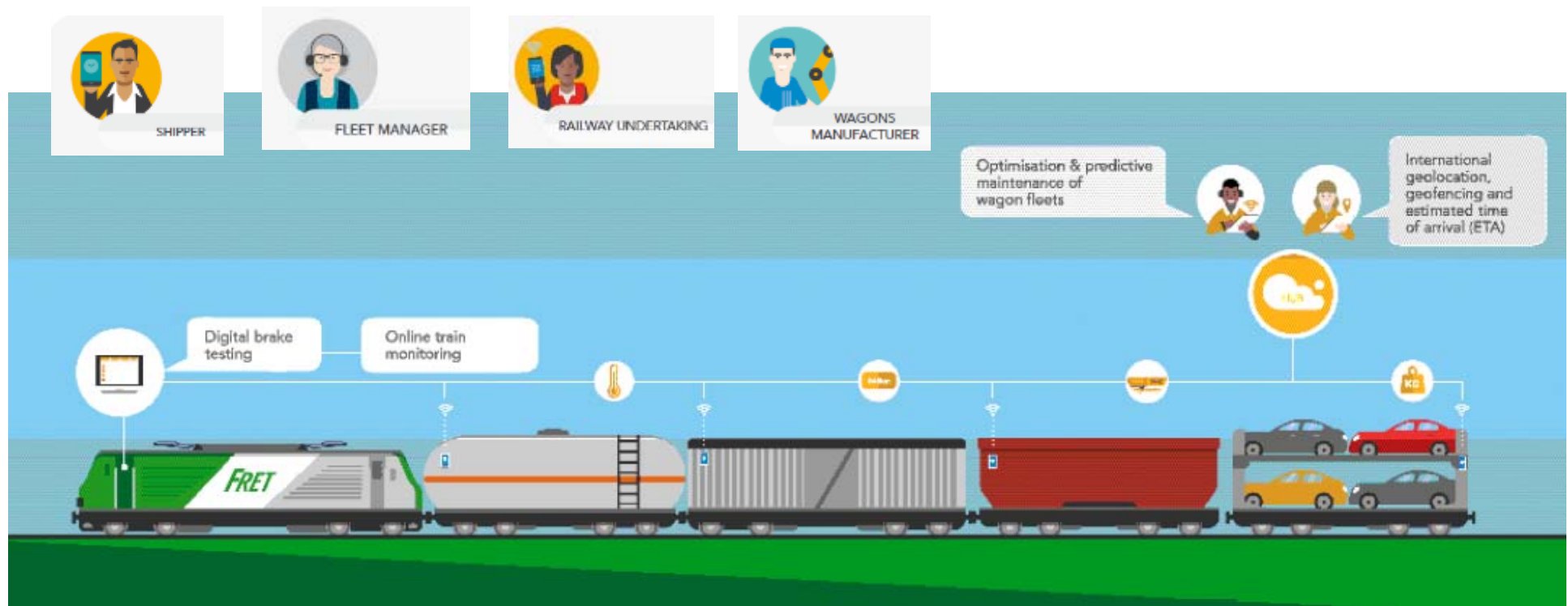


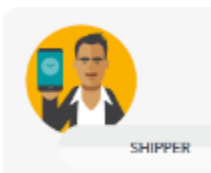
GATEWAY CONNECTION



MODULAR SENSORS

THE IDEA: CREATE VALUE FOR ALL THE RAIL FREIGHT ACTORS; BY SHARING SOLUTION - AND ITS COSTS





1/ FOR CUSTOMERS SATISFACTION: MULTIMODAL AND INTERNATIONAL INFORMATION

COMMANDE N° 5904993
En acheminement / **Ann. valorisation** (VA3001)
Version courante
MODIFIER

Commande

CONTRAT : 1300270
 Client D.O. : PRB (1928688)
 Date de réalisation : 13/10/2018 18:00
 Date d'accept : 13/10/2018 13:20
 Date de livraison :

DF : PA_SR COMMERCIAL
 Origine : 87 - 486423 - MOTHE-ACHARD (LA) - 21626 - PRODUITS
 REVET BAT
 Destination : 87 - 753251 - ROGNAC - 21055 - JANOU/PRB
 EF Origine : 2187-SNCF MOBILITES - FRET
 EF Destination :

Mode de production : TM
 Chainage : Non
 Nombre de wagons : 22
 Chargé
 N°expedition : 10331

Général
 Composition
 Parcours
 Historique des modifications
 Consultation des aléas
 Engagement
 Commentaires

Synthèse de la composition
 Nombre wagon : 22 Longueur (m) : 440 Masse brute (nette) (t) : 1 732,980 (1 210) Tare (t) : 522,980

Composition en volume

Composition détaillée

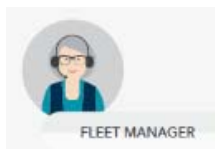
Numéro wagon	Catégorie wagon	Nature wagon	Numéro voyage	Chargé	Masse Nette (t)	Etat wagon	NHM-Libellé	Indicateur MD	UTI	Prioritaire MLMC	Dernière position GPS
338735450730	R20		47962552	Oui	55		252310 - Ciments non-pulvérisés dits 'clinkers'			Non	FRANCE- CARCASSONNE(615286) (2.334701,43.219074) 17/10/2018 03:25
338735450342	R20		47962556	Oui	55		252310 - Ciments non-pulvérisés dits 'clinkers'			Non	FRANCE- CARCASSONNE(615286) (2.334246,43.219296) 17/10/2018 05:34

Supply Chain performance

Real time position + ETA for each order

> 5000 wagons are equipped

Customized information

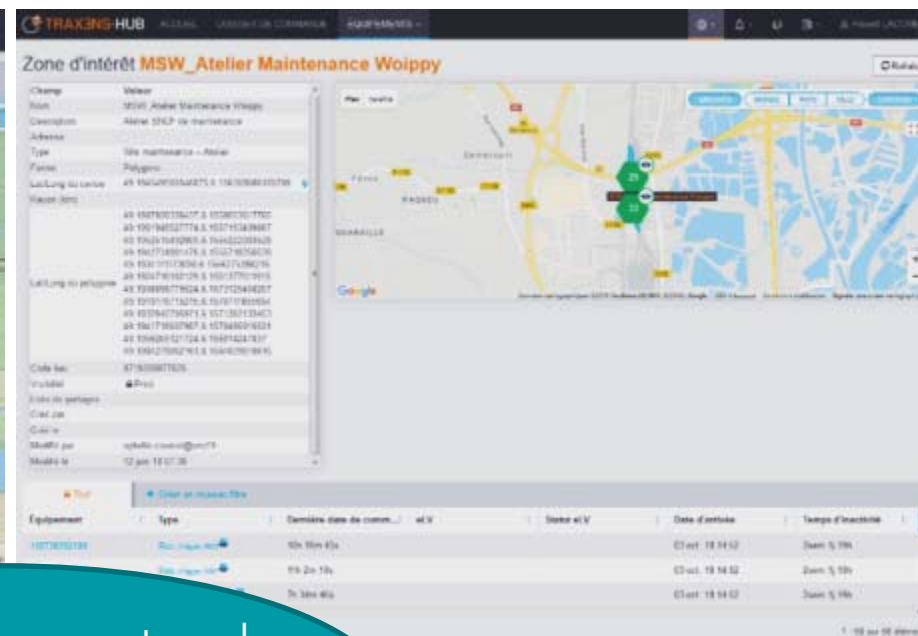


FLEET MANAGER

2/ FOR WAGONS FLEET MANAGERS: MORE EFFICIENCY FOR ASSET MANAGEMENT

FLEET LOCATION / MAINTENANCE

PARKING TIME



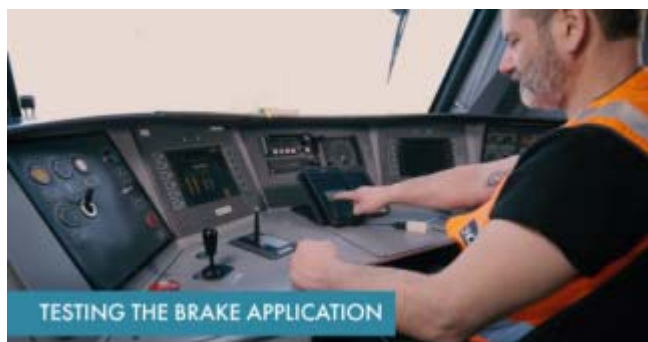
Fleet management and
CBM = 10% to 15%
minimum of savings



3/ FOR RAILWAY OPERATORS: AUTOMATION OF MANUAL OPERATIONS (BRAKING TESTS)



- + GREEN LIGHT FROM FRENCH NATIONAL AUTHORITY (EPSF)
- + 400 WAGONS EQUIPPED,
- + TRAINS RUNNING WITH 100% DIGITAL PROCESS
- + EASY EQUIPMENT
- + STANDARDIZATION



Time savings (process 2x quicker – 1 person vs 2), safety, flexibility





4/ FOR SHIPPERS AND WAGONS MANUFACTURERS: ASSISTANCE ON WAGON LOADING / UNLOADING

Better safety and
efficiency



87 NEW WAGONS BUILT WITH REMOTE CONTROL
OF THE OPENING OF THE WAGON



TOWARDS AUTONOMOUS FREIGHT TRAINS



AUTONOMOUS TRAIN
+ DIGITAL FREIGHT TRAIN
=
FREIGHT TRAIN OF THE FUTURE

IN LESS THAN 5 YEARS!!!

FOCUS ON MULTIMODAL INFORMATION

THE CASE OF MULTIMODAL ESTIMATED TIME OF ARRIVAL

Definition of Estimated Time of Arrival (ETA) & Experiences

- **Planned ETA (before departure)**
- **Recalculated ETA (real-time)**
- **ETA with 2 modes (combined transport) ?**
- **ETA with 3 modes including rail ?**
- **Any other examples ? Which experience so far ?**
- **IT interoperability is a challenge for supply chain (IT development costs, risk of lock-in with IT suppliers)**

Ex: consignment note

- **Mandate at EU level of the Digital Transport & Logistics Forum**

FOCUS ON MULTIMODAL INFORMATION

THE CASE OF MULTIMODAL ESTIMATED TIME OF ARRIVAL

IBS members needs regarding multimodal ETA

- What can be multimodal ETA used for ?
- Is multimodal ETA a priority for IBS members ?
- How can rail operators and IBS members cooperate on multimodal ETA ?
- Each operator has its own ETA
- Need for common multimodal standards ?
- What could a test for multimodal ETA look like ?

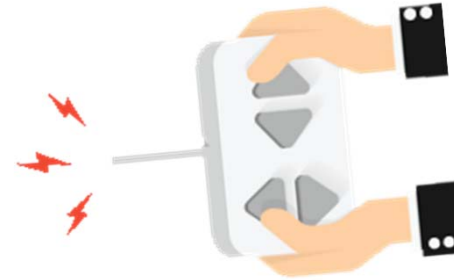
TO GO FURTHER...

Overview of the project

<https://vimeo.com/traxens/trainfretdigital>

« Plug n'play » equipment

<https://vimeo.com/260312763/d7c16ccc0a>



Digitalizing process: digital braking test

<https://vimeo.com/216204637/72e35e56e2>

