THE « DIGITAL FREIGHT TRAIN »

THE REVOLUTION OF THE RAILWAYS
FREIGHT BUSINESS

Nicolas Czernecki
Director in charge of Wagon Management
SNCF
The « DIGITAL FREIGHT TRAIN »

• FREIGHT MARKET SHARE IS RATHER LOW BETWEEN ABOUT 10 AND 20 % IN EUROPE, SLOWLY DEGRESSING OR STABLE

• LONG TERM PERSPECTIVES ARE POSITIVE TO RAIL DUE TO:
  • INTERNATIONAL AND NATIONAL ENVIRONMENTAL POLICIES,
  • ROAD CONGESTION,
  • GLOBAL EFFICIENCY ON LONG DISTANCES,
  • EXPECTED DEVELOPMENTS OF TRAFICS OF GOODS.

• BUT:
  • THE RAILWAYS SYSTEM HAS NOT YET ENTERED THE « NEW AGE » COMPARED WITH OTHERS MODES OF TRANSPORT.
  • OTHERS MODES ARE STILL HEAVILY INVESTING AND INNOVATING.

=> INNOVATION IS THE KEY!
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WHY TO INNOVATE IN THE RAILWAYS BUSINESS ?

Finding a sustainable business model

Modal shift / Long distances Multimodality

Facing future autonomous vehicles

Need for quality and new services

Less painful jobs / HR Attractivity
New skills
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WHAT IS THE « DIGITAL FREIGHT TRAIN »?

A TRAIN FULLY EQUIPPED WITH ELECTRONIC DEVICES AND SENSORS, PROVIDING FAST AND RELIABLE AUTOMATED PROCEDURES AND SMART MULTI-LEVEL COMMUNICATION NETWORK.

Creation of a local IT network « Wireless train »

Towards databases and users

- COMMUNICATION DEVICE TRAXBOX FOR SNCF
- BRAKE SENSOR AUTOMATIC BREAK TEST
- OTHER SPECIFIC DEVICES (e.g. load/empty, open/closed, damage or derailment detectors, a.s.o.)
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- WHAT IS THE PURPOSE ?
- TO PROVIDE NEW SERVICES, NEW ADDED VALUES AND BETTER PRODUCTIVITY FOR ALL STAKEHOLDERS OF THE RAILWAYS SECTOR :
  - Instantaneous localization all over Europe => fleet management productivity,
  - Accurate Mileage Monitoring => improvements for maintenance management,
  - Automatic detections => progresses for safety related issues,
  - Geofencing and ETA => optimization and better integration of the Supply Chain with our customers,
  - Digitalization and automation of rail operations => Productivity, quality and efficiency.
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• HOW TO IMPLEMENT THE DIGITAL TRAIN ?

• TWO MAIN ACTORS ARE INVOLVED :
  • KEEPERS THAT EQUIPPED THEIR WAGONS FLEET WITH SENSORS TO COLLECT INFORMATIONS FOR THEMSELVES AND THEIR CLIENTS
    • Automatic communication (via GPS) between the wagons and the keepers IT systems.
    • The data collected are the property of the keeper.
  • RAILWAYS UNDERTAKING THAT OPERATE TRAINS AND ARE RESPONSABLE FOR THE SAFE OPERATION OF THE TRANSPORT FOR PEOPLE AND GOODS.
    • Need for a communication system for the « Train » itself between locomotive and wagons (provided most of the times by many keepers) to make the train becomes « digital ».

⇒ NEED FOR A COOPERATION BETWEEN KEEPERS AND RUS FOR THE BEST USE OF THE DATA AND BEST GLOBAL EFFICIENCY
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• WHAT ARE THE NEXT STEPS ?
• THE « CLEVER WAGON » IS GOING TO BE A QUICK REALITY
  • Investments are on the run.
• THE « CLEVER TRAIN » IS THE NEXT MANDATORY STEP.
  • Many European initiatives and strong support by the EU.
  • Many initiatives coming from the RUS :
    • SNCF strategic partnership with TRAXENS to equip 5,000 wagons with Traxbox end 2018 and SNCF already run some full « Digital Trains », including Automatic Brake Test.
    • Others main RUS such as DB, SBB or RCA are also working on the « Train of the future » with a high level of digitalization / automation.

THE MAIN ISSUE FOR THE FASTEST AND BEST IMPLEMENTATION : STANDARTIZATION OF THE COMMUNICATION PROTOCOLS
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HOW TO IMPLEMENT THE DIGITAL TRAIN ?

Retrofitting of existing assets
Fewer investments mean quicker ROI !

The digital revolution is a huge opportunity to reinvent our business (new methods and tools)!

Cooperation is the key: systemic approach, win-win model, new suppliers, business intelligence

Preparing in existing cooperation forums the new standards of the « Digital Freight Train »
THE SNCF « DIGITAL FREIGHT TRAIN »

• An open innovation project based on a successful story on sea containers communications protocols for T&T transposed to rail

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
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« DIGITALIZATION IS NOT A DESTINATION, BUT A JOURNEY »