



Intelligent rail summit Naples

Big Data

- enabling the intelligent freight wagon

voestalpine SIGNALING



A question to you:
- do you see these pictures related?



Recently in the press

- an example of using algorithms



- The first international beauty contest judged by “machines” was supposed to use objective factors such as facial symmetry and wrinkles to identify the most attractive contestants.
- After Beauty.AI launched this year, roughly 6,000 people from more than 100 countries submitted photos in the hopes that artificial intelligence, supported by complex algorithms, would determine that their faces most closely resembled “human beauty”.
- Apparently the robots didn’t like dark skin.....

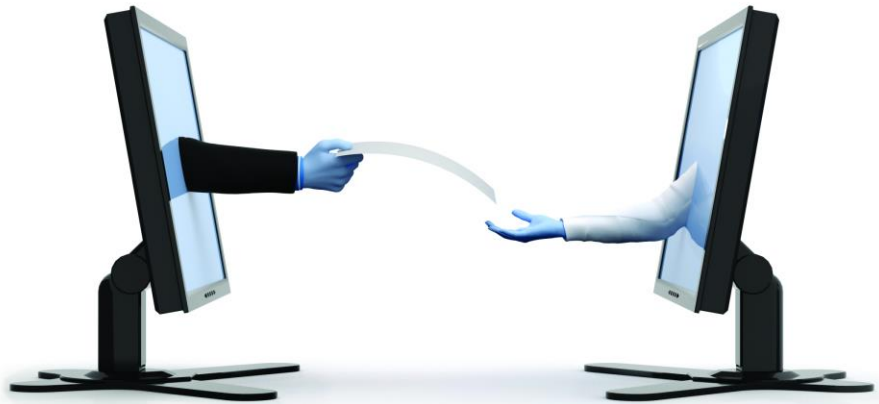
Back to railways

- introducing the intelligent freight wagon

- Background
- Technology
- The proposition
- Trial site in Hilversum
- Rollout across Europe
- Questions

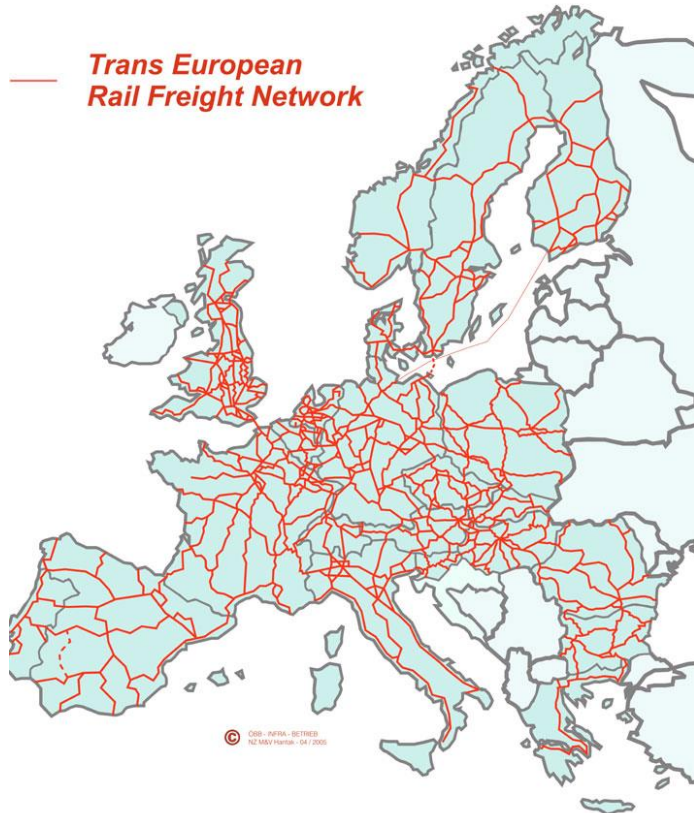
Sharing data in railway industry

- not common practice



Railfreight and passenger operations

- differences?



GCU Bureau

General Contract of Use for wagons
Contrat Uniforme d'Utilisation des wagons
Allgemeiner Vertrag für die Verwendung von Güterwagen

The General Contract of Use for Wagons (GCU) is a multilateral contract based on the international convention COTIF 1999 and Annex CUV. The GCU specifies the mutual rights and obligations of Wagon Keepers (K) and Railway Undertakings (RU) with regard to the use of rail freight wagons as a means of transport throughout Europe and beyond. Since its start in July 2006, the GCU has grown to an impressive network of more than 600 signatories across 20 countries, with more than 600,000 wagons currently declared in the GCU wagon database.

Railway Undertaking/ Freight Operating Company

- visual inspections



- time consuming
- manual proces
- not completely transparent for the owner/ keeper of the wagon
- material cost and availability

Now what if

- We could create this situation?



"My break blocks deteriorate"

I was not correctly loaded !!

I am having a wheel flat !!

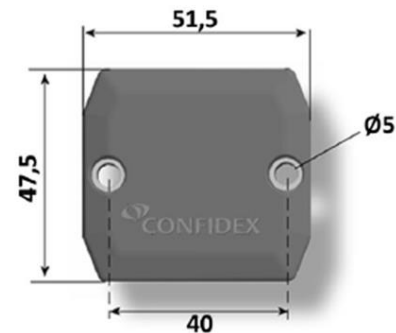
Creation of intelligent freight wagons

- Using wayside monitoring technology for automatic inspections of critical components
- Distributing only the relevant information to stakeholders
- And preserving data for trending and further correlation
- This is already common practice in passenger transport, as you may know
- So why did it not happen in rail freight?



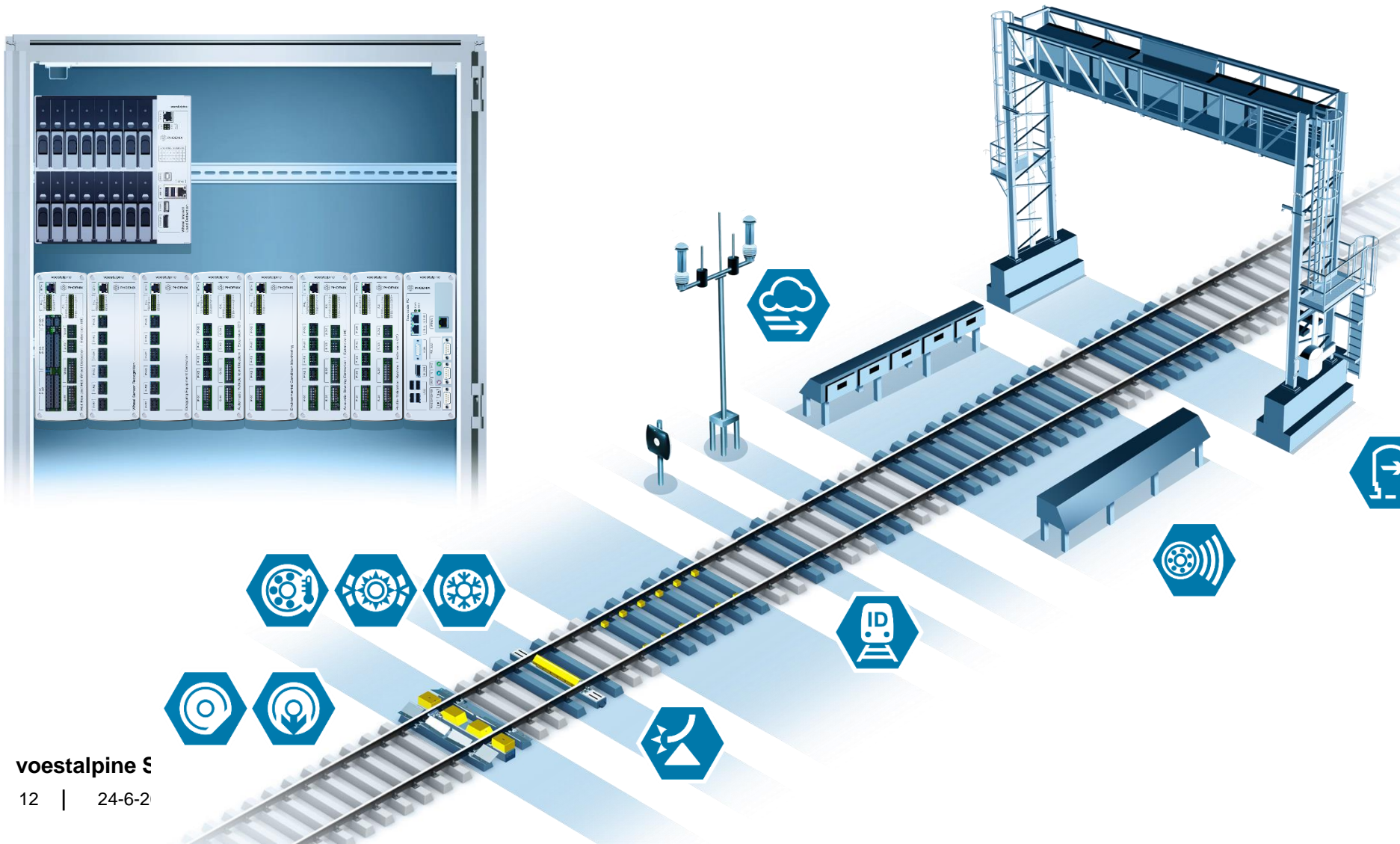
Automatic vehicle identification

- options



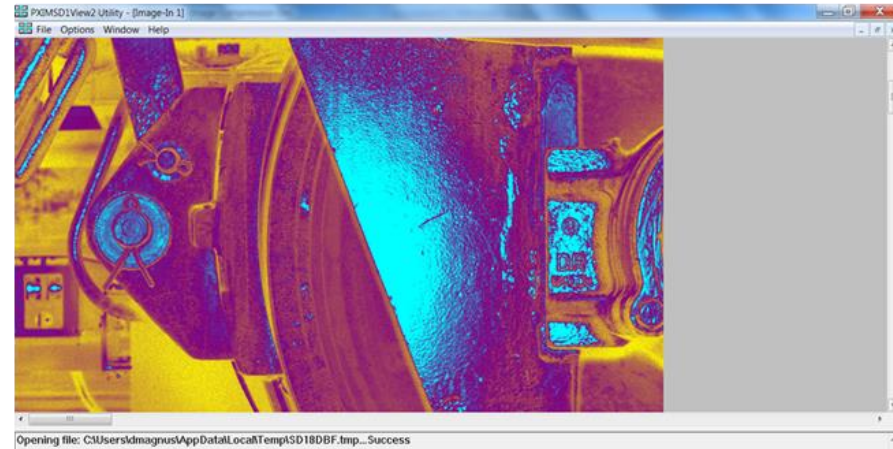
The intelligent freight wagon

- using WTMS technology



The intelligent freight wagon

- brake scan and artificial intelligence



- Using machine vision systems
- Translating the content from pixels to millimeters
- Creating automated algorithms

The intelligent freight wagon

- a new service proposition

Potentially interested parties:

- Owners of freight wagons (VTG, Ermewa, BASF, etc.)
- Port authorities (Hamburg, Antwerpen, Rotterdam, etc. ...)
- Operators of freight terminals (containers, bulk,)
- Freight Operating Companies (DB Schenker, RailCargo Austria, PKP Cargo, etc ..)

Key benefits:

- Increased availability of fleet and other rail assets
- Reduction of the costs of maintenance and operations
- Increased reliability of logistic chains
- Insight into the use of Infrastructure and loading of wagons

Pilot site in Hilversum (NL)

- fleet owner voestalpine Railpro



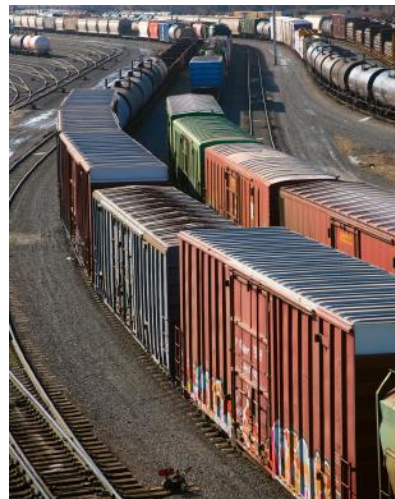
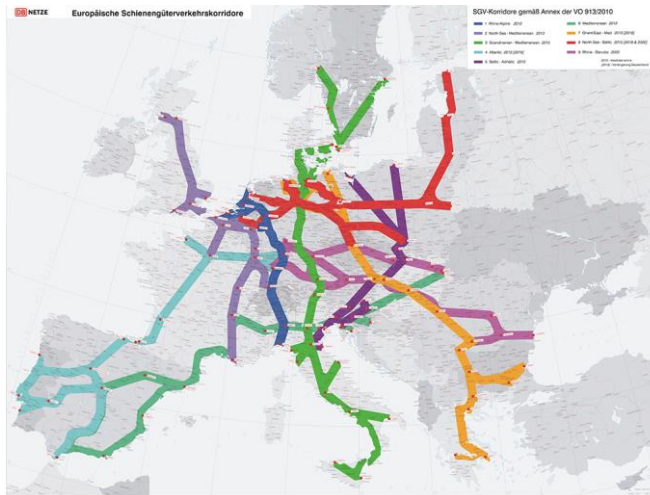
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Roll-out in Europe

- Focus is on the critical components of freight wagons
- Installation of multi measurement sites at strategic locations
- Collection, analysis and distribution of relevant data
- On the basis of subscriptions (pay per view) to stake holders
- Open for partnerships







Thank you

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