UIRR
INTERNATIONAL UNION FOR ROAD-RAIL COMBINED TRANSPORT

## IRFC 2017 – Session 4

# DIGITALISATION IN ROAD-RAIL COMBINED TRANSPORT

**Ralf-Charley SCHULTZE**
**President**

# UIRR - a real industry association



*"An organisation **founded and funded** by businesses that operate in a specific industry.*

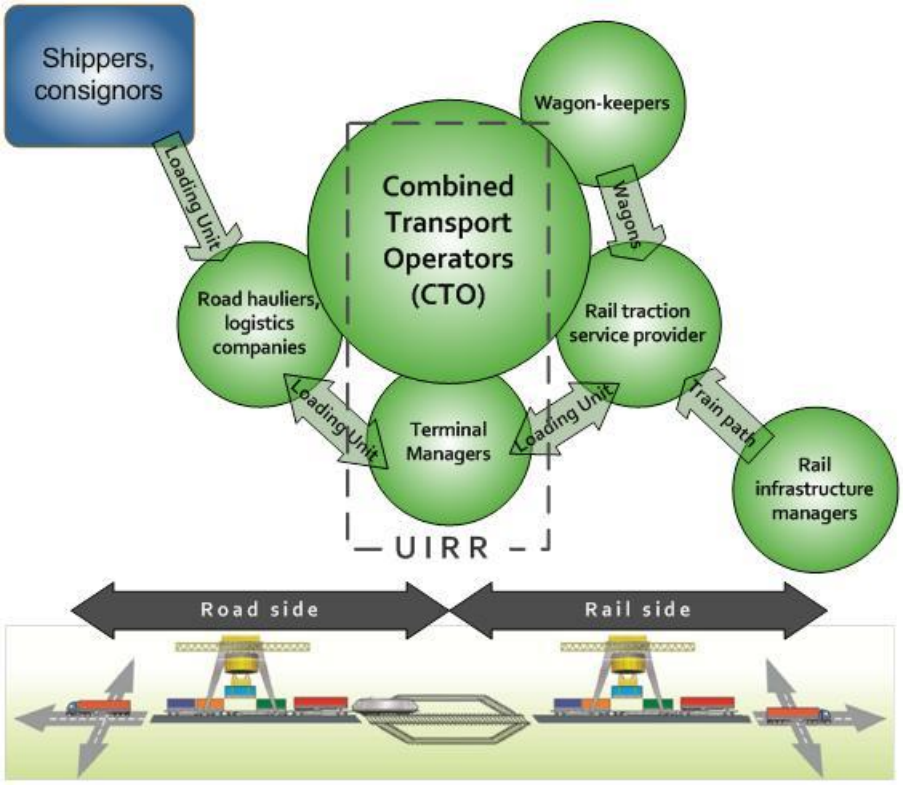
*An industry trade association participates in public relations activities such as advertising, education, political donations, lobbying and publishing, but its **main focus is collaboration between companies**, or standardisation.*

***Associations may offer other services**, such as producing conferences, networking or charitable events or offering classes or educational materials."*

# UIRR - Overview



- **Members**: Combined Transport Operators and Terminal Managers, who enable the efficient integration of rail into transport-chains
- **Logistics companies, road hauliers**: customers as well as shareholders of UIRR Members
- **Performance**: UIRR Members handled about 50% of European Combined Transport in 2015
- **Interest**: fair regulatory conditions in transport to enable ***competition on the basis of technical merit and competence/management excellence***
- **UIRR**: founded in 1970
  - seat in Brussels since 1988



# Selected key drivers for CT digitalisation



New Entrants increase logistics footprint
(e.g. amazon )

Customers expect high reliability & valid information (e.g. ETA)

Shippers use advanced software to perform 3PL's tasks
(e.g. BOSCH Unilever )

Regulators push digitalization (e.g. TAF – TSI)

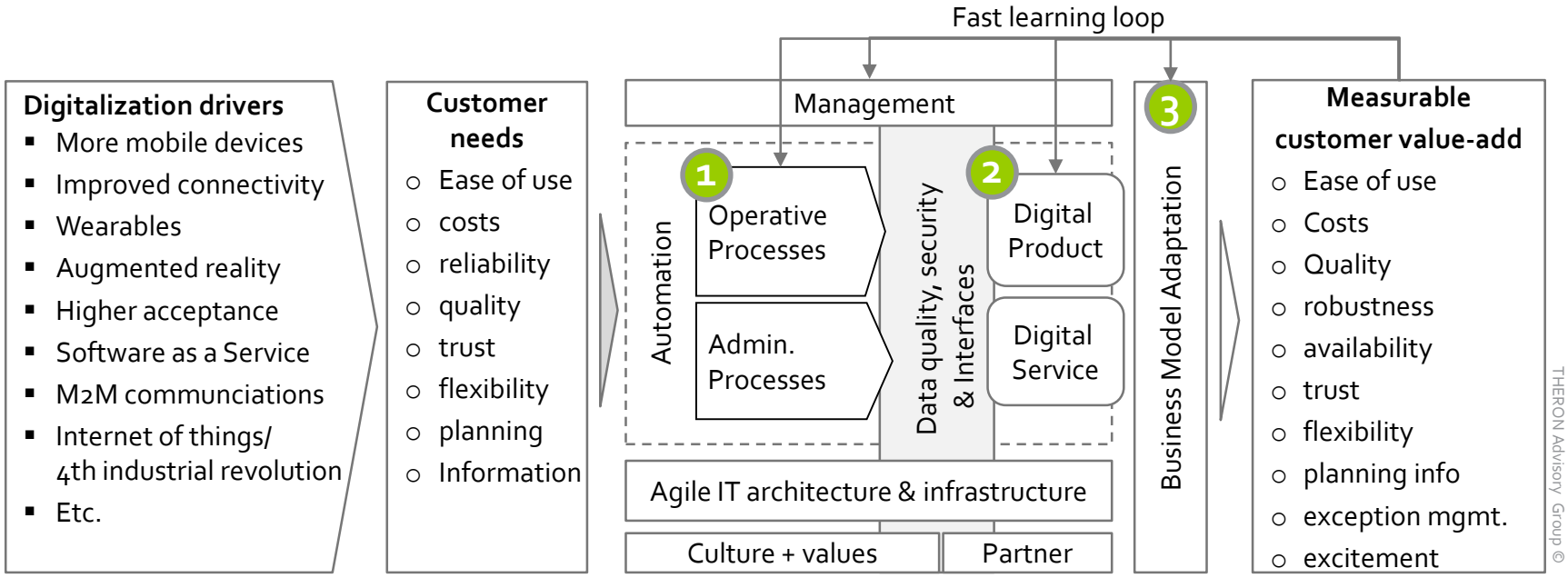
Improved communication & information richness
(e.g. 5G , INTERNET of THINGS )

*Role of Digitalization:*
*Pain or opportunity for combined transport?*

# DIGITALIZATION IMPACT CAN BE WIDE



**Digitalization is the process of increasing the use of digital technologies and processes to transform the firm and other stakeholders through new value adding activities to achieve  better efficiency and higher profitability.**

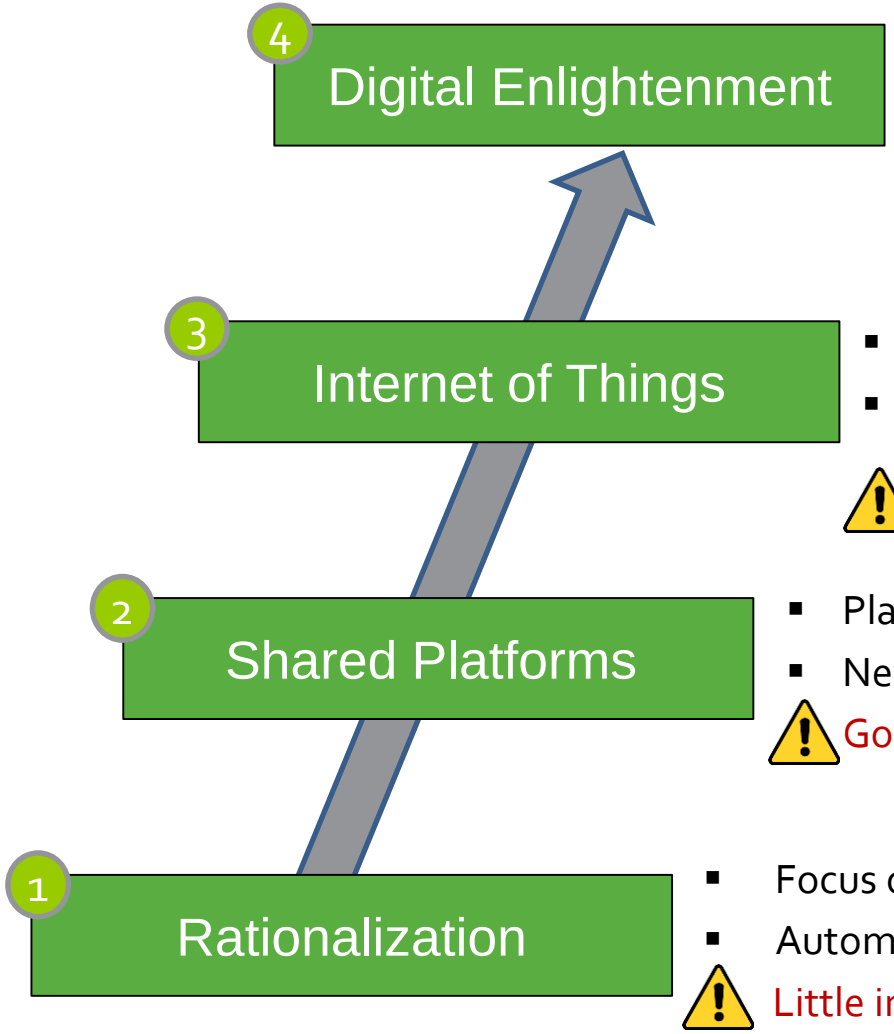



Digitalization can affect all parts of a company. Mostly automation of processes, digital output and business model innovation are in focus. A wider view encompasses the whole system of interdependencies (incl. mindset, culture, standards and partners).

# WHICH LEVEL DO UIRR MEMBERS TARGET?



**Digitalization Impact Level:**




- Innovation changes interaction, processes, outputs & biz models
- Customer value focused change of communication, values, cultures, hierarchies, and interaction within companies & business partners

⚠ High attention & long term program management required

- Optimized self-organizing production technology
- Machine-to-machine communication provides more real-time information

⚠ Complexity and adoption issues often largely ignored

- Platforms concentrate information
- New standardized processes

⚠ Governance risks of future domination

- Focus on technology efficiency impacts only
- Automation of existing processes

⚠ Little impact (scope & content) requiring too little change

# SHIPPER PERFORM LOGISTICS TASKS



Shippers increasingly steer their logistics operations directly or via 4PLs to increase transparency, control and reduce costs and transit time.

Shipper Supply Chain Control Service Centre

- Strategic Network Planning
- Predictive Transport Optimisation
- Dynamic Transportation Management
- Transportation Management

Software as a Service Solutions

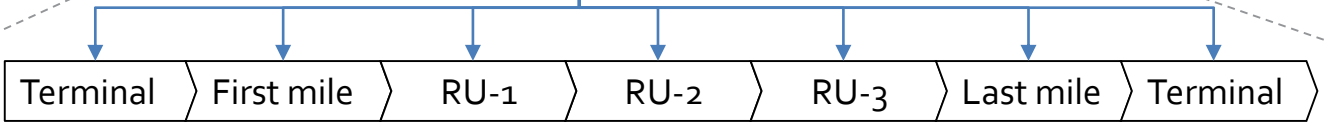
Increasing automation requires accurate information in real time

Orders
Timestamps (e.g. ETA)
Documents
Invoices
etc.

?

Leading RU

?



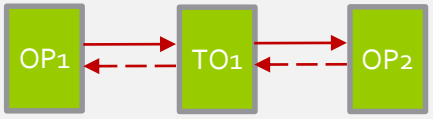
# ALTERNATIVE PATHS REQUIRE ALIGNMENT



## 1a Total freedom

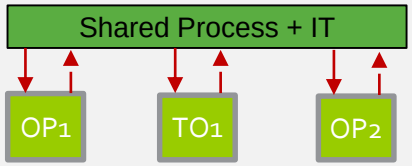
- Own data
- Own customers

## 1b Common standard




- Own data
- Own customers

## 2 Common Platform




- Own data
- Own customers

### No concerted action with maximum freedom

**Pros**

- **No advanced alignment with other partners required**
- **Competition in all dimensions**

**Cons**

- **No group scale effects and competitive advantage**
- **Maximum effort for individualized interfaces for each partner (n:m)**
- **Highest costs base per interface**

**Examples**

- **Tracking information exchange w/o standardization** (status/interfaces)
- **Individualized booking processes**

### Definition of standards and lose coupling for each actor

**Pros**

- **Lower costs (standardization of data)**
- **Common understanding**
- **Clarity of data for customers**
- **Regulatory support and funds accessible**

**Cons**

- **Maximum standard interfaces for each partner (n:m)**

**Examples**

- **Harmonized ILU code, EDIGES**
- **ETA initiative**
- **IATA (e-AWB), IRU (e-CMR)**
- **Standard of registers** (e.g. terminal and unit master data)

### Platform approach for central tasks

**Pros**

- **Lowest amount of interfaces (1:n) & costs**
- **Cost efficient standardized processes**
- **Common understanding (data + processes)**
- **Clarity of data and process for customers**
- **Regulatory support and funds accessible**

**Cons**

- **Governance and ownership controlled**
- **Initial coordination required**

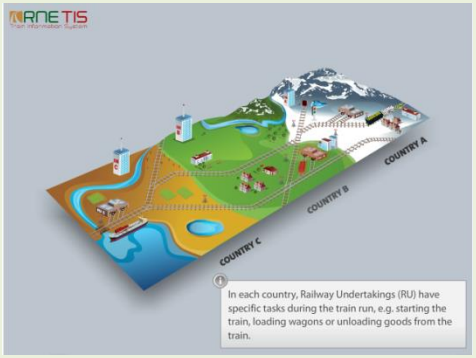
**Examples**

- **Cesar** (only partially open & only terminal-to-terminal **not** door-to-door logistics)
- **Hacon LEIDIS** (Germany)
- **RNE TIS**

Legend: TO = Terminal Operator; OP = CT Operator

# RAIL and ROAD – Digitalisation vs automation



| RAIL: focus on digitalisation | ROAD: focus on automation |
|---|---|
| INTERMODAL PLANNER<br>TAF TSI<br>ELECTRONIC BOOKINGS<br>TIMETABLES<br>REGISTERS<br>TRACKING & TRACING<br>E-DOCUMENTS<br>  | <br> <br> <br>Fully electrified road network with autonomous driving capabilities…<br>(https://www.eutruckplatooning.com) |

# COMMON STANDARD ON IDENTIFICATION: ILU-CODE



- **Mandate**

  - EN13044 appointed UIRR to be the Administrator

- **Marking**

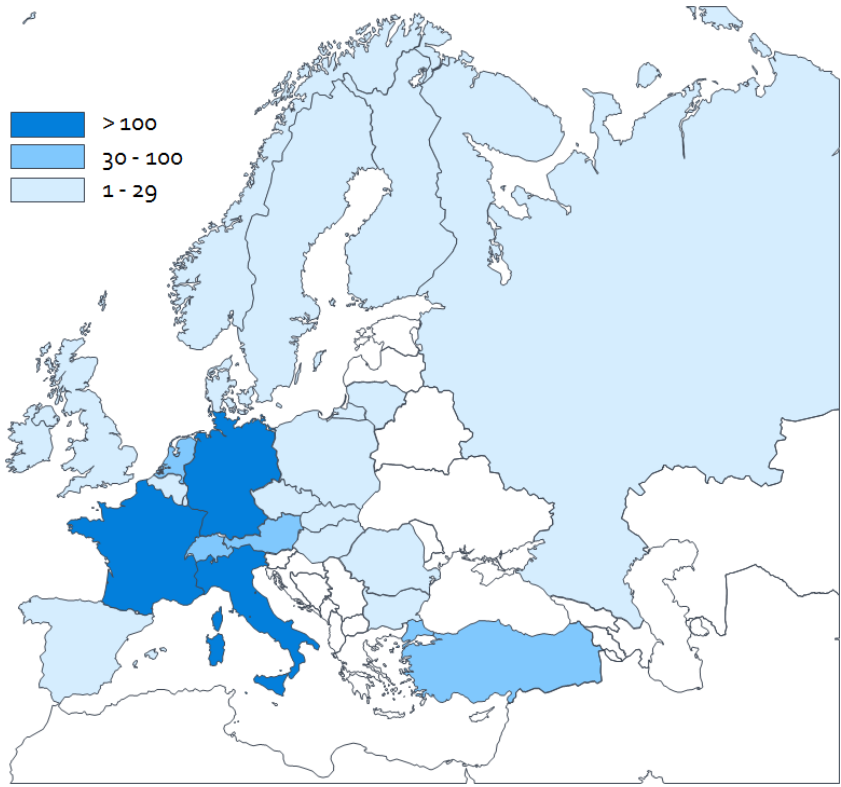
  - UIRR members reported a +98% ILU- or BIC-Code compliance of the units they handled in 2016

- **Obligatory**

  - Modernised EU Customs Code makes it mandatory for all UCT

  - Revised Directive 92/106 will make it mandatory for all intra-EU UCT

  - TAF TSI requirements (Tracking & tracing, booking, consignment note)




ILU-Code

identification of Intermodal Loading Units in Europe

Administrator of the ILU-Code

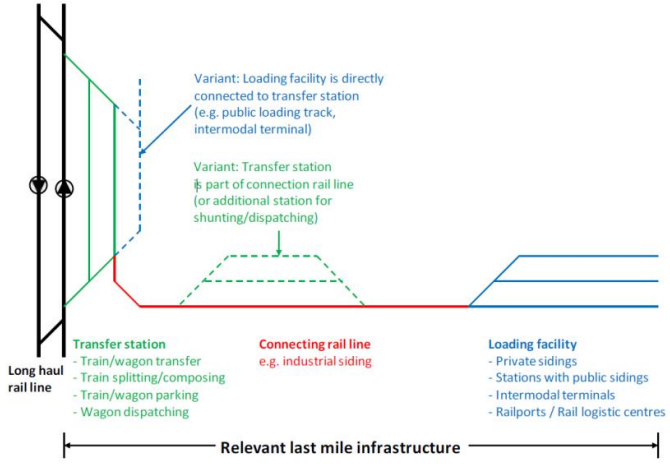
# REGISTER: the RailFreightLocations Portal

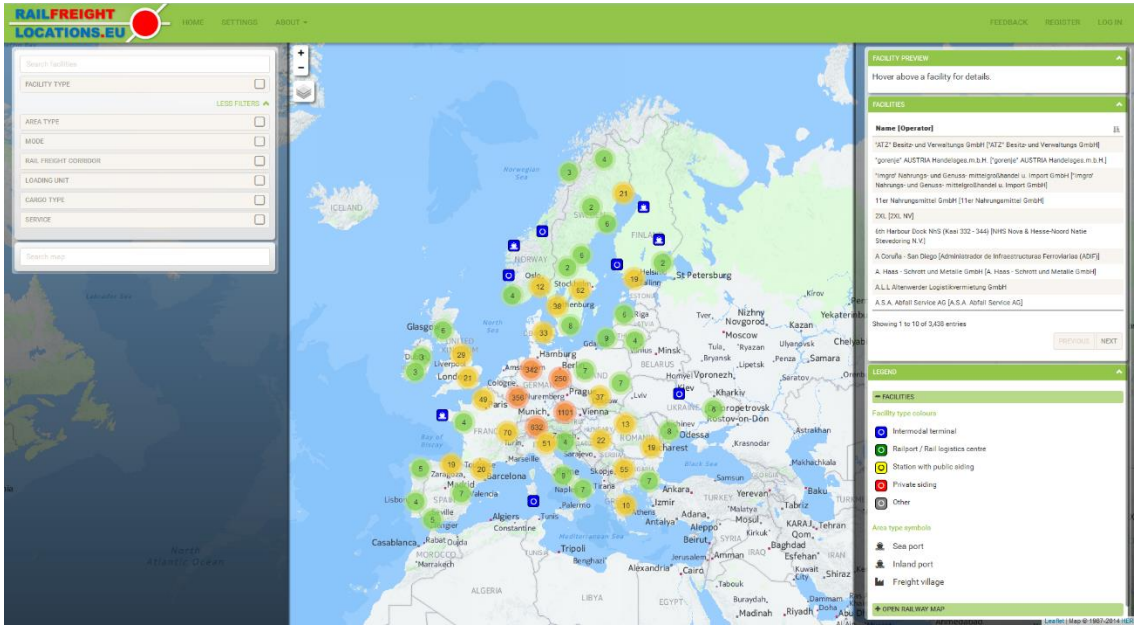


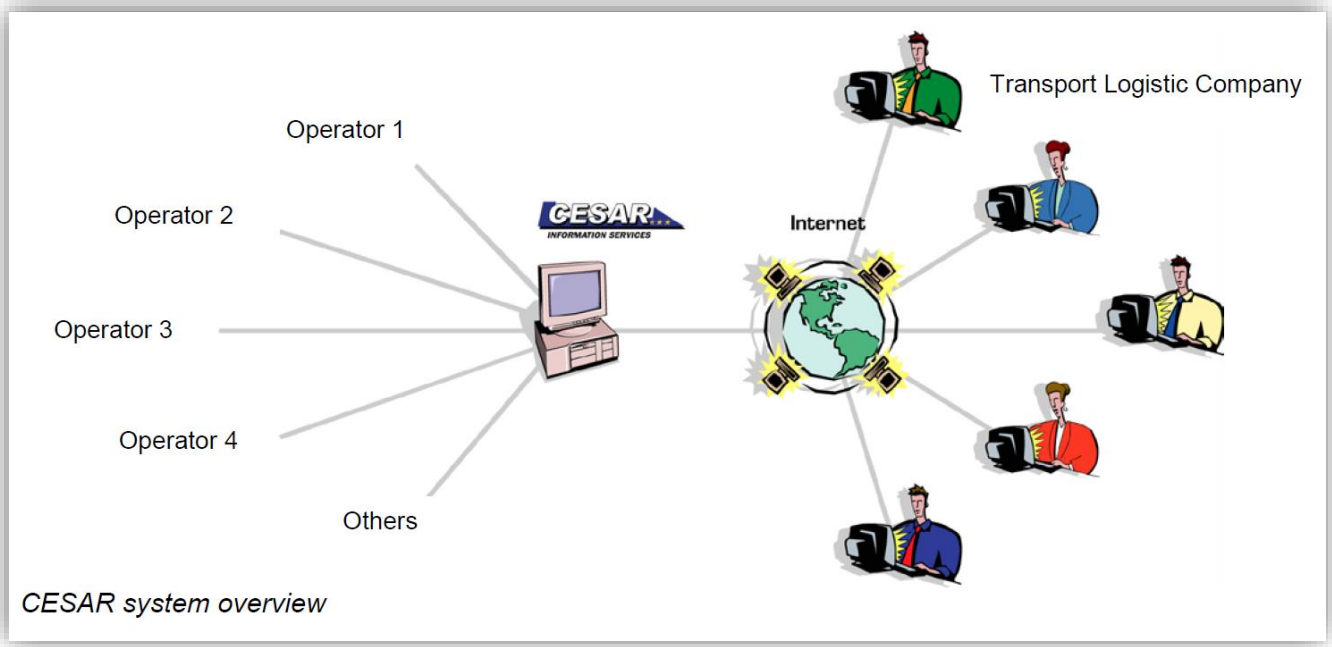
- **Target: a Web portal containing all 'last mile' infrastructure in Europe**
  - 22.000: terminals, railports, public loading tracks and industrial sidings

- **Developed in a study financed by the European Union**
  - Future: to be co-managed by UIRR & RNE
  - Second development phase: under organisation
  - Expected completion: 2018

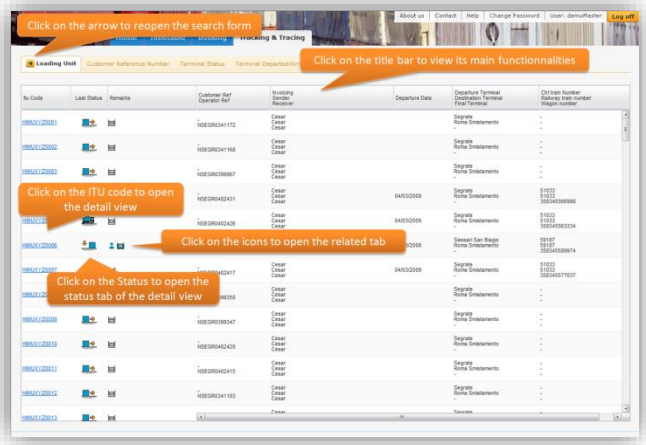
Figure 1: Components of "Last-mile infrastructure"






*CESAR system overview*




**Available status information:**

- booked
- delivered in departure terminal
- loaded on wagon
- departed from departure terminal
- foreseen arrival at destination terminal
- ready for pick-up in arrival terminal
- pick-up completed in arrival terminal
- arrived for gateway in intermediate terminal

**Need ETA information**

# Digital integration | Data Access : real-time information



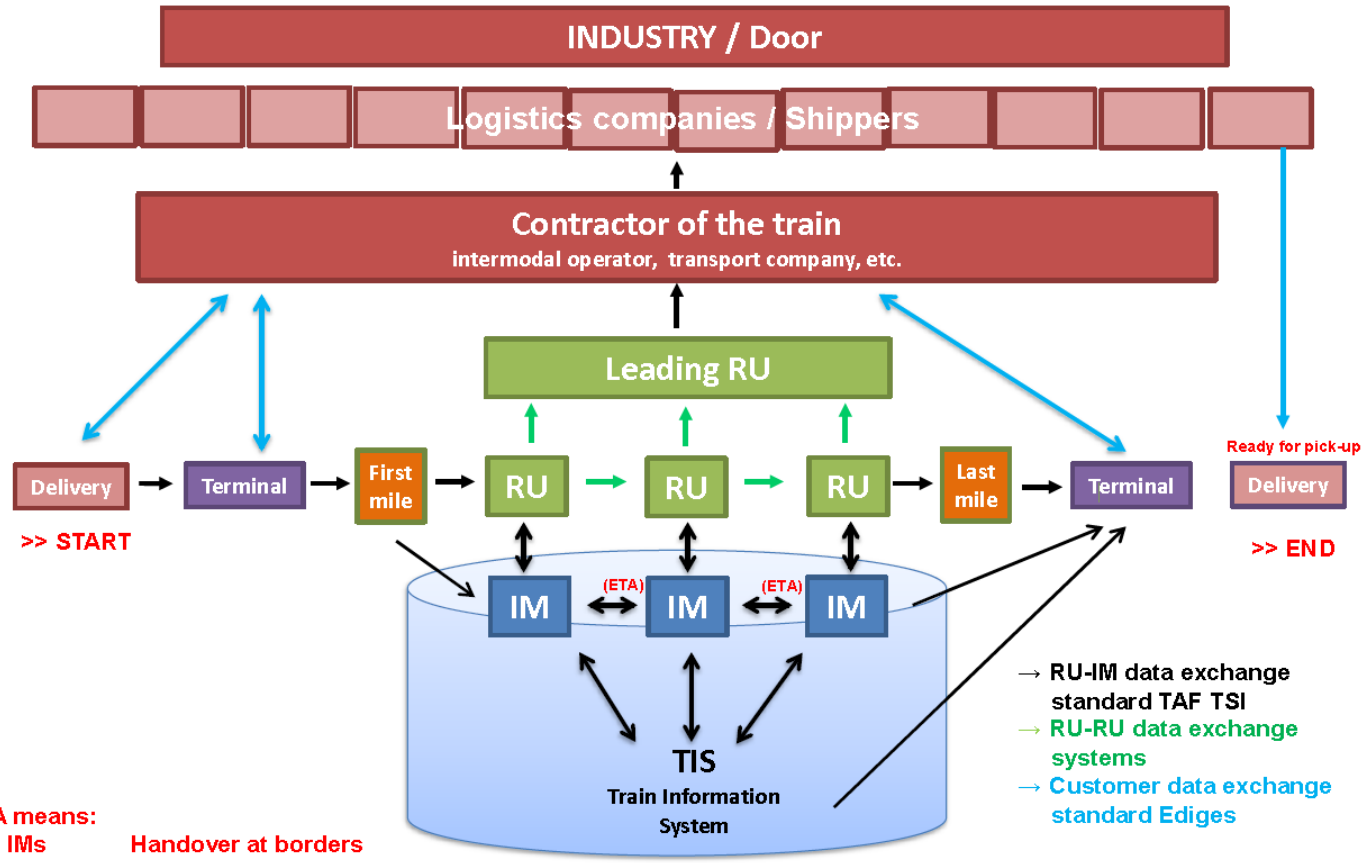
- **Real-time information about trains, wagons, goods and loading units are a key success factor.** It was found that real-time information is
  - already available for trains
  - but legal and administrative barriers are sometimes hindering it
  - some freight forwarders use GPS-like systems for track/trace; it is expensive but provides a service which is otherwise not provided

- **Real-time information about trains should be accessible to all involved partners**. The following needs were detected:
  - information should be available to IMs/RUs/Terminals/Shippers/Forwarders/Wagon Keepers/Intermodal/Combined Transport Operators etc.
  - mileage information, based on the real train run, would be needed
  - link to wagons and/or loading units would be required
  - long-term aim shall be a better ETAs (estimated time of arrival)

Barriers to opening real-time information to all involved partners should be removed. In addition mileage information and a link to wagons and/or loading units will be developed.

# Digital integration | Data Access : real-time information

## Sharing of train tracking information and Estimated time of arrival – TODAY

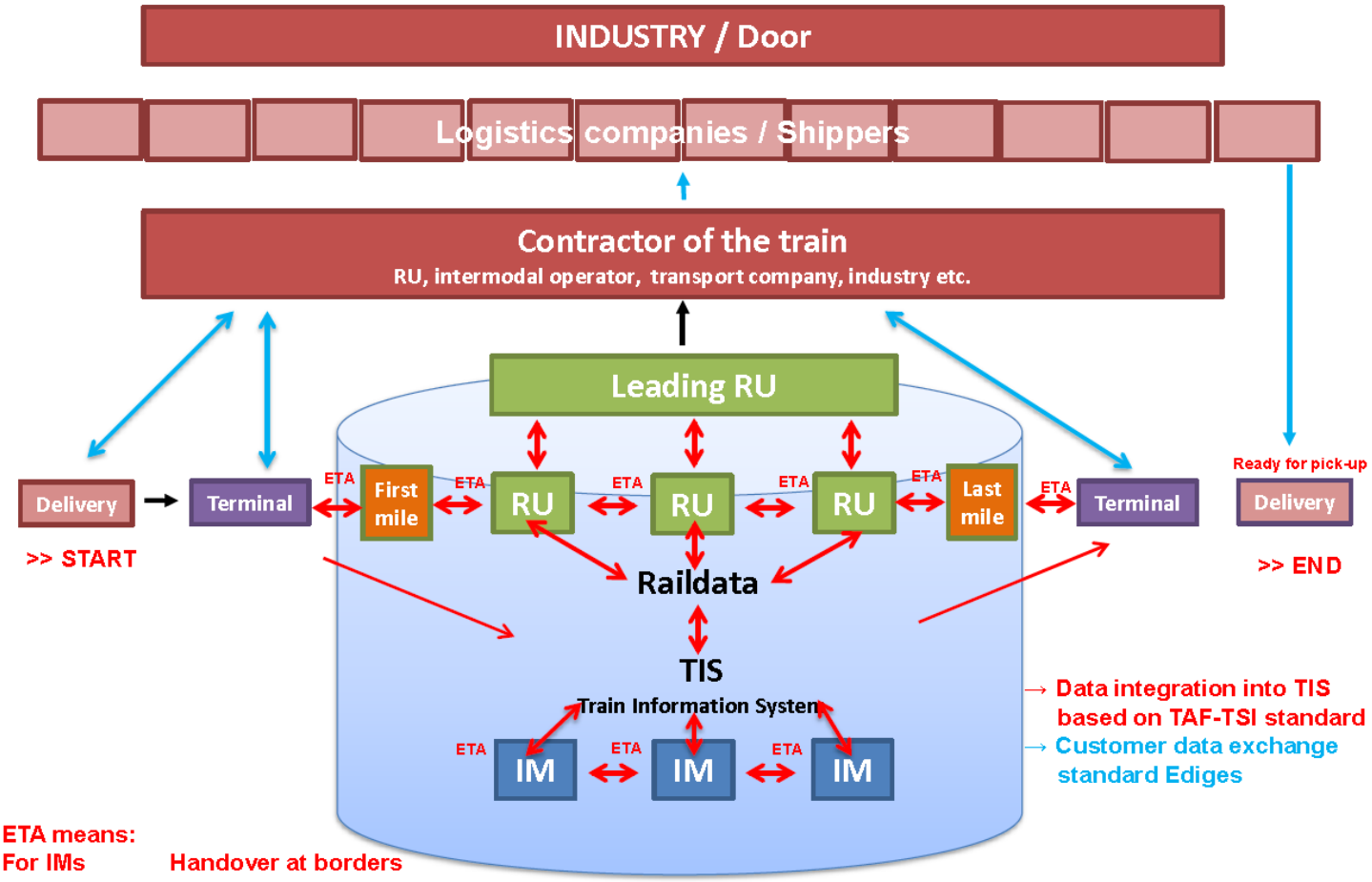



ETA means:

| | |
|---|---|
| For IMs | Handover at borders |
| For RUs | Handover at delivery point |
| For terminal | Arrival of train |
| For shippers | Ready for pick-up |

# Digital integration | Data Access : real-time information

## Sharing of train tracking information and Estimated time of arrival – TOMORROW




ETA means:

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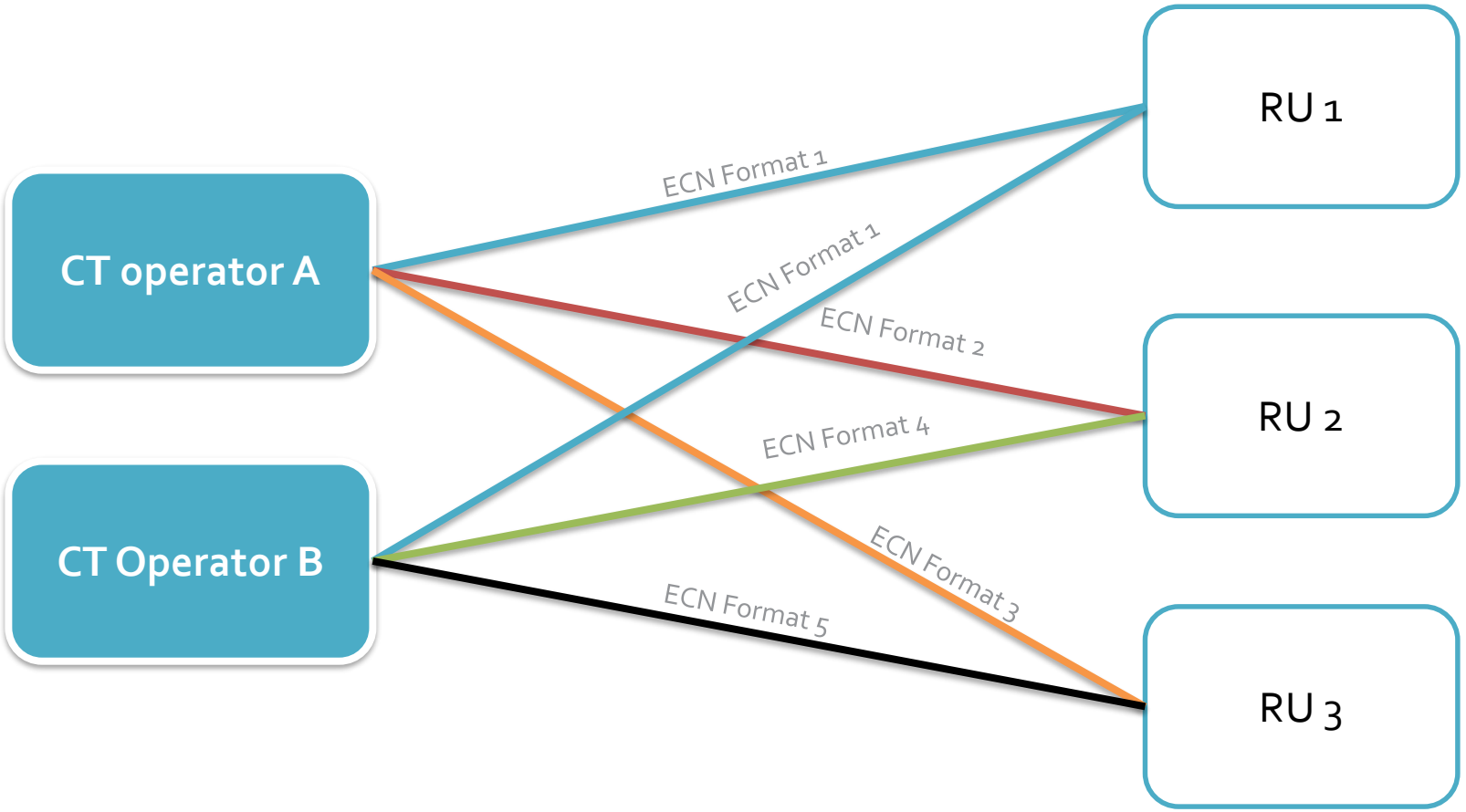
# Digital integration | E-documents: consignment note - ECN






CT operators have to develop specific interfaces with each individual Railway Undertaking. Common structure and format are needed.

# Digital integration | E-documents: consignment note

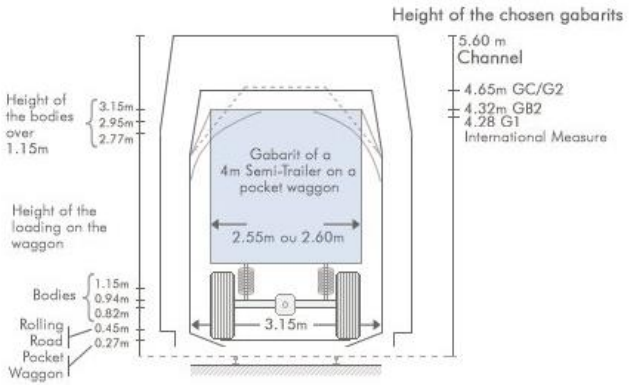


- **It is important for the Consignment note and E-Consignment (E-CIM) note to be accepted:**
  - The number of RUs using ECN will need to increase
  - Some legal issues have to be settled - harmonisation of CIM-SMGS for ECN
  - In case of dangerous goods/the digital ECN is not yet accepted – (paper document still required)
  - Just as in road transport, there is still a problem with the acceptance of e-documents & electronic signature by authorities/courts/insurance

There is an absolutely need to start pilots in Combined Transport.

# Digital integration: operational registers

## CT train planning / preparation / operations



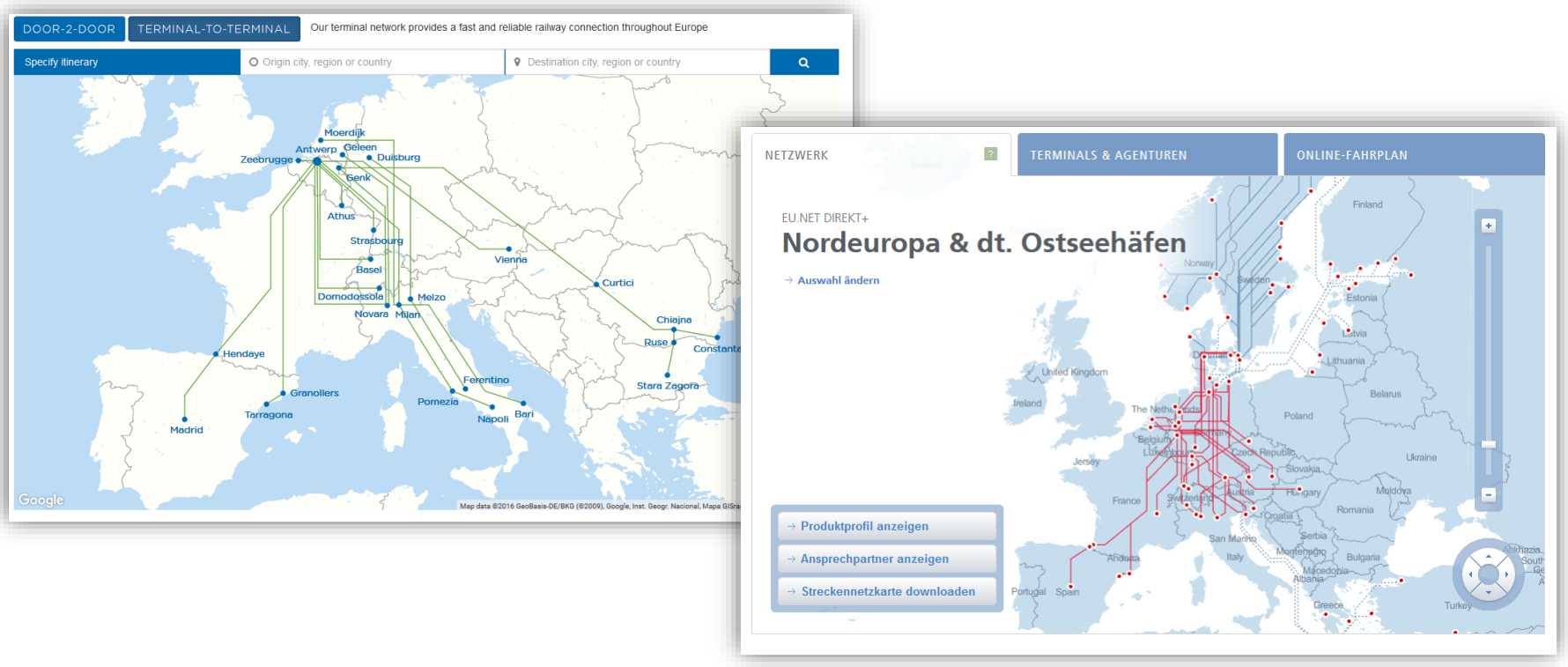

- Register of CT Wagon: loading schemes / standard is needed / common language
- Register on 'Intermodal Loading Units': technical characteristics of the loading units (type, length, tare…)
- Register on codified lines: routing analysis (CT gauges) (RINF)

There is an absolutely need to develop specific registers for Combined Transport.

# Digital integration: intermodal route planner



## Increase visibility and attractiveness of intermodal transport to end-users




Need to design an overall European concept – integration of existing platforms – feasibility study is needed (similar to the EU study on User-friendly access to information about last-mile infrastructure for rail freight )

# Digitalisation in Combined Transport: conclusions



- Digitalisation means a mental and cultural shift ('out of the box' thinking)
- Data democracy (data sharing) – real-time data available for all involved freight players, free of charge and without restrictions/filtering
- Implementation of interoperable systems and standards to integrate all freight players in the logistic chain
- Rail Freight e-documents: harmonised for public and private players (e-CIM)
- Access to European-wide reference files (loading units, wagons, infrastructure data, location codes)
- Coordination and transparency between ongoing "digitalisation" activities is a must (for example within Shift2Rail)

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# THANK YOU FOR YOUR ATTENTION

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