DISCLAIMER

- the webinar is being recorded
- the Q & A will start after each presentation / topic
- please raise your hand 👣 and the host will invite you to speak
DEEP DIVE INTO
WAGON DATA EXCHANGE

27 November 2023
Speakers

Juergen HILLER
Chairman
IT Study Group
DB Cargo

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Chairman
ISR
Cargo

Chairman
Rail Data
LET’S GET TO KNOW YOU BETTER

POLL
Programme

Data framework & messages in rail freight business

Digitalised exchange of General Contract for Use of wagons - GCU

Tracking the Wagon Movement in international traffic

Shaping the (wagon) data exchange in UIC IT Working Groups
DATA FRAMEWORK & MESSAGES

IN RAIL FREIGHT BUSINESS
Data Messages

Data Framework

Telematics Applications for Freight Service TSI
Data Messages – HERMES 30

RU – RU communication

HERMES (Handling through European Railways Message Electronic System) message comprises the data to be exchanged for the operation of trains, forwarding of wagons, intermodal units, and other rail vehicles.

- HERMES 30 2.0+ is compliant with the ERA’s TAF TSI
- Based on IRS 40404-2 & IRS 90920-13, managed by UIC
- Streamlining train handovers with advance data
- Eliminating additional data entry and stop for data capture at handover points
- The exchange is currently based on bilateral agreement
- Automation is under development within the EU funded DP-RAIL project.
Train Consist Data exchange

**HERMES**: RU – RU communication

- Enable the taking-over RU to continue train operation without additional data-input
- Message is related to the train content at the handover point

**Content**
- Technical Wagondata – brake-equipment, loadmatrix, REV-Daten
- Information about wagon damages
- Dispatch & destination station of each wagon
- Information about wagon-routing
- NHM-number
- Information for customs
- Information about ILUs

**TCM**: RU – IM communication

- Inform the IM of the train content for improved route disposition
- Message is related to the route

**Content**
- Technical Wagondata – length & weight, actual brake-data, restrictions
- Exceptional transport information
- RID information

**TCM is a subset of HERMES 30**

- IM required content is also defined in IMs’ Network Statement
GENERAL CONTRACT FOR USE OF WAGONS & COMMERCIAL RESPONSIBILITY DATABATASE

LET’S GET DIGITAL
Connecting to the platforms for the future of rail freight

Users

RU Applications & Partners

API /Web/Mobile (Common Interface)

modernisation & new functionalities

Orfeus  ISR  CoReDA  GCU Broker  RTIS

COMMON MASTER DATA – link to CRD & UIC databases

Infrastructure
What is the GCU contract?

► Central, multilateral, private-law contract between WKs and RUs in Europe.

► The GCU agreed on rules for a business-to-business transport within Europe.

► As of 2023:
  • **786 members** (282 WK, 332 RU, 172 WK-RU)
  • in 30 states with 557,972 freight wagons

► According to the terms and conditions of many companies, the GCU is prerequisite for a transport.

► For all details on GCU, visit: [www.gcubureau.org](http://www.gcubureau.org)
What are the benefits of the GCU Broker?

- **Faster and digital** information exchange between WKs and RUs
- **Optimised** process with more transparency on both sides
- **Continuous process development** due to **systematic data analysis**
- **Improved communication** with the customer thanks to current data
- **Higher security** in the production because of current data
- **Higher efficiency** and reduction of manual workload
First implemented functionalities

- The GCU Broker is the **one and only IT interface** between the RU & WK

- The GCU signatories exchange:
  - Mileage events (WPM – wagon performance message)
  - Wagon damage reports (WDR – wagon damage report)
  - Technical information of the wagon on request (RSRD – rolling stock reference database)

- **TAF TSI requirements** are considered
GCU Broker – Information flow

**Technical data**
- RSRD with min. TAF data
- Operational data (e.g. wagon damage report)

**Operational data**
- Wagon #
- IP address
- WPM of RD members
- e.g. mileage, damage report, operational restrictions

**Network flow**
- WK to RSRD w min. TAF
- RSRD w min. TAF to RU
- Operational data from WK to GCU Broker
- Operational data from GCU Broker to RU
- GCU Broker to RSRD w min. TAF
- RSRD w min. TAF to GCU Broker
- GCU Broker to WPM of RD members
- WPM of RD members to RU
GCU Broker – the development & next steps

The GCU Broker:
► One IT interface between the GCU members (currently 768 and still increasing).
► Secures the data exchange between WKs and RUs.
► Fulfills the requirements of the TAF TSI (EU regulation law).

Achievements since 09/2019, GCU signatories exchange
► Mileage events (WPM), more the 500 000 WPMs a month were sent through the GCU Broker by more then 20 RUs.
► Wagon damage reports (WDR), more then 7 000 WDRs a month were sent through the GCU Broker by more then 30 RUs.
► Technical information of the wagon on request (RSDS), nearly 300 000 technical wagon data are available through the GCU Broker by more then 90 WKs.

The GCU Broker 4.0 – preparing for the future 2023 until 2024
► Use cases
► Roadmap
GCU Broker 4.0 – use cases

Now it is time to start the next steps
- Short term operational restrictions (e.g. reduced maximum speed),
- Return to operation message,
- Communication of Label H and Label HR,
- Signatories exchange the codes of intervention according Appendix 10 Annex 6,
- Smart wagons / intelligent loading goods,
- Exchange of invoices, …

The experience has shown, that the GCU members need time to connect their IT systems to the GCU Broker, therefore, we need a long-term plan to make sure everyone has enough time to connect.

Beyond the GCU partners (e.g. financing the development with EU funding)
- NSA communication → technical information,
- Infrastructure communication → technical information (e.g. brake shoes),
- Maintenance information → guidelines, technical manuals,
- Customer → technical information, technical manuals,
- Train communication → e.g. loco damage reports, …
Connecting to the platforms for the future of rail freight

Users

RU Applications & Partners

API /Web/Mobile (Common Interface)

modernisation & new functionalities

- Orfeus
- ISR
- CoReDA
- GCU Broker
- RTIS

COMMON MASTER DATA – link to CRD & UIC databases

Infrastructure
What is CoReDa?

- Commercial Responsibility Database (CoReDa) started in 2015, when the wagon number of a freight wagon was not allowed to change anymore if a leaser takes over.

- The database facilitates sharing information on who is the wagon responsible, building the bilateral contracts between RUs (additional contracts to the GCU, former RIV adaption).

- It is developed and maintained by UIC – RailData and currently there are around 250,000 freight wagons in the system.
## CoReDa – current users

<table>
<thead>
<tr>
<th>RICS</th>
<th>Partner / Wagon Responsible</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>0075</td>
<td>TCDD Taşımacılık A.Ş.</td>
<td>Turkey</td>
</tr>
<tr>
<td>1065</td>
<td>CFARYM-I (Makedonski Železnici Infrastructure-Skopje)</td>
<td>Macedonia</td>
</tr>
<tr>
<td>2143</td>
<td>GYSEV CARGO</td>
<td>Hungary</td>
</tr>
<tr>
<td>2151</td>
<td>PKP CARGO S.A.</td>
<td>Poland</td>
</tr>
<tr>
<td>2154</td>
<td>CD Cargo</td>
<td>Czech Republic</td>
</tr>
<tr>
<td>2155</td>
<td>Rail Cargo Hungaria</td>
<td>Hungary</td>
</tr>
<tr>
<td>2156</td>
<td>ZSSK CARGO</td>
<td>Slovakia</td>
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<tr>
<td>2172</td>
<td>SK</td>
<td>Serbia</td>
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<tr>
<td>2174</td>
<td>Green Cargo</td>
<td>Sweden</td>
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<tr>
<td>2178</td>
<td>HZ-Cargo</td>
<td>Croatia</td>
</tr>
<tr>
<td>2179</td>
<td>SŽ- Tovorni promet, d.o.o.</td>
<td>Slovenia</td>
</tr>
<tr>
<td>2180</td>
<td>DB Cargo</td>
<td>Germany</td>
</tr>
<tr>
<td>2181</td>
<td>RailCargo Austria</td>
<td>Austria</td>
</tr>
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<td>2182</td>
<td>CFL Cargo</td>
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</tr>
<tr>
<td>2188</td>
<td>LINEAS</td>
<td>Belgium</td>
</tr>
</tbody>
</table>
CoReDa – information flow

Database contains:
- wagon number
- keeper
- wagon responsible
- timeframe
## CoReDa – information flow example

### Queries

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tbody>
<tr>
<td>Wagon Number</td>
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<tr>
<td>Wagon Interval</td>
<td></td>
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<tr>
<td>Responsible</td>
<td>2180</td>
</tr>
<tr>
<td>Keeper</td>
<td></td>
</tr>
<tr>
<td>Timeframe From</td>
<td></td>
</tr>
<tr>
<td>Timeframe To</td>
<td></td>
</tr>
<tr>
<td>Last Update From</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
</tr>
</tbody>
</table>

### 1-25 of 5000 Wagons

<table>
<thead>
<tr>
<th>Wagon</th>
<th>Code</th>
<th>Name</th>
<th>RU-M</th>
<th>Valid from</th>
<th>Valid to</th>
<th>Action</th>
<th>VKM</th>
<th>Name</th>
<th>Valid from</th>
<th>Valid to</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>338753861982</td>
<td>2180</td>
<td>DB Cargo</td>
<td>✔</td>
<td>21/11/2023</td>
<td></td>
<td></td>
<td>ERMD</td>
<td>ERMBAW SAS, Berlin branch</td>
<td>21/11/2023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>338753861990</td>
<td>2180</td>
<td>DB Cargo</td>
<td>✔</td>
<td>21/11/2023</td>
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<td></td>
<td>ERMD</td>
<td>ERMBAW SAS, Berlin branch</td>
<td>21/11/2023</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CoReDa – status of utilisation

**Number of wagons**
- 11/2023: 324,306 wagons, out of which 240,597 with open responsibility
- 04/2022: 323,587 wagons, out of which 239,974 with open responsibility

**Wagons where the responsible is not the WK**
- 11/2023: 44,251 wagons
- 04/2022: 43,450 wagons

**Wagons from**
- 11/2023: 21 wagon responsibles, 105 WKs
- 04/2022: 21 wagon responsibles, 108 WKs
QUESTIONS & ANSWERS

SHAPING THE EUROPEAN WAGON DATA EXCHANGE
TRACKING THE WAGON MOVEMENT IN INTERNATIONAL TRAFFIC
Connecting to the platforms for the future of rail freight

Users

RU Applications & Partners

API /Web/Mobile (Common Interface)

modernisation & new functionalities

Orfeus

ISR

CoReDA

GCU Broker

RTIS

COMMON MASTER DATA – link to CRD & UIC databases

Infrastructure
What is ISR?

► **International Service Reliability** (ISR) is a common tool of RUs to concentrate and exchange information about **movements of freight wagons** transported in collaboration through a central platform.

► The information system enables **tracking both loaded and empty wagons and consignments** across a significant part of Europe.

► It is developed and operated by UIC – RailData and consist of several **functions and modules**.
ISR – functions & modules

- Wagon events forwarding
- Wagon performance
- Train running (RTIS)
- ISR Web centre
- Train run forwarding

- Wagon status
- Wagon performance
- Train running
- Experienced plan
ISR online interfaces (simplified)
ISR – event driven wagon Track & Trace

Simple example with basic events

Monthly:
14 000 000 events received
400 000 train pre-advises
30 000 000 events for RUs
ISR benefits

Information
Information for customers (on position of transports).

Tracking
Wagon tracking (current position and history).

Management
Fleet management (steering of empty wagons).

Maintenance
Wagon maintenance (based on wagon performance).
WPM – delivery from RUs to WKs

- WSM – Wagon Status Message
- WPM – Wagon Performance Message

ISR also covers functions for
- Wagon performance calculation
- Wagon performance delivery

RU → WSM → ISR → mileage → WPM → GCU Broker → WK

RU → WP → ISR → mileage → WPM → RSRD
## ISR – data example

### Wagons Status

<table>
<thead>
<tr>
<th>ISR</th>
<th>Wagon and Status</th>
<th>Event timestamp</th>
<th>Event type</th>
<th>Event Info</th>
<th>Consignment Note</th>
<th>Shipping Info</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Wagon and Status</td>
<td>Event timestamp</td>
<td>Event type</td>
<td>Event Info</td>
<td>Consignment Note</td>
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<td>Event Info</td>
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<td></td>
<td>Wagon and Status</td>
<td>Event timestamp</td>
<td>Event type</td>
<td>Event Info</td>
<td>Consignment Note</td>
<td>Shipping Info</td>
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<td>Event timestamp</td>
<td>Event type</td>
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<td>Consignment Note</td>
<td>Shipping Info</td>
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<td>Wagon and Status</td>
<td>Event timestamp</td>
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<td>Consignment Note</td>
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<tr>
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<td>Wagon and Status</td>
<td>Event timestamp</td>
<td>Event type</td>
<td>Event Info</td>
<td>Consignment Note</td>
<td>Shipping Info</td>
</tr>
</tbody>
</table>

### Table Columns Explained:
- **ISR**: Identification String Reference
- **Wagon and Status**: Details of the wagon status
- **Event timestamp**: Time of the event
- **Event type**: Type of event (e.g., HandOverAdvice, Departure)
- **Event Info**: Additional information related to the event (Station, Station Name, Train, CC, Station, Number, Transl CC)
- **Consignment Note**: Information related to the consignment (Type, CC, Station, Number)
- **Shipping Info**: Details of shipping (Type, CC, Station, From, To)
ISR – data example

### Wagon Status

<table>
<thead>
<tr>
<th>Wagon</th>
<th>Information</th>
<th>Wagon number</th>
<th>Wagon status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>258043672769</td>
<td>empty</td>
</tr>
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</table>

### General Information

- Sending railway: 2160
- Message timestamp: 22.11.2023 04:41
- COS processing timestamp: 22.11.2023 04:50
- Filename: V1886_16900234000557_447953.gz

### Event Information

- **Event**: Pulled
- **at**: Wed 22.11.2023 04:40
- **in**: 80 135624 SEELZE RBF
- **train**: 47399

### Last event of initially matched transport plan

- **Event**: ReachedDestination
- **at**: Thu 23.11.2023 00:03
- **in**: 54 55991 Mlada Boleslav mesto
- **train**: 55547
- **recorded**: 15

### Last event of current matched transport plan

- **Event**: ReachedDestination
- **at**: Thu 23.11.2023 00:03
- **in**: 54 55991 Mlada Boleslav mesto
- **train**: 55547
- **recorded**: 15

### Table

<table>
<thead>
<tr>
<th>Information</th>
<th>Wagon status</th>
<th>Transport description</th>
<th>Current ETP</th>
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<tr>
<td><strong>CONSIGNMENT NOTE</strong></td>
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<tr>
<td>Consignment country</td>
<td>80</td>
<td>80</td>
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<tr>
<td>Consignment station code</td>
<td>342006</td>
<td>342006</td>
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<tr>
<td>Consignment number</td>
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<tr>
<td>Contract number</td>
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<td>610799</td>
<td>0</td>
</tr>
<tr>
<td>Start (weekday + Time)</td>
<td>Tue 21.11 at 12:00</td>
<td>Tue 21.11 at 03:00</td>
<td>Wed 04.55</td>
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<tr>
<td><strong>FROM</strong></td>
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<tr>
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<tr>
<td>C Shipping Station Code</td>
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<tr>
<td>P Shipping Station Code</td>
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<tr>
<td>P Shipping Station Name</td>
<td>6</td>
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<td>0</td>
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<tr>
<td><strong>TO</strong></td>
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<td></td>
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<tr>
<td>C Destination Country</td>
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<td>C Destination Station Name</td>
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<tr>
<td>P Destination Station Name</td>
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<tr>
<td>File</td>
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<td>992200</td>
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</tbody>
</table>
ISR & TAF TSI

► ISR users are soft compliant with Wagon Movement function of the current TAF TSI.

► RailData via TEG-6 succeeded in changing TAF TSI, both core text and XSD:
  • WSM (Wagon Status Message) accepted as the TAF message
  • WSM v.61 becomes part of the official TAF schema
  • TAF core text was revised to follow ISR (the new draft includes the TEG-6 wording already).

► RUs that implement ISR / WSM v.61 are fully TAF compliant.
### ISR users – RU coverage

<table>
<thead>
<tr>
<th>Code</th>
<th>Company Name</th>
<th>Country</th>
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<tr>
<td>3220</td>
<td>LINEAS (FRANCE)</td>
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<tr>
<td>2182</td>
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<td>2154</td>
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<td>Czech Republic</td>
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<tr>
<td>3247</td>
<td>DB CARGO BULGARIA EOOD (BULGARIA)</td>
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<td>HŽ CARGO D.O. O. (CROATIA)</td>
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<td>MERITALIA RAIL (ITALY)</td>
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<td>RAIL CARGO AUSTRIA AG (AUSTRIA)</td>
<td>Austria</td>
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<td>ŽELEZNIČNÁ SPOLCOŠŤ CARGO SLOVAKIA, A.S. (SLOVAKIA)</td>
<td>Slovakia</td>
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How to join ISR?

Conditions to become an ISR user:
► Be an active freight RU.
► Use, in any way, the ISR.
► Have one RICS code.
► Accept, sign and fulfil the ISR User Agreement.
► Pay the ISR usage fees.
► Deliver at least minimum data to ISR.
► Nominate a contact person.

Being a RailData member is not mandatory.

Interested?
► Write to info@raildata.coop
► ISR Welcome Pack with all details will be provided
QUESTIONS & ANSWERS

SHAPING THE EUROPEAN WAGON DATA EXCHANGE
UIC EXPERTISE

SHAPING THE EUROPEAN WAGON UTILISATION
Train operations require data flow services, UIC leverages & further develops key assets to facilitate efficient data exchange. The UIC IT Study Group steers the development of key coding assets.

For all questions, please contact: bazeghi@uic.org
Data Messages

CoReDa

Data Framework

Telematics Applications for Freight Service TSI

Eternal Union Agency for Railways
A CLEAR PICTURE ON WAGON DATA EXCHANGE POLL
UIC Freight – Competence Centres

- Load Safety
- Wagon Utilisation
- Dangerous Goods
- Train Operation
- Combined Transport
- Data Exchange
- Corridor Development
- Rail Freight Forward
Stay in touch with UIC:

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Thank you for your attention.