




**FIT FOR
FREICHT**

Data exchange

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- **please raise your hand  and the host will invite you to speak**



INTERNATIONAL UNION
OF RAILWAYS

DEEP DIVE INTO WAGON DATA EXCHANGE

27 November 2023

Speakers



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Chairman

ISR



Chairman

IT Study Group



Speakers



Christian KUEHNAST

 **DB Cargo**

Parinaz BAZEGHI

 **UIC**



Chairman

CoReDa

 **Rail Data**

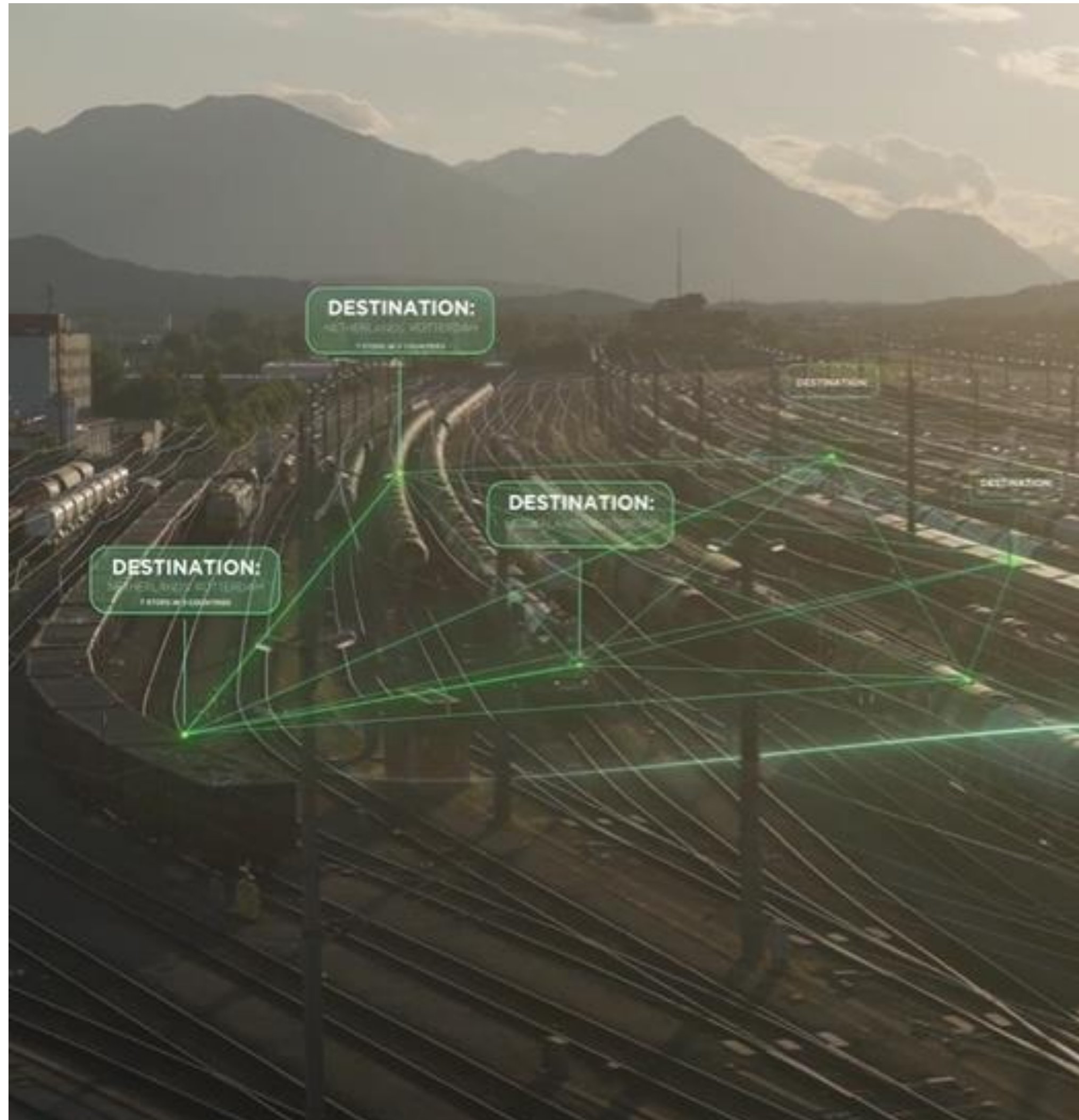


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OF RAILWAYS

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**

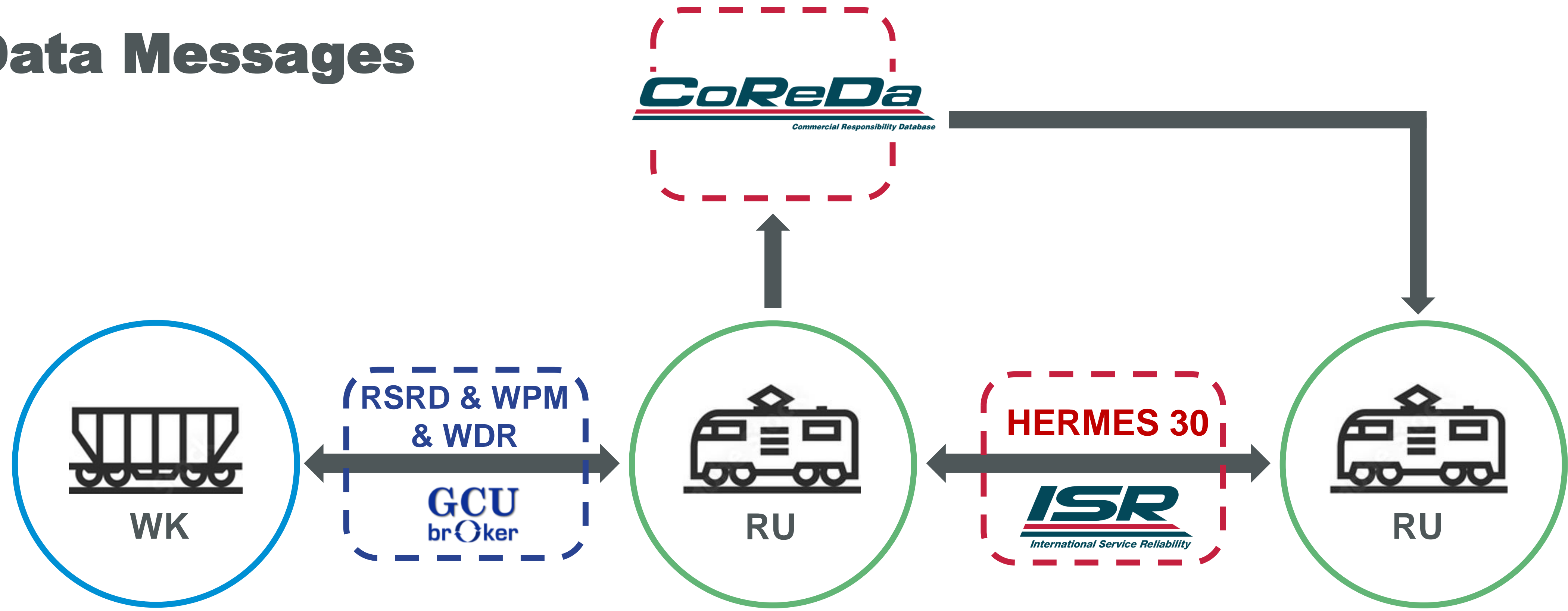


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DATA FRAMEWORK & MESSAGES

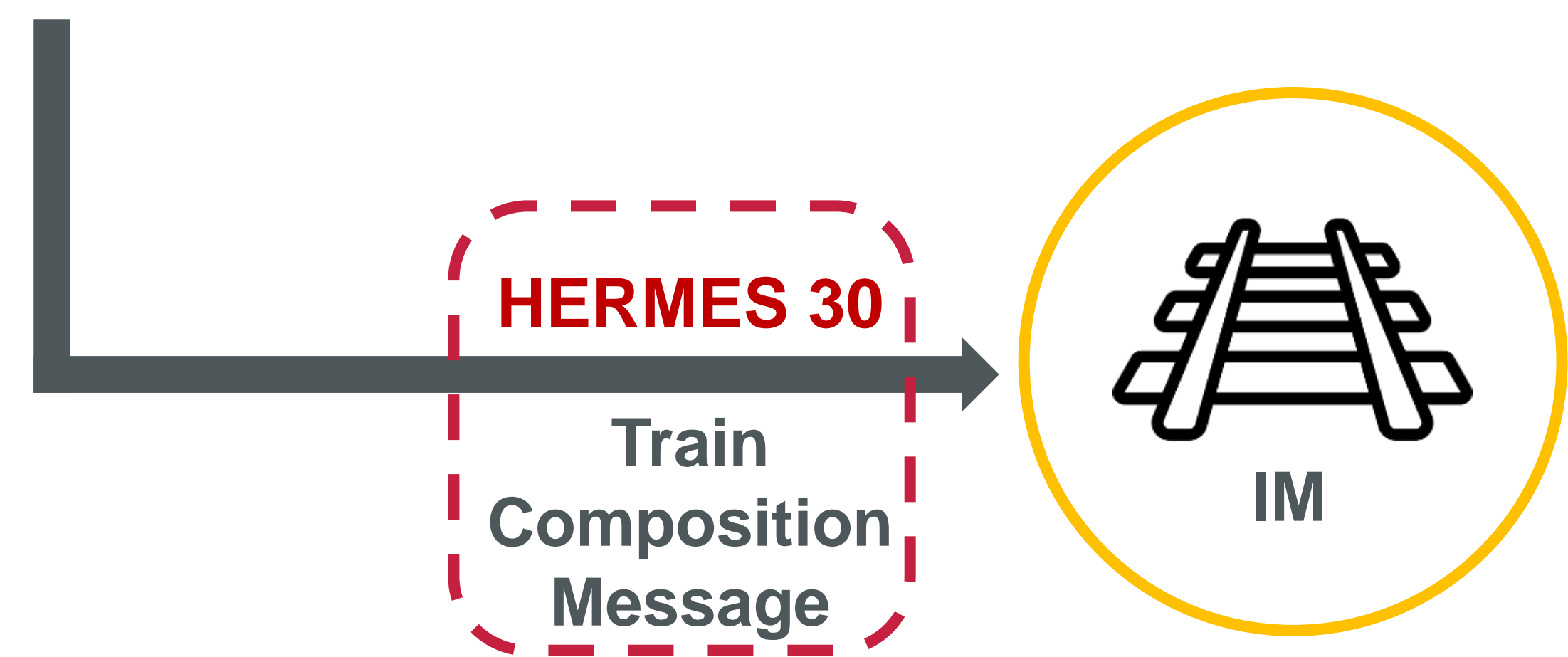
IN RAIL FREIGHT BUSINESS

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

TCM: RU – IM 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

- ▶ 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

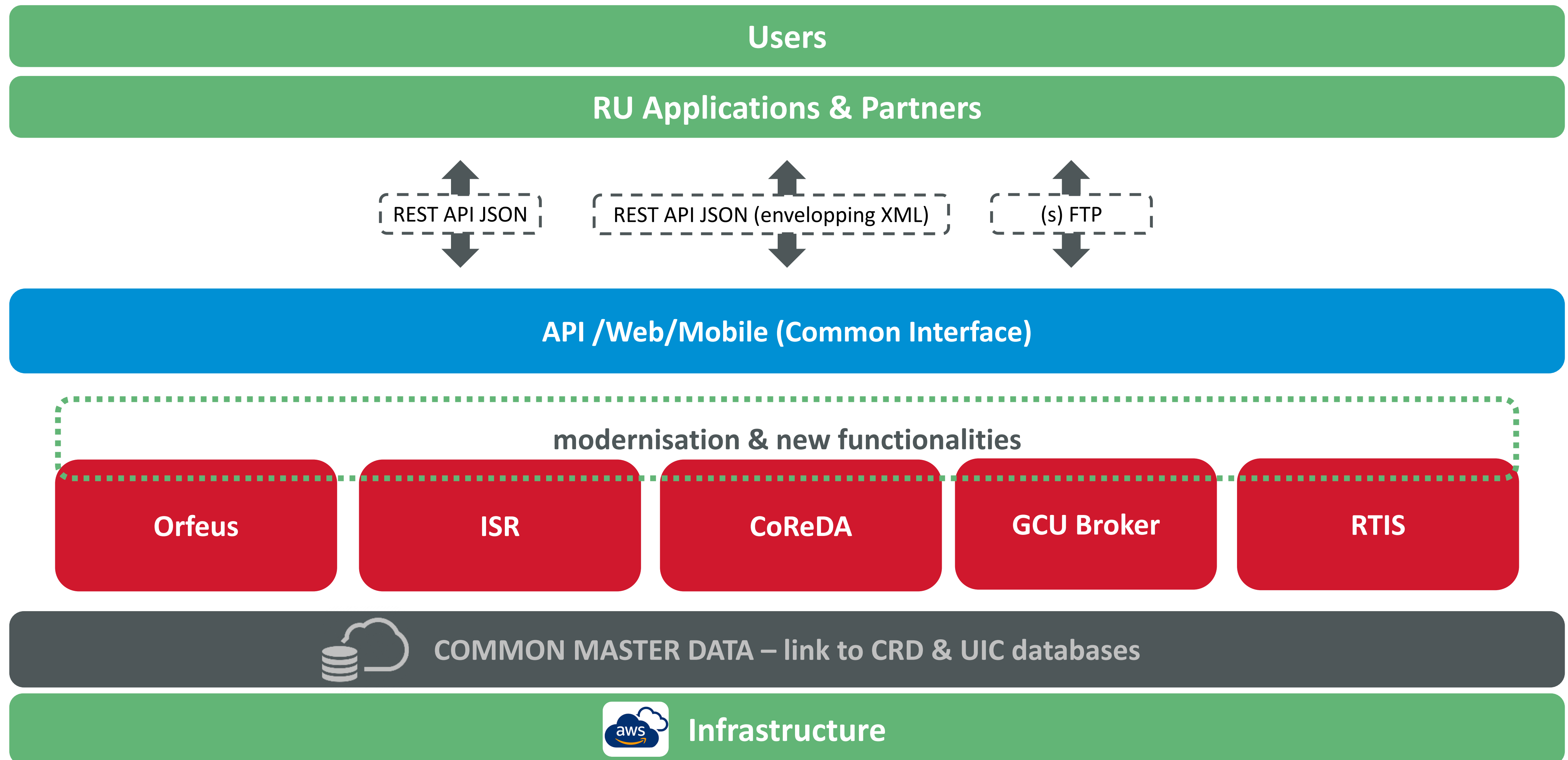


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GENERAL CONTRACT FOR USE OF WAGONS & COMMERCIAL RESPONSIBILITY DABATASE

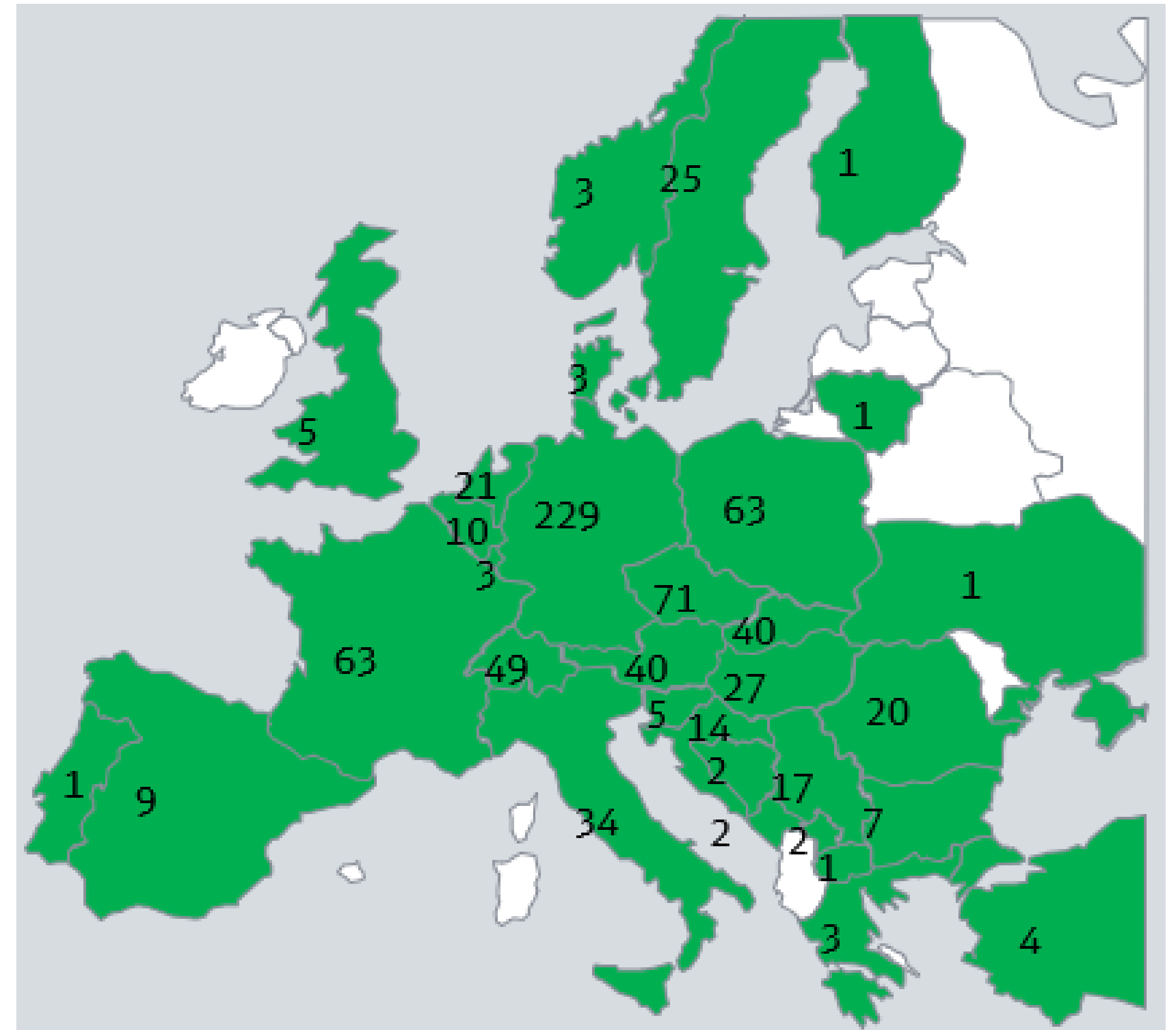
LET'S GET DIGITAL

Connecting to the platforms for the future of rail freight



What is the GCU contract?

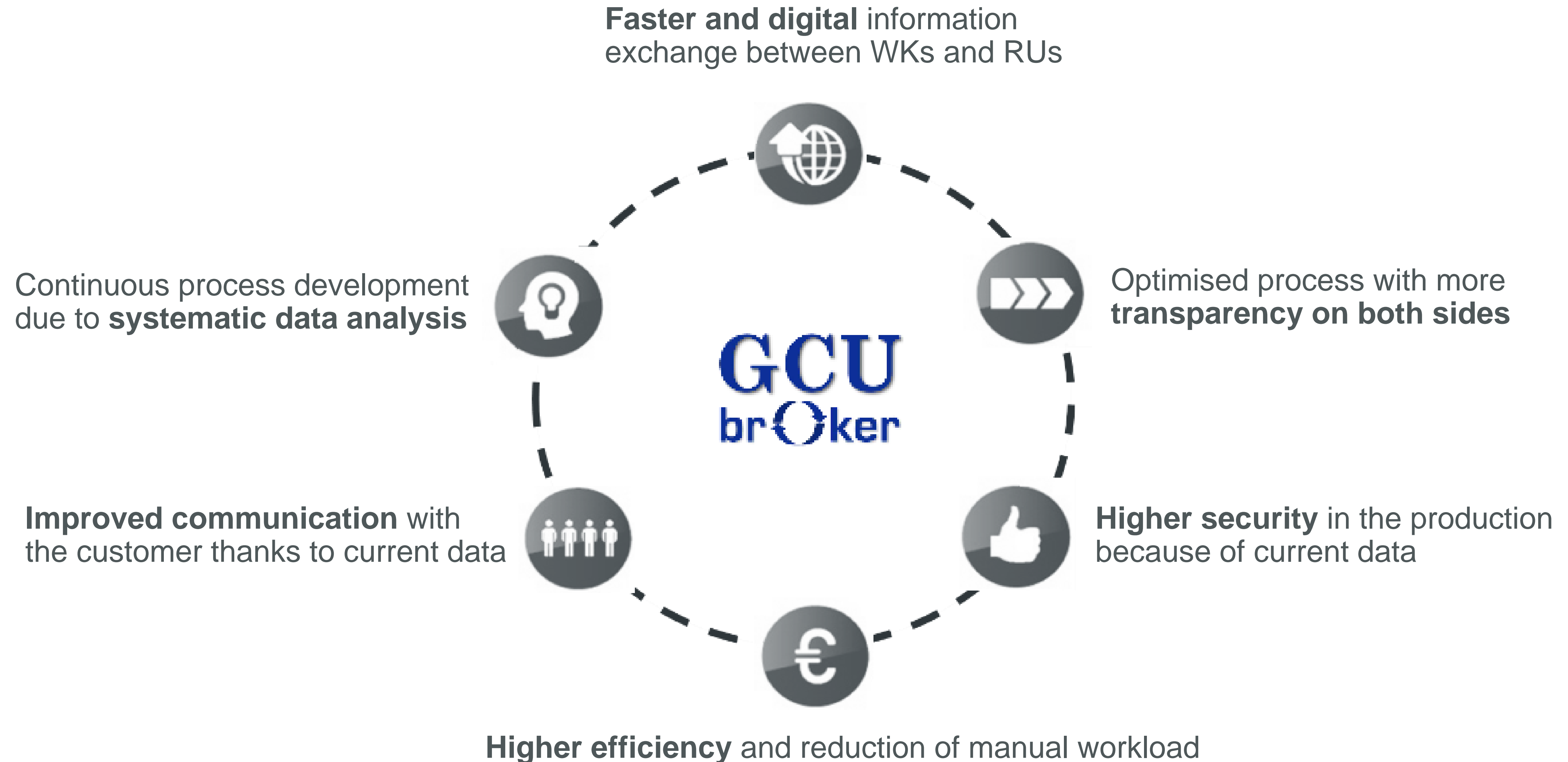
- ▶ Central, multilateral, private-law contract between WKs and RUs in Europe.
- ▶ The GCU agreed on rules for a business-to-business transport within Europe.
- ▶ As of 2023:
 - **786 members** (282 WK, 332 RU, 172 WK-RU)
 - **in 30 states with 557 972 freight wagons**
- ▶ According to the terms and conditions of many companies, the GCU is prerequisite for a transport.
- ▶ For all details on GCU, visit: www.gcubureau.org



Number of members for each country

Current state 01.07.2023

What are the benefits of the GCU Broker?



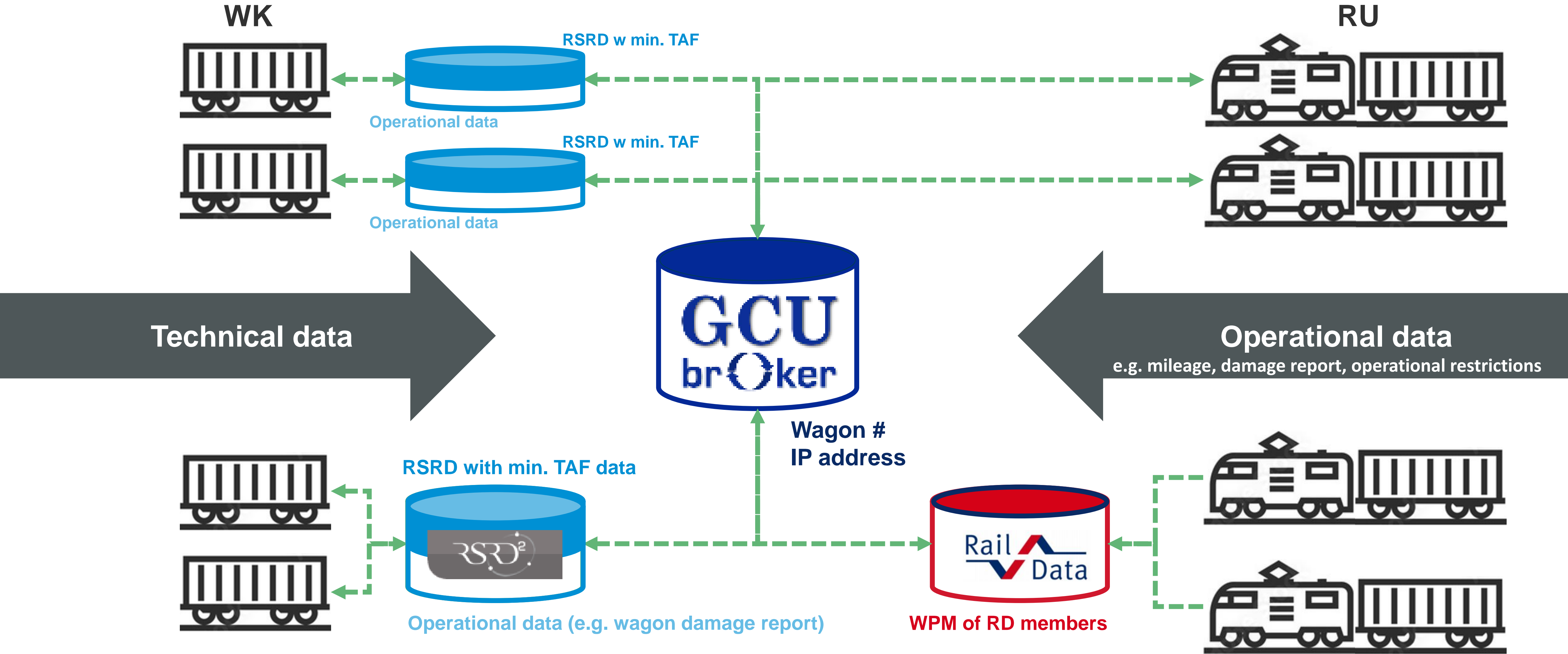
GCU Broker – scope of the first development



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



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 trough 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

Working status



Now it is time to start the next steps

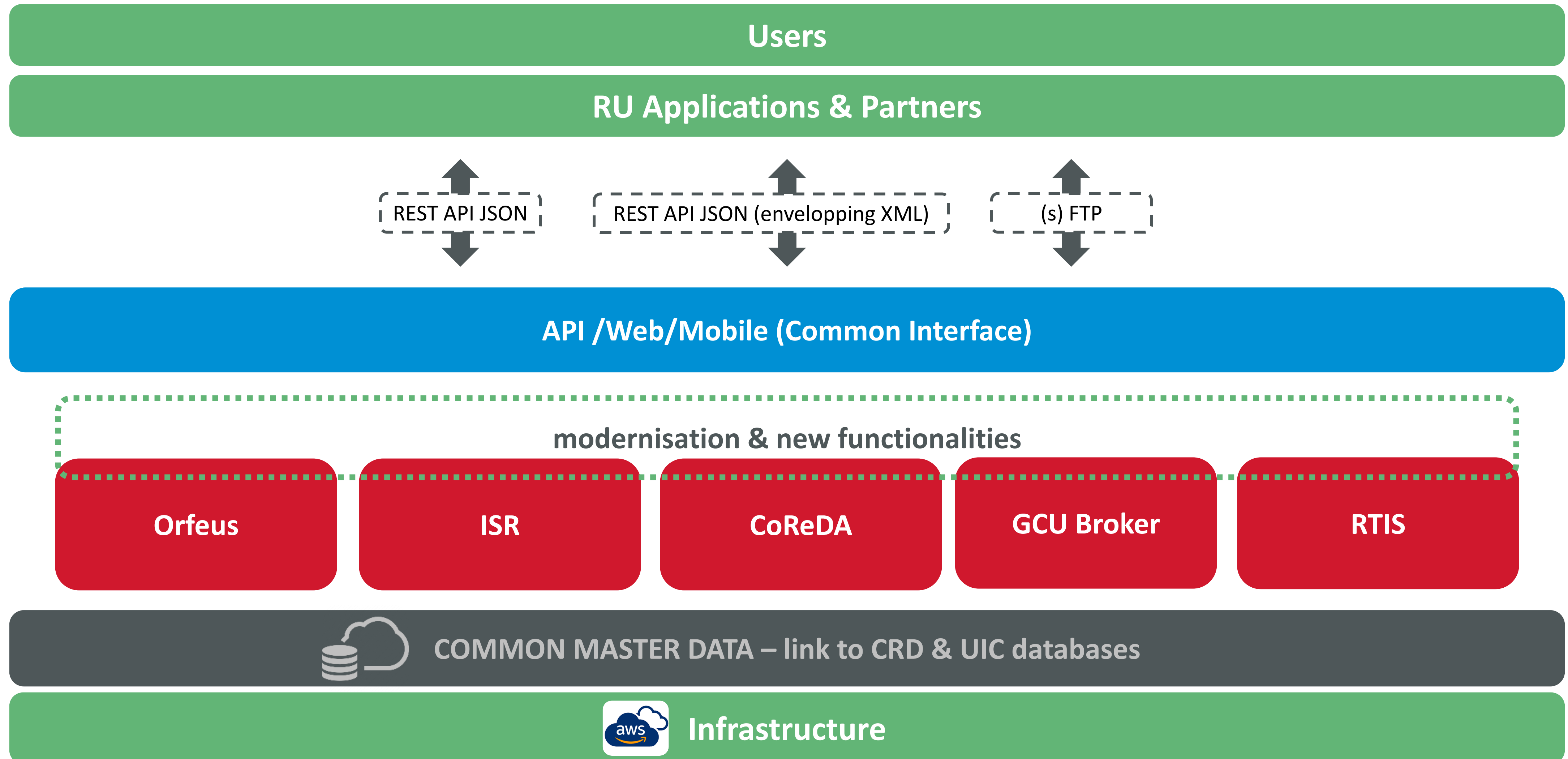
- ▶ Short term operational restrictions (e.g. reduced maximum speed),
- ▶ Return to operation message,
- ▶ Communication of Label H and Label HR,
- ▶ Signatories exchange the codes of intervention according Appendix 10 Annex 6,
- ▶ Smart wagons / intelligent loading goods,
- ▶ Exchange of invoices, ...

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



What is CoReDa?

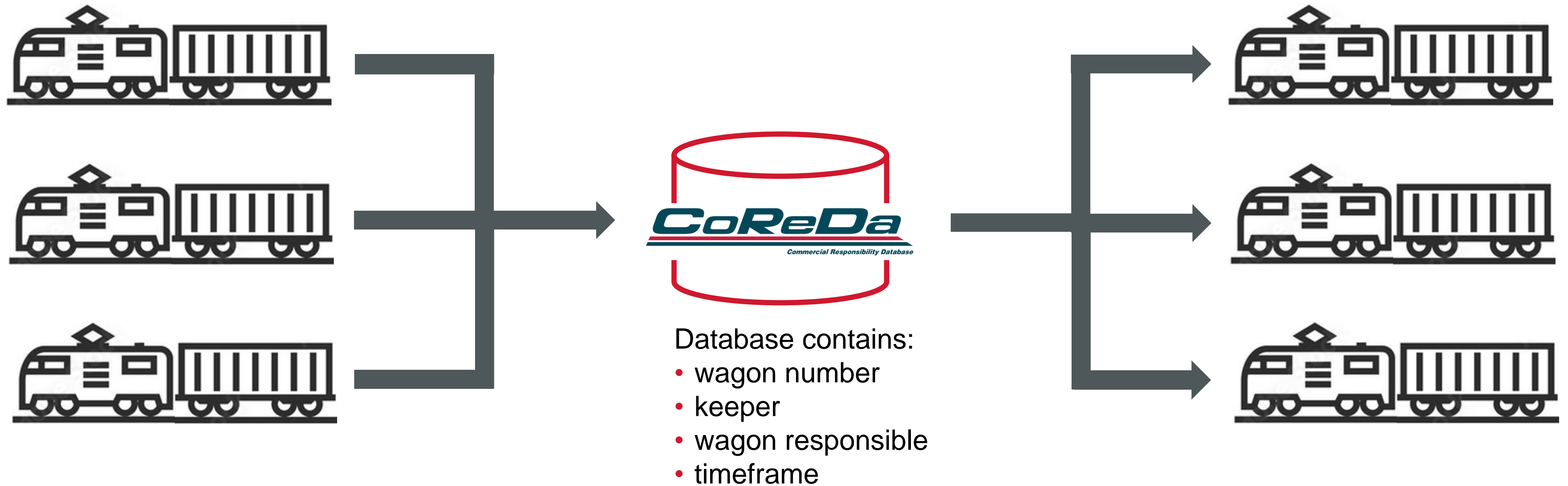
- ▶ **Commercial Responsibility Database (CoReDa)** started in 2015, when the wagon number of a freight wagon was not allowed to change anymore if a leaser takes over.
- ▶ The database **facilitates sharing information on who is the wagon responsible**, building the bilateral contracts between RUs (additional 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

RICS	Partner / Wagon Responsible	Country
0075	TCDD Taşımacılık A.Ş.	Turkey
1065	CFARYM-I (Makedonski Železnici Infrastructure-Skopje)	Macedonia
2143	GYSEV CARGO	Hungary
2151	PKP CARGO S.A.	Poland
2154	CD Cargo	Czech Republic
2155	Rail Cargo Hungaria	Hungary
2156	ZSSK CARGO	Slovakia
2172	SK	Serbia
2174	Green Cargo	Sweden
2178	HZ-Cargo	Croatia
2179	SŽ- Tovorni promet, d.o.o.	Slovenia
2180	DB Cargo	Germany
2181	RailCargo Austria	Austria
2182	CFL Cargo	Luxemborg
2183	MIR	Italy
2185	SBB Cargo	Switzerland
2187	Fret SNCF	France
2188	LINEAS	Belgium

CoReDa – information flow



CoReDa – information flow example

Queries  Insert new wagon

Wagon Number

Wagon Interval

Responsible











Keeper

Timeframe From: / / To: / /

Last Update Date From: / / To: / /

Maximum records/page

1-25 of 5000 Wagons

Wagon	Responsible						Keeper				
	Code	Name	RU-M	Valid from	Valid to	Action	VKM	Name	Valid from	Valid to	Action
338753861982	2180	DB Cargo	✓	21/11/2023		<input type="checkbox"/>  	ERMD	ERMEWA SAS, Berlin branch	21/11/2023		  
338753861990	2180	DB Cargo	✓	21/11/2023		<input type="checkbox"/>  	ERMD	ERMEWA SAS, Berlin branch	21/11/2023		  

CoReDa – status of utilisation

▶ 11/2023

▶ 04/2022

Number of wagons

324 306 wagons, out of which
240 597 with open responsibility

323 587 wagons, out of which
239 974 with open responsibility

**Wagons where the
responsible is not
the WK**

44 251 wagons

43 450 wagons

Wagons from

21 wagon responsables
105 WKs

21 wagon responsables
108 WKs



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QUESTIONS & ANSWERS

SHAPING THE EUROPEAN WAGON DATA EXCHANGE

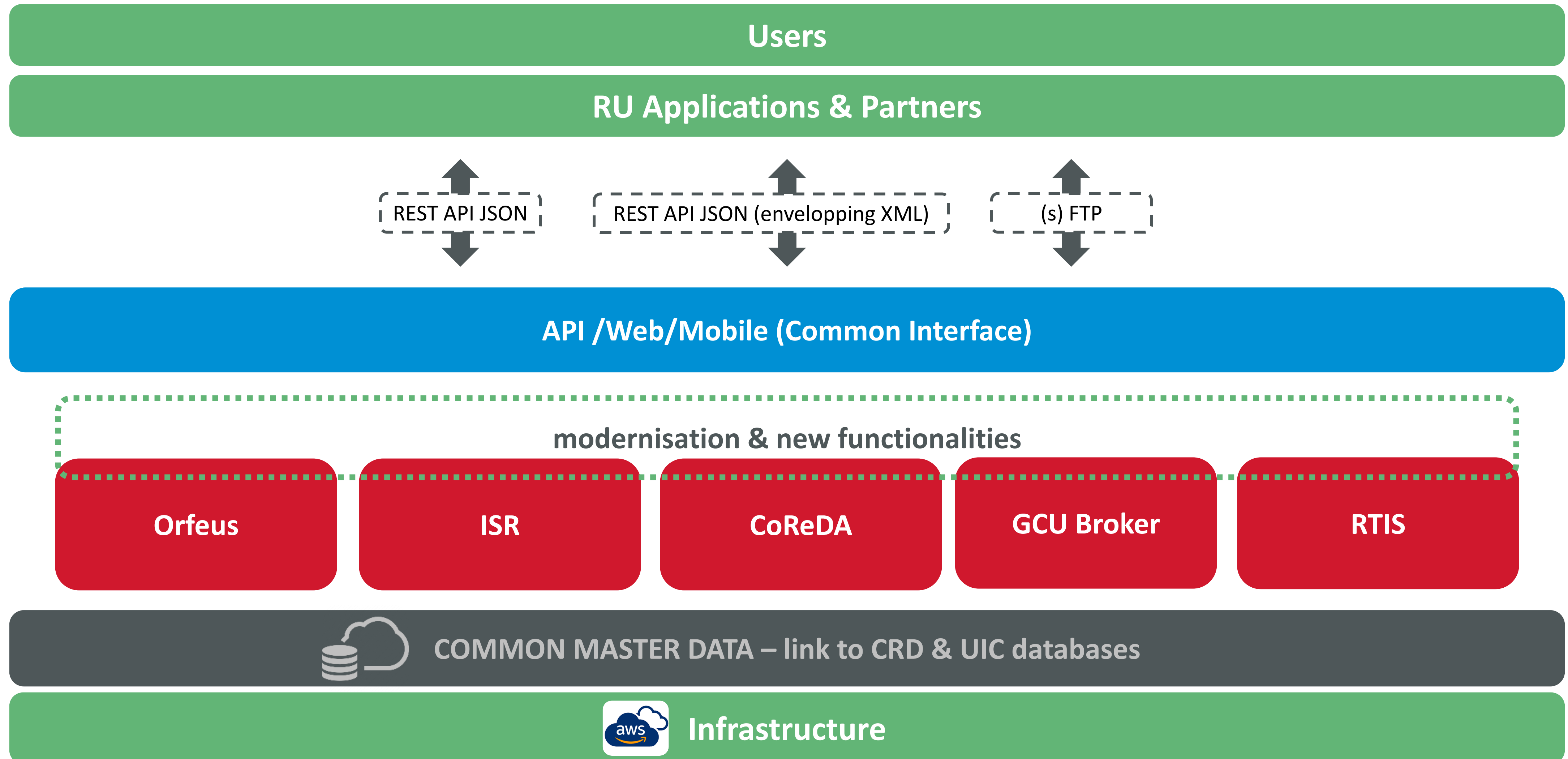


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TRACKING THE WAGON MOVEMENT

IN INTERNATIONAL TRAFFIC

Connecting to the platforms for the future of rail freight

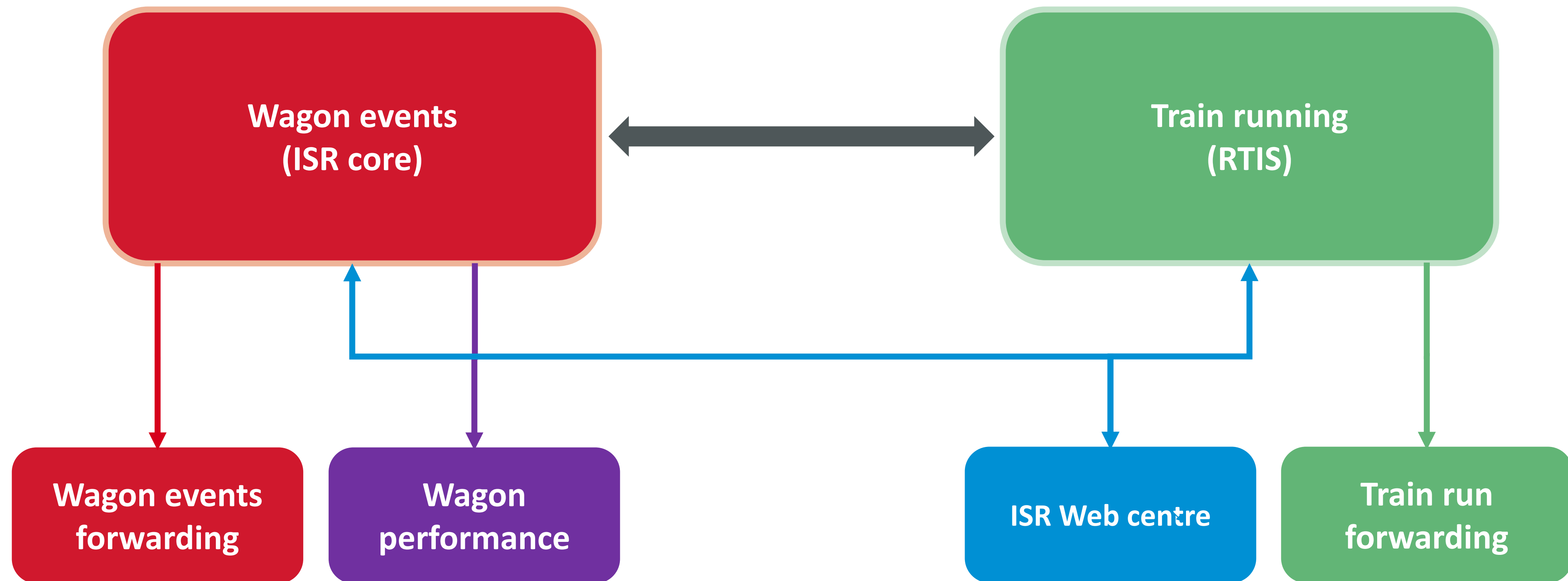


What is ISR?

- ▶ **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**.

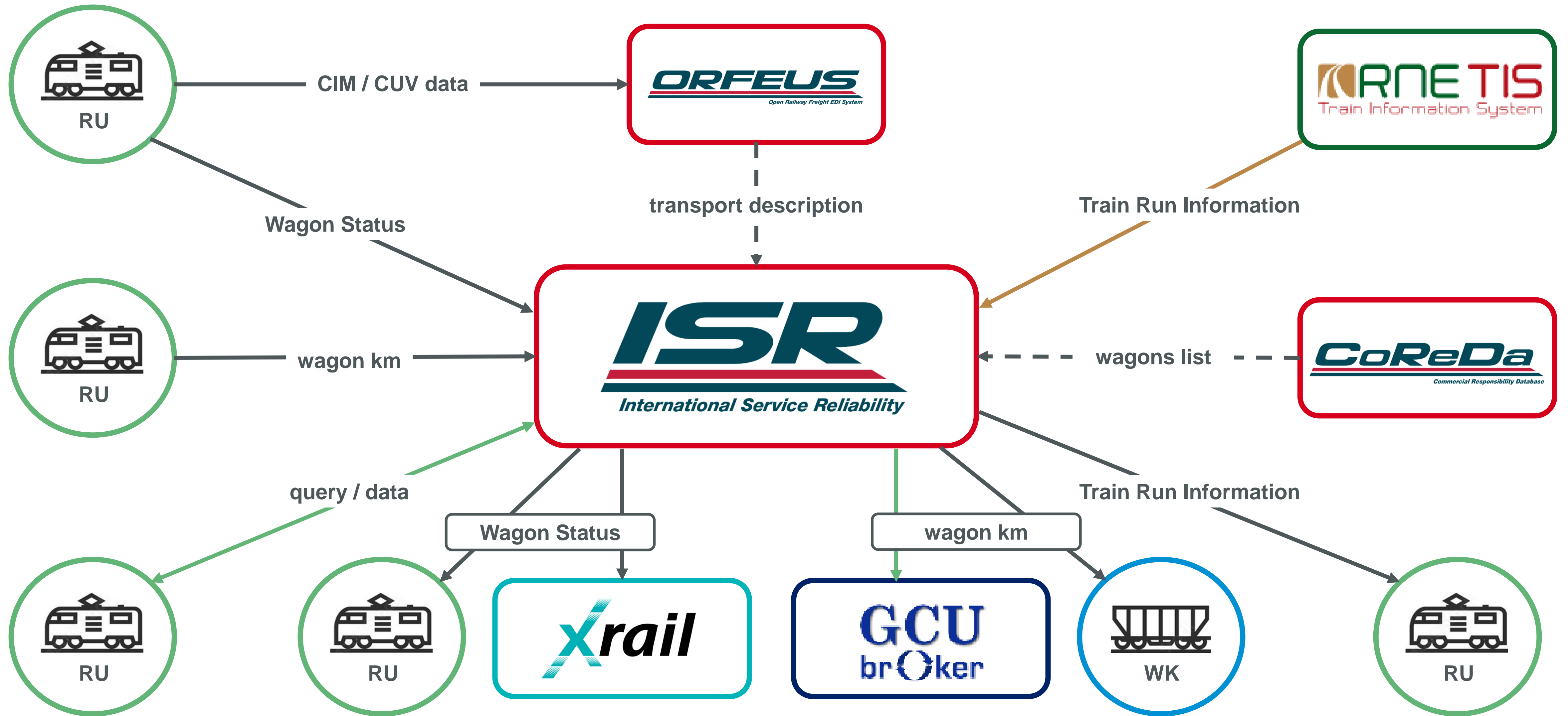


ISR – functions & modules



- ▶ Wagon status
- ▶ Wagon performance
- ▶ Train running
- ▶ Experienced plan

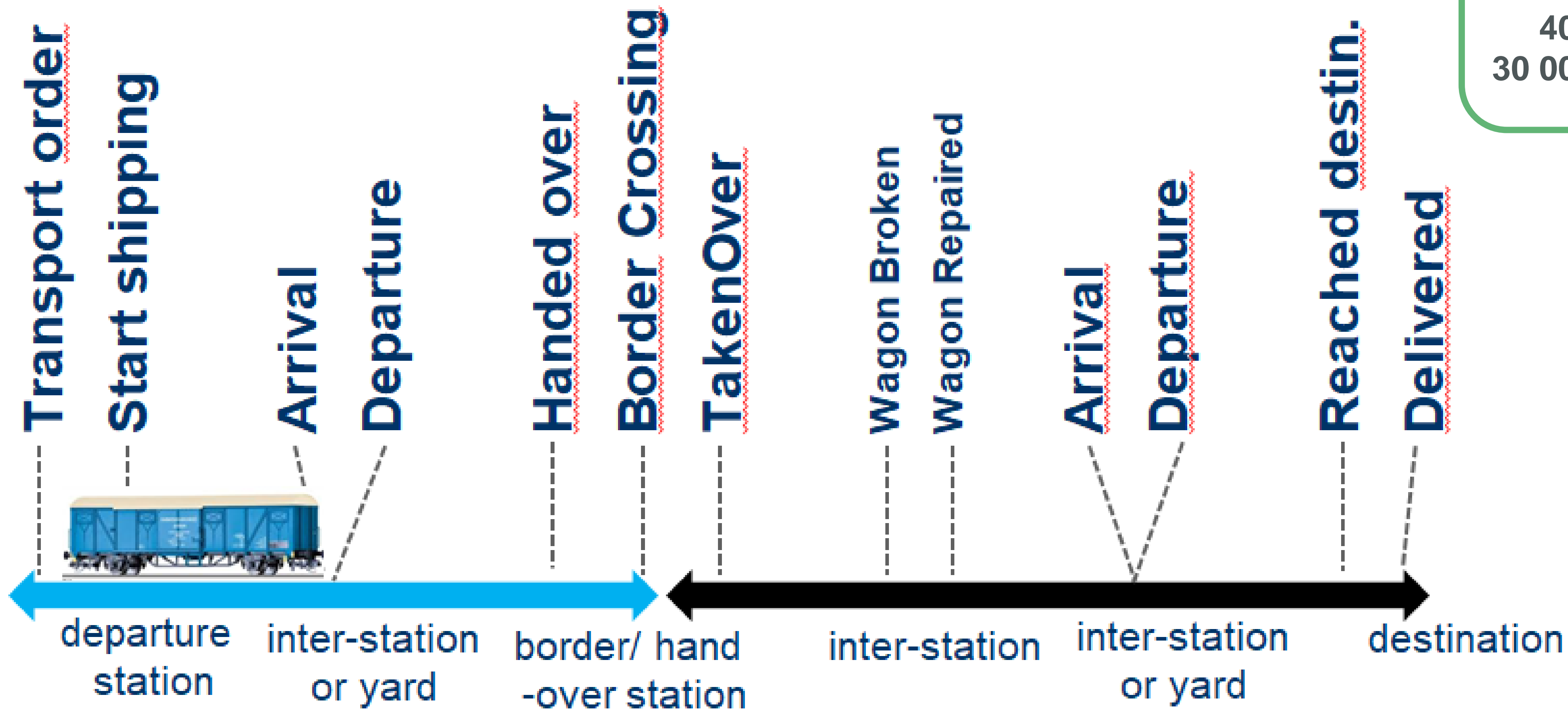
ISR online interfaces (simplified)



FTP → CI → WS → internal - - - - -

ISR – event driven wagon Track & Trace

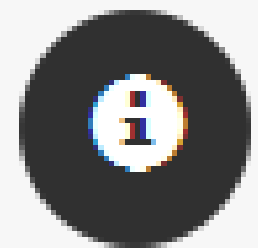
Simple example with basic events



Monthly:

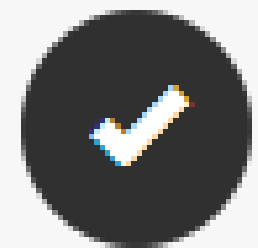
14 000 000 events received
400 000 train pre-advices
30 000 000 events for RUs

ISR benefits



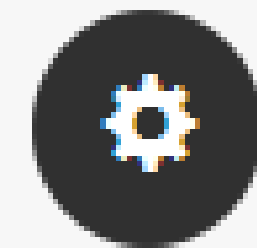
Information

Information for customers (on position of transports).



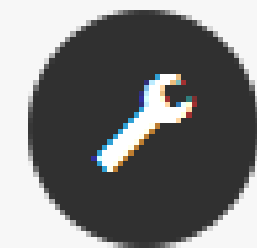
Tracking

Wagon tracking (current position and history).



Management

Fleet management (steering of empty wagons).

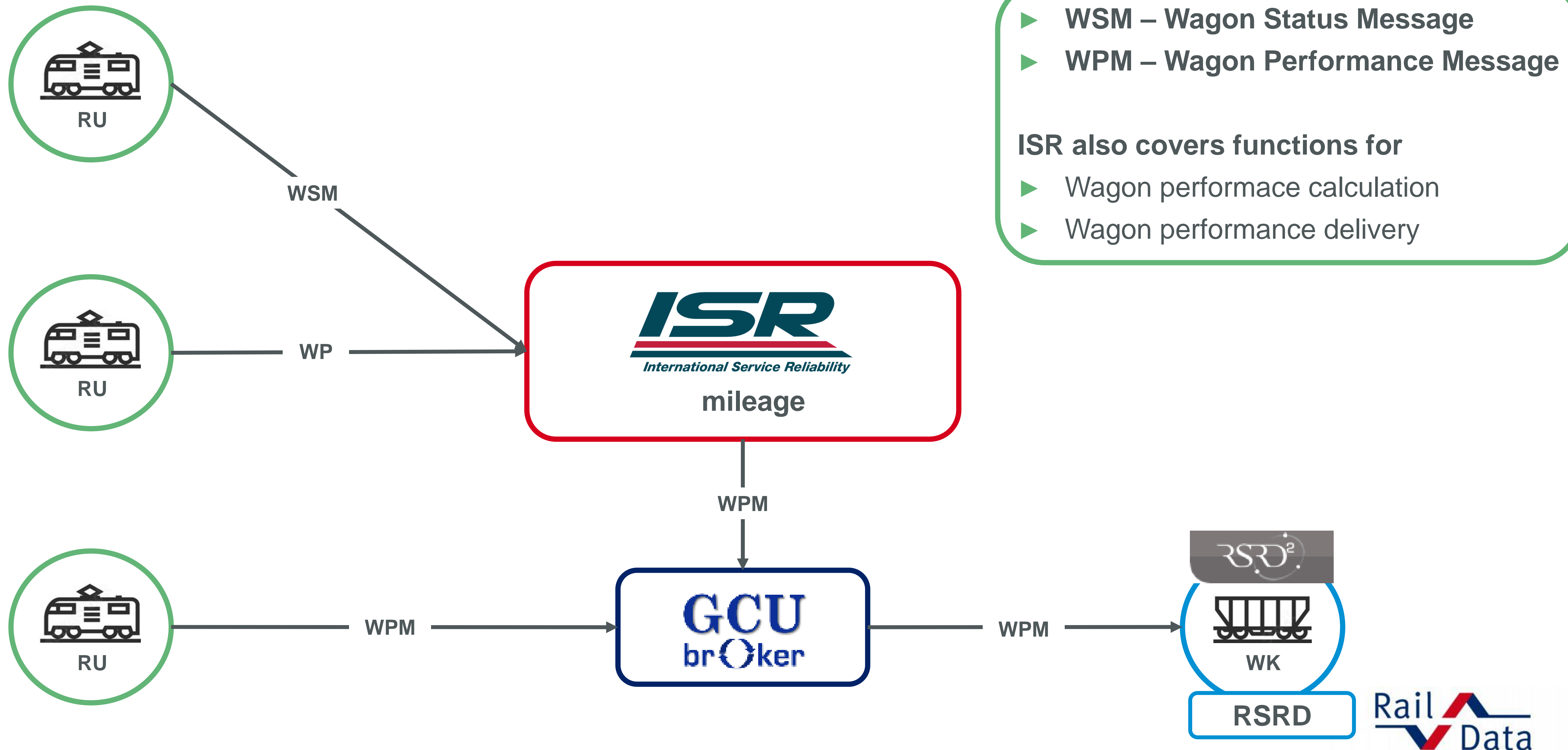


Maintenance

Wagon maintenance (based on wagon performance).



WPM – delivery from RUs to WKs

















ISR – data example

 Wagons Status

 Search

 Results



ISR	Wagon and Status	Event timestamp	Event type	Event Info				Consignment Note				Shipping Info				
				CC	Station	Station Name	Train	CC	Station	Number	Transit CC	Type	From		To	
													CC	Station	CC	Station
	258043672769 0	22.11.2023 13:32	HandOverAdvice	80	060061	BAD SCHANDAU	47309	80	342006	734350	80	C/C	80	34200	54	55991
	258043672769 0	22.11.2023 13:10	Departure	80	060525	DRESDEN-FRIEDRICHST	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 12:47	Arrival	80	060525	DRESDEN-FRIEDRICHST	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 12:09	PassedThrough	80	062299	Weißig (b Großenhain)	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 11:20	PassedThrough	80	232579	Jessen (Elster)	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 10:52	PassedThrough	80	237461	Coswig (Anh) Gbf	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 10:03	PassedThrough	80	149195	Biederitz	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 09:54	PassedThrough	80	156257	Magdeburg-Neustadt	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 09:15	PassedThrough	80	240317	Dreileben-Drackenstein	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 06:49	PassedThrough	80	149526	Eilsleben (b Magdeburg)	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 06:46	PassedThrough	80	240358	Wefensleben	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 05:44	PassedThrough	80	132449	BRAUNSCHWEIG RBF	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 04:40	Pulled	80	135624	SEELZE RBF	47309	80	342006	734350	80	C/P	80	34200	54	559914
	258043672769 0	22.11.2023 03:00	CreateTransportDossier	80	342006	SEELZE ATG-DREHSCHBE		80	342006	734517	80	C/C	80	34200	54	55991

ISR – data example

Wagons Status Search Results 258043672769

Print Delete

Wagon	
Wagon number	258043672769
Wagon status	empty
General information	
Sending railway	2180
Message timestamp	22.11.2023 04:41
CDS processing timestamp	22.11.2023 04:50
Filename	WSM51_16000294990557_44798.gz

Event information	
Event at in train	Pulled Wed 22.11.2023 04:40 80 135624 SEELZE RBF 47309

Last event of initially matched transport plan	
Event at in train recorded	ReachedDestination Thu 23.11.2023 00:03 54 55991 Mlada Boleslav mesto 55547 15

Last event of current matched transport plan	
Event at in train recorded	ReachedDestination Thu 23.11.2023 00:03 54 55991 Mlada Boleslav mesto 55547 15

	Information	Wagon status	Transport description	Current ETP
CONSIGNMENT NOTE	Consignment country	80	80	0
	Consignment station code	342006	342006	0
	Consignment number	734350	734350	0
	Contract number	0	610799	0
	Start : (weekday + Time)	Tue 21.11 at 12:00	Tue 21.11 at 03:00	Wed 04:58
FROM	C Shipping Country	80	80	80
	P Shipping Country	80	0	80
	C Shipping Station Code	342006	342006	34200
	P Shipping Station Code	342006	0	13562
	C Shipping Station Name	SEELZE ATG-DREHSCHBE	SEELZE ATG-DREHSCHBE	0
	P Shipping Station Name	SEELZE ATG-DREHSCHBE	0	0
TO	C Destination Country	0	54	54
	P Destination Country	54	0	54
	C Destination Station Code	0	559914	55991
	P Destination Station Code	559914	0	55991
	C Destination Station Name	0	MLADA BOLESLAV MESTO	0
	P Destination Station Name	Mlada Boleslav Mesto	0	0
VIA	Route Information	0	0	0
CARRIERS	Access Information RU/Status/Pos/Access	2180 0 01 1	2180 0 01 1	2180 0 01 1
		2154 1 02 1	2154 1 02 1	2154 1 02 1
TRANSPORT	Containers	0	N	N
	NHM	0	992200	0

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

3220

LINEAS (FRANCE)

2182

CFL CARGO SA
(LUXEMBOURG)

2154

ČD CARGO, A.S. (CZECHIA)

3247

DB CARGO BULGARIA EOOD
(BULGARIA)

2180

DB CARGO AG (GERMANY)

2380

DB CARGO ITALIA SRL
(ITALY)

2184

DB CARGO NEDERLAND N.V.
(NETHERLANDS)

3100

DB CARGO POLSKA SPÓŁKA
AKCYJNA (POLAND)

3146

DEUTSCHE BAHN CARGO
ROMANIA SRL (ROMANIA)

2186

DB CARGO SCANDINAVIA
A/S (DENMARK)

3187

DB CARGO FRANCE SAS

12

TRANSFESA (SPAIN)

2174

GREEN CARGO AB (SWEDEN)

2178

HŽ CARGO D.O.O. (CROATIA)

2188

LINEAS (BELGIUM)

2183

MERCITALIA RAIL (ITALY)

2181

RAIL CARGO AUSTRIA AG
(AUSTRIA)

2155

RAIL CARGO HUNGARIA ZRT.
(HUNGARY)

2171

RENFE MERCANCÍAS, S.A
(SPAIN)

2185

SBB CFF FFS CARGO
(SWITZERLAND)

2187

SNCF MOBILITES - FRET
(FRANCE)

2179

SLOVENSKE ŽELEZNICE -
TOVORNI PROMET, D.O.O.
(SLOVENIA)

2156

ŽELEZNIČNÁ SPOLOČNOSŤ
CARGO SLOVAKIA, A.S.
(SLOVAKIA)

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



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QUESTIONS & ANSWERS

SHAPING THE EUROPEAN WAGON DATA EXCHANGE



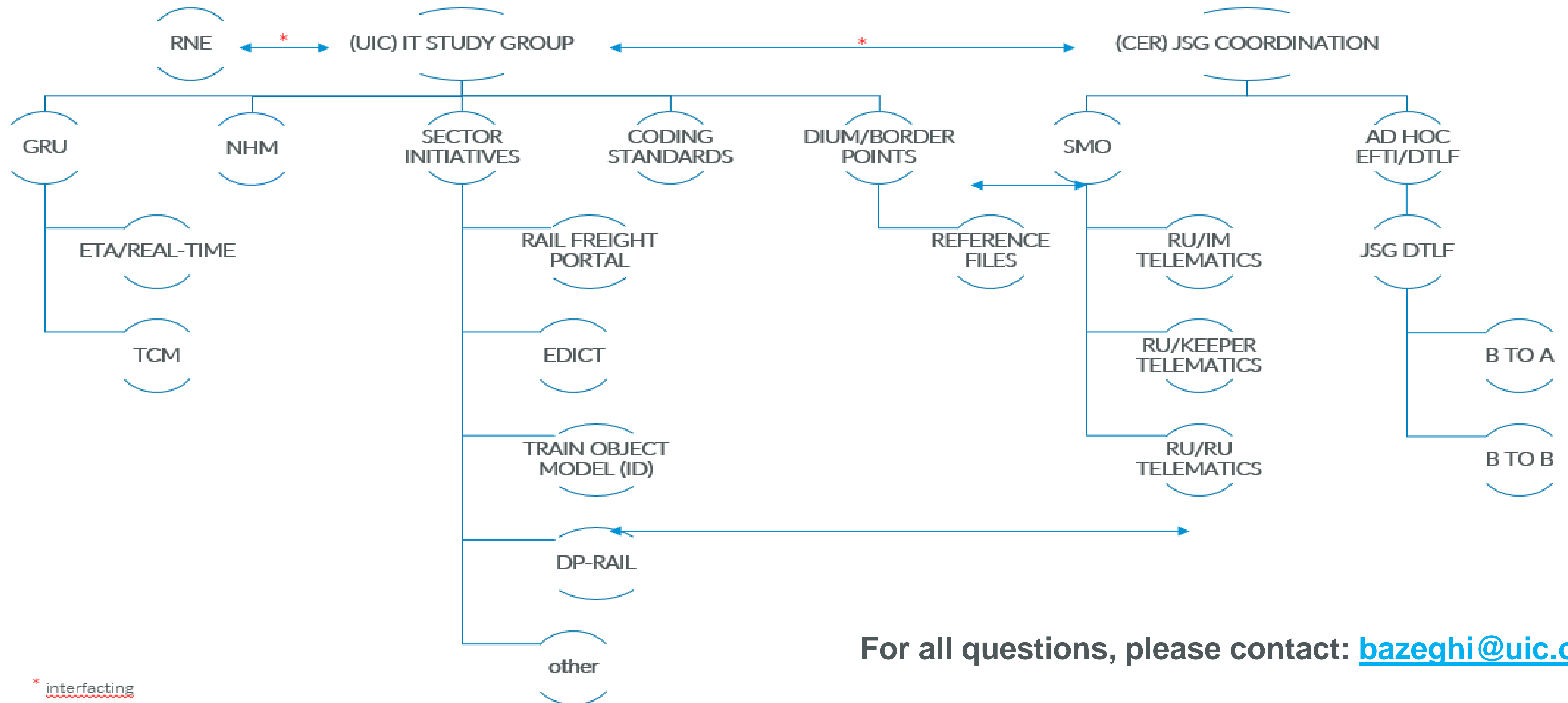
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UIC EXPERTISE

SHAPING THE EUROPEAN WAGON UTILISATION

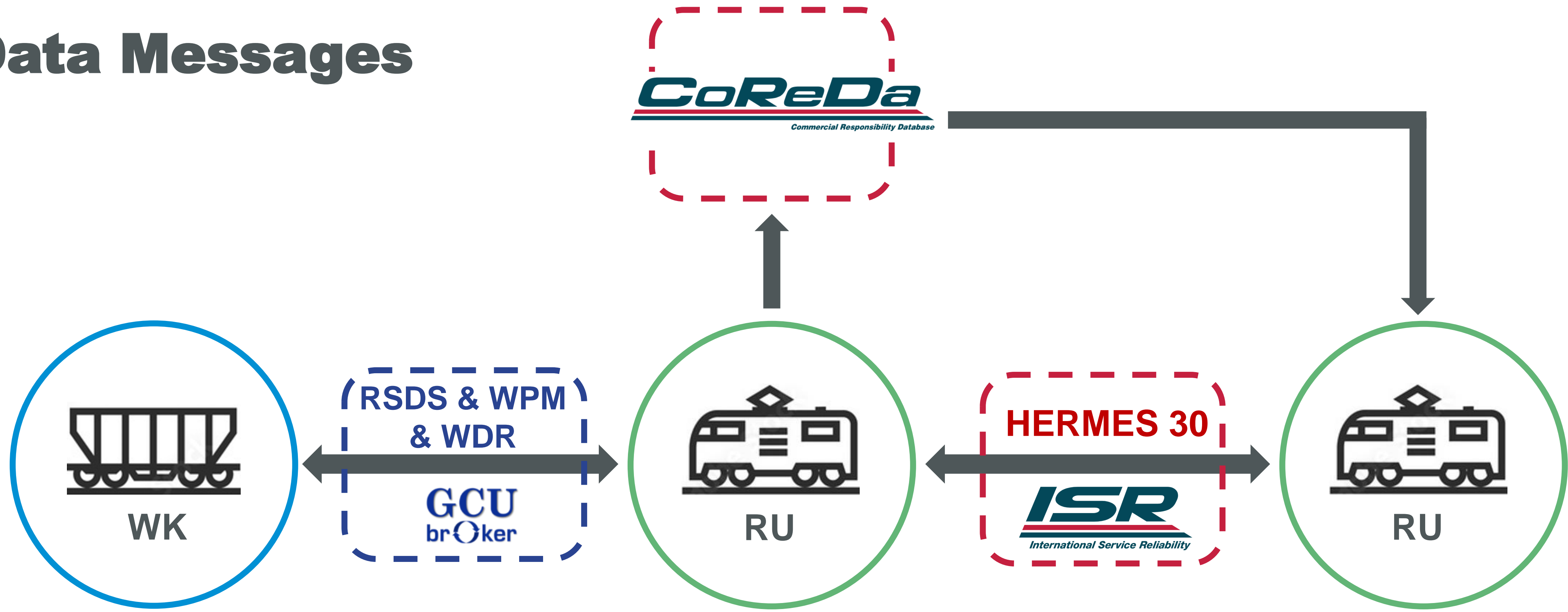
Railway telematics coordination

- ▶ 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.



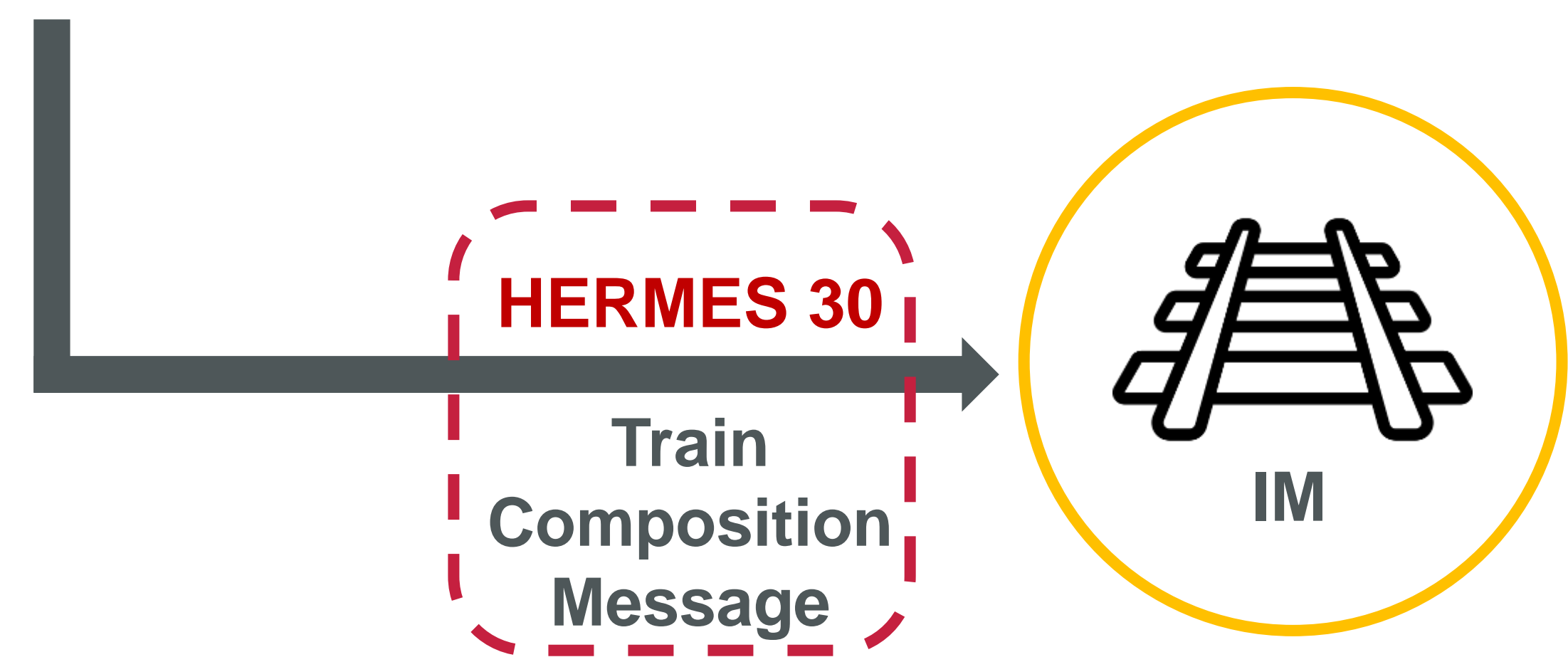
For all questions, please contact: bazeghi@uic.org

Data Messages



Data Framework

Telematics Applications
for Freight Service TSI





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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**



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