

Implementation of the European Register of Infrastructure (RINF)

13 June 2019, WP.6 Geneva

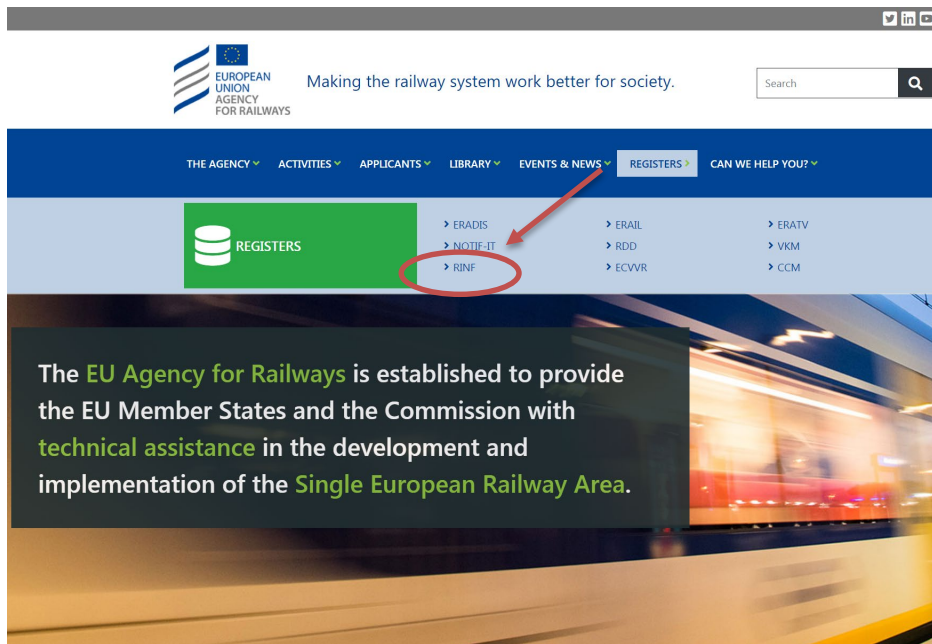


- What is RINF
- RINF architecture and purposes
- RINF implementation and evolution
- RINF parameters (variables available)
- RINF potential for better statistical data

- RINF - European Register of Infrastructure - established in the Interoperability Directive (*Directive (EU) 2016/797, Art.49*): Database + Common user interface.
- It provides for **transparency** concerning the main features of the European Railway infrastructure.
- The **common technical specifications** are set out in a Commission Implementing Decision (*Decision 2014/880/EU*)
- The RINF Decision obliges each Member State to nominate an entity (NRE) in charge of setting up and maintaining its register of infrastructure and to notify an implementation plan.
- **Member States remain responsible** of the correctness/ completeness of data published.

RINF CUI is accessible since March 2015 to any person who request a user account.

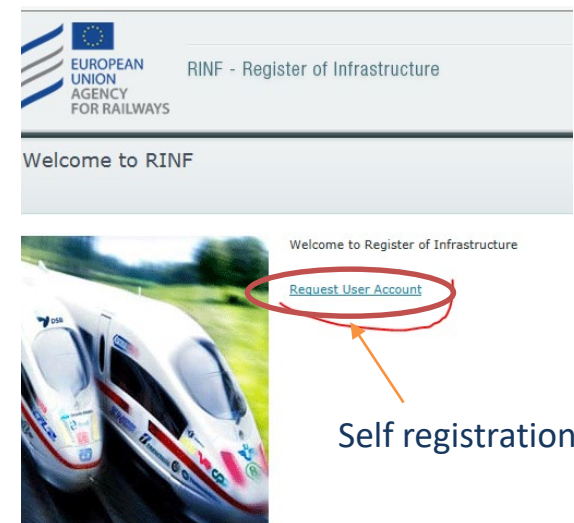
RINF page (Agency Web site)



The screenshot shows the Agency website header with the logo and tagline "Making the railway system work better for society." Below the header is a navigation menu with "REGISTERS" highlighted. A dropdown menu for "REGISTERS" is open, showing links to ERADIS, ERAIL, ERATV, NOTIF-IT, RDD, VKM, RINF, ECVVR, and CCM. The "RINF" link is circled in red, and a red arrow points to it from the "REGISTERS" menu item. Below the menu is a banner with a blurred train image and text: "The EU Agency for Railways is established to provide the EU Member States and the Commission with technical assistance in the development and implementation of the Single European Railway Area."



Home page (RINF CUI)

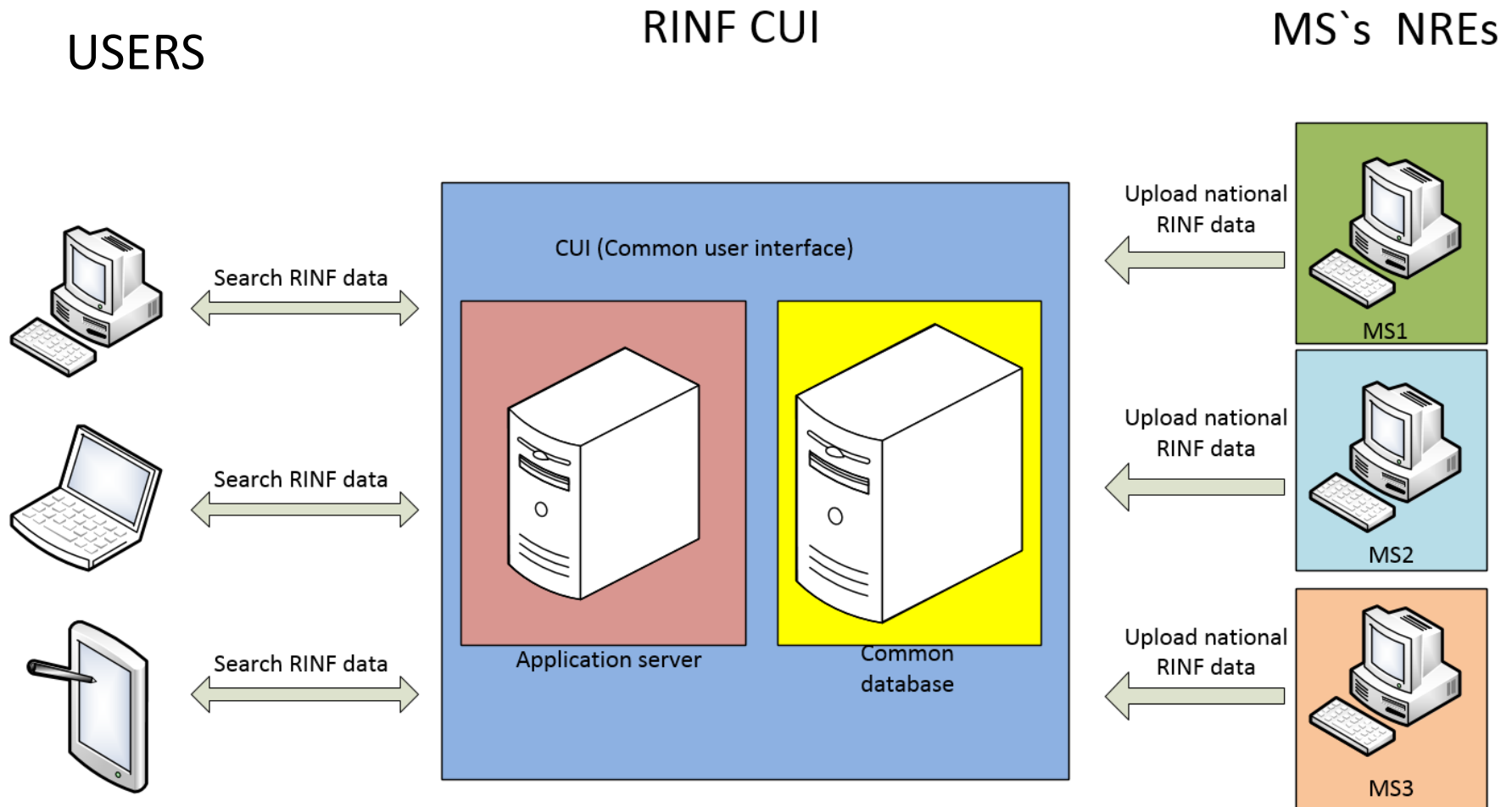


The screenshot shows the RINF CUI home page. The header includes the Agency logo and the text "RINF - Register of Infrastructure". Below the header is a "Welcome to RINF" message. The main content area features a blurred train image and the text "Welcome to Register of Infrastructure". A link labeled "Request User Account" is circled in red, and an orange arrow points to it from the text "Self registration" below. At the bottom of the page, there is a footer with links for "Terms of Use", "Copyright Notice", "Privacy Statement", and "File Version: 1.3.1.21876 | The defini".

Direct link:

<https://rinf.era.europa.eu/rinf>

<https://rinf.era.europa.eu/rinf>



RINF: Register of Infrastructure
CUI: Common User Interface
NRE: National Register Entities

PROCESS SUPPORTED BY RINF (PURPOSE)		RINF I 2011/633/EU	RINF II 2014/880/EU	RINF III
<i>Implementation due date</i>		15/09/2014	16/03/2017 16/03/2019	31/12/2020
Administrative / Policy	Verification of technical compatibility between fixed installations	●	●	●
	Establishment of network statement			●
	Monitoring interoperability of the Union railway network	●	●	●
Train service planning	Designing rolling stock subsystems	●	●	●
	Check of the feasibility of train services	●	●	●
Train preparation	Publication of rules and restrictions of local nature			●
	Check before the use of authorised vehicles			●
Train operation	<i>Compilation of the Route Book</i>			●
	Reuse of data in the register of infrastructure in other IT tools			●

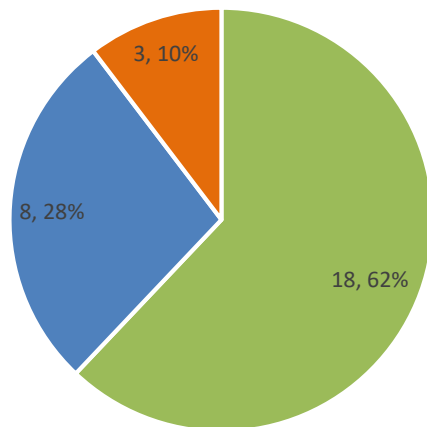
Implementation of RINF Decision (2014/880/EU)

As of 07 May 2019

Gradual data provision requirements – by 16.03.2019: all but privately-owned sidings

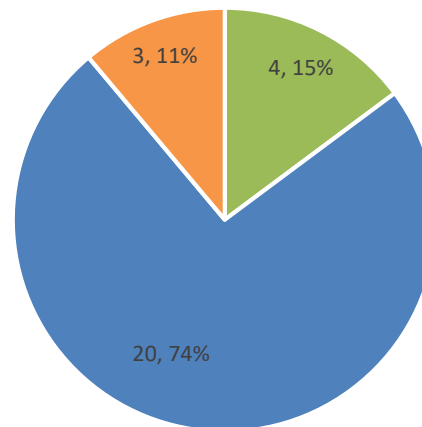
For roughly 2/3 of EU MSs, the line description – basic parameters complete.

Line completeness



■ Available ■ Partly available ■ Not yet available

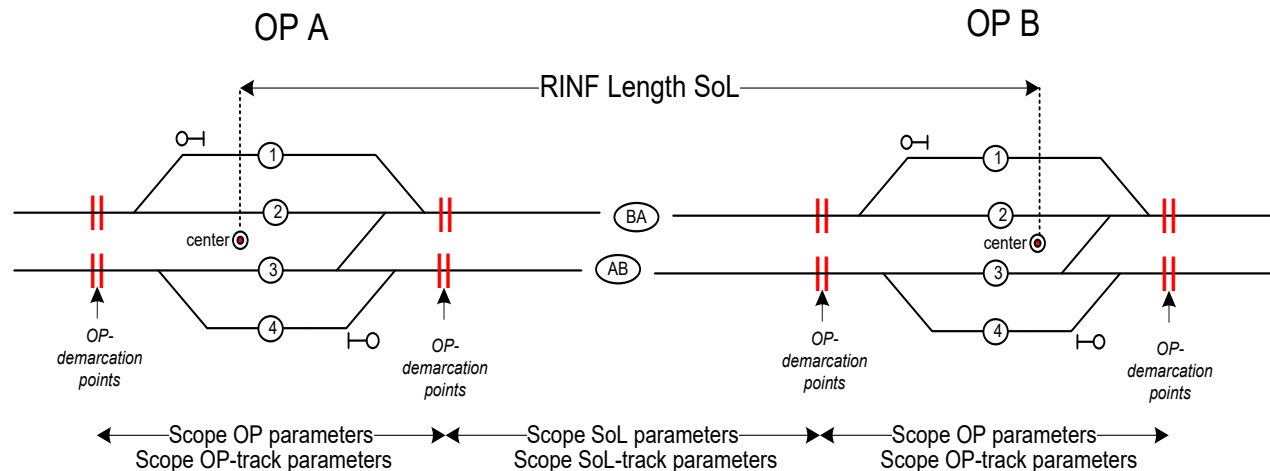
Line/track parameter completeness



■ Available ■ Partly available ■ Not yet available

Note: Unlike regulatory data collections, the RINF includes private infrastructure description (can be filtered out for statistical purposes).

Schematic description, with parameters at the level of tracks



- ‘Operational Point’ (OP)
 - means any location for train service operations,
 - where train services may begin and end or change route,
 - and where passenger or freight services may be provided;
 - means also any location at boundaries between Member States or infrastructure managers;
- ‘Section of Line’ (SoL)
 - means the part of line between adjacent operational points and may consist of several tracks;
- ‘Running track’
 - means any track used for train service movements;
- ‘Siding’
 - means any track within an operational point, which is not used for operational routing of a train.

Parameters groups

Identification

Performance parameters (Category, Load, Speed, Altitude, Temperature range...)

Line parameters, Layout (Gauge, Gradient profile)

Track parameters (Track gauge, rail inclination, cant deficiency)

Switches and crossings, Tunnels, Platform, ...

Contact line system (Voltage and frequency, maximum train current, min/max contact wire height)

Train protection system (ETCS+GSM-R, Legacy systems + Radio)

Train detection system

Fixed installations for servicing trains

...

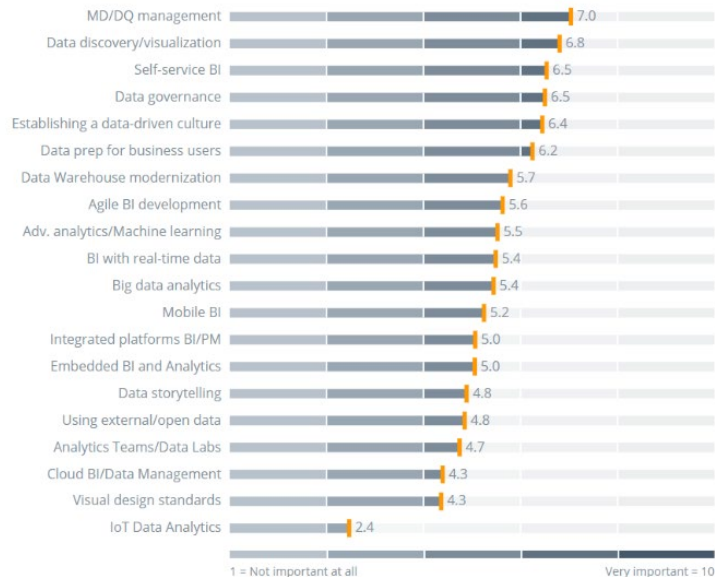
150+ parameters

Data collected through COQ, available in RINF

- All railway infrastructure data (38 fields)
- A low-hanging fruit in regulatory MDM?

Master Data & Data Quality seen as the most important trend in business analytics for 2019.

Importance of Business Intelligence Trends in 2019 (n=2,679)

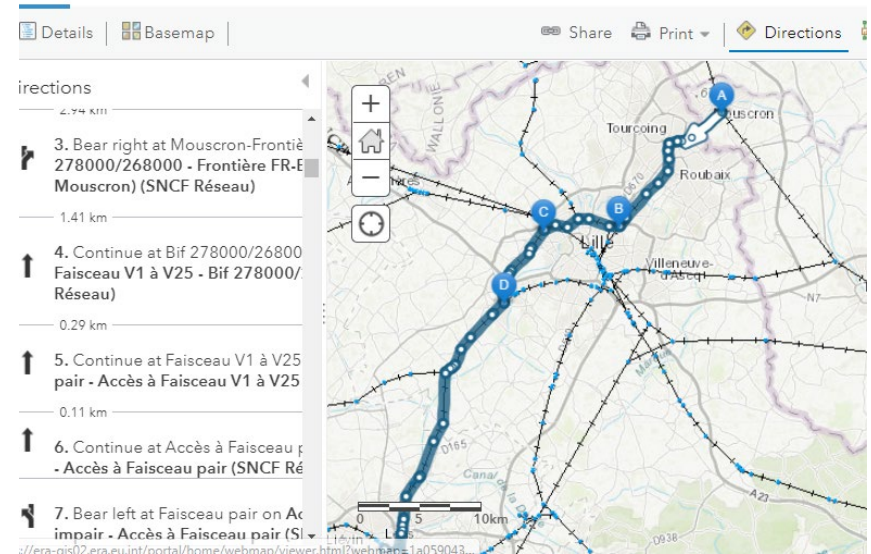
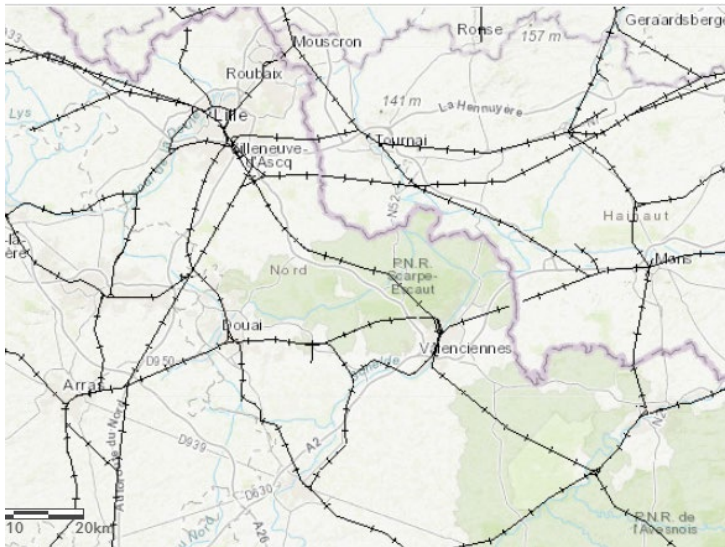


Source: Business Application Research Center

Length operated at 31.12 (km)		
A-I-01-05-0.0-0.0	Total	
Length operated at 31.12 (km) > By type of traction		
A-I-01-05-23.2-0.0	Electrified	
A-I-01-05-23.1-0.0	Non electrified	
RAILWAY TRANSPORT > Infrastructure > Lines		
ID		Title
Length operated at 31.12 (km)		
A-I-02-05-0.0-0.0	Total	
Length operated at 31.12 (km) > By nature of traffic		
A-I-02-05-11.1-0.0	Passenger only	
A-I-02-05-11.2-0.0	Freight only	
A-I-02-05-11.3-0.0	Passenger and freight	
Length operated at 31.12 (km) > By number of tracks		
A-I-02-05-12.1-0.0	Single track	
A-I-02-05-12.2-0.0	Double track or more	
Length operated at 31.12 (km) > By track gauge		
A-I-02-05-15.1-0.0	Standard gauge	
A-I-02-05-15.2-0.0	Large gauge	
A-I-02-05-15.3-0.0	Narrow gauge	
Length operated at 31.12 (km) > By type of line		
A-I-02-05-82.1-0.0	Dedicated high speed lines	
A-I-02-05-82.2-0.0	Upgraded high speed lines	
A-I-02-05-82.3-0.0	Conventional lines	
RAILWAY TRANSPORT > Infrastructure > Lines - Non electrified		
ID		Title
Length operated at 31.12 (km)		
A-I-02-05-23.1-0.0	Total	
Length operated at 31.12 (km) > By type of line > By nature of traffic		
A-I-02-05-23.1-11.1	Passenger only	
A-I-02-05-23.1-11.2	Freight only	
A-I-02-05-23.1-11.3	Passenger and freight	
Length operated at 31.12 (km) > By type of line > By number of tracks		
A-I-02-05-23.1-12.1	Single track	
A-I-02-05-23.1-12.2	Double track or more	
Length operated at 31.12 (km) > By type of line > By track gauge		
A-I-02-05-23.1-15.1	Standard gauge	
A-I-02-05-23.1-15.2	Large gauge	
A-I-02-05-23.1-15.3	Narrow gauge	
RAILWAY TRANSPORT > Infrastructure > Lines - Electrified		
ID		Title
Length operated at 31.12 (km)		
A-I-02-05-23.2-0.0	Total	
Length operated at 31.12 (km) > By type of line > By nature of traffic		
A-I-02-05-23.2-11.1	Passenger only	
A-I-02-05-23.2-11.2	Freight only	
A-I-02-05-23.2-11.3	Passenger and freight	
Length operated at 31.12 (km) > By type of line > By number of tracks		
A-I-02-05-23.2-12.1	Single track	
A-I-02-05-23.2-12.2	Double track or more	
Length operated at 31.12 (km) > By type of line > By track gauge		
A-I-02-05-23.2-15.1	Standard gauge	
A-I-02-05-23.2-15.2	Large gauge	
A-I-02-05-23.2-15.3	Narrow gauge	
Length operated at 31.12 (km) > By type of line > By type of current		
A-I-02-05-23.2-19.1	50 Hz/25000 V	
A-I-02-05-23.2-19.2	16 2/3 Hz/15000 V	
A-I-02-05-23.2-19.3	Other alternative current, please specify	
A-I-02-05-23.2-19.4	DC 3000 V	
A-I-02-05-23.2-19.5	DC 1500 V	
A-I-02-05-23.2-19.6	Other direct current (DC), please specify	

Main updates of the RINF application (June 2019)

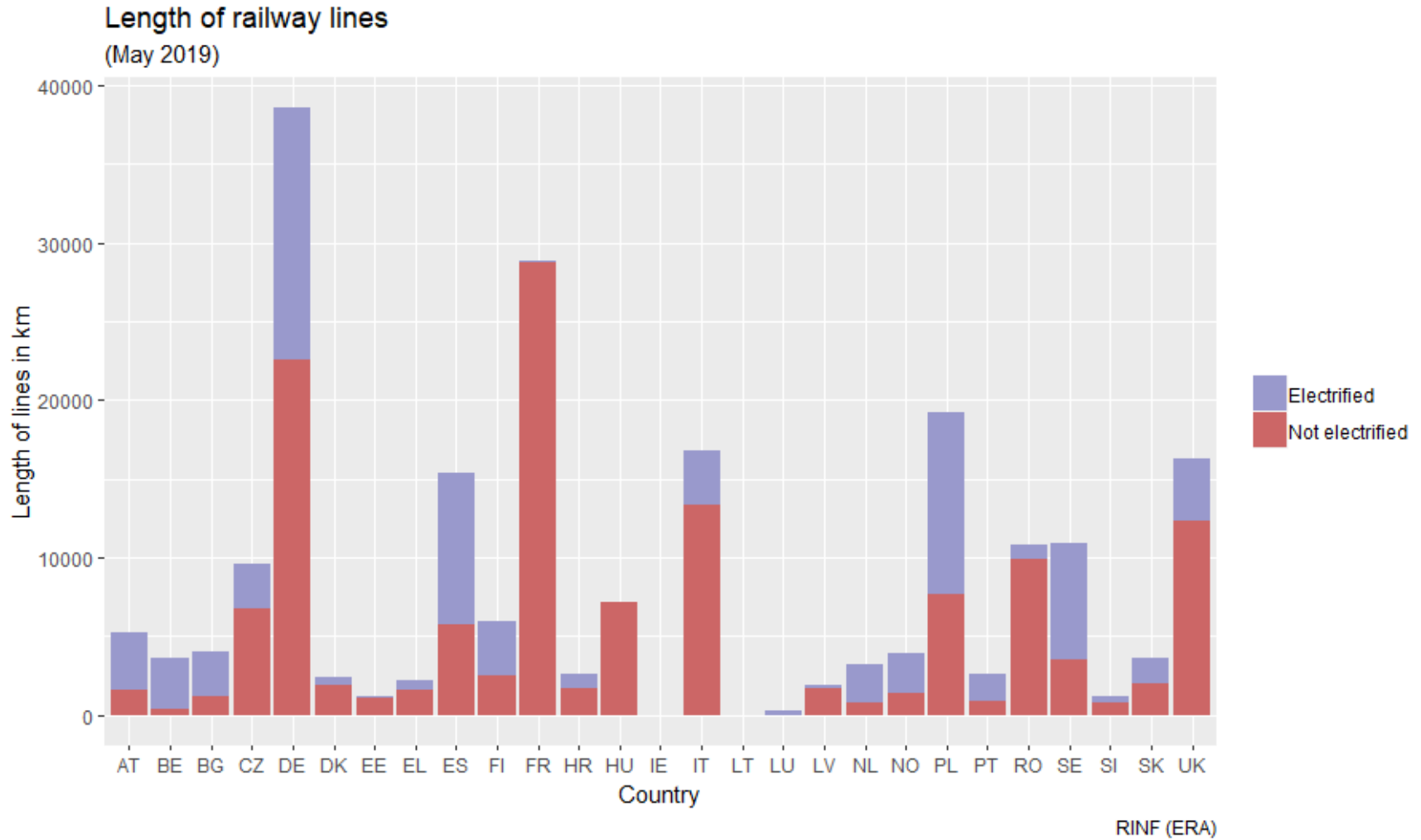
- Introduction of the new parameters defined by the draft regulation (most of them are needed for vehicle-route compatibility check)
- Availability of documents in electronic format
- Improved visualisations, including real geometry of lines



- Route identification (for route planning purposes)
- Filtering of RINF Data based on different technical characteristics and export

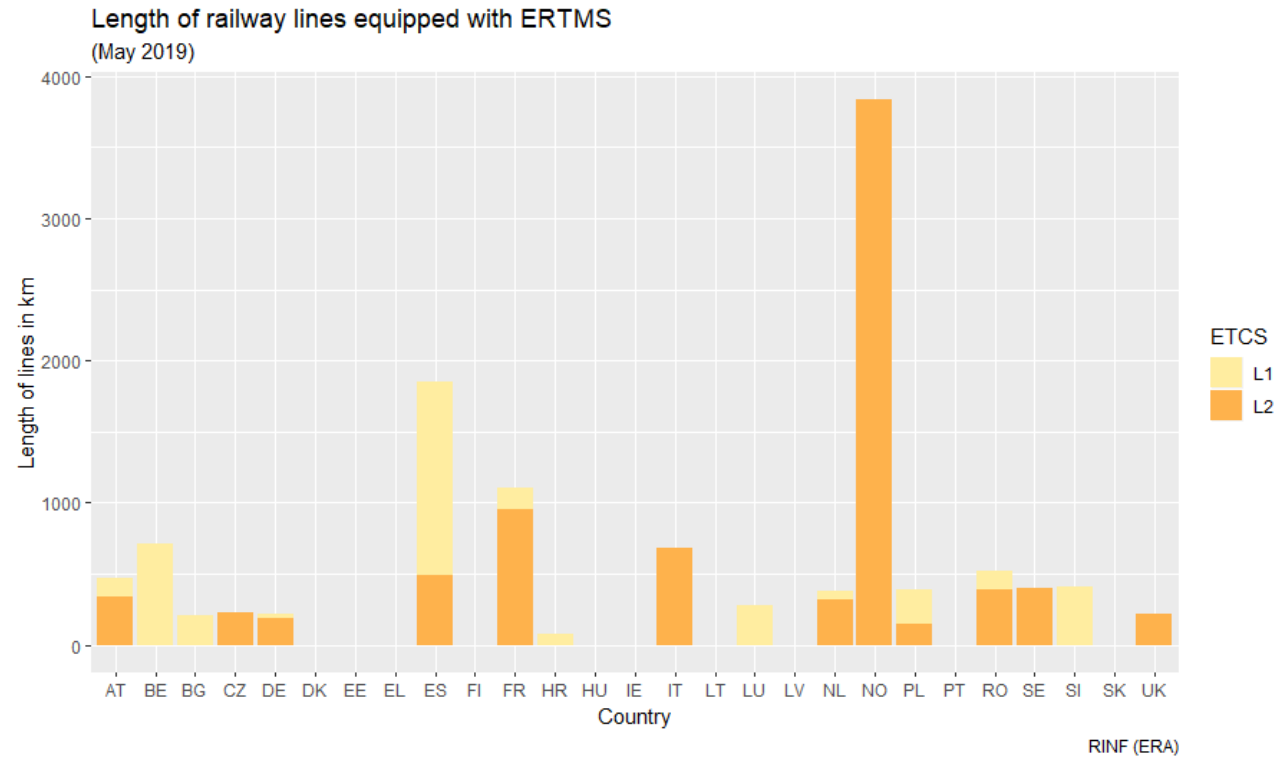
- Facilitation of the **compatibility check: vehicle - infrastructure**
- Enabling/Enhancing the **re-use of RINF data** by other IT systems
 - Internally (8 other registers operated by the Agency)
 - Semi-externally (Applications maintained by EC, including Eurostat)
 - Last-mile infrastructure portal
 - TENtec, GISCO
 - Externally (Applications by third-parties relying on the master data in RINF)
 - One stop shop for paths, timetabling, ... (RNE)
- **Next major milestone:** Update the RINF application to enable the collection and insertion of information necessary for the Route Book by **16 January 2022**, with data available one year later

Example of available statistical data (1)



The same dataset collected in COQ, PRIME, UIC, ... > An opportunity for MDM

Example of available statistical data (2)



 Global ERTMS Deployment by Country
Source: UNIFE December 2017



Co-operation with Eurostat in place (roadmap)
to make these available in Eurobase in 2020.

- Registers might be a low-hanging fruit for better statistical data
- Compared to regulatory statistical database, it may deliver better quality statistical data:

Dimension of data quality	Now	Mid-term
Accuracy	Worse	Better
Completeness	Worse	Better
Consistency	Same	Same
Uniqueness	Same	Same
Timeliness	Better	Better
Validity	Same	Same
Integrity	Better	Better
Reasonability	Better	Better



Making the railway system work better for society.

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