The challenges of coherent rail transport statistics 74<sup>th</sup> UNECE Working Party on Transport Statistics

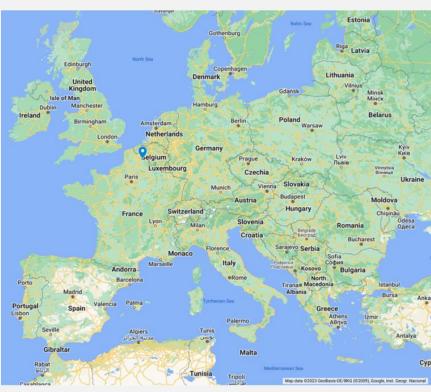
Giacomo Potenza | 16 May 2023 | Geneva





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## Who is ERA



The European Union Agency for Railways:

- Founded in 2004 and based in Valenciennes, France
- Approximately 200 staff members
- > Operating according to <u>Regulation (EU) 2016/796</u> and performing tasks such as:
  - Devise the technical and legal framework to remove technical barriers for rail interoperability;
  - Promoting, monitoring and auditing a harmonised approach to rail safety;
  - Issuing vehicle authorisations, single safety certificates of railway undertakings and approvals for track-side deployment of the ERTMS signalling system
- Maintaining 13 registers of rail-related data and documents, including the Register of Infrastructure (<u>RINF</u>) and the European Vehicle Register (<u>EVR</u>)

Publishing <u>studies and reports</u> on railways, including statistics to monitor interoperability and safety in the EU





Why is it a challenge to collect coherent rail transport statistics at international level?

### **Multiple organisations**

Different Institutions and industry associations collect rail statistics for different reason: legal obligations, membership management, policy, market monitoring. Data collection is often indirect through national organisations

### **Different scope of reporting**

Data collection is tailored for each international organisation and relevant exclusions from country, network, fleets, operations, type of traffic are required

### Similar but not identical definitions

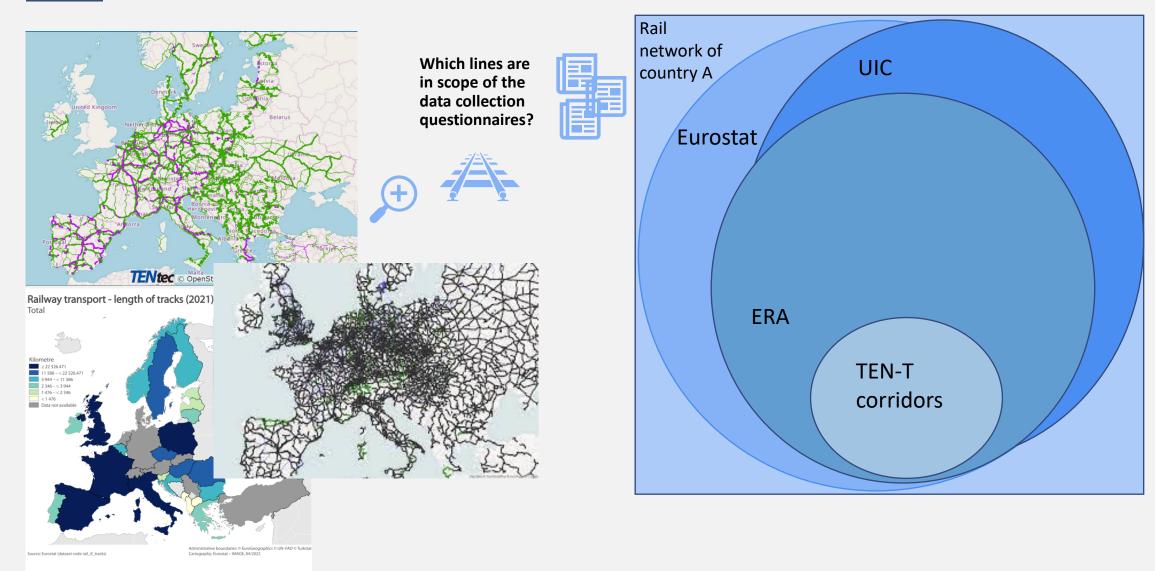
Indicators to be fed with data following each organisations' definitions. Small differences generate misunderstandings and incorrect data submission by rail industry ultimate data providers





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# The scope of reporting, a challenge to report accurately





### ERA Task Force on Data Quality Subgroup on Railway Statistics

From October 2022 to March 2023, we worked with many organisations to improve accuracy, consistency, completeness and timeliness of data by discussing comparability across datasets of definitions, scope and sources used.

#### What we did:

- Mapping of definitions and data providers for about 20 indicators;
- Identifying possible overlaps and data quality issues among different organisations
- Making proposals for harmonization and clarity
- > Interacting as a community of rail statistics experts





We worked with organisations that collect and publish identical or similar rail stats indicators in Europe

Organisation	Data collected	Link to publications
National Rail Safety Authorities	CSI data, relevant for train-km, tonne-km, etc	CSI dataset and national purposes
Eurostat	Stats according to <u>Regulation (EU) 2018/643</u> and <u>Common Questionnaire for Inland Transport</u> <u>Statistics</u>	Transport Statistics
ITF	Common Questionnaire for Inland Transport Statistics	ITF Transport Statistics
UNECE	Common Questionnaire for Inland Transport Statistics	<u>UNECE Working Party on</u> <u>Transport Statistics (WP.6)</u>
DG MOVE European Commission	Stats according to <u>Commission Implementing</u> <u>Regulation (EU) 2015/1100 on Rail Market</u> <u>Monitoring Scheme</u> and own production of a Pocketbook	RMMS Statistical Pocketbook
IRG-Rail	Market monitoring by national rail regulatory bodies	Market Monitoring
PRIME	Platform of main IMs collecting KPIs for benchmarking as per Article 7f of <u>Directive(EU)</u> 2016/2370	PRIME KPI Subgroup PRIME External Report PRIME KPI Catalogue
UIC	Various statistics from UIC members, Railisa database	UIC Statistics
CER	Statistics from CER members for annual activity report	CER Annual Reports
EIM	Statistics from EIM members for annual report	EIM Annual Reports



# The indicators the Task Force worked on

Starting from the Common Questionnaire ESTAT/ITF/UNECE glossary, we compared in each organisation:

- Definitions
- Scope

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- Major inconsistencies of results

Ν.	Indicator	ERA	DG MOVE	Eurostat	UIC	EIM*	IRG-Rail	OECD (ITF)	NSAs	PRIME	UNECE
	Infrastructure										
1.	Line-km	V		V	V	V	V	V	V	V	V
2.	Electrified Line-km			V	V	V	V	V		V	V
3.	High-speed Line-km			V	V	V	V	V		V	V
4.	Track-km			V	V	V		V	V	V	
5.	Line-km equipped with ERTMS	V					V			V	
6.	Line-km part of TEN-T		V			V	V				
7.	Freight and multi-modal terminals		V				V				
				Transport	equipment						
8.	Rolling stock			V	V			V			V
9.	Vehicles equipped with ERTMS	V							V		
				Enter	prises						
10.	Number of RUs			V			V	V			V
11.	Number of IMs			V				V			V
12.	Revenue		V		V	V	V				
13.	Investments and maintenance		V	V	V	V	V	V			V
14.	Number of train drivers	V	V		V						
				Tra	ffic						
15.	Train-km	V	V	V	V	V	V	V	V	V	V
				Transport m	easurement						
16.	Tonnes transported			V	V			V	V		V
17.	Tonne-km	V	V	V	V	V		V	V	V	V
18.	Passengers transported			V	V		V	V			V
19.	Passenger-km	V	V	V	V	V	V	V	V		V
20.	Modal split freight transport	V	V	V				V			V
21.	Modal split passenger transport	V	V	V				V			V



# Some major misalignments identified

Eurostat compared some statistics from the CQ, from Eurostat legal basis, from ERA Common Safety Indicators, from ERA's Register of Infrastructure and from UIC

Line-km					Track-	-km																	
	Eurostat/ITF		ERA CSI			Eurostat/ITF																	
Year	/UNECE	RINF	item	diff ERA	Year	/UNECE		ERA CSI di	f ERA CSI														
2020	Common	KINF	R08	CSI / CQ	2020	Common		item RO3 /	Q														
	Questionnair		Rus			Questionnai					Tractiv		Dcongos trononest	Excisit									
AT	5,607	5,221	5,299	-5%	AT	N/A	7,335	7,522	N/A		Tractiv	estock	Passenger transport stock	Freight transport stock									
BE	N/A	3,907	3,618	3	BE	N/A	6,796	6,542	N/A		locomotives	railcars		-									
BG	4,029	3,726	4,029	0%	BG	5,464	4,709	6,454	18%	Austria	CQ > UIC (~10%)	CQ << UIC (50%)	CQ < UIC (20%)	CQ = UIC									
СН	5,317	5,843	3,837	-28%	СН	N/A	11,614	5,470	N/A	Belgium			g from CQ										
										Bulgaria	60 · · · · · · · · · · · · · · · · · · ·		g from CQ	60 100									
CZ	9,542	9,662	9,599	9 1%	CZ	15,360	11,759	15,486	1%	Croatia Czech Republic	CQ > UIC (~33%) CQ > UIC (~40%)	CQ = UIC UIC 2020 > CQ > UIC 2021	CQ = UIC CQ < UIC (20%)	CQ = UIC CQ > UIC (~50%)									
				400/						Denmark	CQ >> UIC	CQ < UIC 2021 (~15%)	CQ >> UIC	absent from CQ and UIC									
DE	38,394	34,252	33,299	-13%	DE	N/A	53,507	60,872	N/A	Estonia	00		g from UIC	absent nom cg and orc									
DV/	1.000	2.040	0.000	200/						Finland			g from CQ		Tor	ne-km (millions)			Pas	senger-km (million	s)		
DK	1,998	2,048	2,633	32%	DK	N/A	3,068	3,729	N/A	France	CQ > UIC 2020 (~30%)	CQ << UIC 2020 (40%)	CQ > UIC (~50%)	CQ >> UIC		Eurostat/ ITF / Eurostat I	U				urostat EU		W// 50 A
EE	1,167	1,011	1,167	0%	EE	2,143	1,108	2,143	0%	Germany			g from CQ		2020	0 UNECE Common regulation	ERA CSI R07	diff ERA CSI / CQ	202	0 UNECE Common r			liff ERA CSI / CQ
EL	2,345	3,021	2,345	0%	EL	3,039	3,606	3,039		Greece			g from UIC			Questionnaire 643/2018	1107		_	Questionnaire 6	43/2018		
ES	16,135	15,316	15,519	-4%	ES	22,274	21,304	21,533	-3%	Hungary	CQ > UIC (~50%)	CQ > UIC (~50%)	CQ > UIC (~25%)	absent from UIC	AT	20.498 20.4	98 21.60	5%	AT	7.417	7.375	7.400	0%
FI	5,918	5,726	5,918	0%	FI	8,599	6,512	6,707	-22%	Ireland		Missin	g from CQ		BE		: 9.97	74	BE	:		7.755	
FR	26,838	27.915	30,000	12%	FR	53,382	53,401	48,027	-10%	Italy	CQ 2020 >> UIC		absent from CQ		BG	4.503 4.5	<mark>03</mark> 9.00	100%	BG	1.119	1.118	1.228	10%
			-							Latvia	CQ > UIC (~33%)	CQ >> UIC	absent from CQ and UIC	CQ > UIC (~40%)	CH	11.067 11.0	67 11.02	0%	CH	13.340	13.267	12.301	-8%
HR	2,617	2,436	2,617	0%	HR	3,950	2,679	2,871	-27%	Lithuania	CQ = UIC	CQ < UIC (~20%)	CQ = UIC	CQ = UIC	CZ	15.251 15.2	<b>51</b> 32.83	33 115%	CZ	6.665	6.623	6.665	0%
HU	7,787	5,260	7,687	-1%	HU	11,393	5,416	8,906	-22%	Luxembourg	CQ < UIC (~30%)		from UIC	CQ = UIC	DE	108.405 109.2	19 108.40	07 0%	DE	:	57.787	56.398	-2%
										Netherlands	00 100		g from CQ		DK	2.450 2.4	50 2.45	0%	DK	3.755	3.940	3.042	-19%
IE	2,045	N/A	1,683	-18%	IE	2,477	N/A	2,166	-13%	Poland Portugal	CQ >> UIC	CQ >> UIC	CQ >> UIC	Missing from UIC	EE		29 1.72	0%	EE		263	263	0%
IT	16,782	10 200	17,536	4%		04.545	24.405	25.520	40/	Romania	CQ > UIC (~60%) CQ >> UIC	CQ < UIC (~40%)	CQ ~ UIC from UIC	Missing from UIC CQ > UIC 2020 (~20%)	EL		: 55	-	FI	640	640	662	3%
LT	10,782	16,258	17,556	0%	LT	24,515	24,496 2,469	25,538 3,465		Slovakia	CQ > UIC 2020 (~30%)	CQ > UIC 2020 (~30%)	CQ < UIC (~35%)	CQ > UIC (~10%)	ES			0 -100%	ES	12.060	12.060	11.190	-7%
LU	271	279	-,		LU	2,346 628	2,469	3,465		Slovenia	CQ = UIC	CQ << UIC	CQ > UIC (~20%)	CQ ~ UIC	FI		37 10.14		FI	2 820	2 820	2 820	0%
20	2/1			1/0	LU	626	4/9	6//	870	Spain	CQ > UIC (~33%)	CQ << UIC	CQ ~ UIC	CQ > UIC 2021 (~33%)	FR	31.559 31.5	<b>59</b> 27.14	-	FR	56.606	56 606	59.003	4%
LV	1,859	1,505	1,859	0%	LV	2,216	1,853	3,358	52%	Sweden	CQ >> UIC	CQ >> UIC	CQ >> UIC	Missing from UIC and CQ	HR			79 0%	HR		448	35.005	0%
NL	3,041	3,027	3,075	1%	NL	3,041	5,591	7,097	122%	Switzerland	absent from CQ	CQ >> UIC	CQ 2020 >> UIC	Missing from CQ	HU		95 11.67		HU		440	449	-2%
	0,012	· · · ·			INC	3,041	0,001	1,001	10070	Norway		Missing fro	om CQ and UIC			11.595 11.5	74 11.07	-			834		
NO	3,851	3,907	4,208	9%	NO	4,196	3,907	4,477	7%	Albania		Missin	g from UIC		IE	/4	74	74 0%	IE 	956		864	
										Bosnia-Herzegovina	CQ = UIC 2020	CQ ~ UIC 2020	CQ ~ UIC 2020	CQ ~ UIC 2020	IT	20.750 20.7	50 24.09			22.269	22.269	21.558	-3%
PL	19,383	19,802	19,404	0%	PL	37,269	28,595	37,393	0%	North Macedonia	CQ = UIC	CQ << UIC	CQ = UIC 2020	CQ ~ UIC	LT			5 <mark>0%</mark>		237	237	258	9%
										Montenegro			g from CQ		LU		62 21	_	LU	269	268	103	-62%
PT	2,526	2,451	2,526	0%	PT	3,224	3,146	3,224	0%	Serbia	CQ 2020 >> UIC	Missing from UIC	CQ 2020 >> UIC	CQ 2020 < UIC (~25%)	LV		79 7.97	<mark>79</mark> 0%	LV	413	413	413	0%
										Kosovo	CQ 2020 ~ UIC		g from UIC	CQ 2020 ~ UIC except on tota	NL	6.665 6.6	<mark>65</mark> 6.66		NL		:	4.048	
RO	10,769	10,355	16,863	57%	RO	20,071	13,318	19,784	-1%	Turkey Ukraine	CQ 2020 ~ UIC	CQ >> UIC Missing from CQ	CQ 2020 < UIC (*35%)	CQ 2020 ~ UIC	NO	4.110 4.1	10 4.12	21 0%	NO	1.804	1.801	1.715	-5%
SE	10,909	10,824	10,826	- 1%	SE	15,557	13.034	15,401	-1%			IVIISSING ITOTILCQ	CQ 2020 OIC		PL	51.096 51.0	<mark>96</mark> 52.21	18 2%	PL	12.487	:	12.286	-2%
SI	1,209	1,195	1,209	0%	SI	2,178	1,518	2,177	0%						PT	2.402 2.3	02 2.34	45 -2%	PT	2.552	2.563	2.551	0%
SK	3,627	3,841	1	0%	SK	N/A	4,942	6,866	N/A						RO	12.291 12.2	<mark>91</mark> 9.42	-23%	RO	3.720	3.720	3.542	-5%
UK	16,377	15,905	16,268	- 1%	UK	31.940	32,121	31,722	-1%						SE	22.094 22.0	94 22.09	0%	SE	8.129	8.129	8.001	-2%
									270						SI	4.726 4.7	<mark>26</mark> 3.98	-16%	SI	397	338	397	0%
	Colour legend		Perfect m	atching CQ - Ef		Colour legend		Perfect match	ing CQ - ER	9					SK	7.268 6.9	08 6.90	.5%	SK	2.180	2.133	2.133	-2%
			Minor inc	onsistency				Minor inconsis	-						UK		: 15.15		UK		:	24.530	-2%
			Major inc	onsistency				Major inconsis								: in EU reg means usually the			-	: in EU reg means us	ally that the d		
									,												,		



## Our key recommendations

0	Category	Observations	Recommendations	Mara dataila par individual				
1	l. Scope	Reporting scopes are defined by different legal acts, but unclear how Member States apply the scope.	Member States should be encouraged to explicitly specify the network(s) or lines(s) that fall outside the scope of application of the Interoperability and Safety Directives. Data collectors should highlight the scope differences when requesting data on indicators that is also collected by others.	More details per individual rail statistic indicator are available in the Final Report of the ERA Task Force on Data Quality, published on				
2	2. Definitions	Data quality is negatively affected by complex and unharmonized definitions.	Promote collaboration between data collectors to harmonise and simplify definitions. Provide guidance on definitions with examples and when helpful drawings	<u>era.europa.eu</u>				
3	- data provision by	ERA registers were not set up for statistical purposes but have statistical value in absence of alternative sources.	The use of ERA registers for statistical purposes could reduce administrative costs and improve the accuracy of providing and collecting statistics. Such use case should be considered when defining access and utilisation rights.					
9	s (sovernance – data	Coordination between data collectors and providers is necessary to implement the recommendations as formulated by this task force.	For transport statistics, new channels through new or revamped EC Expert Groups should be set up to ensure communication, alignment on data quality issues and involvement of ultimate data providers from the rail industry					
e	s Governance – data	Structural data quality issues at country level need to be addressed by involving national and ultimate data providers from the rail industry	Eurostat is encouraged to organise national campaigns on railway data quality					
7	7. Data quality assurance	Data providers are often assigned the responsibility for data quality. Data collectors are however better positioned to cross-check data and spot issues.	The data quality assurance role of data collectors should be acknowledged, and adequate resources assigned to this role.					

# THANK YOU

Moving Europe towards a sustainable and safe railway system without frontiers.

giacomo.potenza@era.europa.eu



