

Distr.: General
3 September 2018

English only

Economic Commission for Europe

Inland Transport Committee

Working Party on Transport Trends and Economics

Twenty-nine session

Geneva, 3–5 September 2018

Item 11 (d) of the provisional agenda

Review of the transport situation, transport trends and economics in ECE region:

Transport Trends and Challenges in the rail sector

Transport Trends and Challenges in the rail sector

Submitted by the International Union of Railways



INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

Trends and challenges in Rail transport

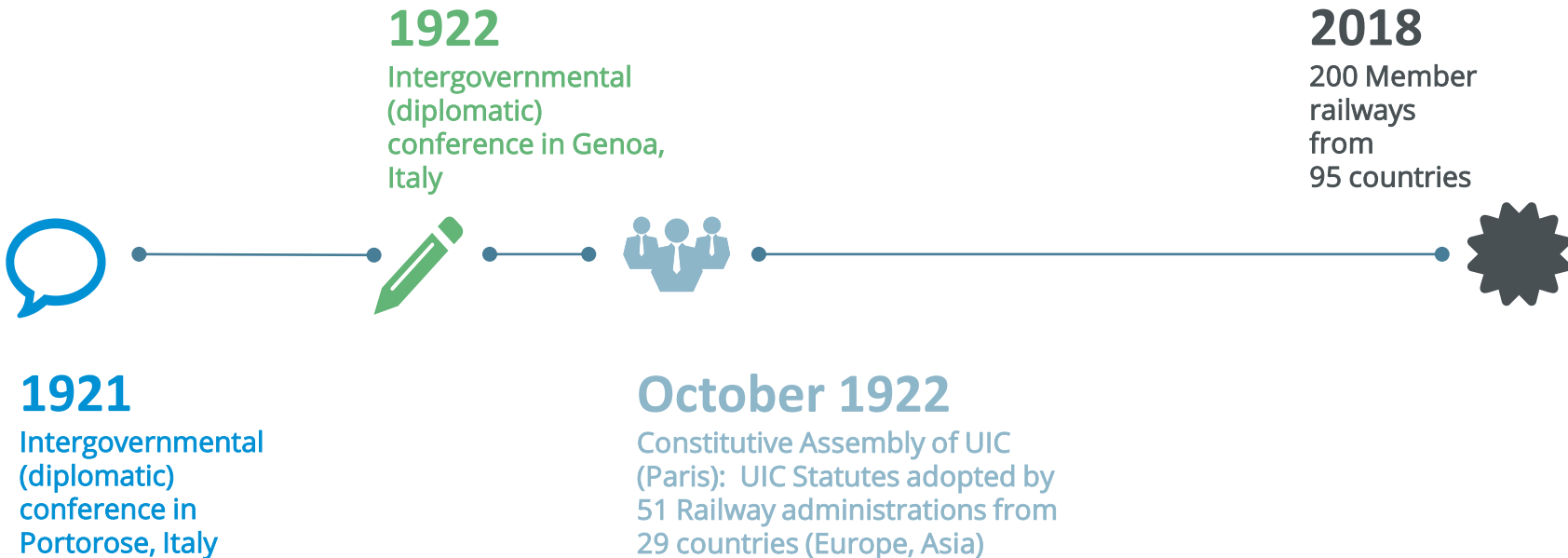
Snejana MARKOVIC-CHENAIS

Economics Adviser

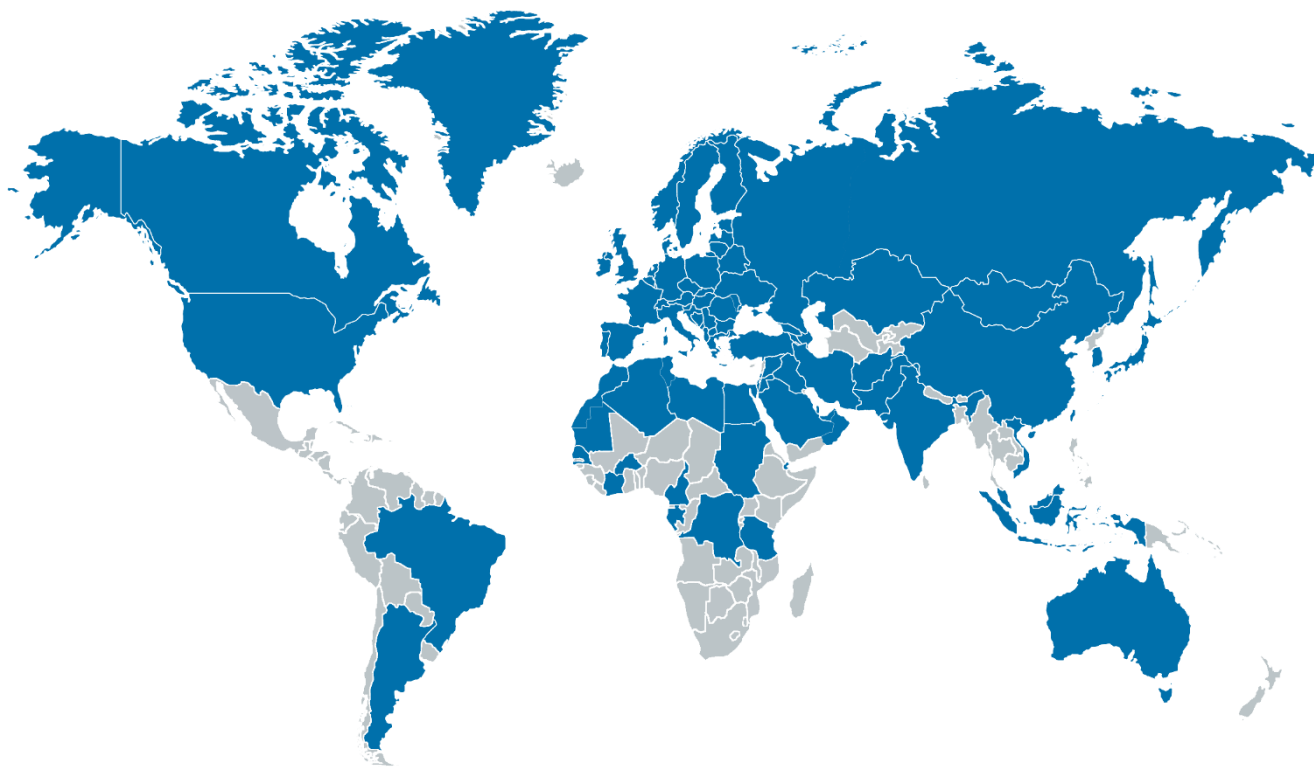
[*markovic@uic.org*](mailto:markovic@uic.org)

UNECE 3-5 September 2018 Transport and Economics

UIC, a long history at the service of member railways and international railway cooperation



UIC MEMBERS ALL AROUND THE WORLD



UIC MEMBERS

UIC today

200 members in 95 countries	3,000 billion passenger kilometres	10,000 billion tonnes kilometres	1 million kilometres of lines
7 million rail personnel	Cooperation with over 100 institutions	700 UIC Leaflets – New International Railway Solutions (IRS)	85 congresses, conferences, workshops

6th TRAINING ON HIGH SPEED SYSTEMS LEVEL II
10-14 Dec 2018
Madrid

4th UIC ASIA-PACIFIC PHOTO CONTEST 2018
2, 0, 1-8

Global Debate on Mobility Challenges for the Future Society
15-16 November 2018
GLOBAL EXPO CENTRE
WARSAW, POLAND
Organized by UIC IRRB CIK
SAVE THE DATE!

STANDARDISATION CONFERENCE
CONNECTING INNOVATION TECHNOLOGY TO STANDARDISATION

Talent & Expertise Development Platform
Riga, Latvia
29-30 October 2018

Rail Asset Management
Online course
Starts 15 January

UIC Congress 2018
26 - 28 September 2018
Luxembourg

CRITIS 2018
The 13th International Conference on Critical Information Infrastructures Security
September 24-26, 2018
Kaunas, Lithuania

RAILWAY 4th NETWORKING & COLLABORATIVE EVENT
20 Sept. 2018, Berlin

UIC Workshop on ENERGY EFFICIENT INFRASTRUCTURE
2 July 2018, UIC HQ Paris

GLOBAL RAILWAY EXHIBITION CONFERENCE
MODAL INTEGRATION AT THE SERVICE OF GLOBAL DISTRIBUTION
26-28 JUNE 2018
GENOVA, ITALY

TRAINING SESSION 2018
Railways Maintenance and Operation on Digital Era
Seoul, Korea
18-22 June 2018

4th UIC SECURITY WEEK
UIC HQ PARIS
18 - 21 June 2018

1st UIC WORKSHOP ON MASONRY ARCH BRIDGES
7-8 June 2018, EFE MADRID

Save the date
ILCAD
Act safely at level crossings
7 June 2018

10th APNRTC
Chengdu China
25 - 26 April 2018

3rd TRAINING ON COMMUTER AND REGIONAL TRAIN SERVICES
28-30 MAY 2018, WARSAW

INTERNATIONAL RAIL DEVELOPMENT 2018
BRUSSELS, BELGIUM
22-23 MAY

UIC World Congress on High Speed Rail
Save the Date!
8-11 May 2018
Arkara

The 5th UIC Asia-Pacific Control-Command and Signalling & Telecommunications Workshops
Sydney, Australia, 3-4 May 2018

14th TRAINING ON HIGH SPEED SYSTEMS LEVEL I
23-27 April 2018
Paris

1st TopRail Forum
The Business of Rail Tourism
Barcelona
20 April 2018

TRA VIENNA 2018
A digital era for transport
16-19 APRIL 2018
Transport Research Arena
Reed Exhibitions Messe Wien
Vienna / Austria

International Conference on Railway Safety and Security Risks & Challenges
Djibouti, 28-29 March 2018

Workshop on level crossing safety
14 February 18, Paris, UIC

1st UIC GLOBAL CONFERENCE ON SIGNALLING
The Evolution of ERTMS
MILAN 2018 26-28 March

Russian University of Transport UIC APKA Training Session 2018
Best HR- & Training Practices for Railways
March, 21-23, 2018

Seminar on Rehabilitation of old rolling stock
Algeria March 3-4, 2018

6th International Railway Summit
Prague 21-23 February 2018
Special offer for UIC members
In association with UIC
Claim discount

Workshop on ENERGY EFFICIENCY TIME TABLING
20 February 2018
Brussels, Belgium

UIC Workshop on Crisis Communication and Social Media
13-14 February 2018
Paris, UIC Headquarters



UIC, its missions

Promoting the development
of rail transport at world
level

in order to meet
challenges of mobility
and sustainable
development

KEY CHALLENGES IN TERMS OF

INNOVATION

STANDARDISATION

TRANSMISSION

DISSEMINATION

STRATEGIC ADVICE

5 UIC Global cooperation issues

Serving the entire Railway Community



Environment &
Sustainable Development
UN Climate Conferences COP



Safety
& Security



Freight / Intercontinental
corridors



Railway Signaling & Control
Command



Standardisation, Harmonisation
UIC Leaflets,
International Railway Solutions
IRS



Statistics at UIC

visit our website at <http://uic.org>

UIC collects statistics from its members

- Data are company based
- Data are given and validated by UIC members

The screenshot displays the 'RAILISA UIC STATISTICS' web interface. At the top, there are navigation icons for 'CONSULT-DATA', 'CONTACT', and 'HELP', along with a 'LOGIN' button. Below the navigation is a three-step process bar: '1 SELECT', '2 VISUALIZE', and '3 DOWNLOAD'. The 'SELECT' step is active, showing a form with the following fields:

- PERIOD FROM: 2000
- TO: 2016
- VARIABLE: (dropdown menu)
- COMPANY: (list of companies including AE - ETIHAD RAIL, AL - HSH, AM - ARM, AM - SCR, AR - ADIFSE, AR - ALL, AR - FEPSA, AR - FSR, AR - NCA, AT - GKB)

At the bottom of the form, there are links for 'select all' and 'unselect all', and a green 'SAVE' button with a checkmark icon.

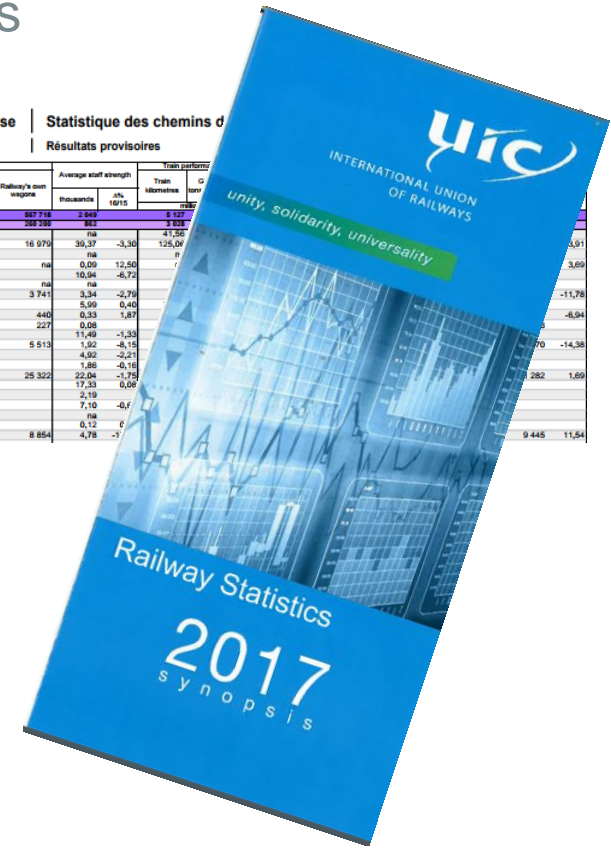
UIC data base available at <http://uic-stats.uic.org/>

Synopsis : global picture of railways

Provisional annual data - All continents

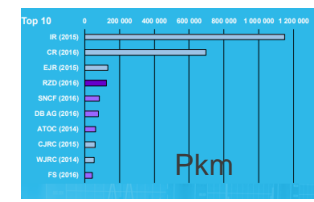
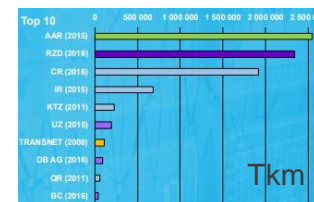
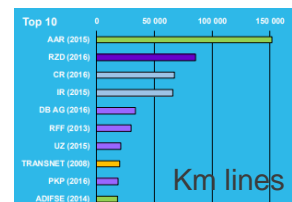
- Length of lines
- Rolling Stock
- Average staff strength
- Train performance in train-km
- Rail Traffic in pass., pass-km, tonnes, tonne-km
- High speed traffic

Country	Surface area km ² (1)	Population (1)	Population density inhab./km ²	Railway company	Length of lines worked at end of year			Stock at end of year			Average staff strength		Train performance		
					Total	of which double track or more	of which electrified lines	Locomotives including Light Rail Metrostructure	Rolling stock and Multiple Units	Coaches & Trains (2)	Railway's own wagons	Thousands	j/km	Train km/mile	G ton/mile
Europe (including Turkey)					348 972	112 585	138 580	41 865	55 284	98 773	687 733	2 043	5 127	3 127	41 256
BD UE					211 848	68 285	112 580	17 136	44 217	87 423	282 280	852	3 228	2 043	41 256
Austria	84	8,57	102	ÖBB (2016)	91	0	0	15	13	25	na	na	na	na	3,91
Belgium	31	11,30	370	NBS (2016)	4 828	2 105	3 537	1 012	498	2 717	16 970	30,37	-3,30	na	3,69
Belgium				INFRABEL (2016)	3 602	na	na	31	na	na	na	na	10,94	-6,72	na
Belgium				SNCB/NMBS (2016)	na	na	na	na	na	na	na	na	na	na	-11,78
Bulgaria	111	7,17	65	BDZ CARGO (2016)	142	na	na	142	3 741	3 741	3,34	-2,79	na	na	-14,38
Bulgaria				BDZ PP (2016)	206	83	756	41	na	na	440	0,33	1,87	na	-8,94
Bulgaria				BHC (2016)	14	na	na	14	na	na	227	0,08	na	na	0,70
Bulgaria				BULMARKET (2011)	4 029	989	2 888	na	na	na	na	na	na	na	-14,38
Croatia	57	4,22	75	HZ CARGO (2016)	2 605	254	970	187	na	na	5 513	11,49	-1,33	na	0,70
Croatia				HZ INFRA (2016)	na	na	na	na	na	na	na	na	na	na	-14,38
Croatia				HZ PASSENGER (2016)	na	na	na	na	na	na	na	na	na	na	282 1,69
Czech Republic	78	18,53	134	ČD (2016)	9 463	1 965	3 217	76	124	543	1 504	1 290	3 868	25 322	22,94
Czech Republic				SZOC (2016)	2 131	927	630	na	na	na	na	na	na	na	17,33
Denmark	43	5,66	131	DSB (2016)	1 504	1 290	3 868	25 322	22,94	-1,76	na	na	na	na	0,08
Denmark				DBK (2009)	52	441	2 097	na	na	na	na	na	na	na	2,19
Estonia	45	1,31	23	EVR (2016)	1 018	na	132	na	na	na	na	na	na	na	7,19
Finland	338	9,48	16	FTA (2016)	5 926	682	3 270	na	na	na	na	na	na	na	-0,7
Finland				VR (2016)	na	na	na	453	388	1 203	8 854	4,78	-1	na	9 445 11,54

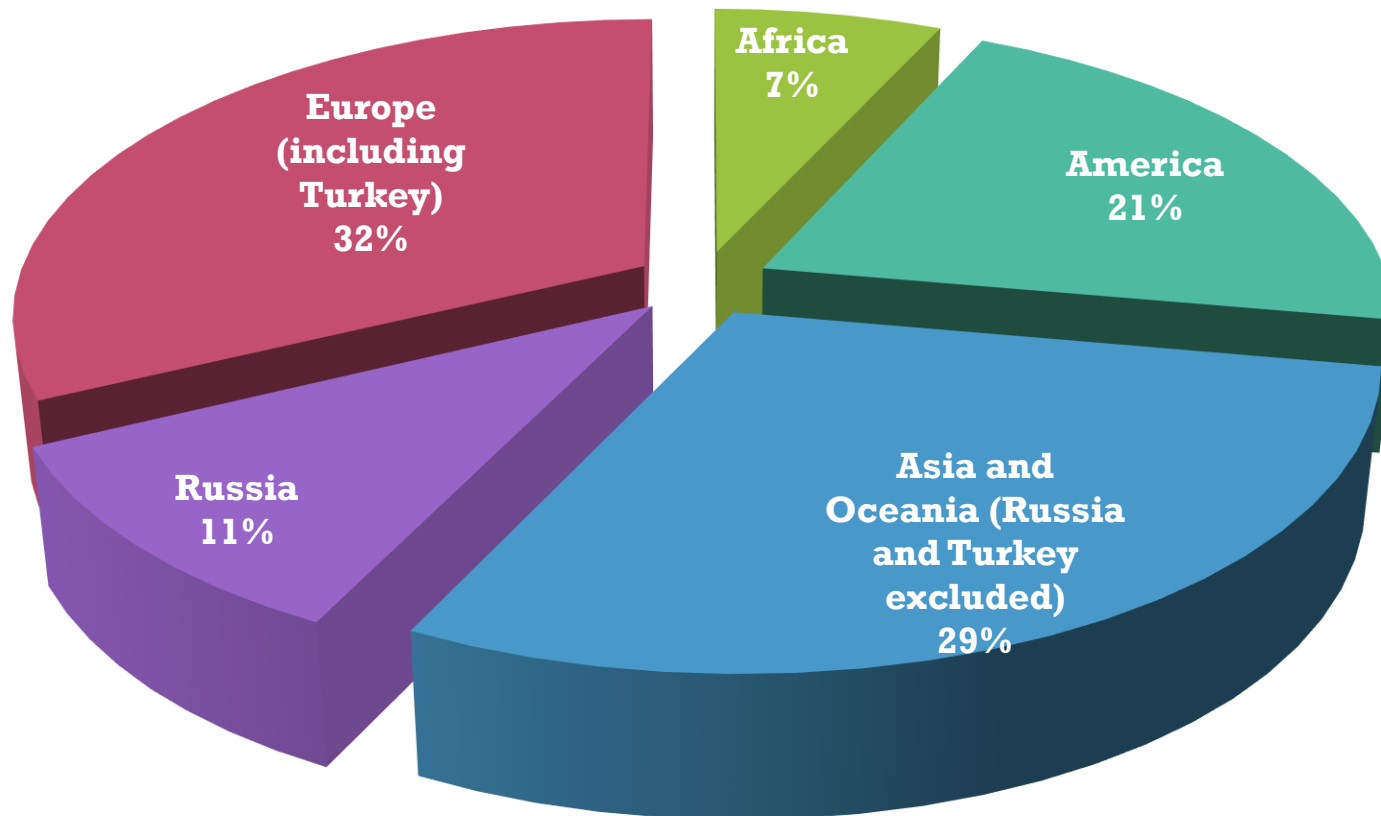


Available mid year for n-1

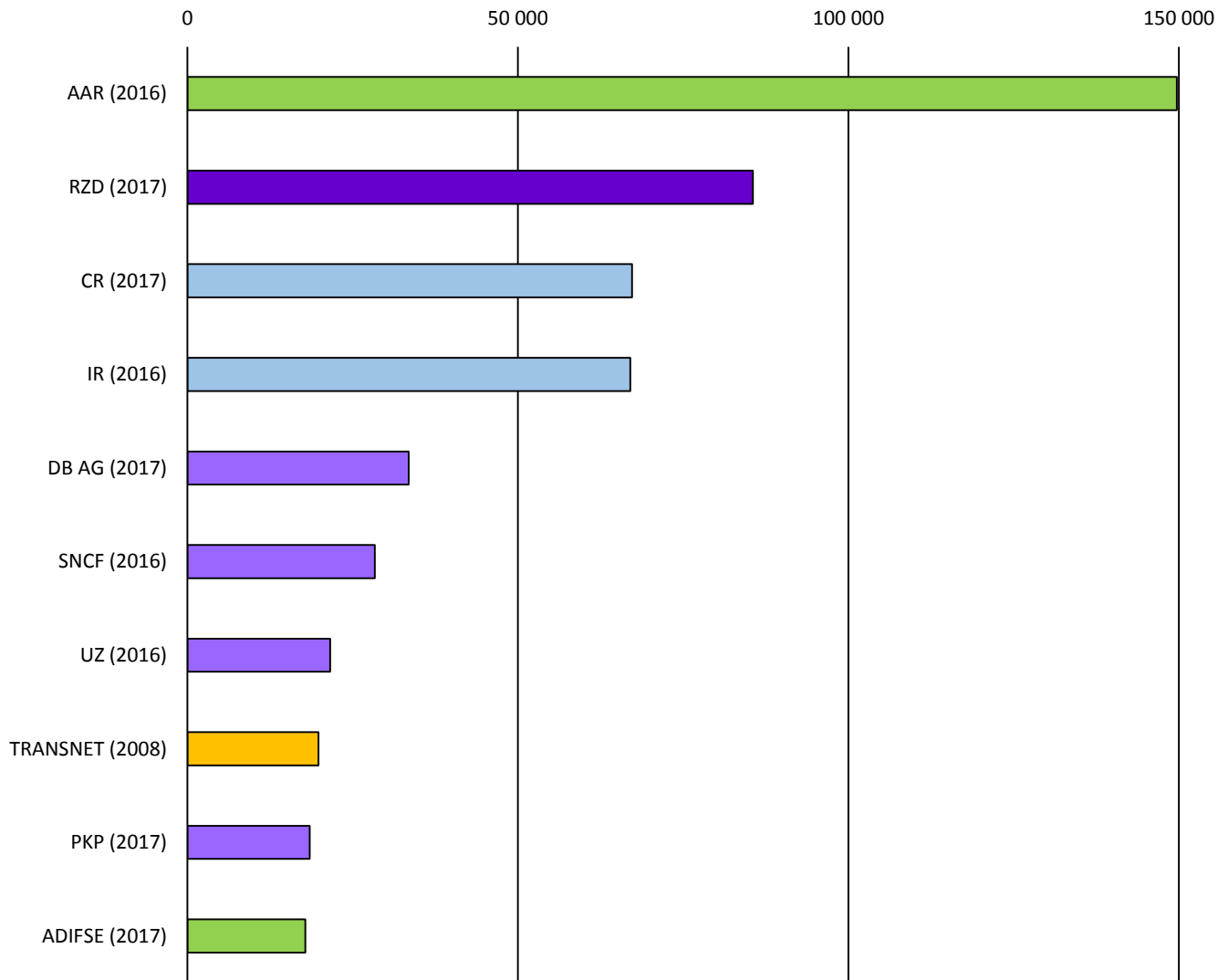
download it at <http://uic.org/statistics>



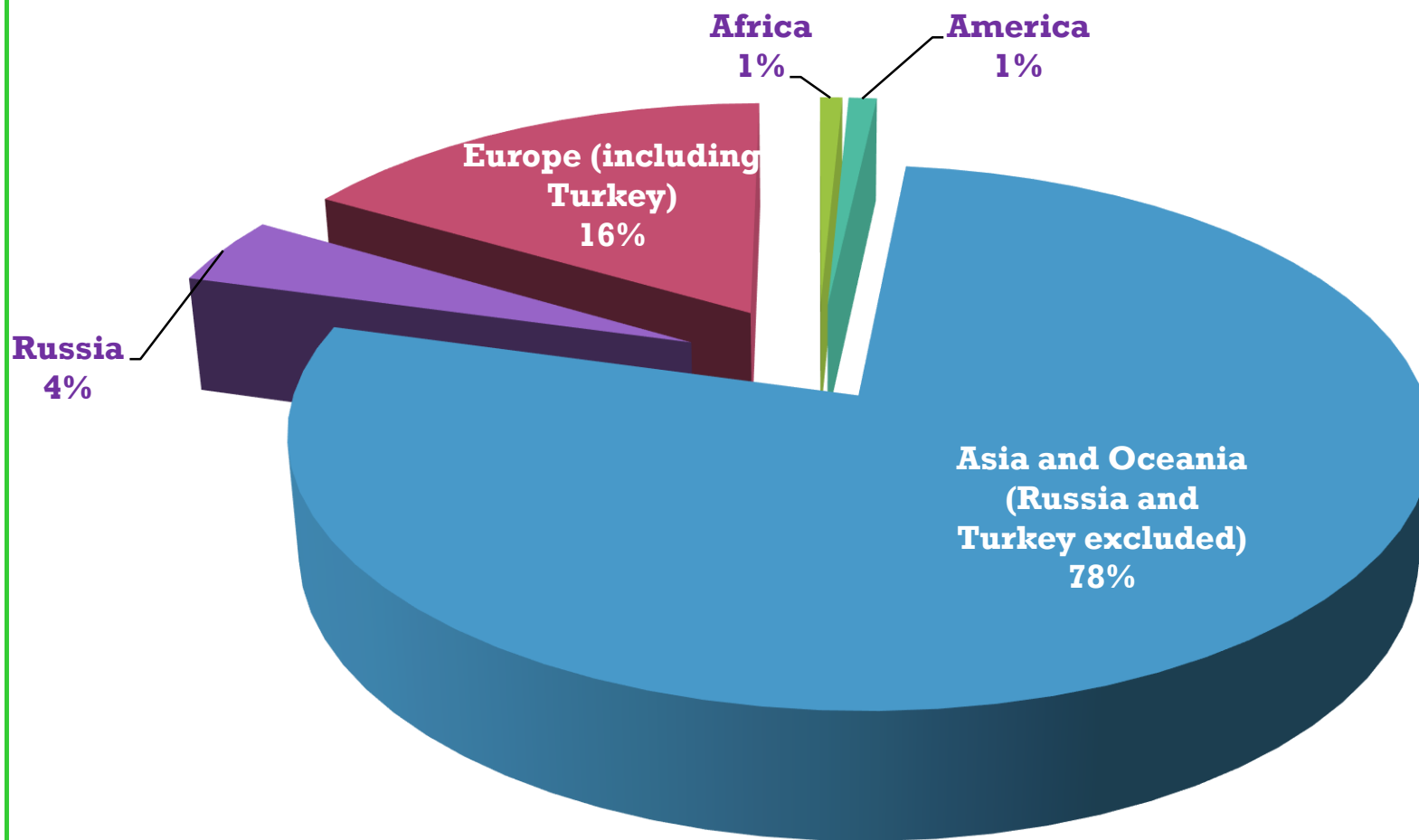
Length of lines share in 2017



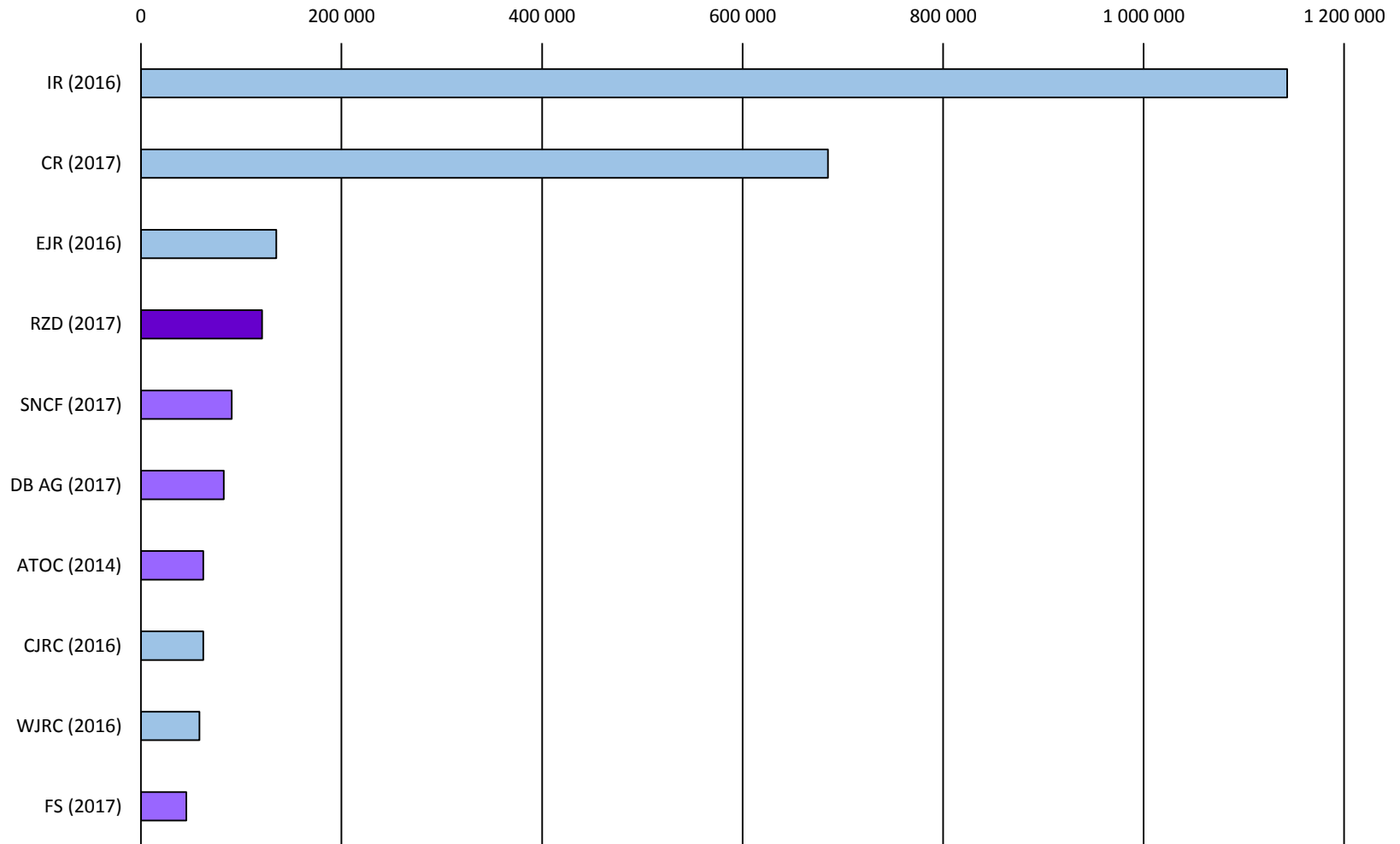
Length of lines (km) Top 10



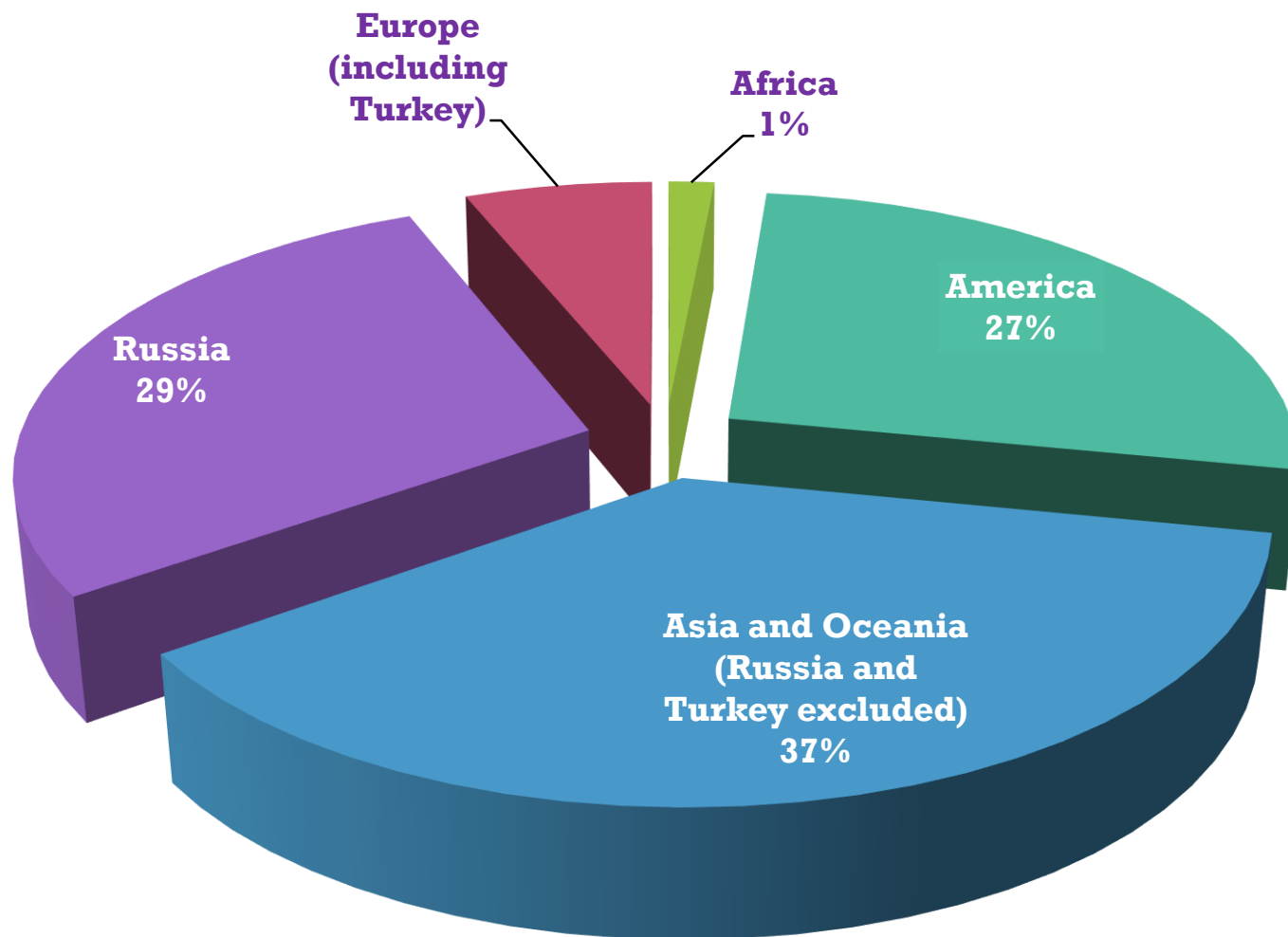
Passenger-kilometres share in 2017



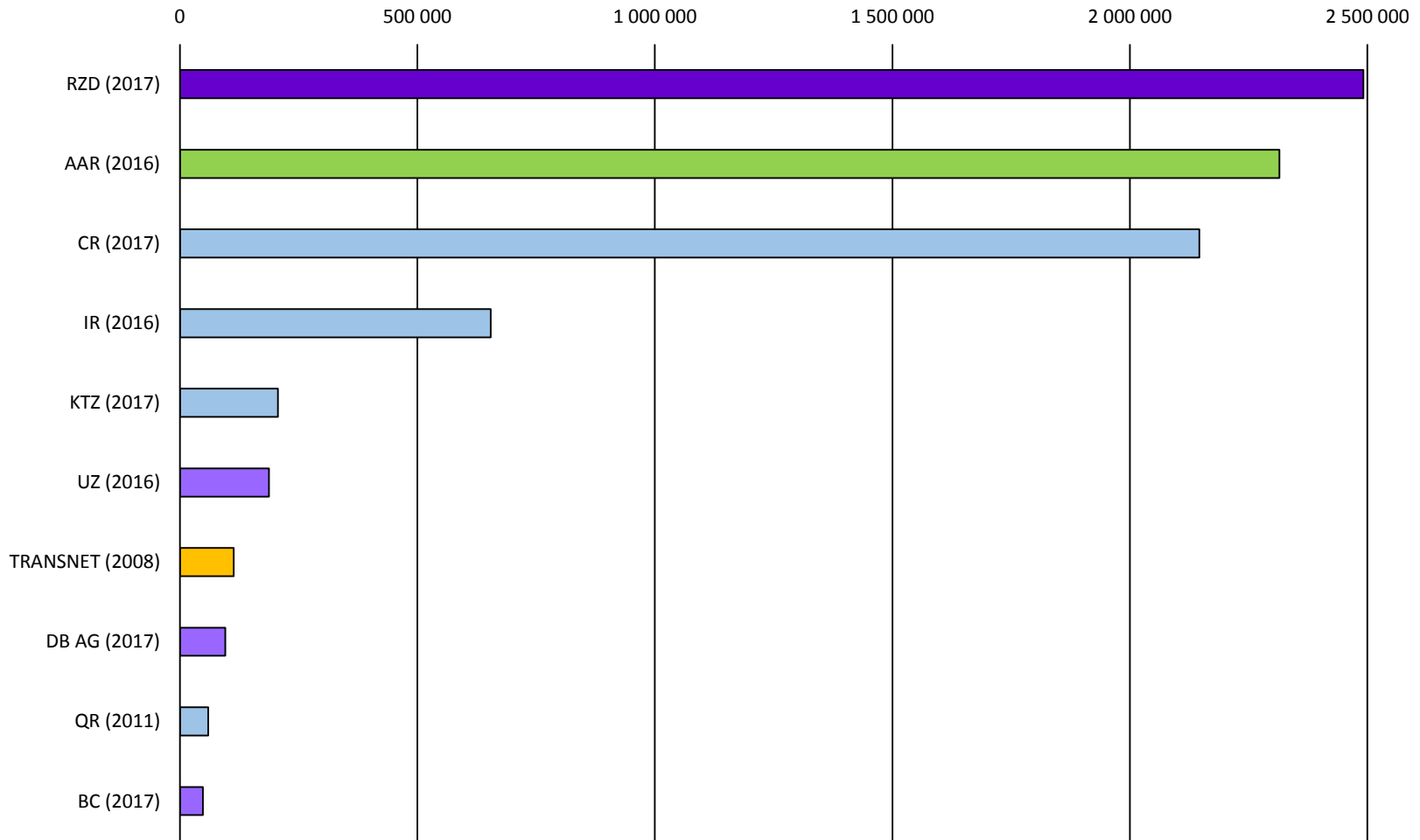
Passenger.kilometres (millions) Top 10



Tonne-kilometres share in 2017

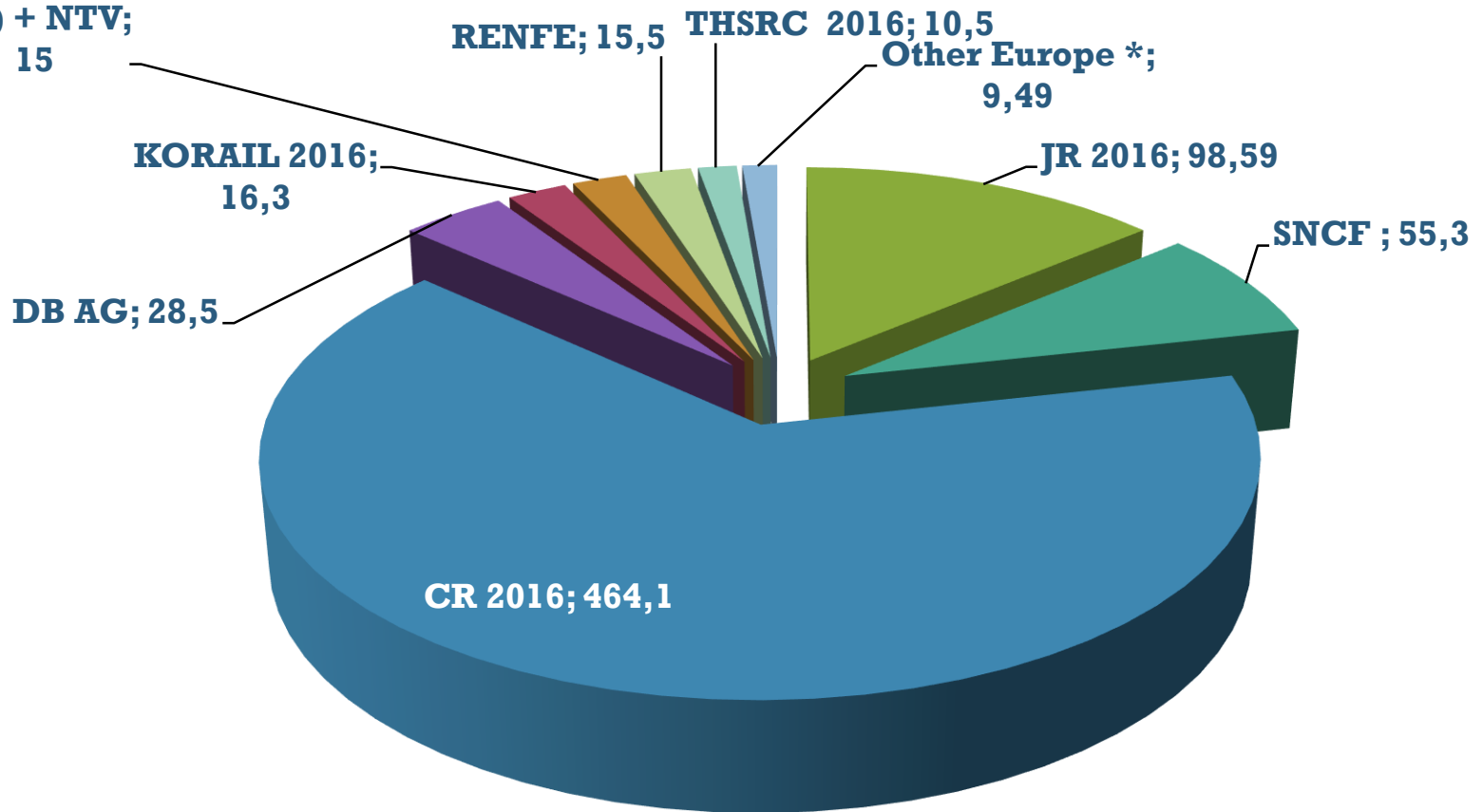


Tonne.kilometres (millions) Top 10



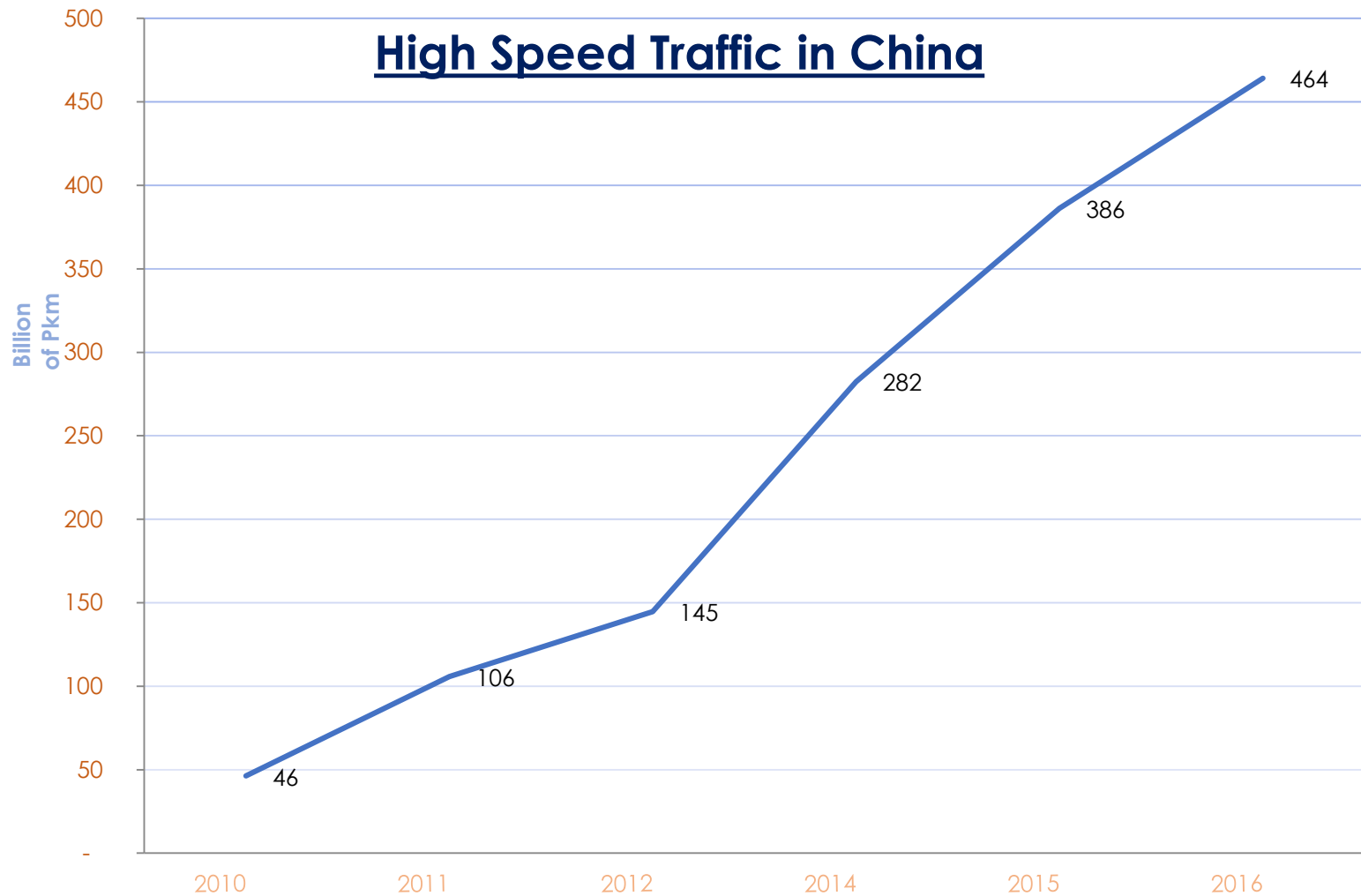
High Speed Traffic 2017 (billion pkm)

Italy 2017:
Trenitalia
(FS) + NTV;
15



Other Europe * : CD, CP , EUROSTAR 2016, NS, PKP 2015, SZ, TCDD, THALYS 2016, VR

High Speed Traffic in China



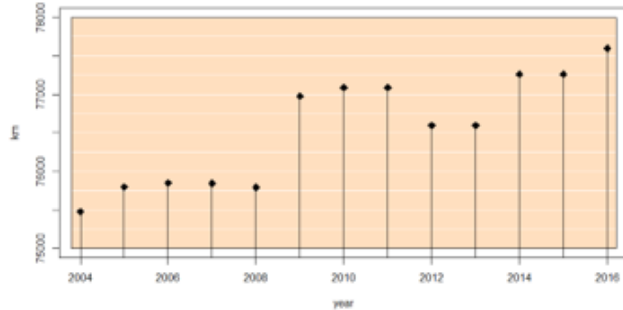
Trends in rail



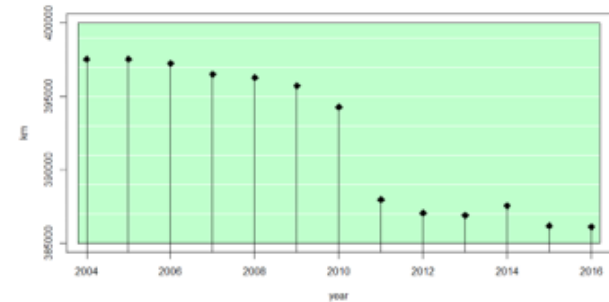
Length of lines – 2004 – 2016 time series

Data source: UIC, OECD, World Bank, Eurostat, World Factbook

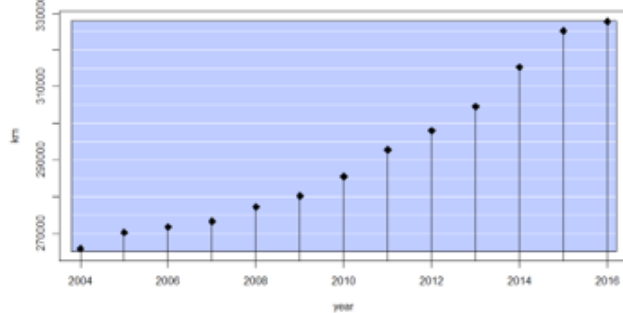
Africa – Total length of lines in 2016: ~78 000 km



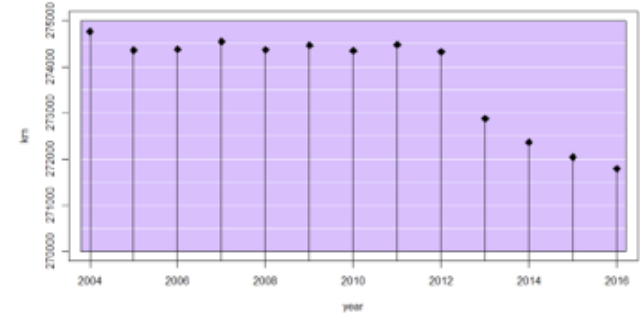
America – Total length of lines in 2016: ~386 000 km



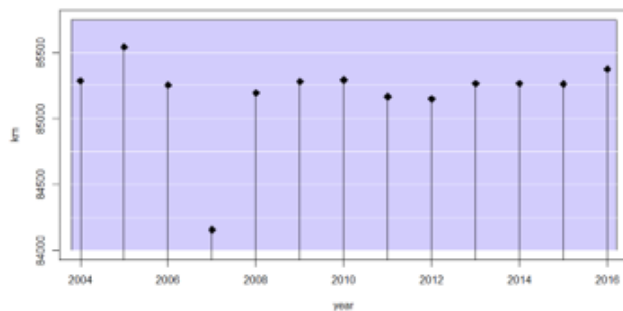
Asia&Oceania (Russia and Turkey excluded) – Total length of lines in 2016: ~ 327 700 km



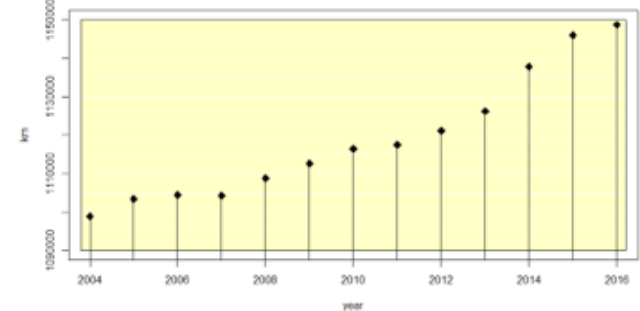
Europe (Turkey included) – Total length of lines in 2016: ~ 271 800 km



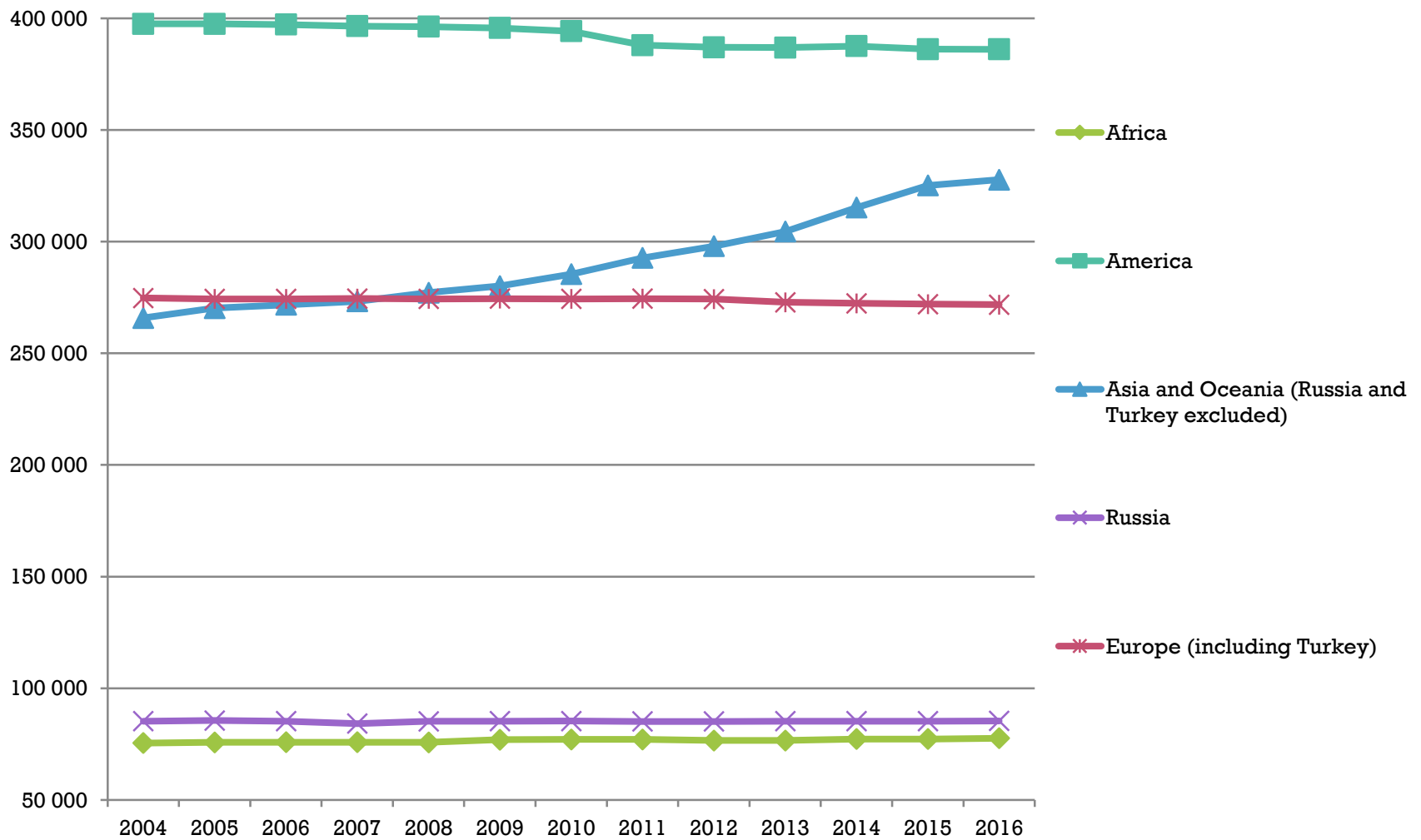
Russia – Total length of lines in 2016: ~ 85 400 km



World – Total length of lines in 2016: ~ 1 149 000 km



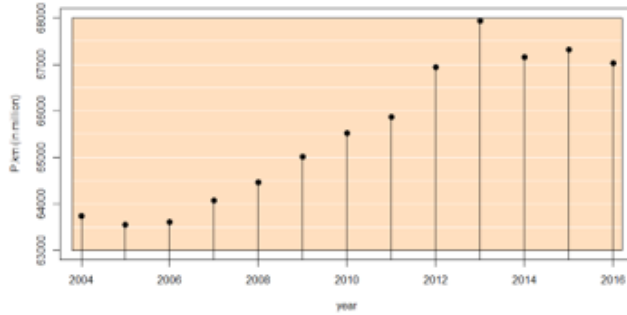
Length of lines (kilometres)



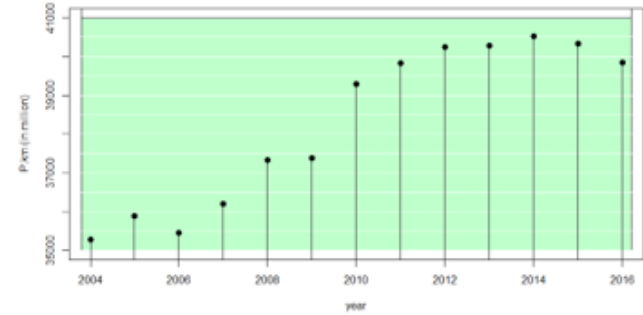
Passenger Traffic Performances– 2004 – 2016 time series

Data source: UIC, OECD, World Bank, Eurostat, World Factbook

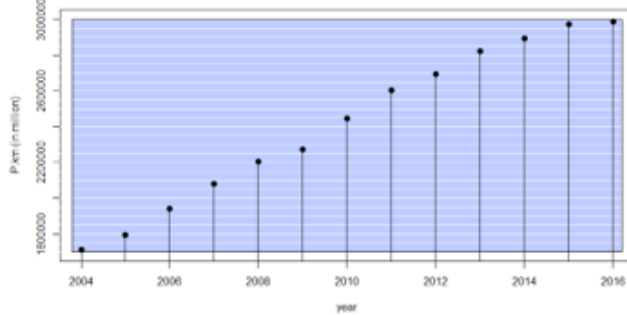
Africa – Total p.km in 2016: ~67 billions



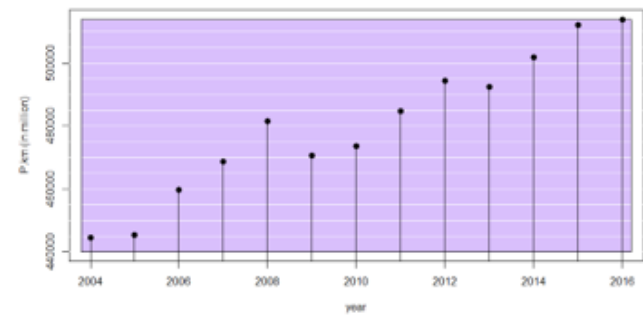
America – Total p.km in 2016: ~40 billions



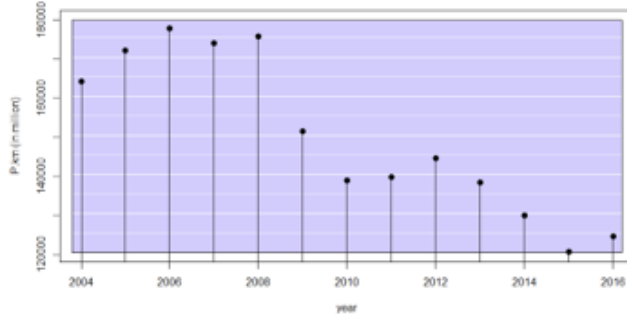
Asia&Oceania (Russia and Turkey excluded) – Total p.km in 2016: ~2900 billions



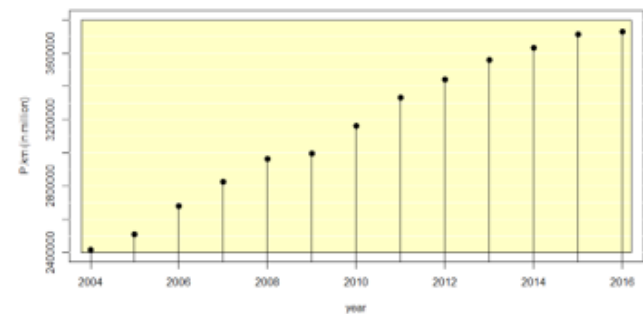
Europe (Turkey included) – Total p.km in 2016: ~514 billions



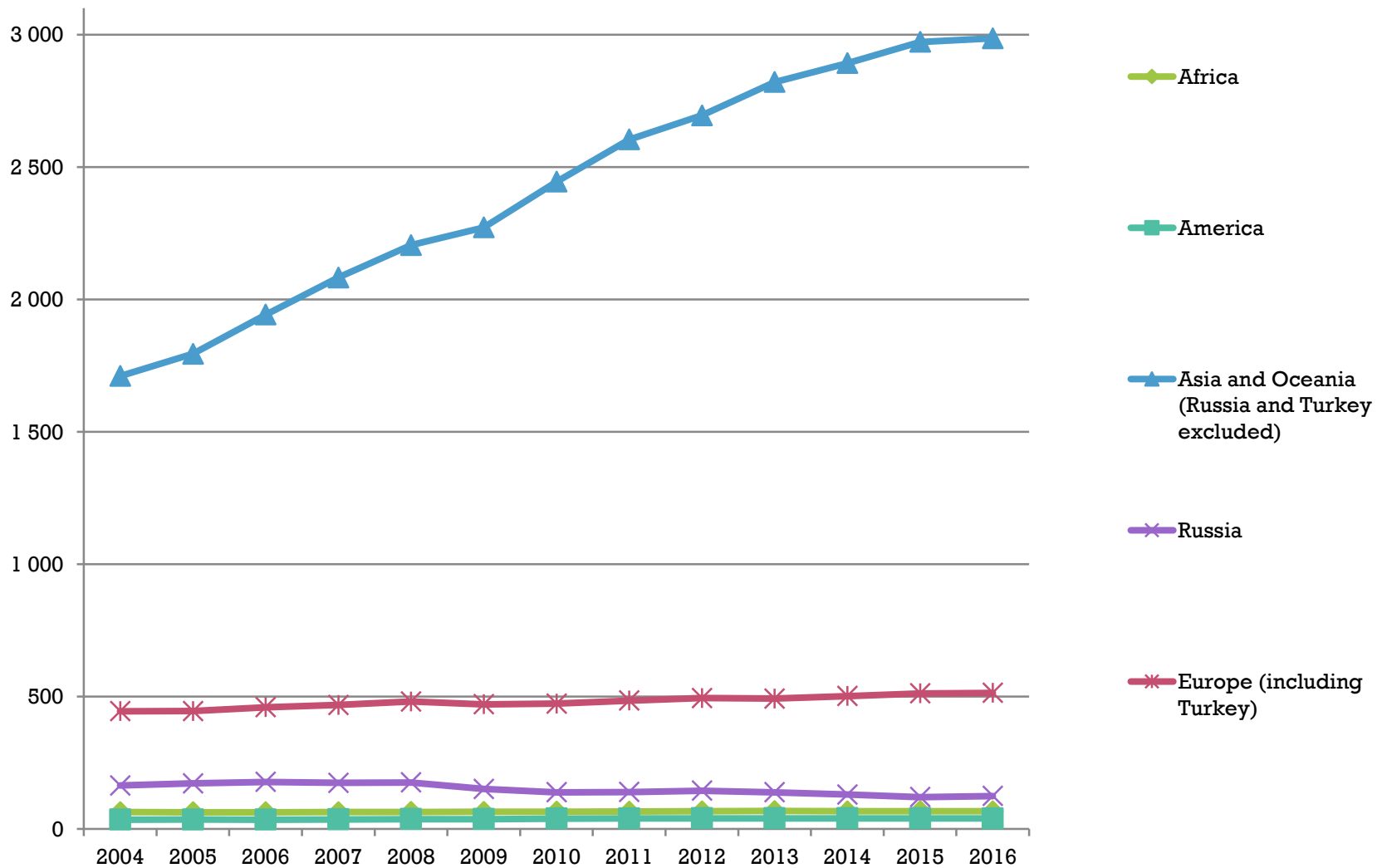
Russia – Total p.km in 2016: ~125 billions



World – Total p.km in 2016: ~3700 billions



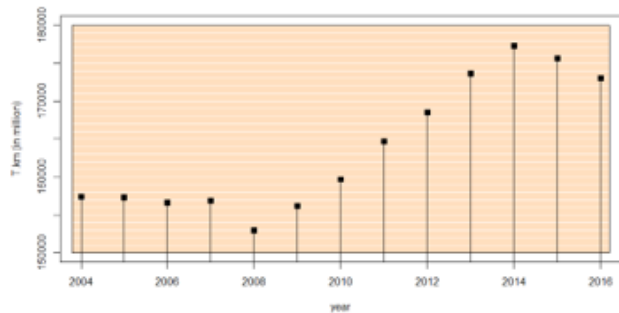
Passenger-kilometres (billion)



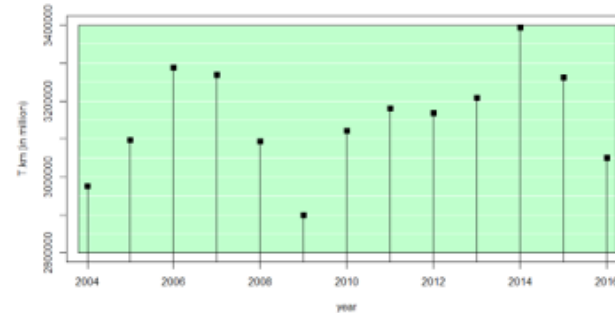
Freight Traffic Performances – 2004 – 2016 time series

Data source: UIC, OECD, World Bank, Eurostat, World Factbook

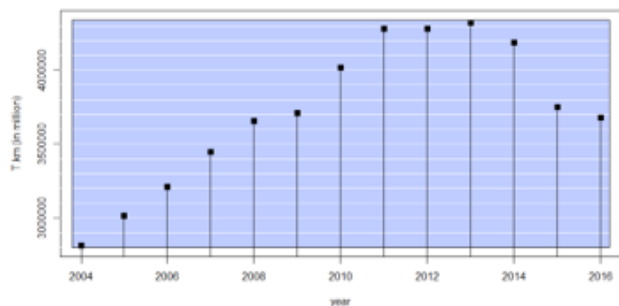
Africa– Total t.km in 2016: ~173 billions



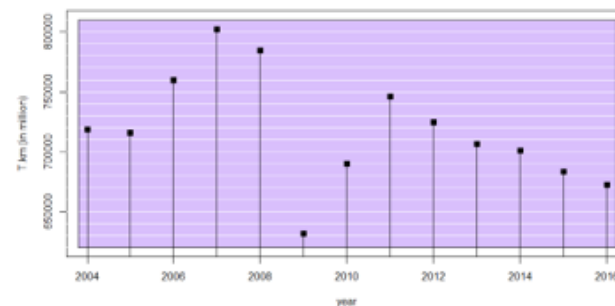
America – Total t.km in 2016: ~3050 billions



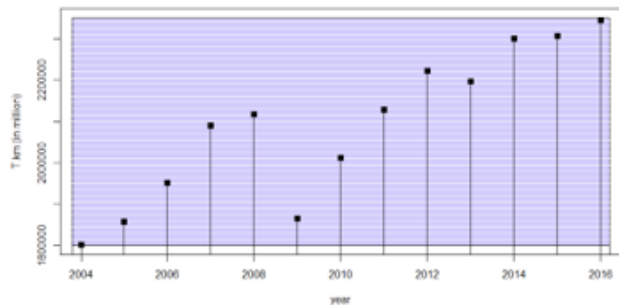
Asia&Oceania (Russia and Turkey excluded) – Total t.km in 2016: ~3678 billions



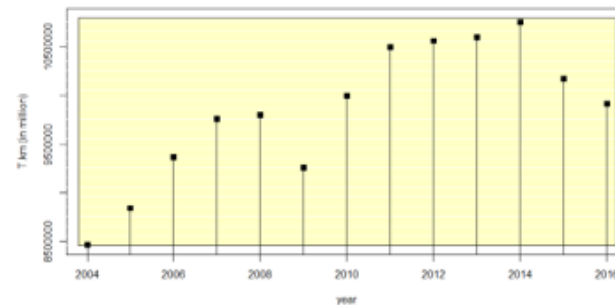
Europe (Turkey included) – Total t.km in 2016: ~672 billions



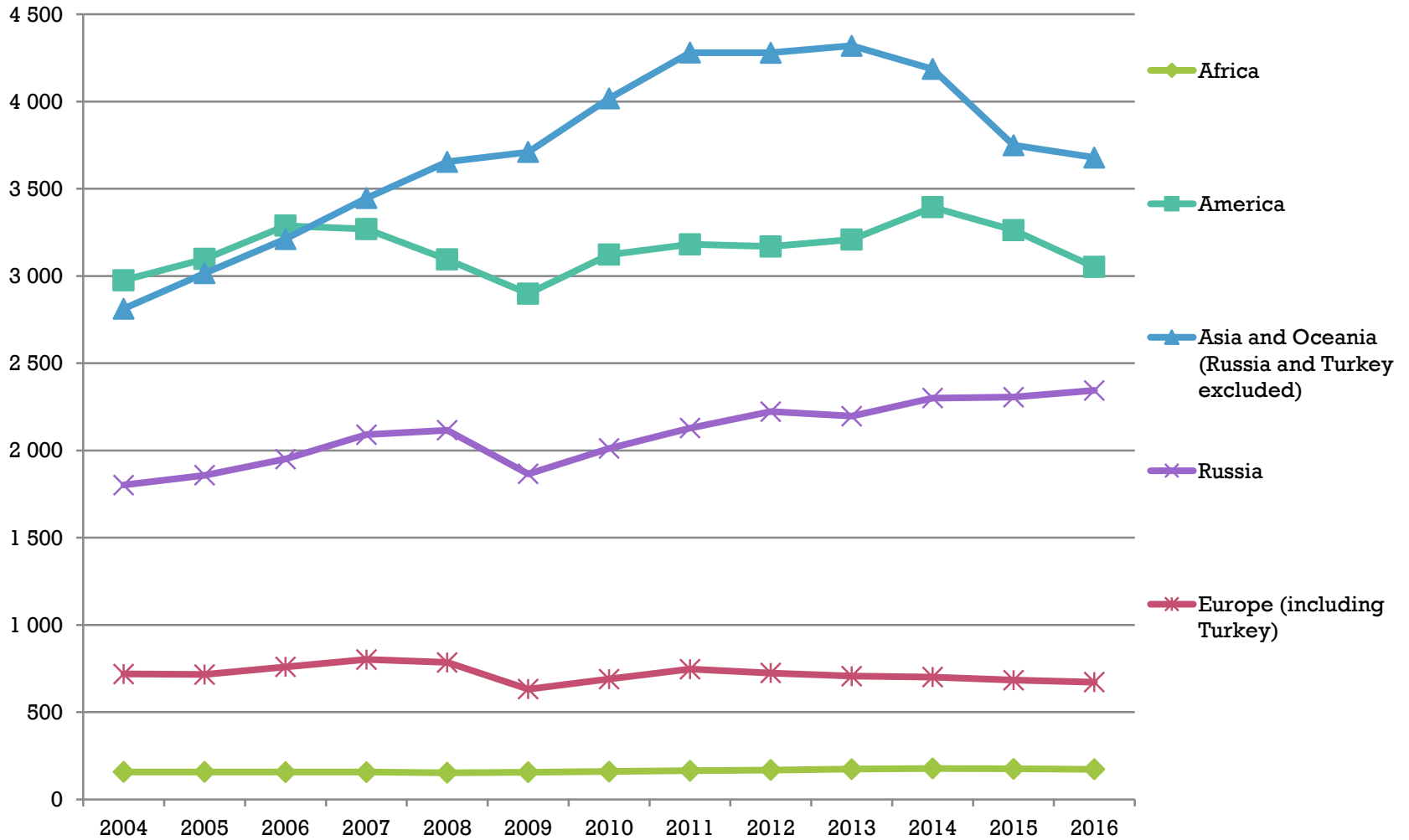
Russia – Total t.km in 2016: ~2344 billions



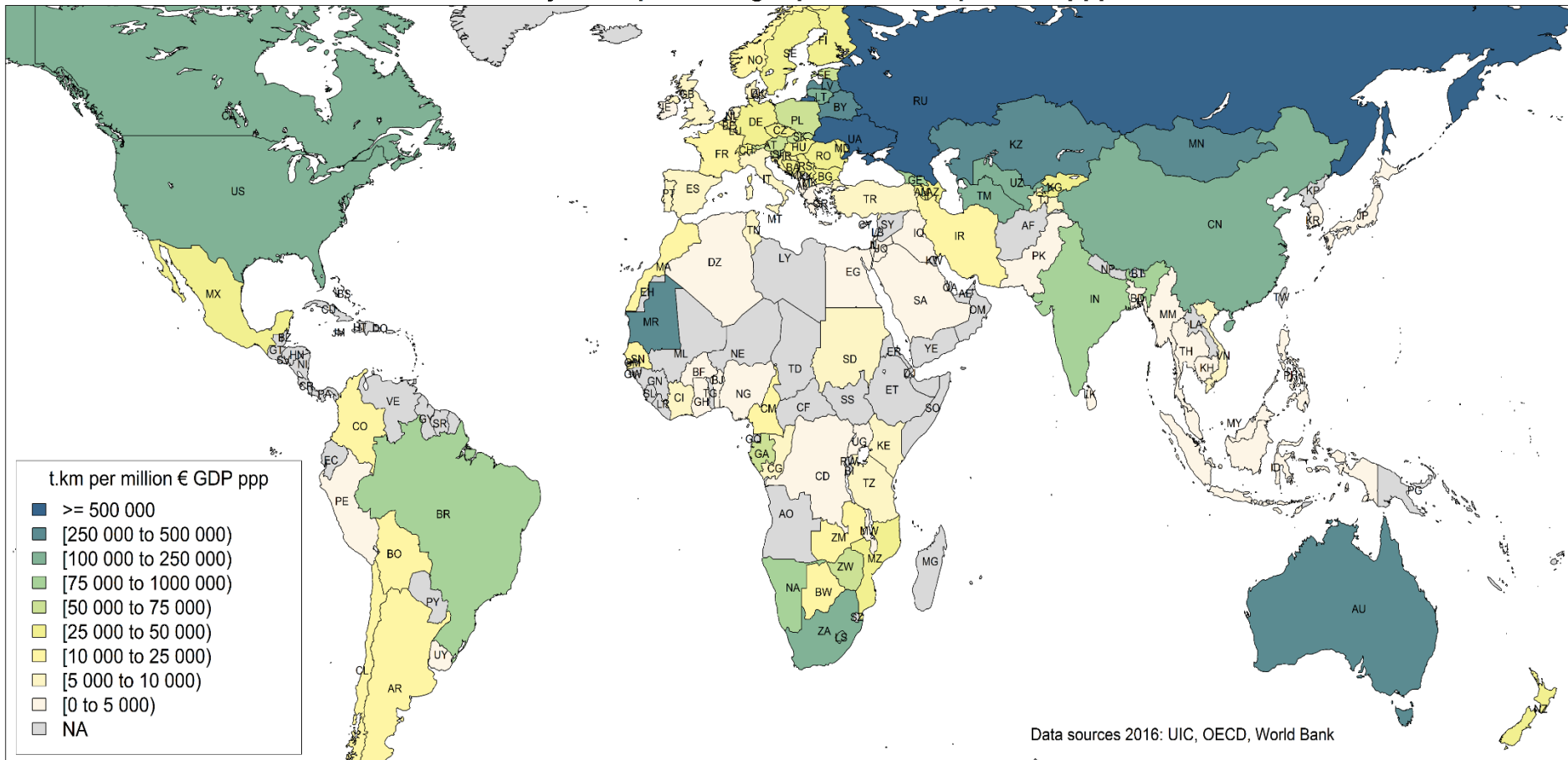
World – Total t.km in 2016: ~9919 billions



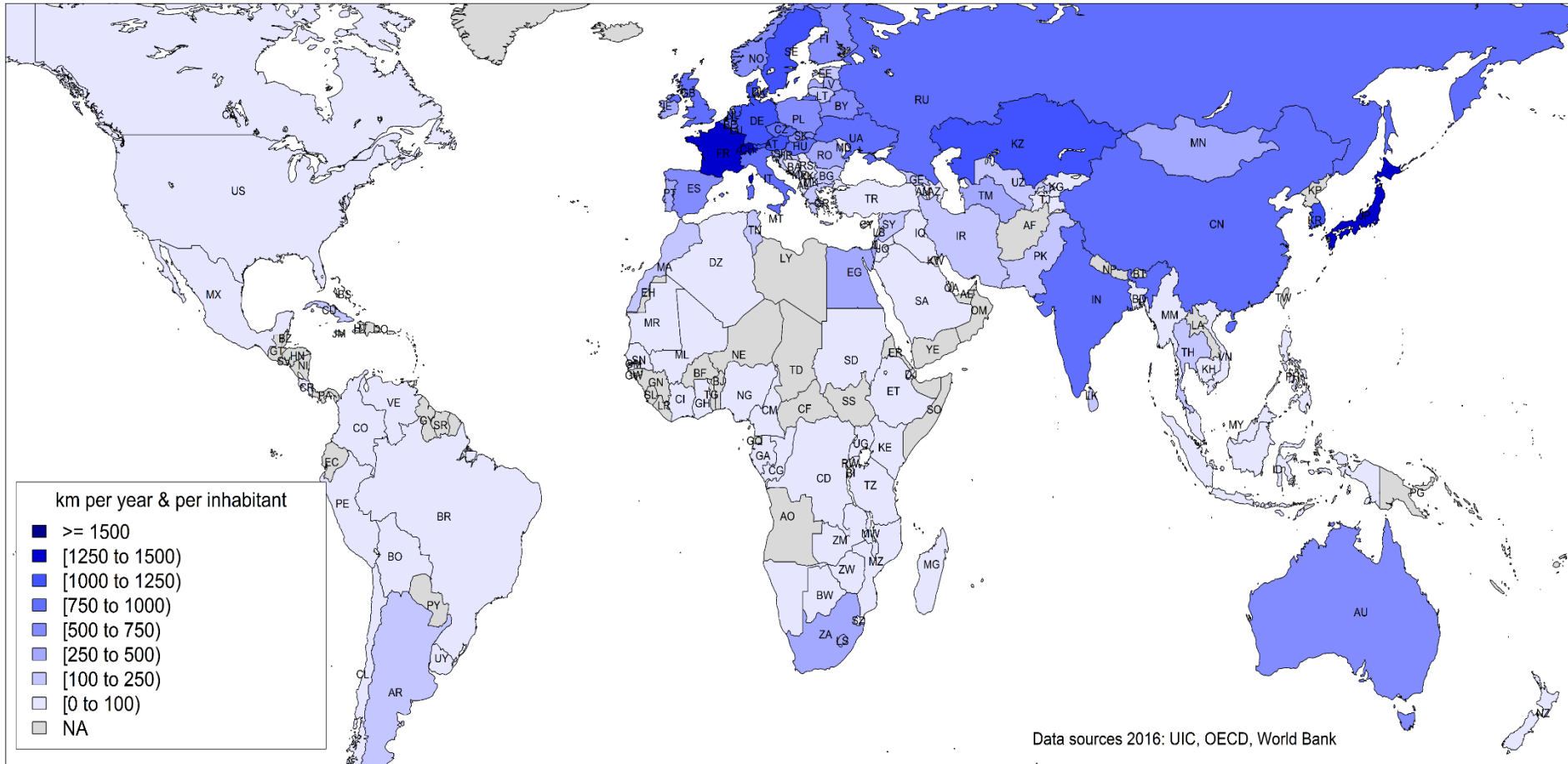
Tonne-kilometres (billion)



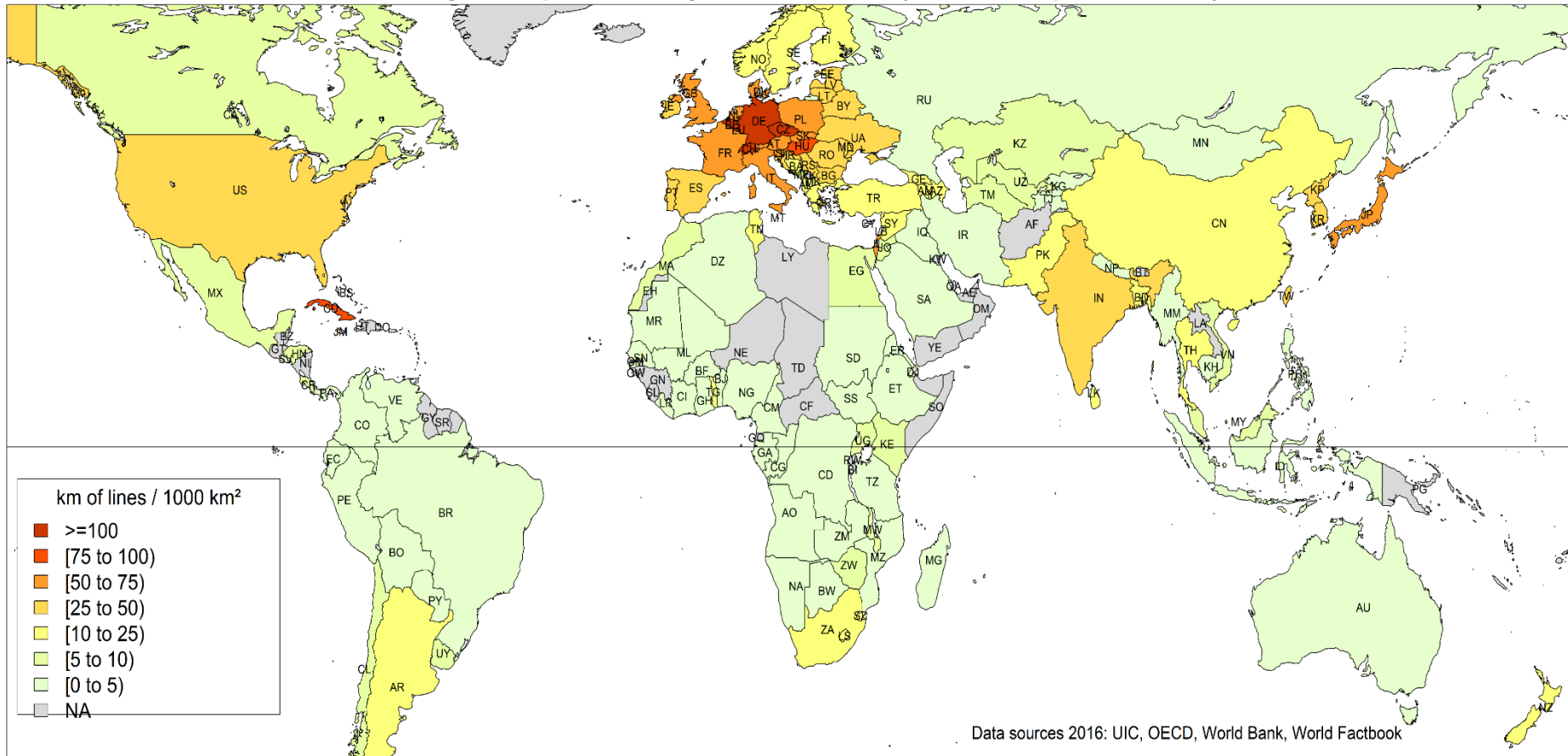
Railway Transport: Freight performance per GDP ppp



Railway Transport: Annual distance run per inhabitant

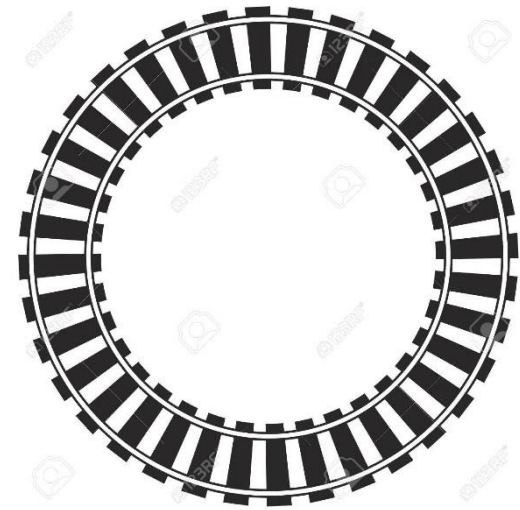


Railway Transport: Density of the Network (km of lines per 1000 km²)

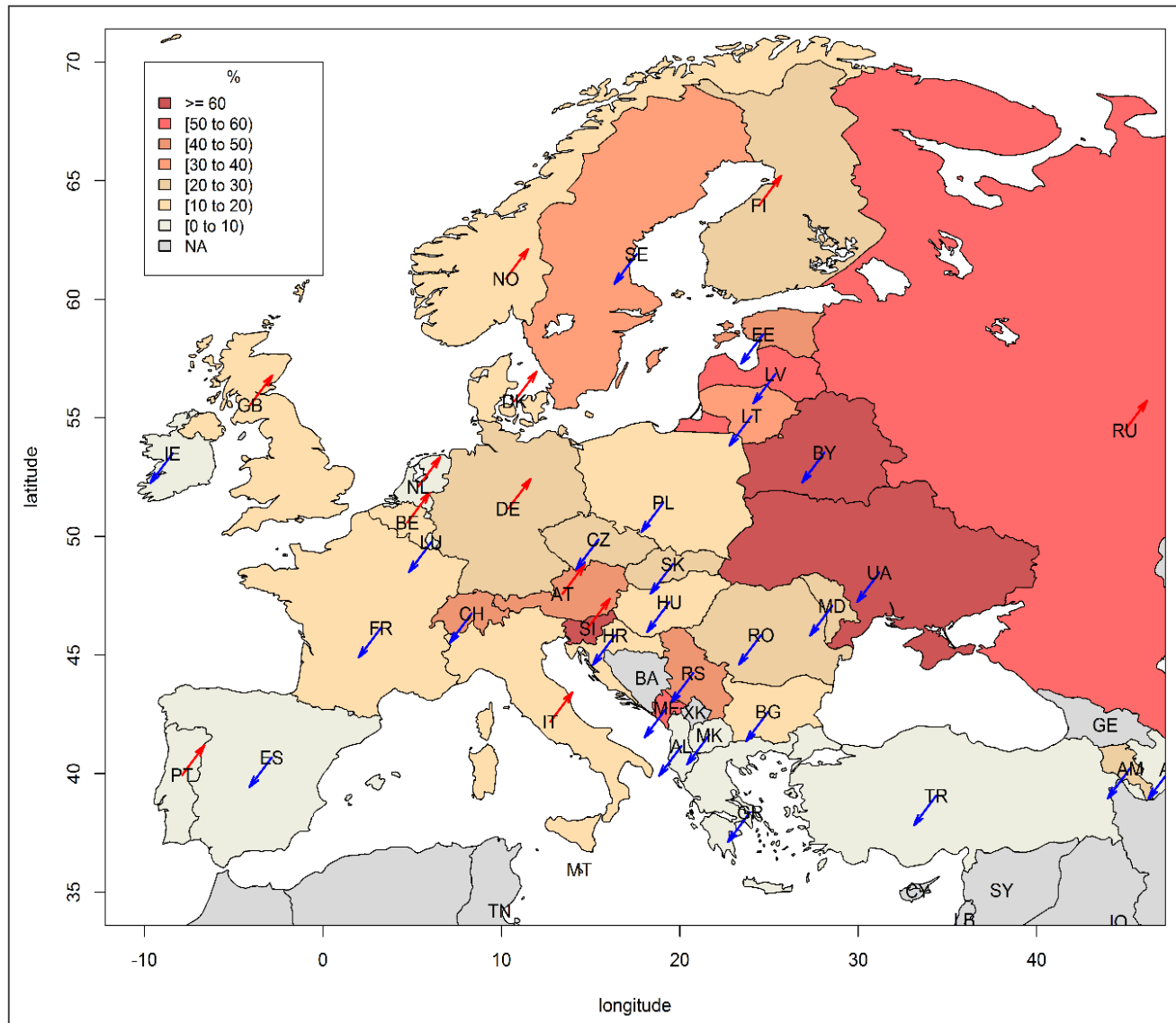


Rail's share in the world

- Inland freight transport: pipeline, inland waterway, rail and road.
 - Inland passenger transport: rail and road.
 - Inland transport infrastructure: pipeline, inland waterway, rail and road.
- Note: because of missing values, the mean proportion allocated to rail has been computed over the last 10 years and the linear positive/negative trend (red/blue arrows) has been assessed over the last 15 years.



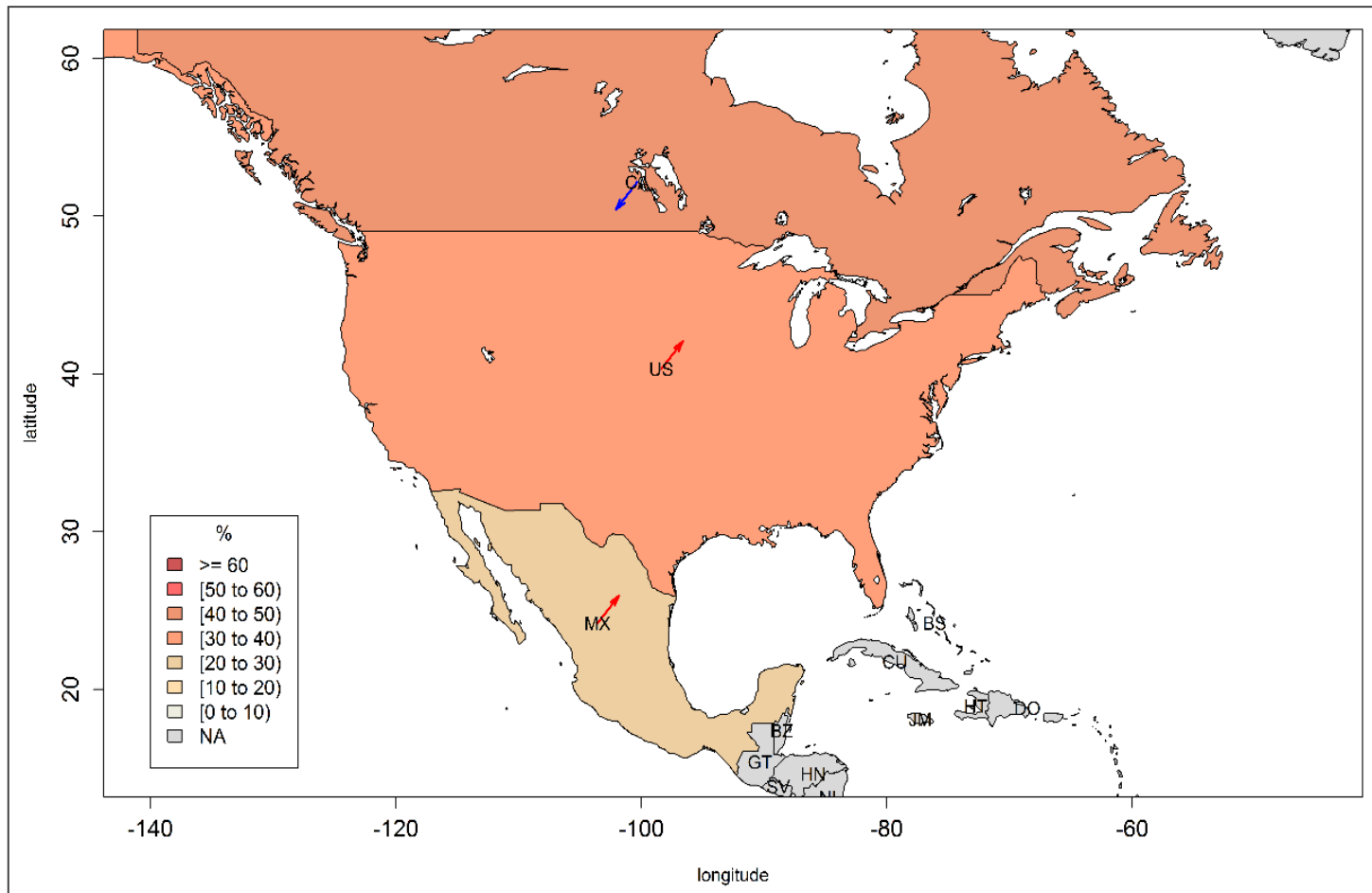
Rail's share in inland freight transport*



* Inland freight transport :
pipeline, inland waterway, rail
and road

Data source : OECD, Tkm

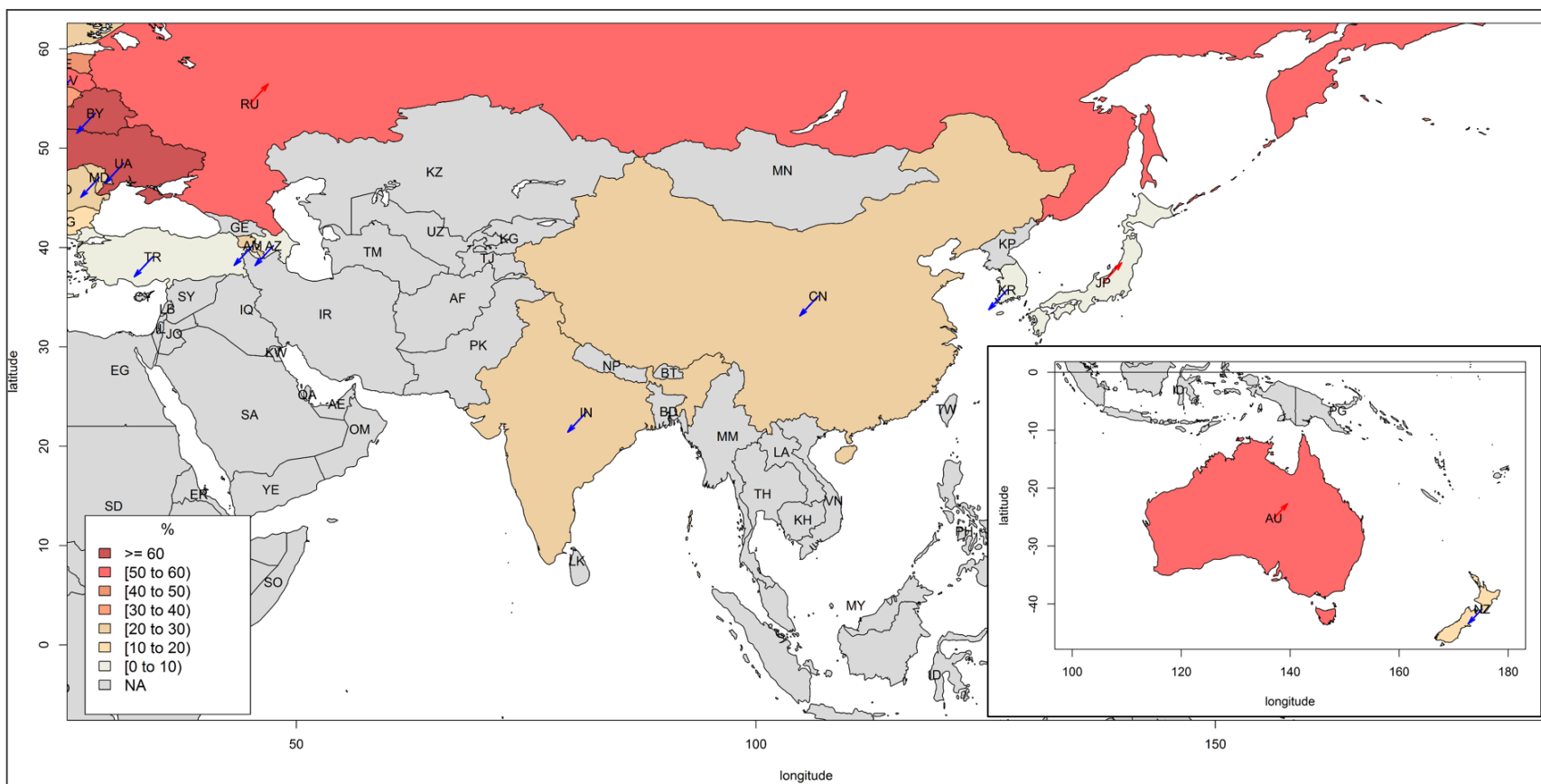
Rail's share in inland freight transport*



* Inland freight transport : pipeline, inland waterway, rail and road

Data source : OECD, Tkm

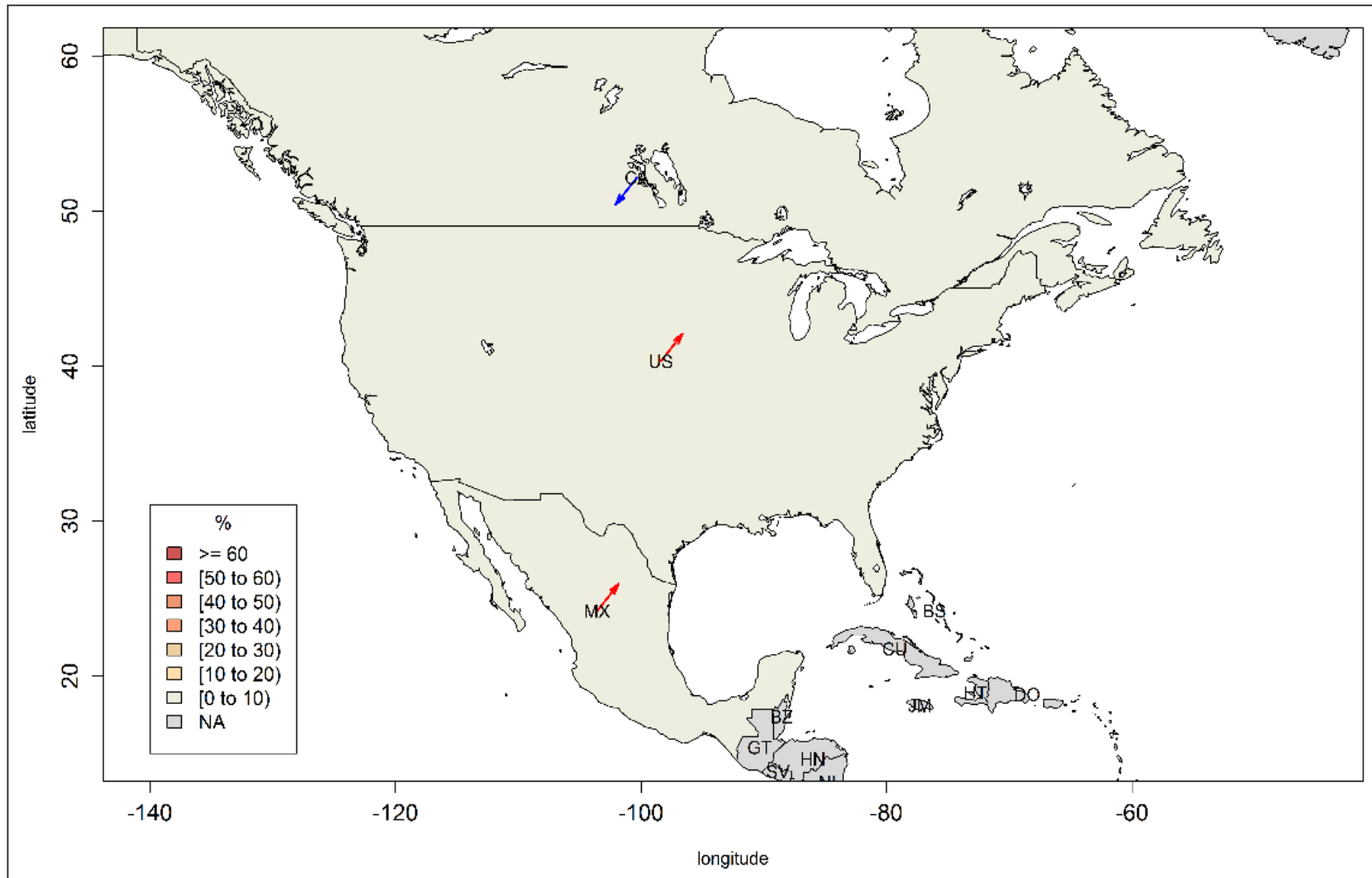
Rail's share in inland freight transport*



* Inland freight transport : pipeline, inland waterway, rail and road

Data source : OECD, Tkm

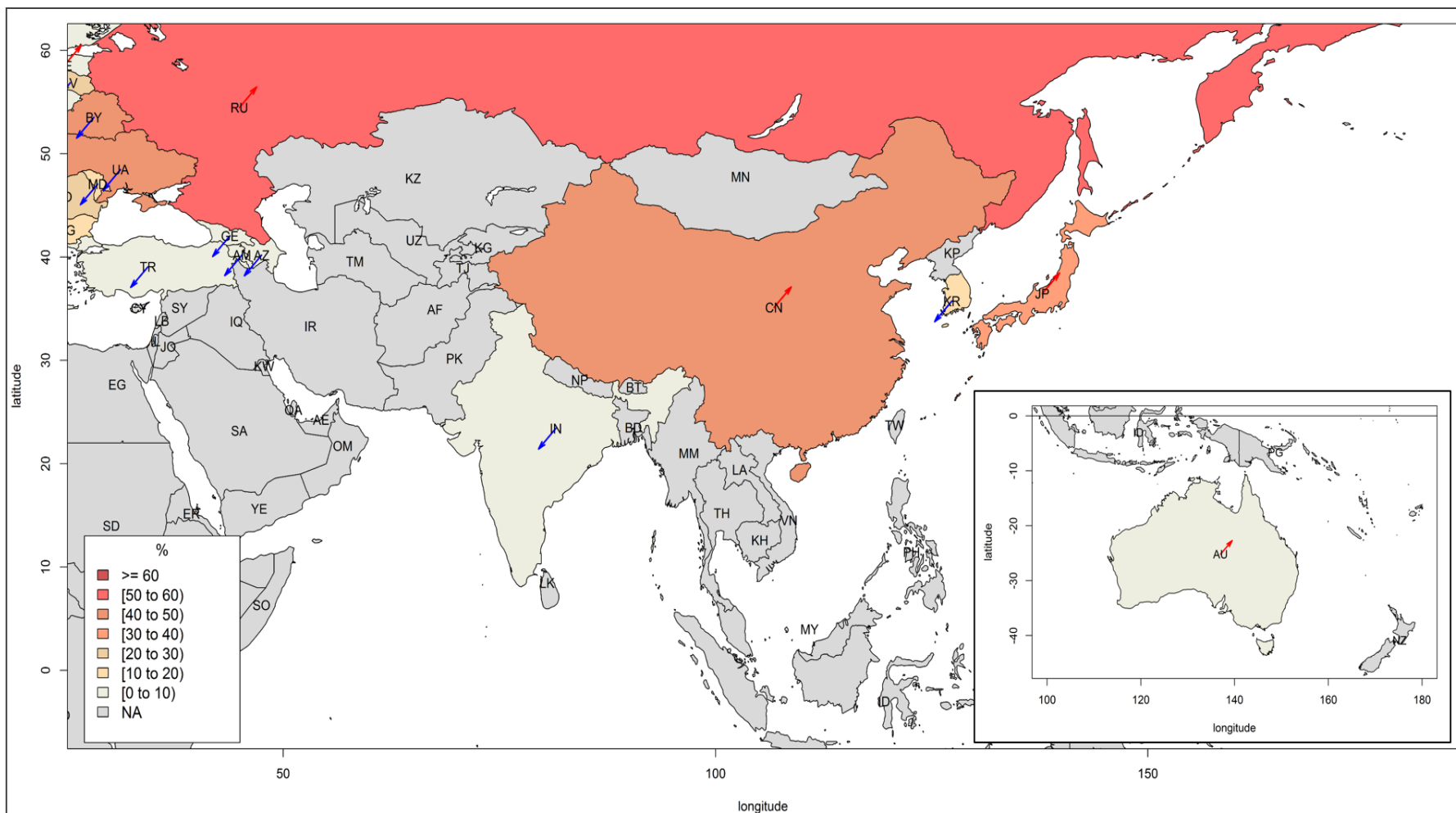
Rail's share in inland passenger transport*



* Inland passenger transport : road and rail

Data source : OECD, Tkm

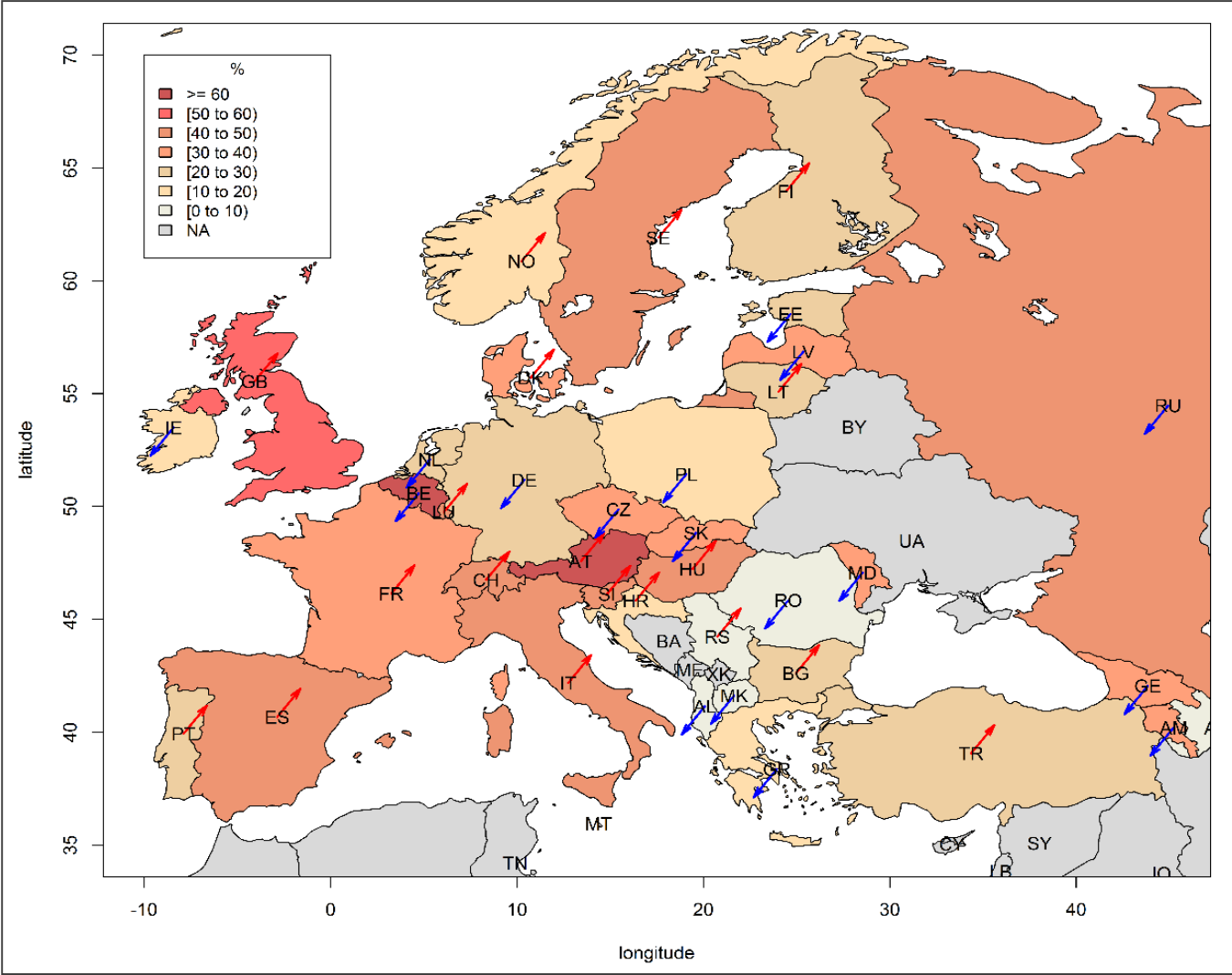
Rail's share in inland passenger transport*



* Inland passenger transport : road and rail

Data source : OECD, Tkm

Rail's share in inland transport infrastructure investment *

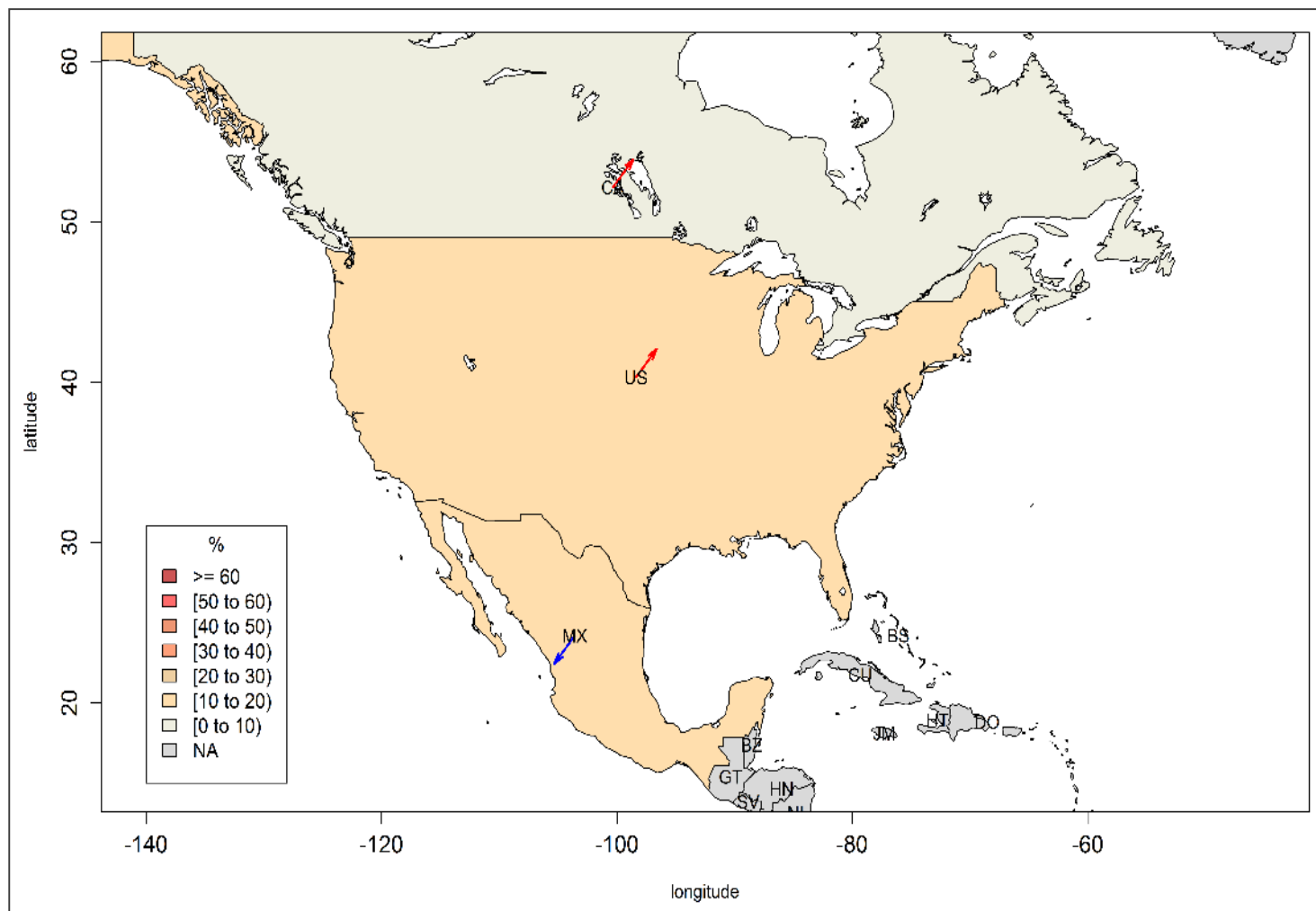


* Inland transport infrastructure : pipeline, inland waterway, rail and road

Data source : OECD, Tkm



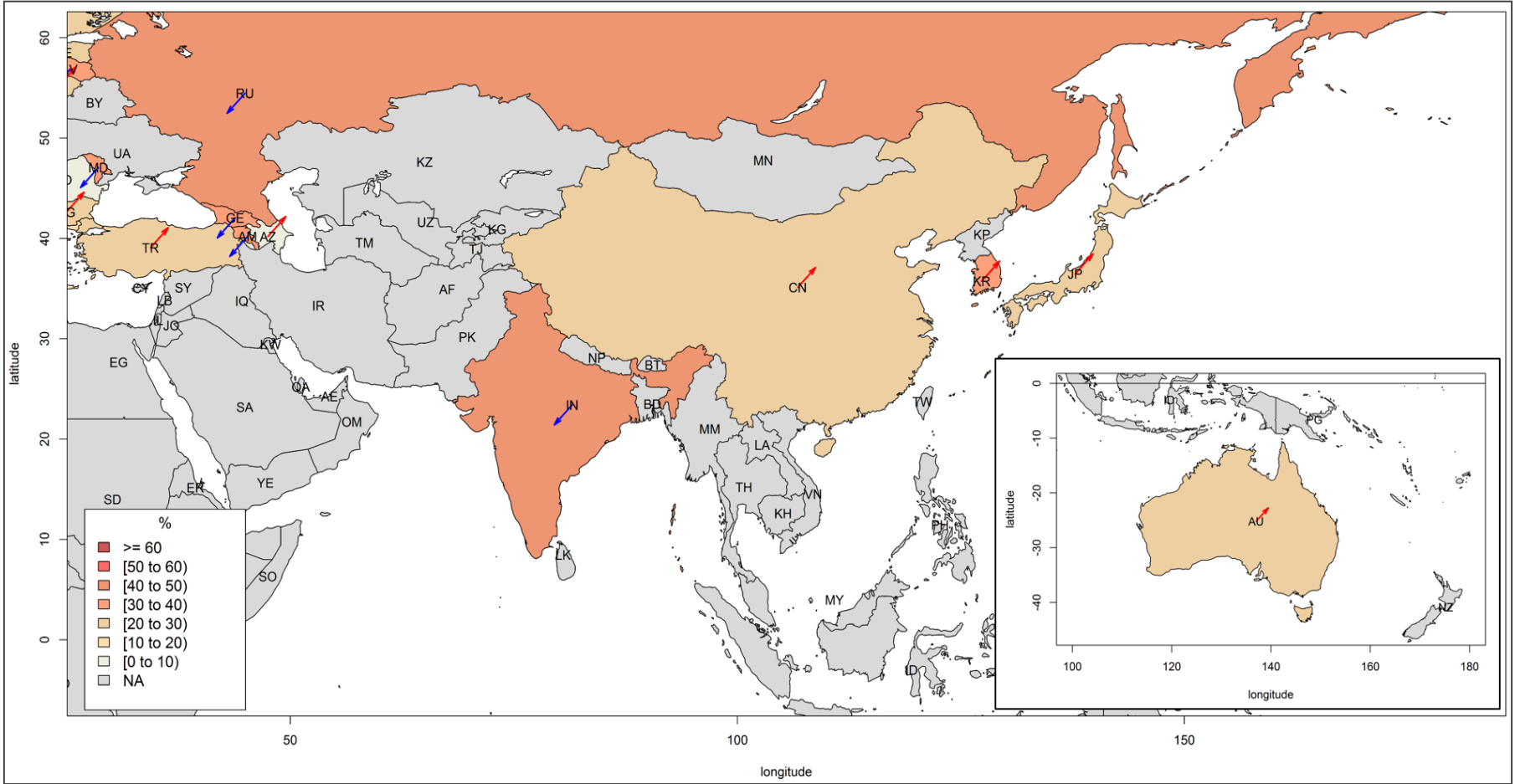
Rail's share in inland transport infrastructure investment *



* Inland transport infrastructure : pipeline, inland waterway, rail and road

Data source : OECD, Tkm

Rail's share in inland transport infrastructure investment *



* Inland transport infrastructure : pipeline, inland waterway, rail and road

Data source : OECD, Tkm

Rail's share in inland transport – global remarks

- **Rail share** at global scale is of about **26% of the total infrastructure investment** dedicated to inland transport.
- Finally, if we consider all countries with available data (in all regions), the modal share allocated to **rail passenger traffic** represents about **11%** and a slight **negative trend** is recorded over the period.
- To have a general view, if we consider all countries with data (in Europe, Northern America and in Asia and Oceania), the decrease of **rail share in freight transport** is about 10 percentage points (from ~ 39% to **29%**). This is due to the stronger increase of freight transport by road than by rail especially in China and in India.

Data source : OECD, Tkm

■ ■ ■ Thank you for your kind attention

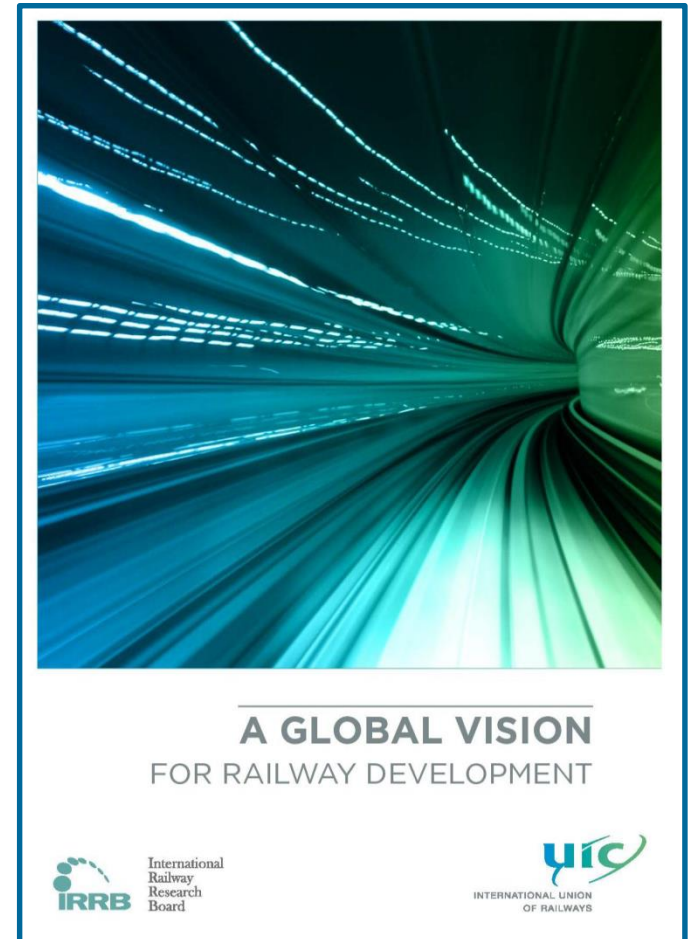
Snejana Markovic-Chénais

markovic@uic.org

Annexes



Global Vision for railway development



http://www.uic.org/IMG/pdf/global_vision_for_railway_development.pdf

A strategic vision for the rail development in every region of the world



http://africa.uic.org/squelettes/AFRICA_Strategic_Vision.pdf

http://asia.uic.org/squelettes/SAP_Asia-Pacific%202016-2019_light.pdf

http://latin-america.uic.org/squelettes/LATIN-AMERICA_Strategic_Vision.pdf

http://europe.uic.org/IMG/pdf/europe_challenge2050.pdf

http://europe.uic.org/IMG/pdf/rail_technical_strategy_europe.pdf

http://north-america.uic.org/squelettes/NORTH-AMERICA_Strategic_Vision.pdf

ACCESSING UIC RESOURCES: PUBLIC

The screenshot displays the UIC website homepage. At the top, the browser address bar shows 'uic.org'. The navigation menu includes 'ABOUT', 'ACTIVITIES', 'REGIONS', and 'PRODUCTS & SERVICES', along with a search bar. The main banner features the UIC logo and the text 'THE WORLDWIDE RAILWAY ORGANISATION' over a background image of a train. Below the banner is a horizontal menu with icons for 'E NEWS', 'PUBLICATIONS', 'LEAFLETS', 'VIDEOS', 'MEETINGS', and 'UIC MEMBERS'. The 'EVENTS' section contains five event cards: '1st TRAINING ON COMMUTER AND REGIONAL TRAIN SERVICES' (28-30 September, Rome), '9th APNRTC' (29th September - 01st October, Seoul, Korea), 'INTERNATIONAL RAILWAY SAFETY COUNCIL' (Paris, 2-7 October 2016), 'DIGITAL DAYS' (7-8 October 2016, Paris UIC Headquarters), and 'CRITIS 2016' (10-12 October 2016, UIC HQ Paris, France). The 'E NEWS ARTICLES' section lists two articles: 'USA: AMTRAK and partners announce design team for Chicago Union Station' and 'Germany: New product ideas and digital applications for the future of freight traffic'. The 'UIC PUBLICATIONS' section shows several document covers, including 'UIC Daily Night Trains 2.0', 'FACTS & FIGURES', and 'Freight 2016'.

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EN	STA 6/90 EN	Rules for compiling flow statistics for international passenger traffic	€24.00 excl. VAT
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