Trends and challenges in Rail transport

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

1921
Intergovernmental (diplomatic) conference in Portorose, Italy

1922
Intergovernmental (diplomatic) conference in Genoa, Italy

October 1922
Constitutive Assembly of UIC (Paris): UIC Statutes adopted by 51 Railway administrations from 29 countries (Europe, Asia)

2018
200 Member railways from 95 countries
## UIC today

<table>
<thead>
<tr>
<th>Count</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>members in 95 countries</td>
</tr>
<tr>
<td>3,000</td>
<td>billion passenger kilometres</td>
</tr>
<tr>
<td>10,000</td>
<td>billion tonnes kilometres</td>
</tr>
<tr>
<td>1</td>
<td>million kilometres of lines</td>
</tr>
<tr>
<td>7</td>
<td>million rail personnel</td>
</tr>
<tr>
<td></td>
<td>Cooperation with over 100 institutions</td>
</tr>
<tr>
<td>700</td>
<td>UIC Leaflets – New International Railway Solutions (IRS)</td>
</tr>
<tr>
<td>85</td>
<td>congresses, conferences, workshops</td>
</tr>
</tbody>
</table>
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

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

Available mid year for n-1

download it at http://uic.org/statistics
Length of lines share in 2017

- Europe (including Turkey): 32%
- America: 21%
- Asia and Oceania (Russia and Turkey excluded): 29%
- Africa: 7%
- Russia: 11%
Length of lines (km) Top 10

<table>
<thead>
<tr>
<th>Company</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAR (2016)</td>
<td>150,000</td>
</tr>
<tr>
<td>RZD (2017)</td>
<td>70,000</td>
</tr>
<tr>
<td>CR (2017)</td>
<td>60,000</td>
</tr>
<tr>
<td>IR (2016)</td>
<td>50,000</td>
</tr>
<tr>
<td>DB AG (2017)</td>
<td>40,000</td>
</tr>
<tr>
<td>SNCF (2016)</td>
<td>30,000</td>
</tr>
<tr>
<td>UZ (2016)</td>
<td>20,000</td>
</tr>
<tr>
<td>TRANSNET (2008)</td>
<td>10,000</td>
</tr>
<tr>
<td>PKP (2017)</td>
<td>5,000</td>
</tr>
<tr>
<td>ADIFSE (2017)</td>
<td>2,000</td>
</tr>
</tbody>
</table>
Passenger-kilometres share in 2017

- Europe (including Turkey): 16%
- Russia: 4%
- Africa: 1%
- America: 1%
- Asia and Oceania (Russia and Turkey excluded): 78%
Passenger kilometres (millions) Top 10

- IR (2016)
- CR (2017)
- EJR (2016)
- RZD (2017)
- SNCF (2017)
- DB AG (2017)
- ATOC (2014)
- CJRC (2016)
- WJRC (2016)
- FS (2017)
Tonne-kilometres share in 2017

- **Russia**: 29%
- **Europe (including Turkey)**: 6%
- **Africa**: 1%
- **Asia and Oceania (Russia and Turkey excluded)**: 37%
- **America**: 27%
Tonne.kilometres (millions) Top 10

- RZD (2017)
- AAR (2016)
- CR (2017)
- IR (2016)
- KTZ (2017)
- UZ (2016)
- TRANSNET (2008)
- DB AG (2017)
- QR (2011)
- BC (2017)
High Speed Traffic 2017 (billion pkm)

- Italy 2017: Trenitalia (FS) + NTV; 15
- KORAIL 2016; 16.3
- DB AG; 28.5
- RENFE; 15.5
- THSRC 2016; 10.5
- JR 2016; 98.59
- SNCF; 55.3
- CR 2016; 464.1

Other Europe *: CD, CP, EUROSTAR 2016, NS, PKP 2015, SZ, TCDD, THALYS 2016, VR
High Speed Traffic in China

Billion of Pkm


46 106 145 282 386 464
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)

- Africa
- America
- Asia and Oceania (Russia and Turkey excluded)
- Russia
- Europe (including Turkey)

Year:
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
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)

- Africa
- America
- Asia and Oceania (Russia and Turkey excluded)
- Russia
- Europe (including Turkey)


Passenger-kilometres (billion) range from 0 to 3000.
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
Railway Transport: Freight performance per GDP ppp

Data sources 2016: UIC, OECD, World Bank

t.km per million € GDP ppp
- >= 500 000
- [250 000 to 500 000)
- [100 000 to 250 000)
- [75 000 to 1000 000)
- [50 000 to 75 000)
- [25 000 to 50 000)
- [10 000 to 25 000)
- [5 000 to 10 000)
- [0 to 5 000)
- NA
Railway Transport: Annual distance run per inhabitant

km per year & per inhabitant

- >= 1500
- [1250 to 1500)
- [1000 to 1250)
- [750 to 1000)
- [500 to 750)
- [250 to 500)
- [100 to 250)
- [0 to 100)
- NA

Data sources 2016: UIC, OECD, World Bank
Railway Transport: Density of the Network (km of lines per 1000 km²)

Data sources 2016: UIC, OECD, World Bank, World Factbook
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*
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 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

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Annexes
Global Vision for railway development

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

http://africa.uic.org/squelettes/AFRICA_Strategic_Vision.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
ACCESSING UIC RESOURCES: STANDARDS