



INTERNATIONAL UNION
OF RAILWAYS

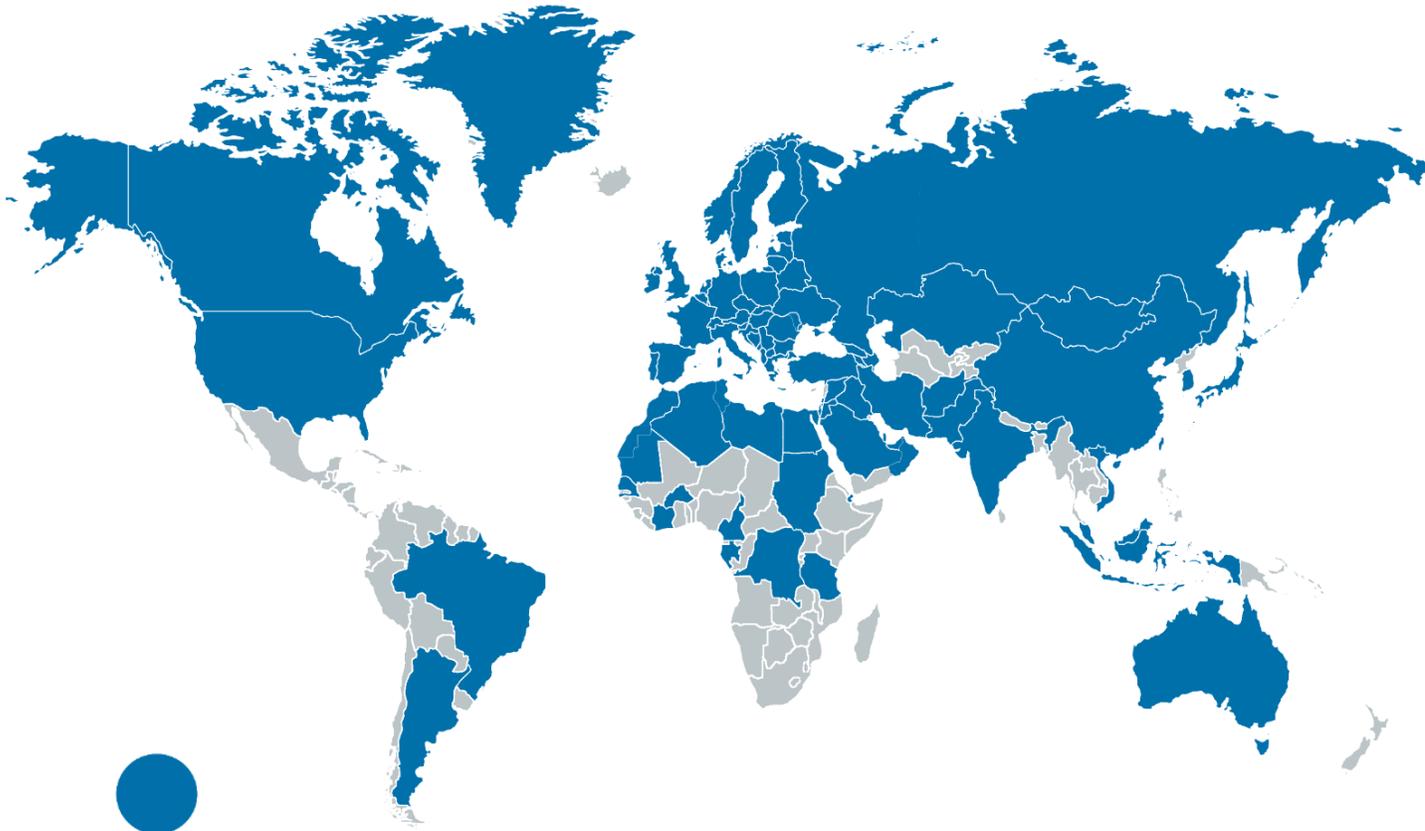
unity, solidarity, universality

Sustainable Urban Development – Railways and its Interfaces with the Urban Areas

Milko Papazoff, UIC, ASEAN Representative
Sustainable Development
Ulaanbaatar, Mongolia, 4^h October 2018



UIC Members all around the World



UIC MEMBERS
230 in 2018

 Passengers / High-Speed & Regional & Stations

 Environment & Sustainable Development

 Safety & Security

 Freight / Intercontinental corridors

 Railway Signaling & Control Command

 Standardisation, **UIC leaflets & IRS**
(International Railway Solutions)

Research & Education

7 UIC global cooperation issues serving the entire railway community

UIC Members in Asia Pacific



42 UIC MEMBERS in ASIA PACIFIC
Including 9 in ASEAN



ASEAN UIC Members :



INDONESIA



SURUHANJAYA
PENGANGKUTAN AWAM DARAT
LAND PUBLIC TRANSPORT
COMMISSION



MALAYSIA



VIETNAM



PHILIPPINES



THAILAND

Land Transport Authority

SINGAPORE



KURAIL

MYANMAR, THAILAND

Etc.

Next UIC ASEAN Members :



October 2018



UIC from yesterday to today

October 1922

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

to

2018



230

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



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

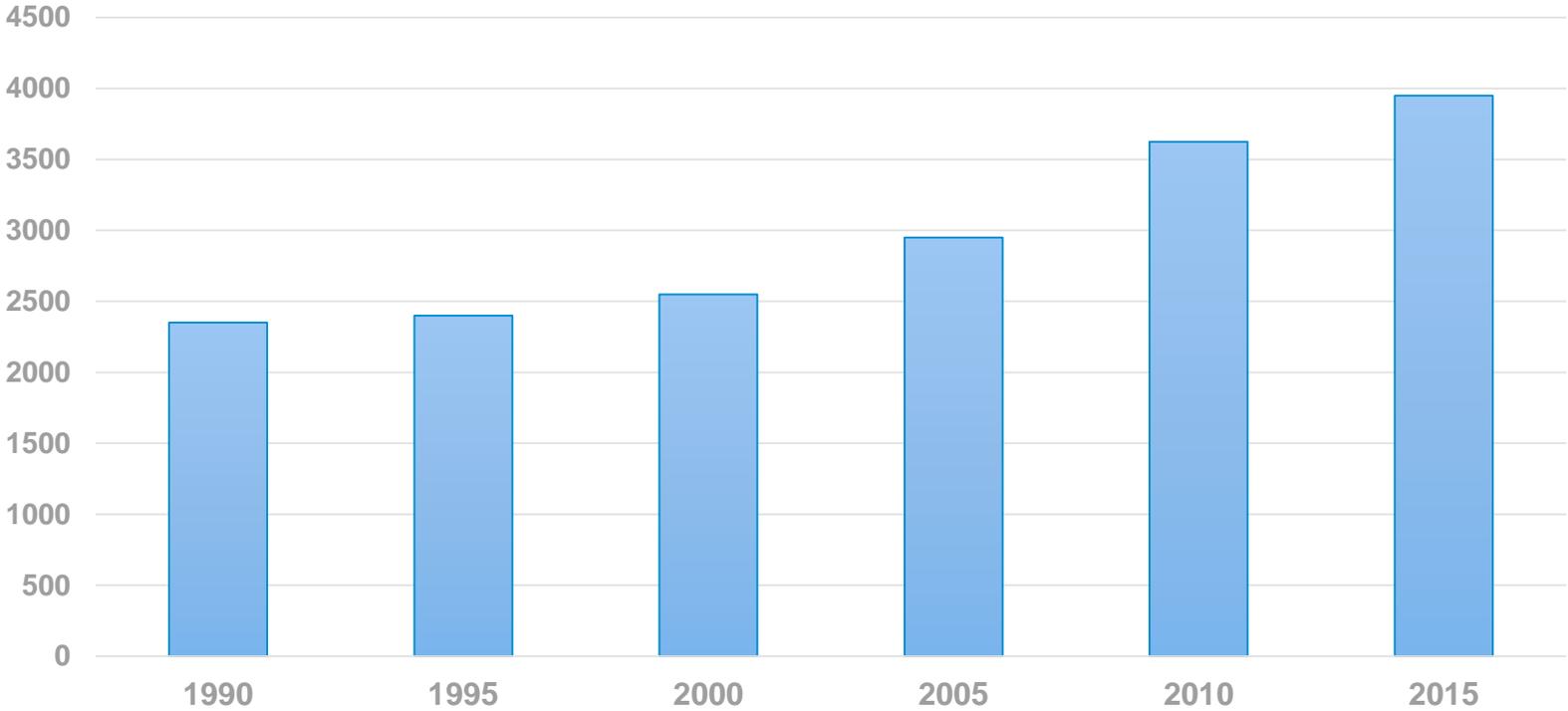
TRANSMISSION

DISSEMINATION

STRATEGIC ADVICE

Evolution of the Passenger Railway Activity

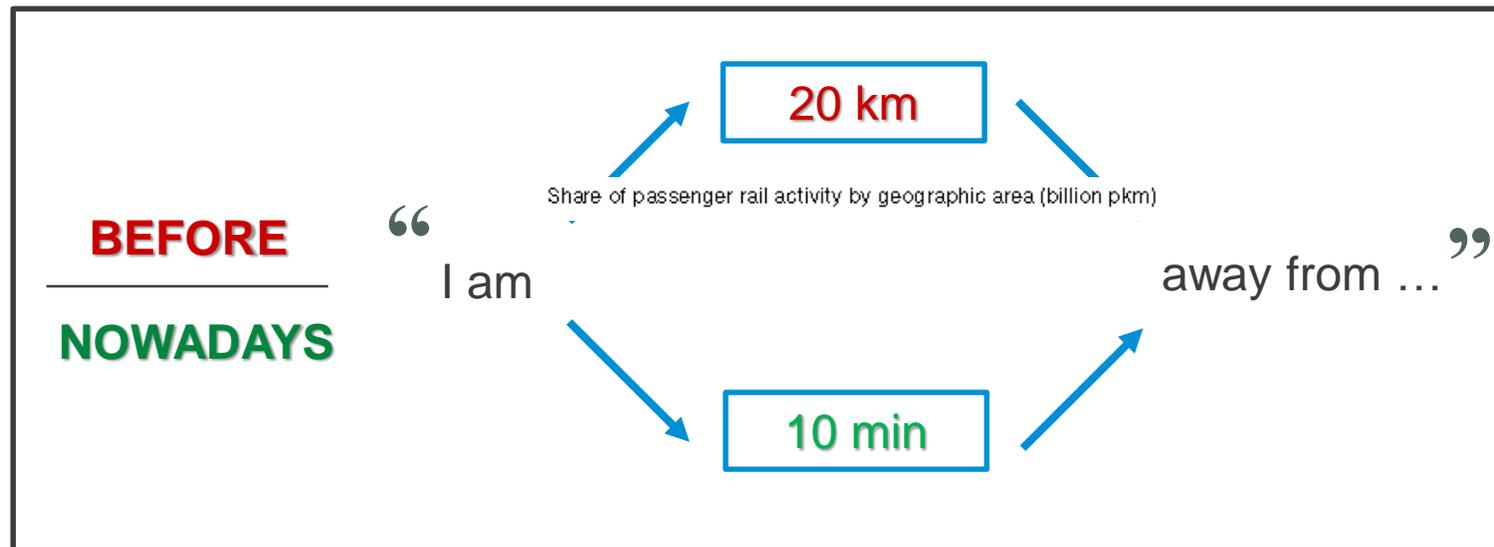
Passenger rail (billion pkm)



- Increase in mobility demand / needs
- Demography & urbanization
- Modal shift
- Promotion of intermodality
- Development of international railway networks
- More affordable

SOURCE: IEA ESTIMATES BASED ON IEA (2017B), ITDP (2014), UITP (2002 & 2015B)

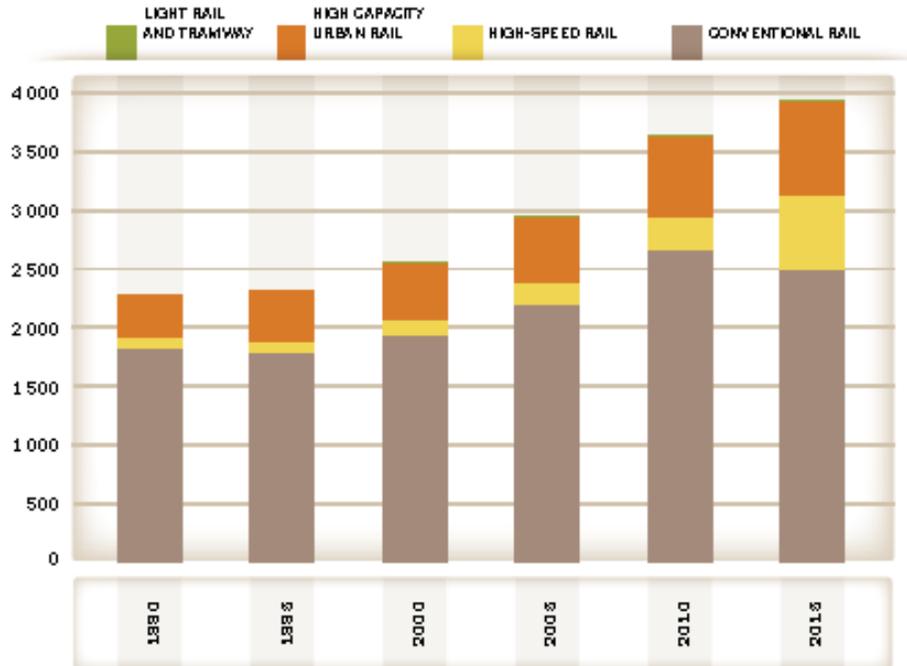
Shift from the travelled distance to the travel time model



Passenger Rail Activity

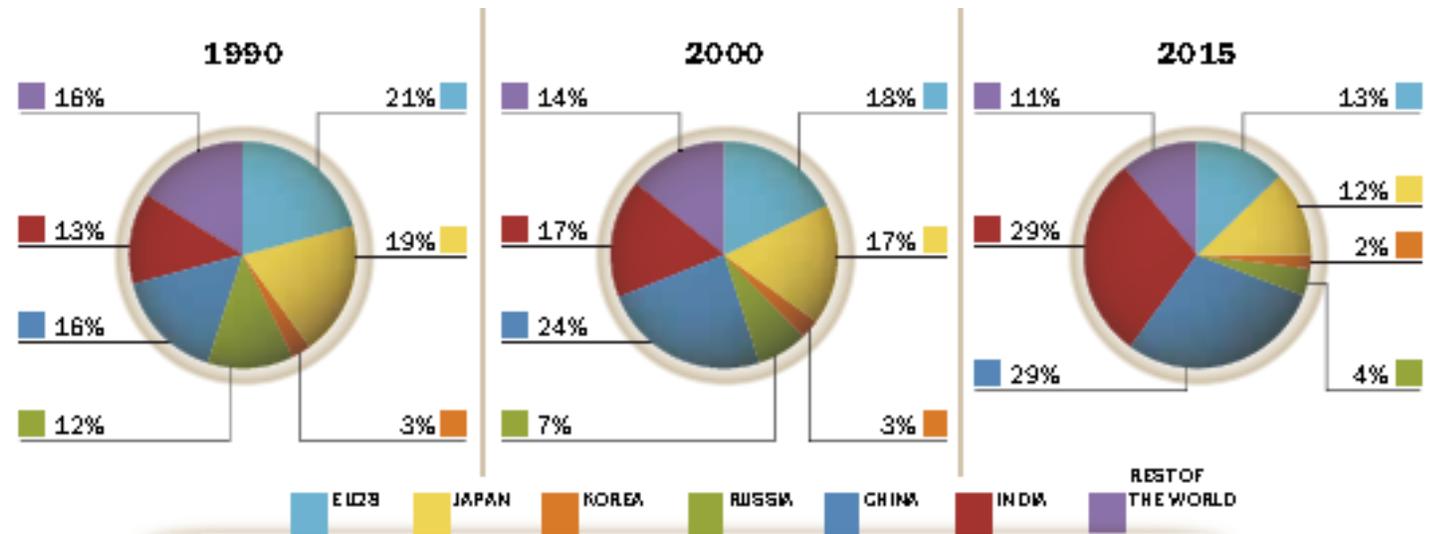
Passenger rail, an overview of activity and energy use

Passenger rail by type of service (billion pkm)



Source: IEA estimates based on IEA (2017b), ITDP (2014), UITP (2002) and UITP (2015b)

Share of passenger rail activity by geographic area (billion pkm)

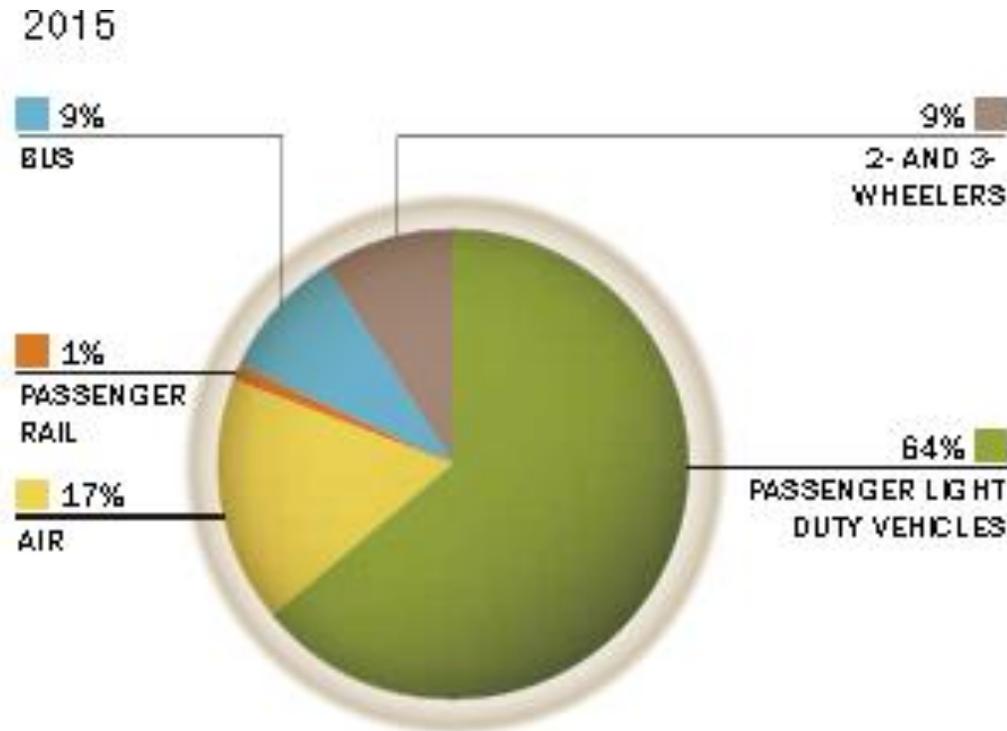


Source: IEA estimates based on IEA (2017b), ITDP (2014), UITP (2002) and UITP (2015b)

Passenger Rail Activity

Passenger rail, an overview of activity and energy use

Share of final energy demand in passenger transport by mode, 2015



Passenger rail requires less than one tenth of the energy needed to move individuals by car or by airplane.

Passenger rail services account for 9% of the global passenger activity in 2015 (expressed in pkm), but only represent 1% of the final energy demand in passenger transport.



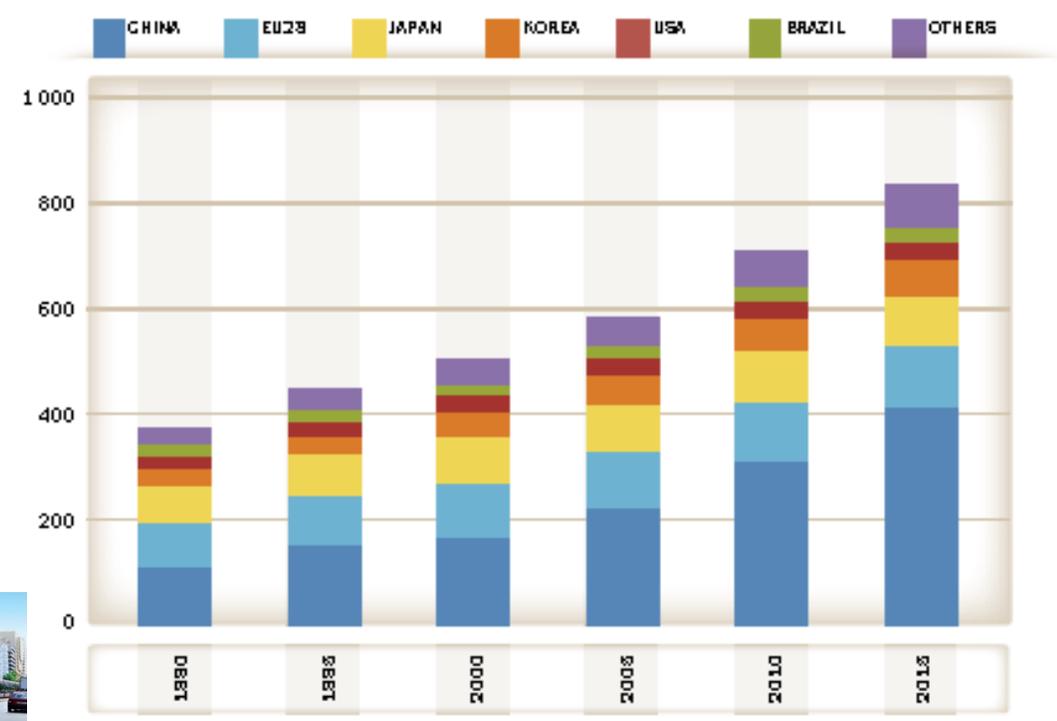
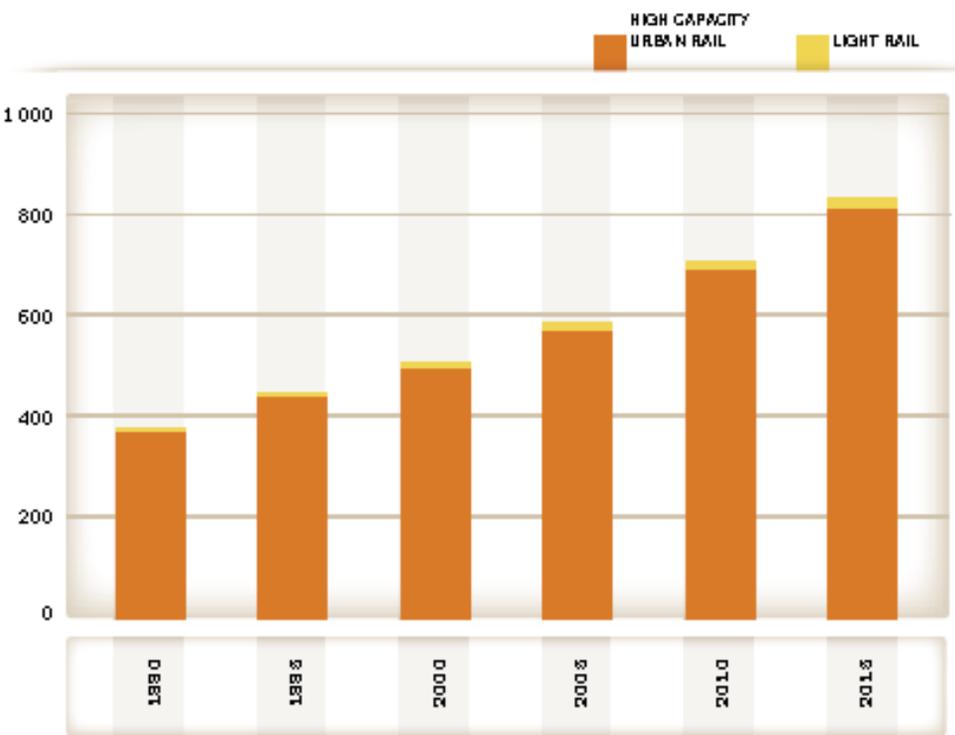
Source: IEA estimates based on IEA (2017b) and IEA (2017c)

Passenger Rail Activity

Urban rail

Urban rail activity by mode (billion pkm)

Urban rail activity by geographic area (billion pkm)



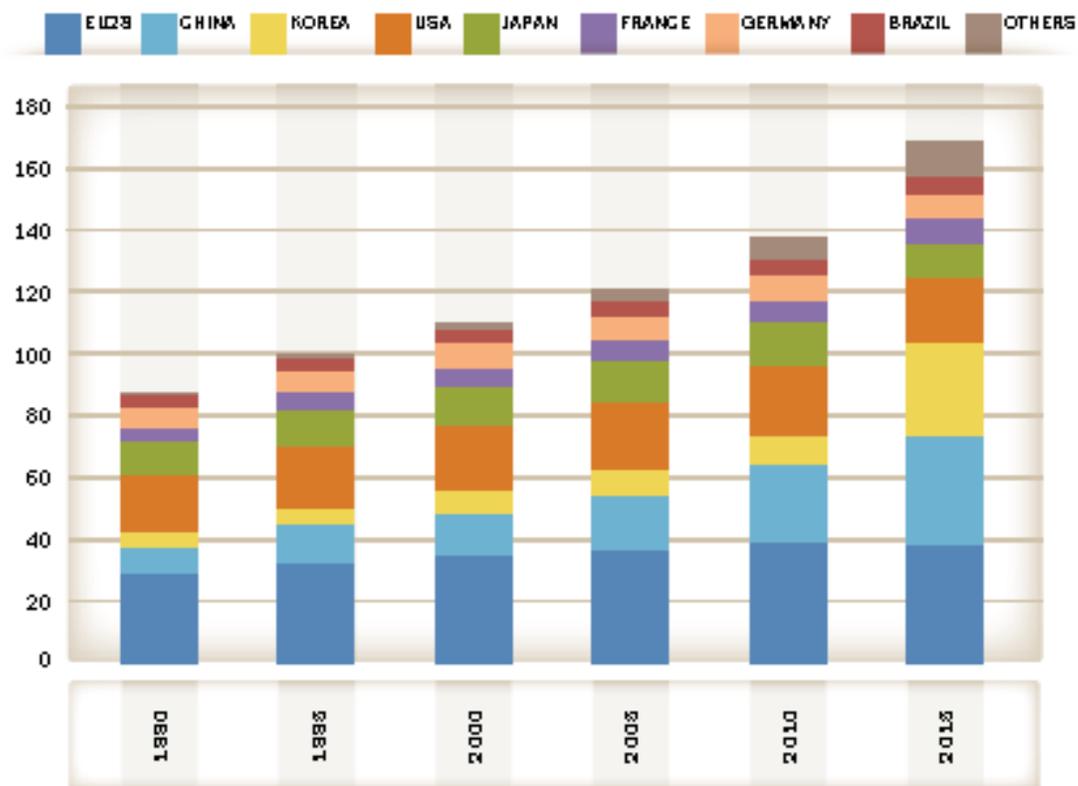
Source: IEA estimates based on IEA (2017 b), ITDP (2014), UITP (2002) and UITP (2015 b)

Source: IEA estimates based on IEA (2017 b), ITDP (2014), UITP (2002) and UITP (2015 b)

Passenger Rail Activity

Energy use and energy intensities

Final energy consumption in urban rail by geographic area (PJ)*



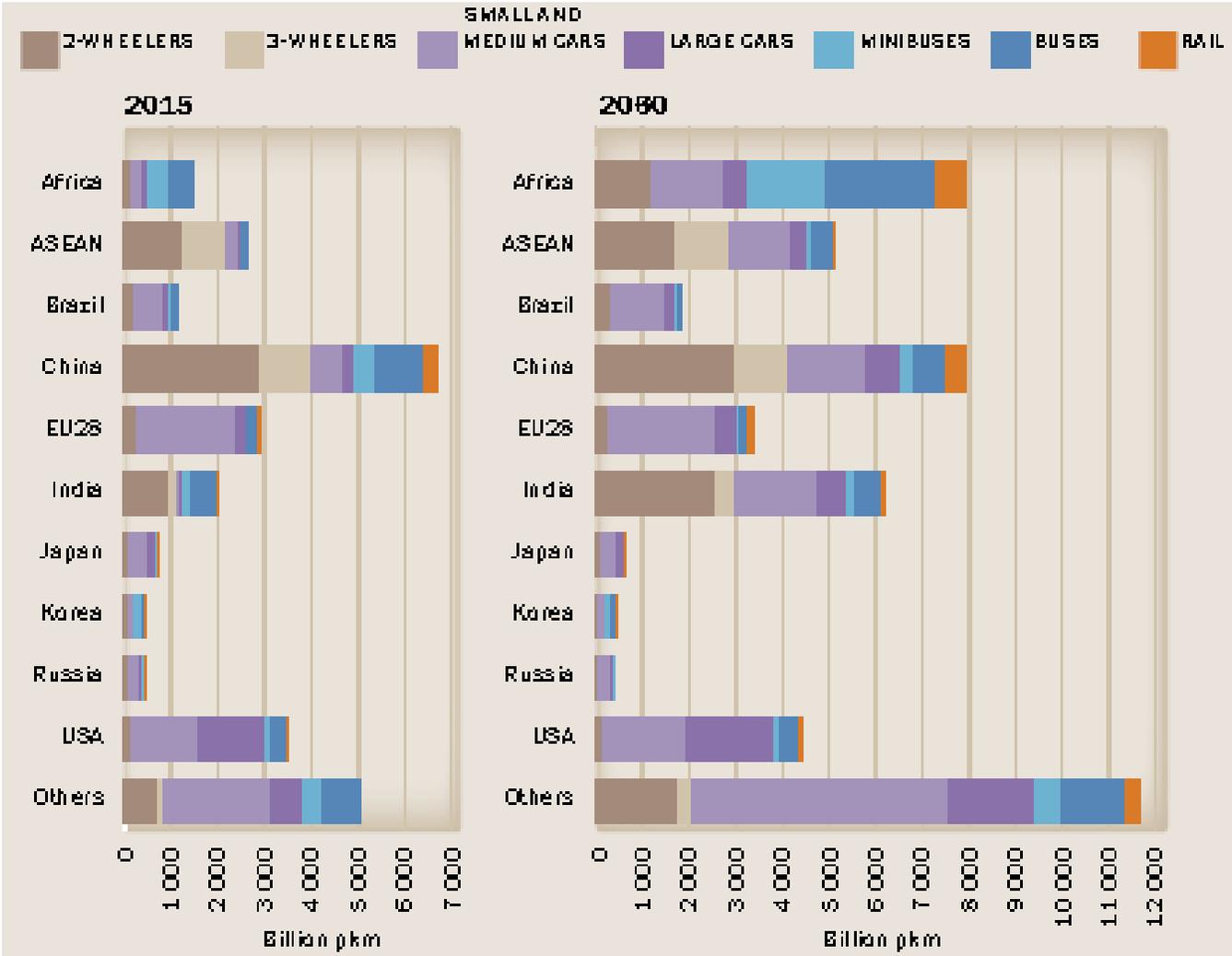
Regional differences

In 2015, high capacity urban rail services consumed nearly 160 PJ of energy (mostly electricity), a value of similar magnitude to high-speed rail.



Source: IEA estimates based on IEA (2017b), ITDP (2014), UITP (2002) and UITP (2015b)

Passenger Rail Activity



Urban passenger transport activity (motorized modes) in the IEA Reference Technology Scenario (RTS), 2015 and 2060

Rail is currently a sustainable alternative to less sustainable competitors.

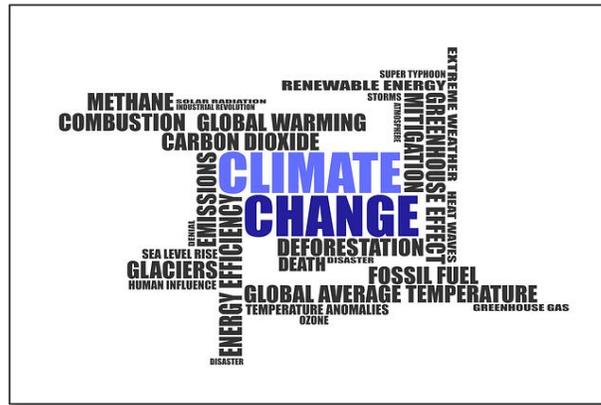
Rail performance and potential efficiency in terms of carbon ensure this advantage for the next future.



Source: IEA (2017 b)

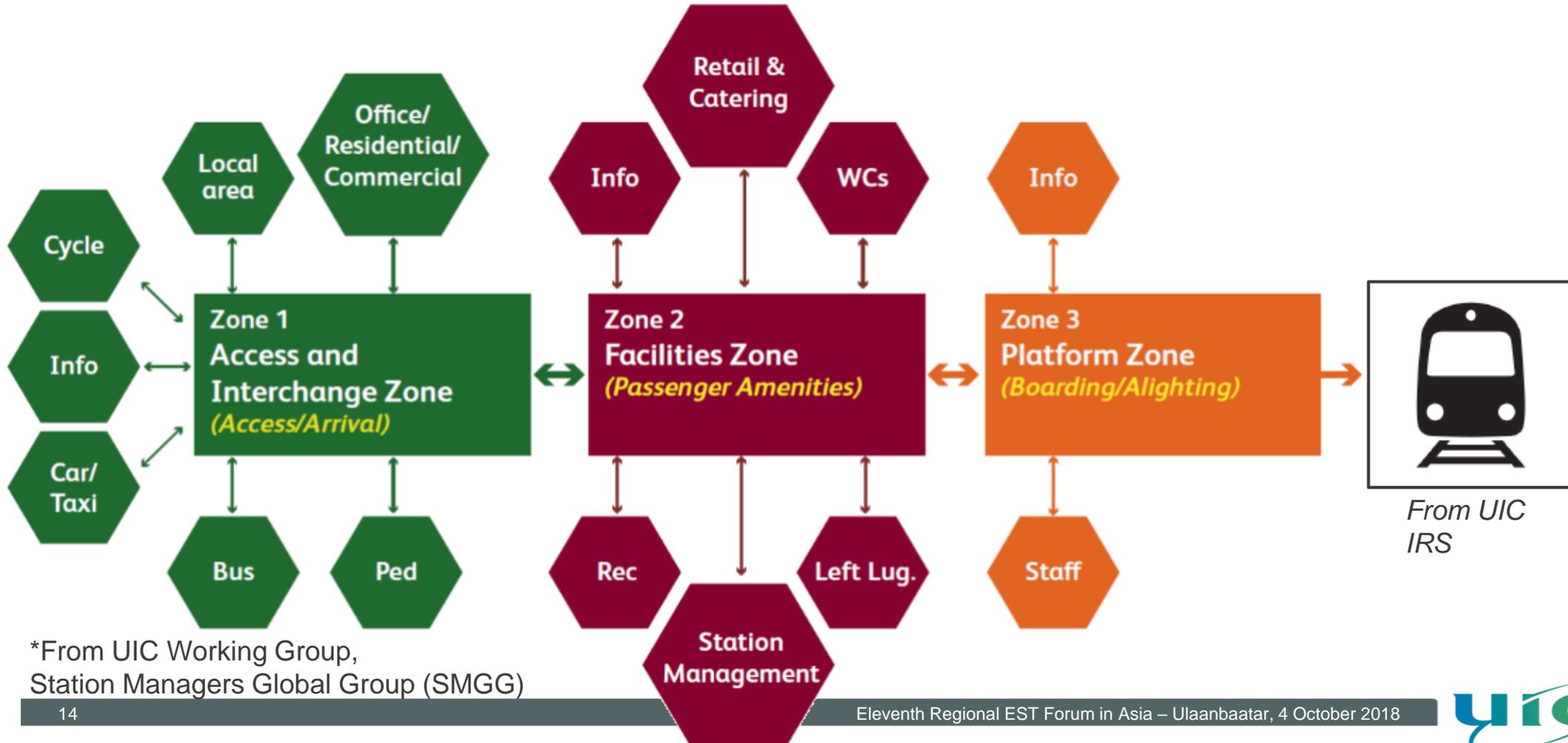


New Challenges & New Paradigms



Smart Stations in Smart Urban Areas

Train Stations, railway interface with various functionalities



*From UIC Working Group,
Station Managers Global Group (SMGG)

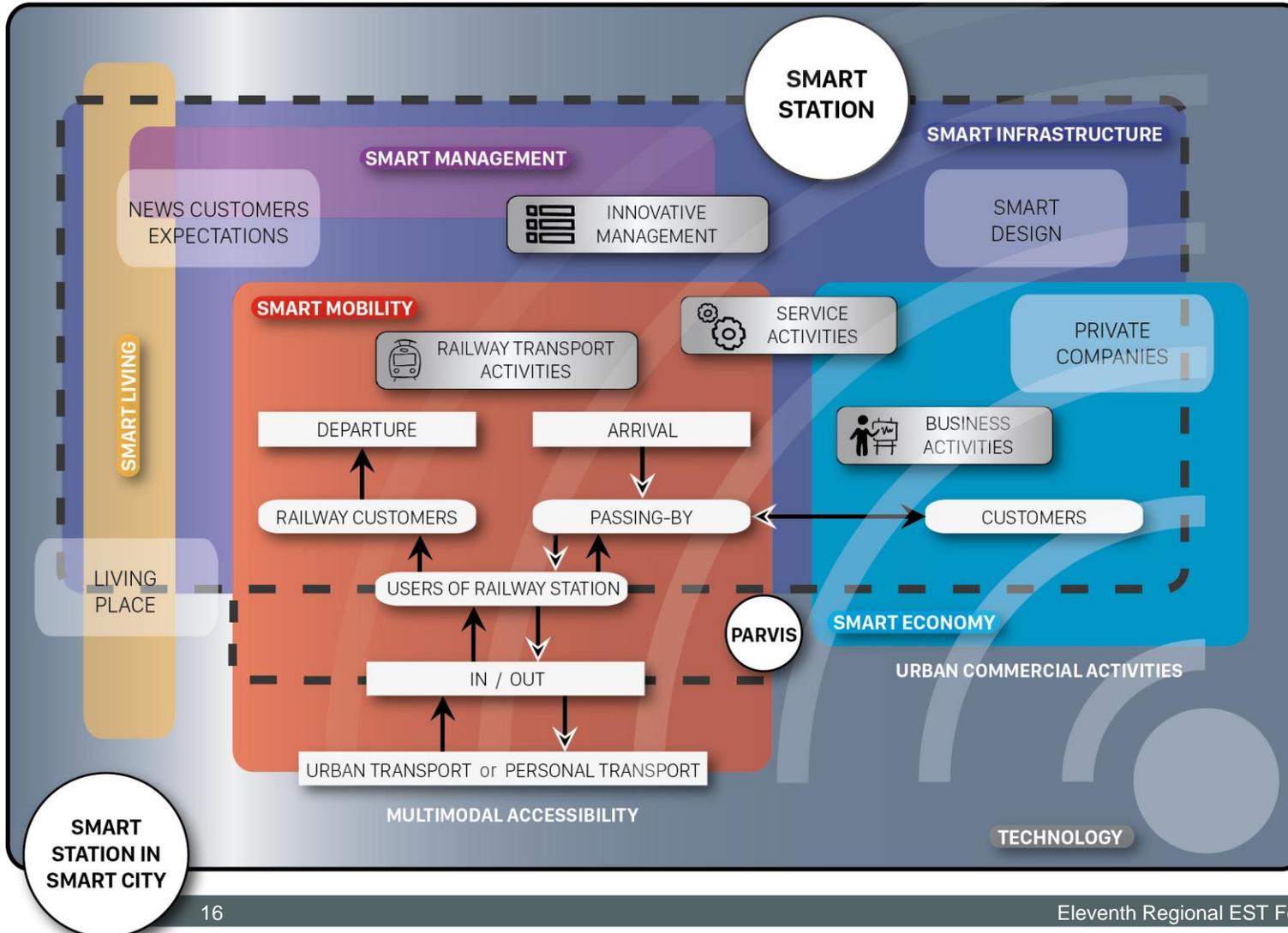
Smart Stations in Smart Urban Areas

Stations at the heart of the mobility « web »

- Station as the interface between various modes of transport
- Station as multi-dimensional hubs where modern meet historical
- Station can represent a dream of future mobility, for the smart mobility



Smart Stations in Smart Urban Areas

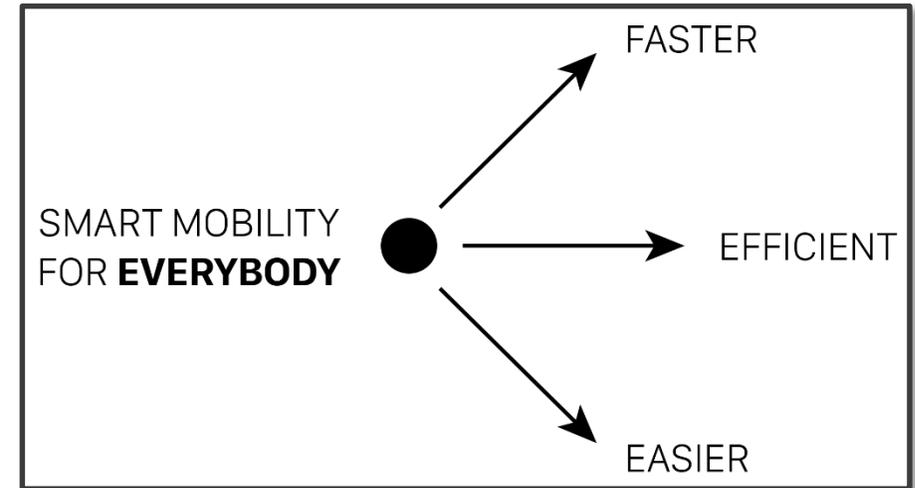


Smart Stations in Smart Cities

- 2017 UIC NEXSTATION international event
- UIC defined what is a Smart Station:
 - Smart Management
 - Smart Design & Infra
 - Smart Mobility

Smart Mobility: the people at the heart of digitalization

- Smart mobility as key for the new intermodality chain
- Mobility as a service for shared mobility solutions
- Digitalisation ticketing system

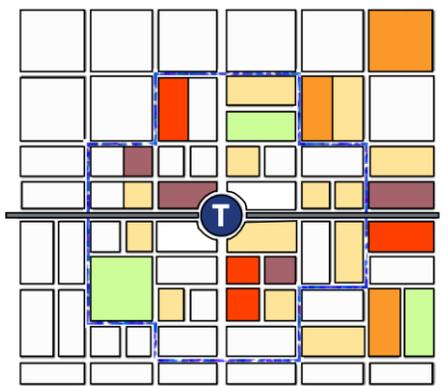


*UIC Passenger Department, Station & Intermodal Hubs

New Paradigms in a Digital World

Smart Mobility: the people at the heart of digitalization

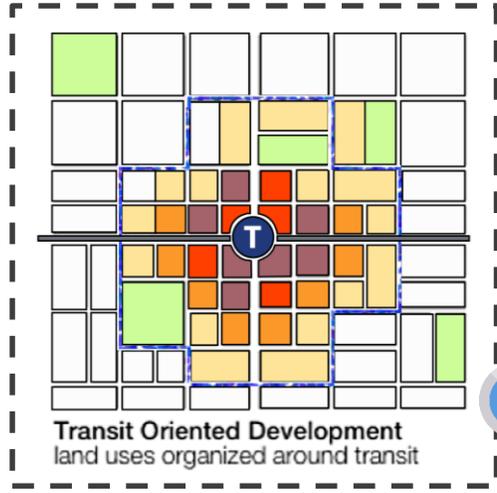
UIC supports urban renewal through Transit-Oriented Development



Non-Transit Oriented Development
land uses not organized around transit

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Mixed Use
- Park
- Ⓣ Transit Stop
- Transit Route
- ⋯ 10 minute walk

Landscape transformation

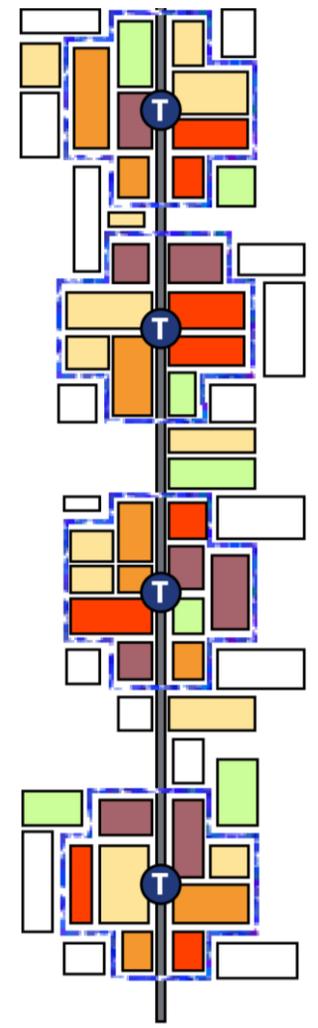


Transit Oriented Development
land uses organized around transit

An integrated landscape



Global TOD view



UIC Conclusion



- National scale turns into regional and regional becomes local
- Digitalization on the mobility aspect will modify deeply the behavior of travelers
- New travel experience adapted to the digital era's standards
- Smart Stations are boosting new forms of local mobility system
- To make us dream, to dream of the smart mobilities of tomorrow, by inviting younger generations to dream even higher and smarter than the heritage our forefathers left us

www.uic.org



#UICrail



UIC's commitment to the New Challenges

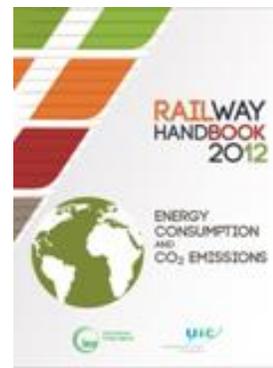
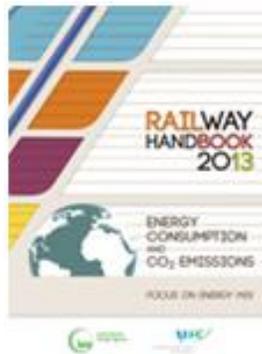
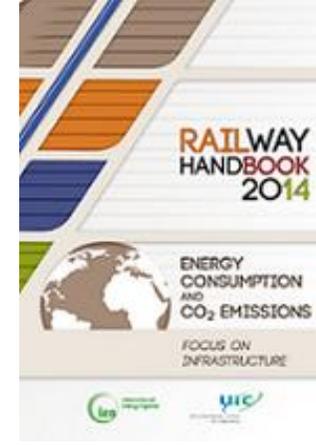
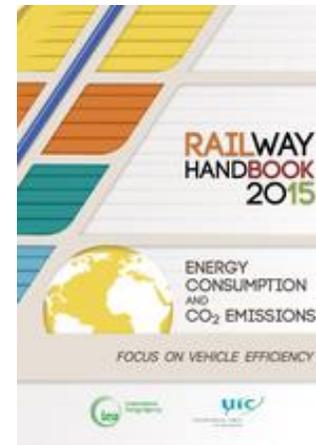
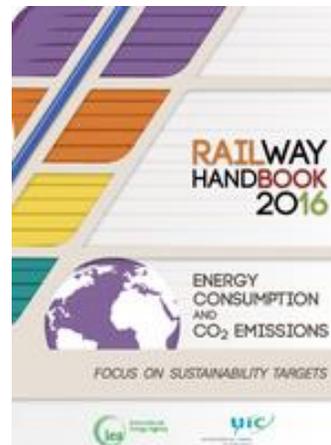
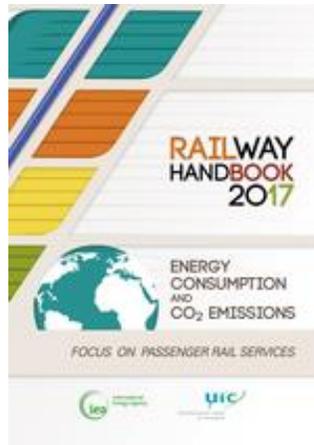


SUSTAINABLE DEVELOPMENT GOALS



UIC IEA RAILWAY HANDBOOK

The handbook aims to provide the latest insights into the rail sector's developments of transport activity, energy consumption and CO₂ emissions. Every year the handbook focuses on specific data. In 2017, the focus was on passenger rail services. For Asia, Japan, India and China are usually the main focus as well as an increasing focus on Korea.



<https://uic.org/uic-iea-railway-handbook>

Asia Pacific Examples



Companies	CO ₂ targets	Energy Targets
INDIAN RAILWAYS Country: India Source: UNDP (2011)	Saving of 3.33 million tonnes of CO ₂ by 2020 (80% over the period 2011/12-2020/21).	Saving of 4.05 billion kWh by 2020.
JR-EAST Country: Japan Source: JR-East (2014)	Halving of CO ₂ emissions from its railway business by FY 2030 compared to FY 1990. CO ₂ emissions: -30% by 2021 relative to 1991.	Energy Consumption: -8% by 2021 relative to 2011.
JR-WEST Country: Japan Source: JR-West (2016)		Energy consumption rate (MJ/Rolling-stock km) -3% compared to FY 2011. 83% Energy-saving railcars as a percentage of total railcars in FY 2018.
KORAIL Country: South Korea Source: KORAIL (2015)	GHG mid-term reduction goals: -8% by 2019 from 2015 levels.	
RZD Country: Russia Source: RZD (2014)	Reduction of the negative environmental impact (CO ₂ emissions) by 7% in 2017 and by 15% in 2030 compared to 2012 (optimistic scenario).	





STRATEGIC ACTION PLAN FOR UIC ASIA-PACIFIC

2016-2019
UPDATED VERSION / MARCH 2018



Bangkok, Thailand
14-15 November 2018



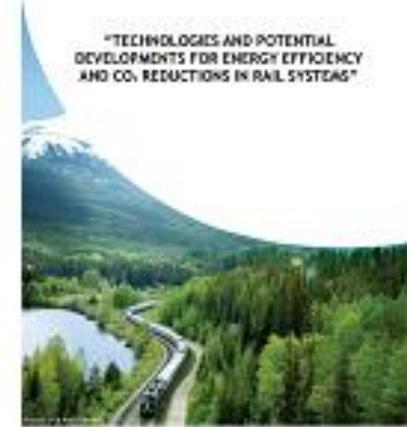
<http://asia.uic.org/>



UIC Asia-Pacific Vision 2050



Commissioned by Mr. Yu Vincent, Director Institutional Relations & Coordinator Asia-Pacific
Author: Sustainable Development Foundation
September 2015



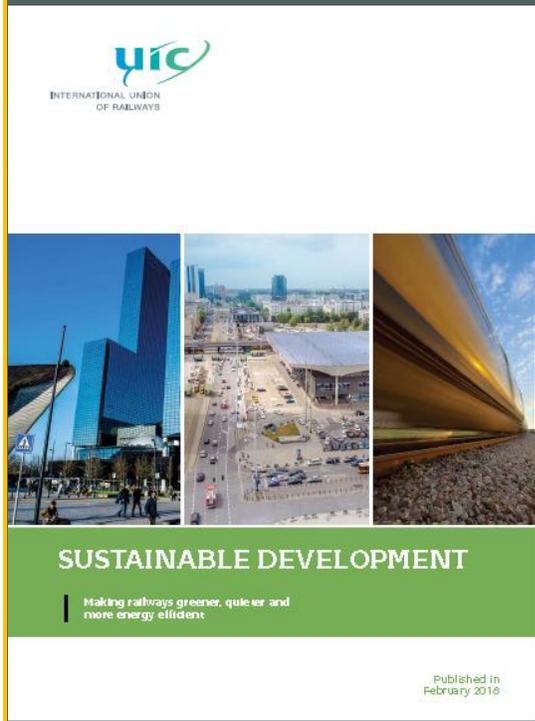
CHALLENGE 2050
THE RAIL SECTOR VISION



Terima Kasih
 Salamat Po
 ឧបសគ្គ
 Cảm ơn bạn
 ありがとうございます
 고맙습니다
 谢谢
 ආචාර්ය
 རྟེན་ལྗོངས་ལོ་འདྲི་བ་
 Obrigadu
 धन्यवाद
 நன்றி
 ඔබට ජ්‍යෙෂ්ඨ
 آپ کا شکریہ
 баярлалаа
 धन्यवाद
 شكرا
 Спасибо
 Danke
 Gracias
 Thank You
 Merci



unity, solidarity, universality



www.uic.org

#UICrail

баярлалаа

■ ■ Thank you for your kind attention

Milko Papazoff, UIC
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*Eleventh Regional EST Forum in Asia
 4th October 2018*