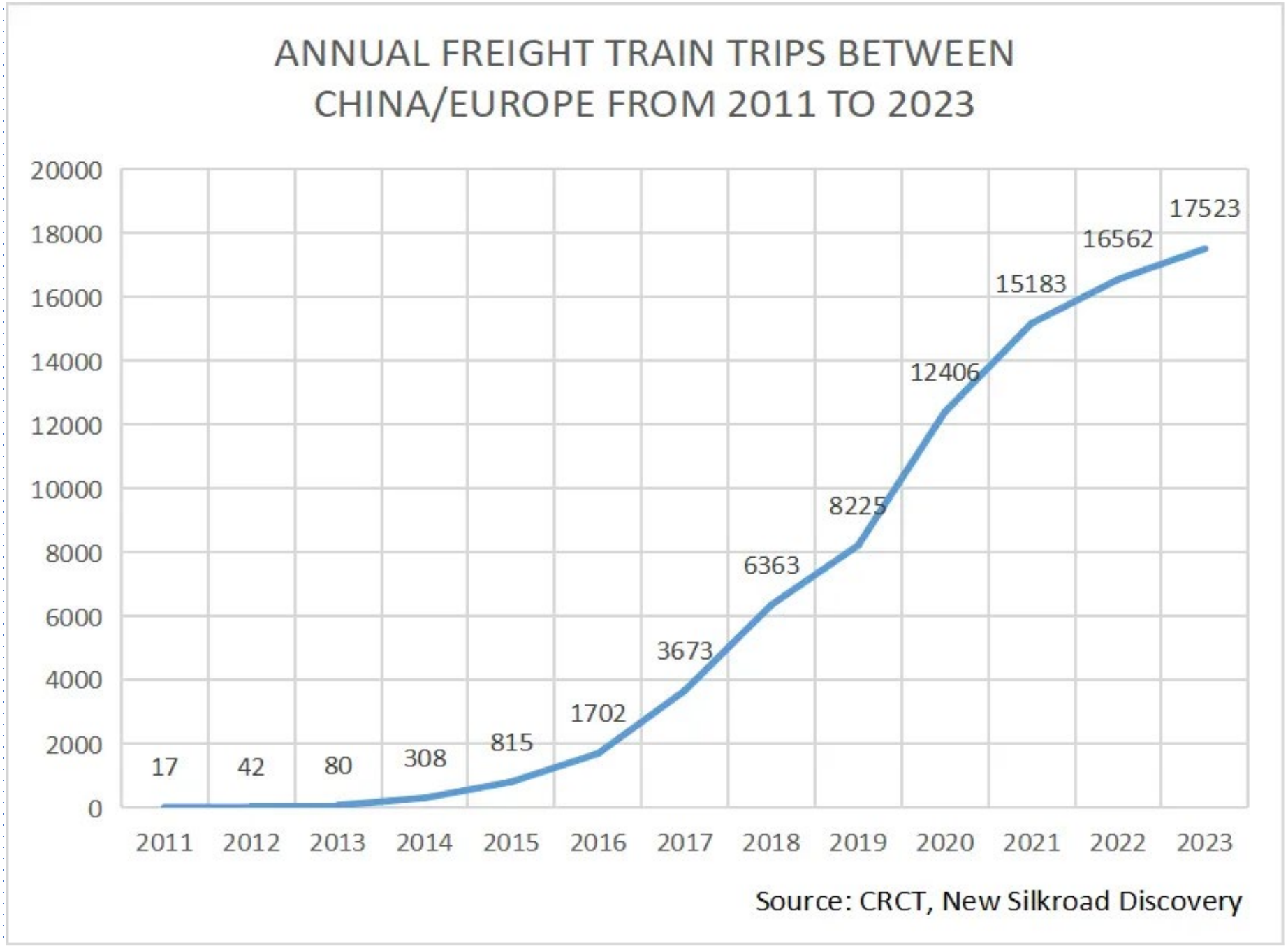
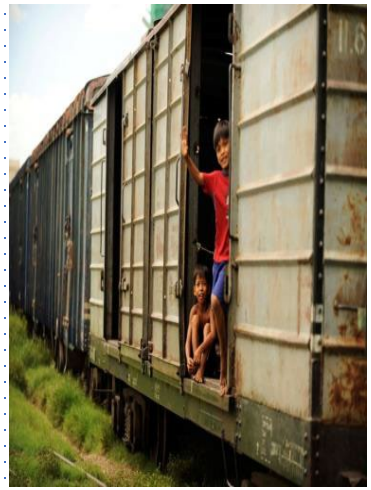
ESCAP initiatives to foster rail digitalization

Sandeep Raj Jain
Transport Division

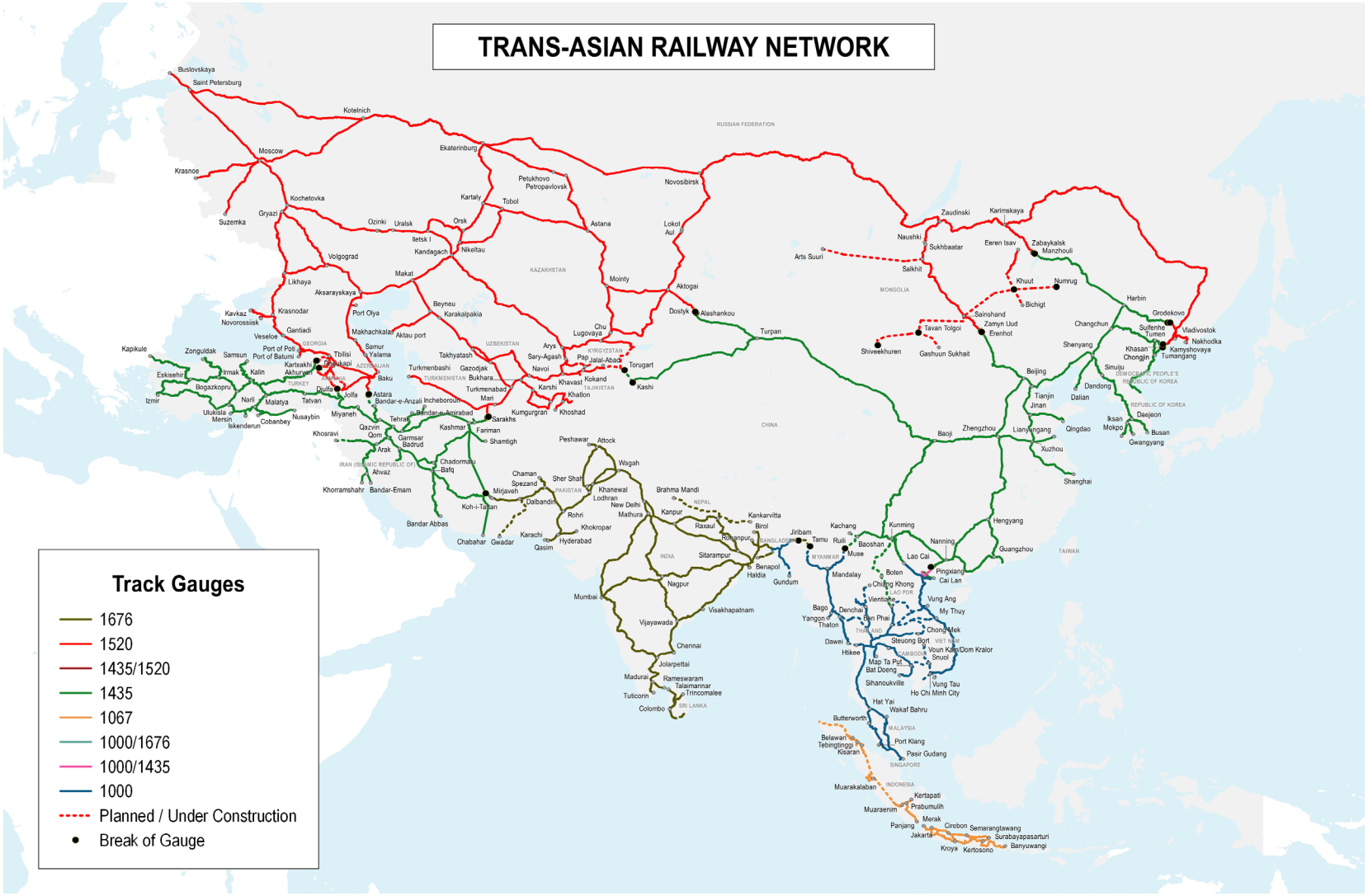
ESCAP
Economic and Social Commission for Asia and the Pacific


ANNUAL FREIGHT TRAIN TRIPS BETWEEN CHINA/EUROPE FROM 2011 TO 2023
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
17
42
80
308
815
1702
3673
6363
8225
12406
15183
16562
17523
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Source: CRCT, New Silkroad Discovery

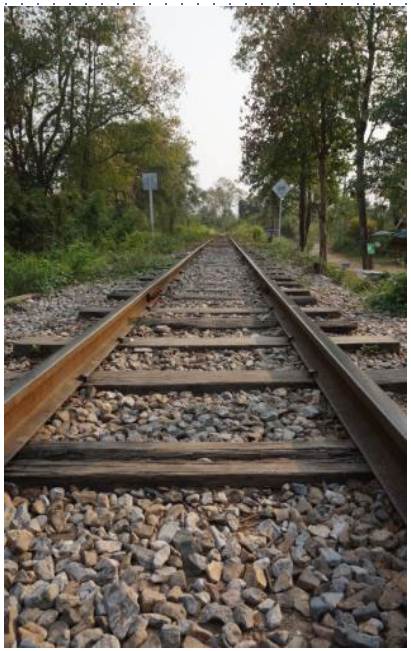
Digitalization – a lever to enhance rail's competitiveness



- Exponential increase in Eurasian rail traffic in last decade
- Rail proved to be reliable transport means during pandemic-as the rail freight avoided major restrictions and kept international supply chain functioning
- Geopolitical challenges (Suez crisis) has further fortified role of rail in international transport as countries look to de-risk and expand their transport connectivity options
- Rail, therefore, is now considered as sustainable and reliable mode of transport between Asia and Europe and vice versa
- Rail needs to be more competitive so that its inherent advantages of being energy efficient and environment friendly can be harnessed fully to address negative externalities of transport such as emissions, congestion and pollution
- Among others-***Digitalization***-has enormous potential to enhance rail's competitiveness


TRANS-ASIAN RAILWAY NETWORK
Track Gauges
1676
1520
1435/1520
1435
1067
1000/1676
1000/1435
1000
Planned / Under Construction
Break of Gauge
RUSSIAN FEDERATION
KAZAKHSTAN
UZBEKISTAN
KYRGYZSTAN
TAJIKISTAN
TURKMENISTAN
GEORGIA
AZERBAIJAN
TURKEY
IRAN (ISLAMIC REPUBLIC OF)
PAKISTAN
INDIA
NEPAL
BANGLADESH
MYANMAR
LAO PDR
THAILAND
VIET NAM
CAMBODIA
MALAYSIA
SINGAPORE
INDONESIA
SRI LANKA
MONGOLIA
CHINA
TAIWAN
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA
REPUBLIC OF KOREA
Buslovskaya
Saint Petersburg
Kotelnich
Moscow
Krasnoe
Suzemka
Kochetovka
Gryazi
Volgograd
Likhaya
Aksarayskaya
Krasnodar
Kavkaz
Novorossiisk
Gantiadi
Veseloe
Port Olya
Makhachkala
Aktau port
Samur
Yalama
Baku
Astara
Bandar-e-Anzali
Incheboroun
Tehran
Bandar-e-Amirabad
Sarakhs
Kashmar
Fariman
Shamtigh
Qazvin
Qom
Garmsar
Badrud
Arak
Ahvaz
Khorramshahr
Bandar-Emam
Chadormalu
Bafq
Bandar Abbas
Chabahar
Gwadar
Mirjaveh
Koh-i-Taftan
Dalbandin
Chaman
Spezand
Sher Shah
Khanewal
Lodhran
New Delhi
Mathura
Rohri
Khokropar
Karachi
Qasim
Hyderabad
Peshawar
Attock
Wagah
Brahma Mandi
Kanpur
Raxaul
Kankarvitta
Birol
Rohanpur
Sitarampur
Benapol
Haldia
Gundum
Jiribam
Tamu
Kachang
Ruili
Baoshan
Muse
Kunming
Nanning
Lao Cai
Pingxiang
Cai Lan
Hengyang
Guangzhou
Mandalay
Boten
Chiang Khong
Vientiane
Vung Ang
My Thuy
Bago
Yangon
Thaton
Denchai
Ban Phai
Chong Mek
Dawei
Htikee
Steuong Bort
Voun Kam
Dom Kralor
Snuol
Map Ta Put
Bat Doeng
Sihanoukville
Vung Tau
Ho Chi Minh City
Hat Yai
Wakaf Bahru
Butterworth
Belawan
Tebingtinggi
Kisaran
Port Klang
Pasir Gudang
Muarakalaban
Kertapati
Prabumulih
Muaraenim
Merak
Panjang
Jakarta
Cirebon
Semarangtawang
Surabayapasarturi
Banyuwangi
Kroya
Kertosono
Nagpur
Mumbai
Visakhapatnam
Vijayawada
Chennai
Jolarpettai
Madurai
Rameswaram
Talaimannar
Trincomalee
Tuticorin
Colombo
Kapikule
Zonguldak
Samsun
Port of Poti
Port of Batumi
Tbilisi
Kartsakhi
Akhurvan
Irmak
Kalin
Eskisehir
Bogazkopru
Izmir
Narli
Malatya
Tatvan
Ulukisla
Mersin
Iskenderun
Cobanbey
Nusaybin
Miyaneh
Khosravi
Jolfa
Dilifa
Tokhyatash
Turkmenbashi
Gazodjak
Bukhara
Turkmenabad
Mari
Kumgurgran
Khoshad
Sary-Agash
Navoi
Karshi
Khavast
Khatlon
Kokand
Pap
Jalal-Abad
Torugart
Kashi
Chu
Lugovaya
Arys
Aktogai
Dostyk
Alashankou
Turpan
Mointy
Astana
Tobol
Kartaly
Petukhovo
Petropavlovsk
Orsk
Uralsk
Ozinki
Iletsk I
Kandagach
Nikeltau
Makat
Beyneu
Karakalpakia
Novosibirsk
Lokot
Aul
Arts Suuri
Naushki
Sukhbaatar
Salkhit
Zaudinski
Karimskaya
Eeren Isav
Zabaykalsk
Manzhouli
Khuut
Numrug
Bichigt
Sainshand
Zamyn Uud
Erenhot
Tavan Tolgoi
Shiveekhuren
Gashuun Sukhait
Harbin
Grodekovo
Changchun
Sufenhe
Tumen
Vladivostok
Nakhodka
Kamyshovaya
Tumangang
Khasan
Chongjin
Shenyang
Sinuju
Beijing
Dandong
Dalian
Tianjin
Jinan
Qingdao
Iksan
Mokpo
Daejeon
Busan
Gwangyang
Baoji
Zhengzhou
Lianyungang
Xuzhou
Shanghai

Intergovernmental Agreement on Trans-Asian Railway Network



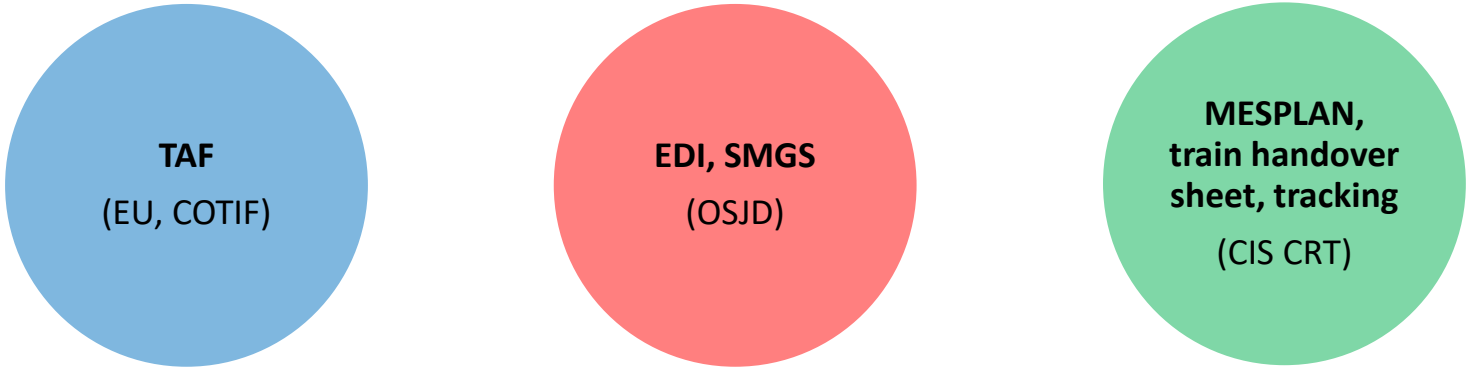
Trans-Asian Railway Network was developed by ESCAP members as a coordinated plan to develop a regional railway network to meet the growing needs of intra and interregional trade and transport.

Formalized through intergovernmental agreement entered into force in 2009. Has now 21 contracting parties

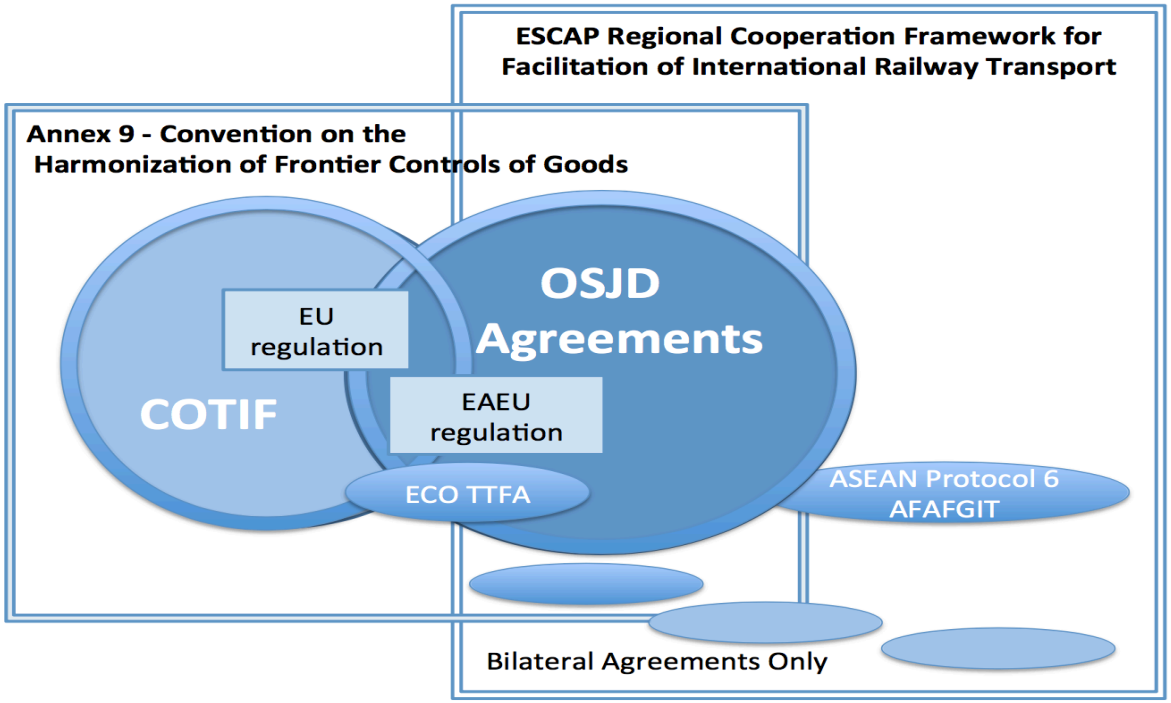
The Working Group under the agreement provides a regional platform for the member countries to discuss persistent and emerging issues in international railway transport along the network. Eight meetings- focus on operational issues

Existing situation on electronic information exchange between railways

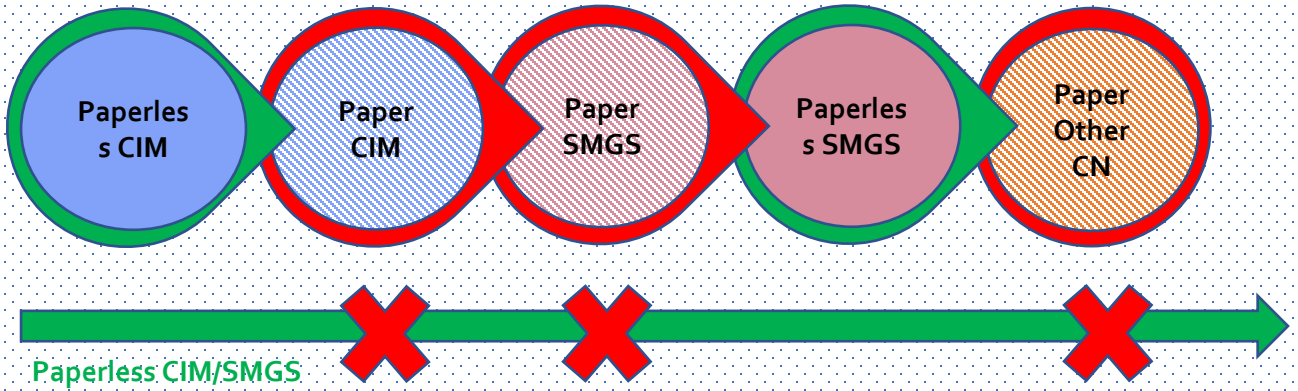
Three electronic exchange systems have been developed by **EU, OSJD and CIS** railway organizations that are being used to support Eurasian rail traffic



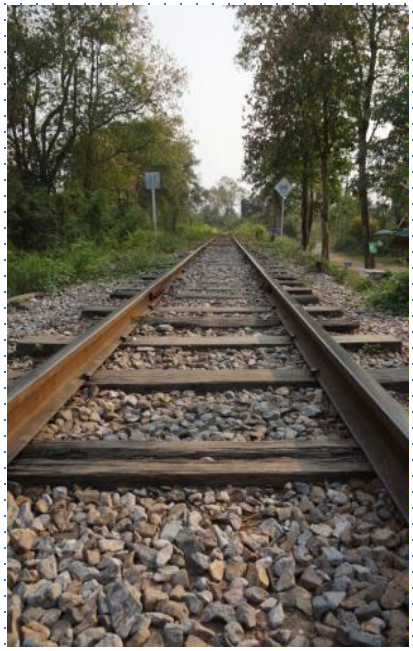
Fragmented legal environment along Eurasian rail corridors



Lack of seamless information flow along the international railway corridors



New Annex to intergovernmental agreement on Trans-Asia Railway network



Proposed at the seventh meeting in 2021 and adopted at the eighth meeting held in 2023

Annex on Guiding principles on electronic information exchange among railways and between railways and control agencies

Encourages contracting parties to exchange data required for completion of rail border crossing formalities electronically

Aims to encourage compatible electronic information exchange practices so that the information flows seamlessly among the rail stakeholder for completion of regulatory formalities and operational requirements

New Annex to intergovernmental agreement on Trans-Asia Railway network

- Aim to provide grounds for the further harmonization of electronic information exchange/data interchange among railways and between railways and control agencies

- Main objective of the principles is to provide general guidance to the Parties

- Encourage use existing standards and practices on electronic information exchange/data interchange

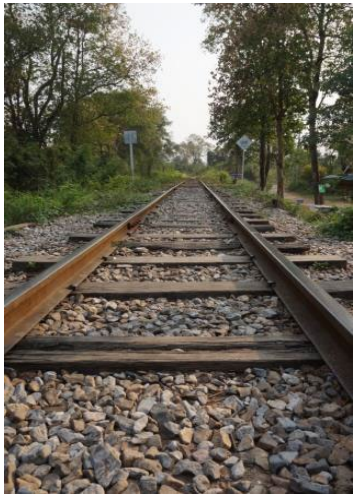
- Could also serve as a basis for developing plurilateral, multilateral and regional agreements

ESCAP-OSJD Joint document on potential of electronic information exchange to streamline customs formalities in international railway transport



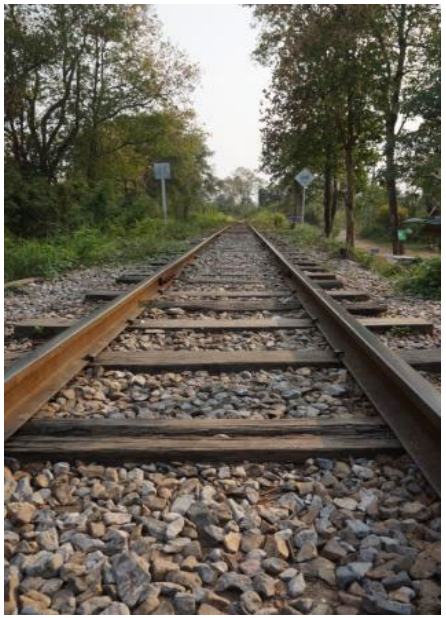
https://en.osjd.org/en/8909/page/106077?id=2928

Potential of electronic exchange of information for streamlining customs formalities for rail



1. Recognition of railway consignment note as customs transit declaration
2. Use of new technologies in collecting information required for regulatory controls and increased cooperation among border agencies behind the border and across the border
3. Implementation of joint control measures customs and other regulatory controls
4. Electronic pre- arrival intimation can facilitate integrated risk assessment
5. Electronic interface between railway and border agencies for streamlining customs formalities
6. Facilitated customs formalities for rail transit including simplified procedures for authorized rail operators (AROs)

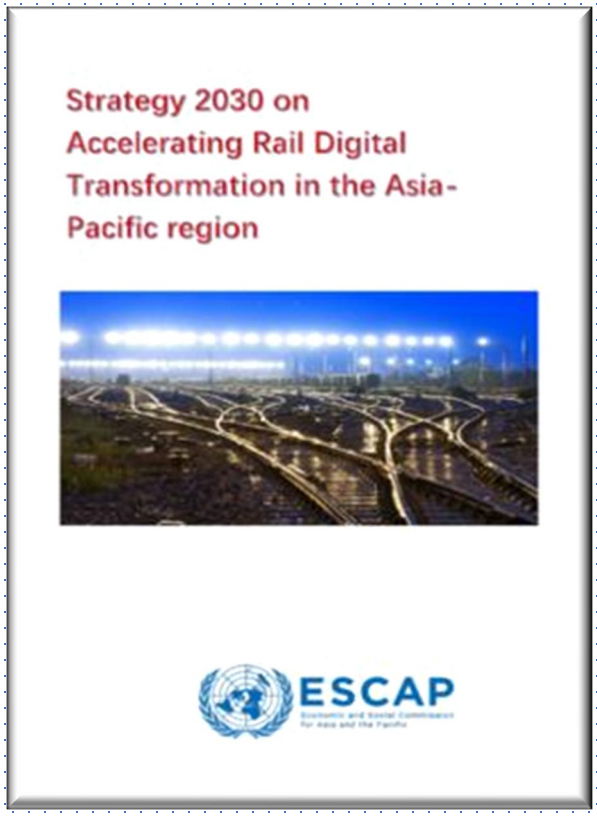
New Annex to intergovernmental agreement on Trans-Asia Railway network



Next steps for entry into force on new annex

- ✓Annex Adopted at the eighth meeting of the Working Group
- ✓As per article 7, paragraph 5 of the Intergovernmental Agreement on the Trans-Asian Railway Network, the annex shall enter into force twelve (12) months after they have been *accepted* by two-thirds of the Parties.
- ✓An instrument of acceptance has been sent as enclosure to NV issued by secretariat on 27 December 2023

Strategy 2030 on Accelerating Rail Digital Transformation in Asia-Pacific



Vision

Enhance sustainability of transport to support realization of Agenda 2030 on Sustainable Development

Outcome

- Increase in freight and passenger transport by rail
- Reduce green house gas emission from transport

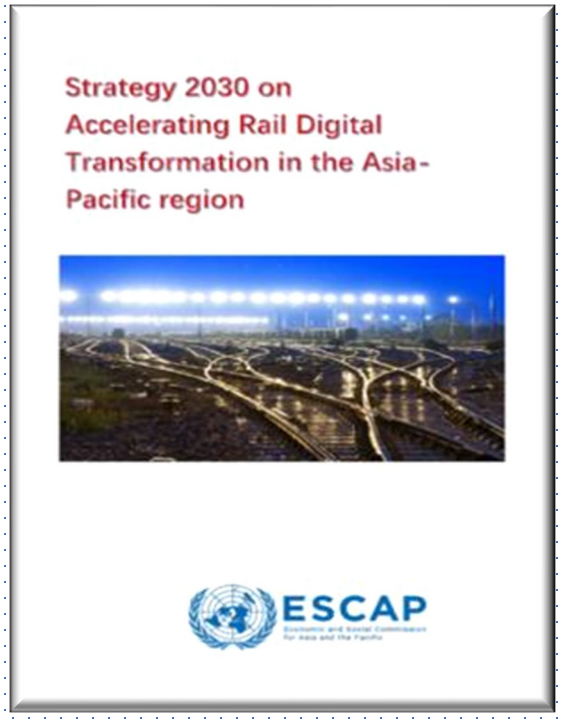
SDG supported directly

Target 9.1; 9a quality, reliable, sustainable, and resilient infrastructure

Target 3.6 Road traffic accident

Target 7.3 Energy efficiency

Objectives (Six)



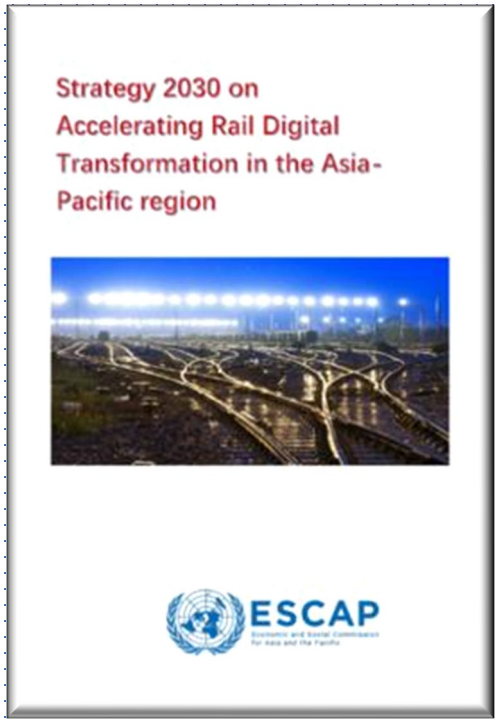
1. Provide coherence and momentum to rail digitalization initiatives
2. Foster an ecosystem to harnesses full potential of rail digitalization
3. Augment the operational performance, capacity, reliability, safety, and security of rail assets
4. Enhance customer experience including ease of doing business
5. Create synergies through partnerships to digitalize rail
6. Ensure high level political support on rail digitalization

Priority Areas (eight)



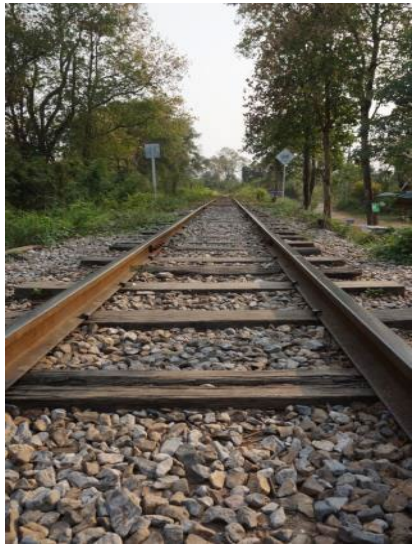
1. Digital communication technologies for rail
2. Digital customer services
3. Digital platforms for rail operations
4. Digital rail asset management including maintenance
5. Digital traffic management including signaling
6. Digitally integrated rail services
7. Digital rail business process
8. **Digital rail border crossing**

Enablers (five)



1. Enhance digital skills of rail officials
2. Increase investment in rail digitalization **Establish a rail digital and innovation fund**
3. Strengthen rail cyber security including data protection **develop a regional framework for rail cybersecurity**
4. Use data analytics to support optimal decision making for planning and operating the rail network
5. Heighten engagement with private sector develop supportive legal and regulatory framework

Implementing and monitoring



Creating implementation mechanism/arrangements-formulate national and sub-regional strategies on rail digitalization

Measuring progress in rail digitalization- develop a **rail digital index** and a three- level maturity profile for rail

Thank you
for
your attention

http://www.unescap.org/our-work/transport

