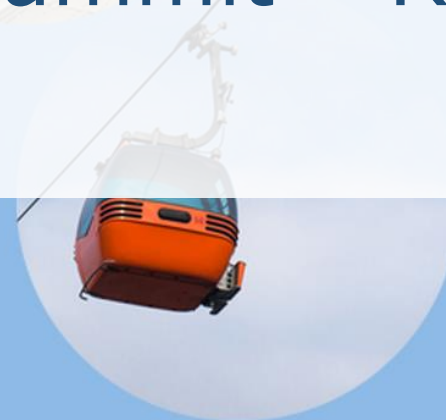


8th International Railways Summit – Rail Standards



- ✓ European Project SESEI
- ✓ Network of CEN and CENELEC & Integration to Global Standardization
- ✓ Geographical Update on Rail ENs
- ✓ The latest European Rail standards and it's applications across the whole European market
- ✓ Rail standards in India – Snapshot
- ✓ Conclusion

Project is a permanent presence in India

SESEI (Seconded European Standardization Expert in India) is a local face for the European standardization community in India: Dinesh Chand Sharma



Why SESEI: India is a major trade partners for Europe, Increasing role of standards to gain market access and Evolving & complex nature of regulatory and standardization landscapes, Sharing best practices, work together

Sector: 1. ICT: M2M/IoT, Security, 5G, NFV/SDN, e-Accessability, eHealth, eCALL

2. Electrical equipment including Consumer Electronics: Smart Grid, Smart Meter, LVDC, Micro- Grid, Lift Escalator

3. Automotive: Connected Cars, ITS, e-Mobility,

4. Smart Cities: Mobility, Waste, Energy, ICT

www.sesei.eu , www.sesei.in , www.eustandards.in



SESEI | Seconded European
Standardisation
Expert in India
Enabling Europe-India Cooperation on Standards

GLA University

Network of CEN and CENELEC & Integration to Global Standardisation

Harmonize it & 1 Global Solution

In Europe, harmonization means 1 standardization solution instead of 34

And... Whenever possible, Europe's preference goes to

1 global solution

ESO's are integrated with International

Objective - Avoid duplication of work at International and European levels with an aim for a identical worldwide and European standards



“Vienna Agreement” with

Chemistry, Material, Energy, Environment, Transport, Construction, Services, eMobility etc.



CEN: 32% of portfolio identical to ISO



“Frankfurt Agreement” with

Electricity, Electro-technical



CENELEC: **72%** of portfolio identical to (+ another **6%** based on) IEC standards



MoU for telecommunications sector (ITU-T), Agreement on radio-communication sector (ITU-R)

Information & Communication Technologies (ICT)



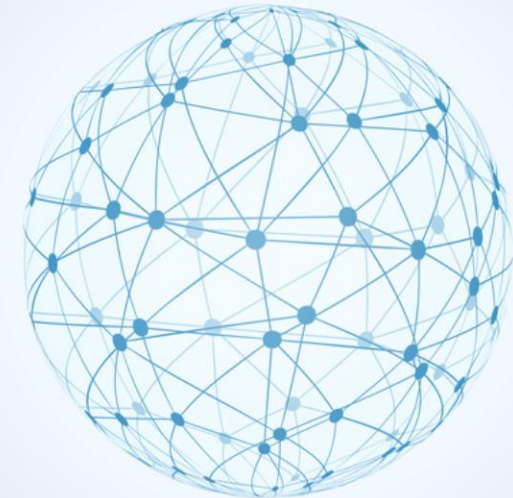
Founding Partner to 3GPP & oneM2M

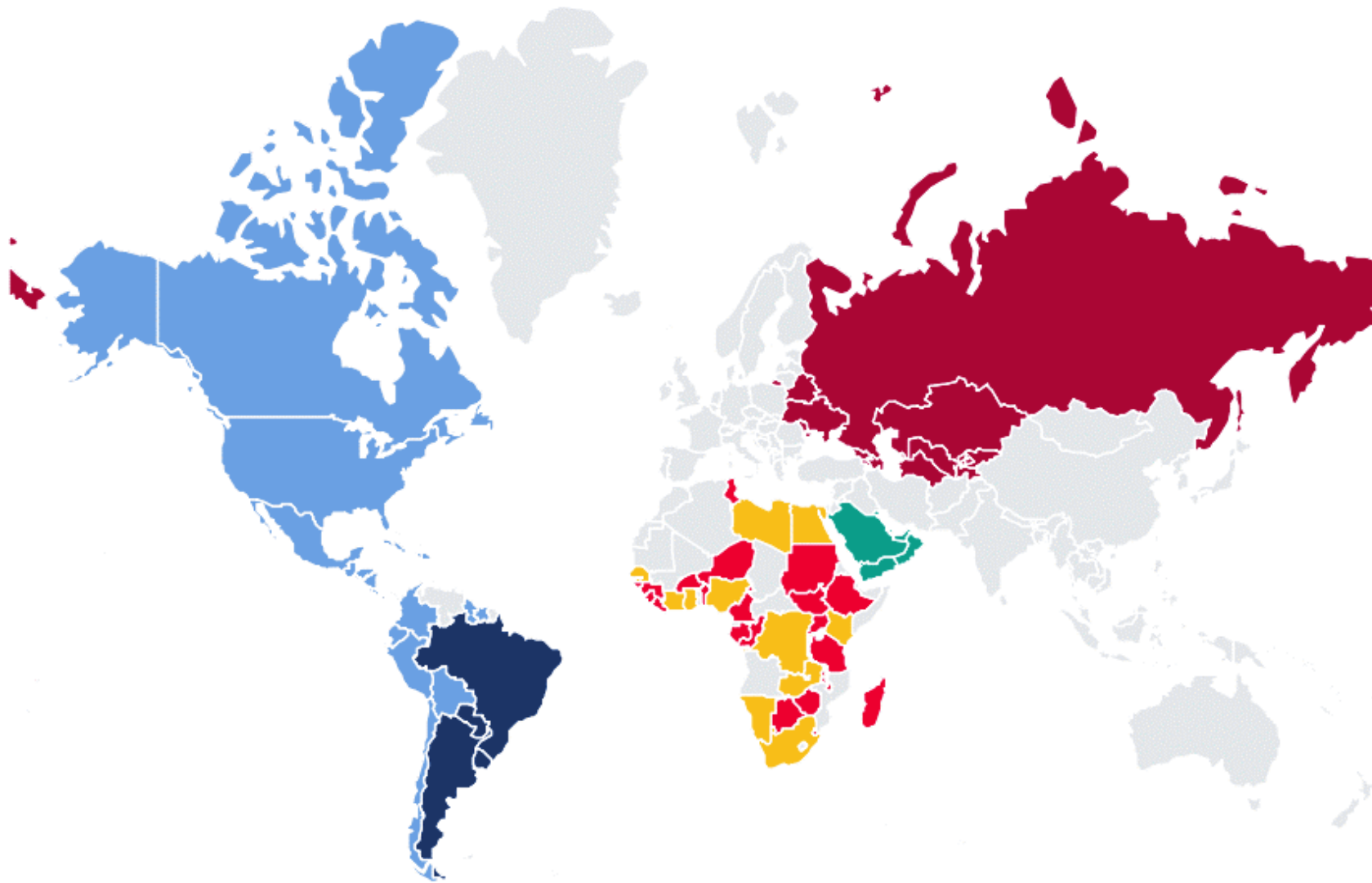


The NETWORK of CEN and CENELEC

More than **200 000 experts are connected**

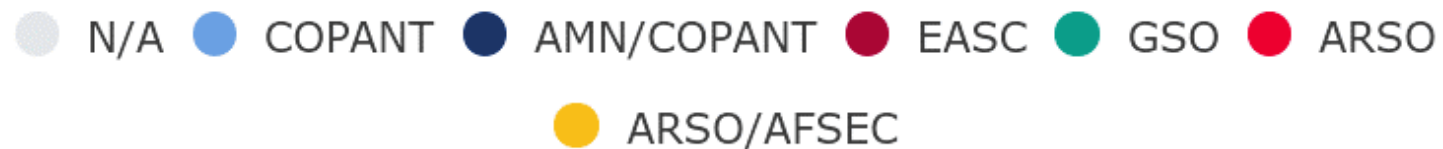
- **800** participants from European industry federations and societal stakeholders
- **30 000** delegates / experts in CEN and CENELEC
- **55 000** delegates / experts in ISO and IEC
- **160 000** participants through the national members of CEN and CENELEC

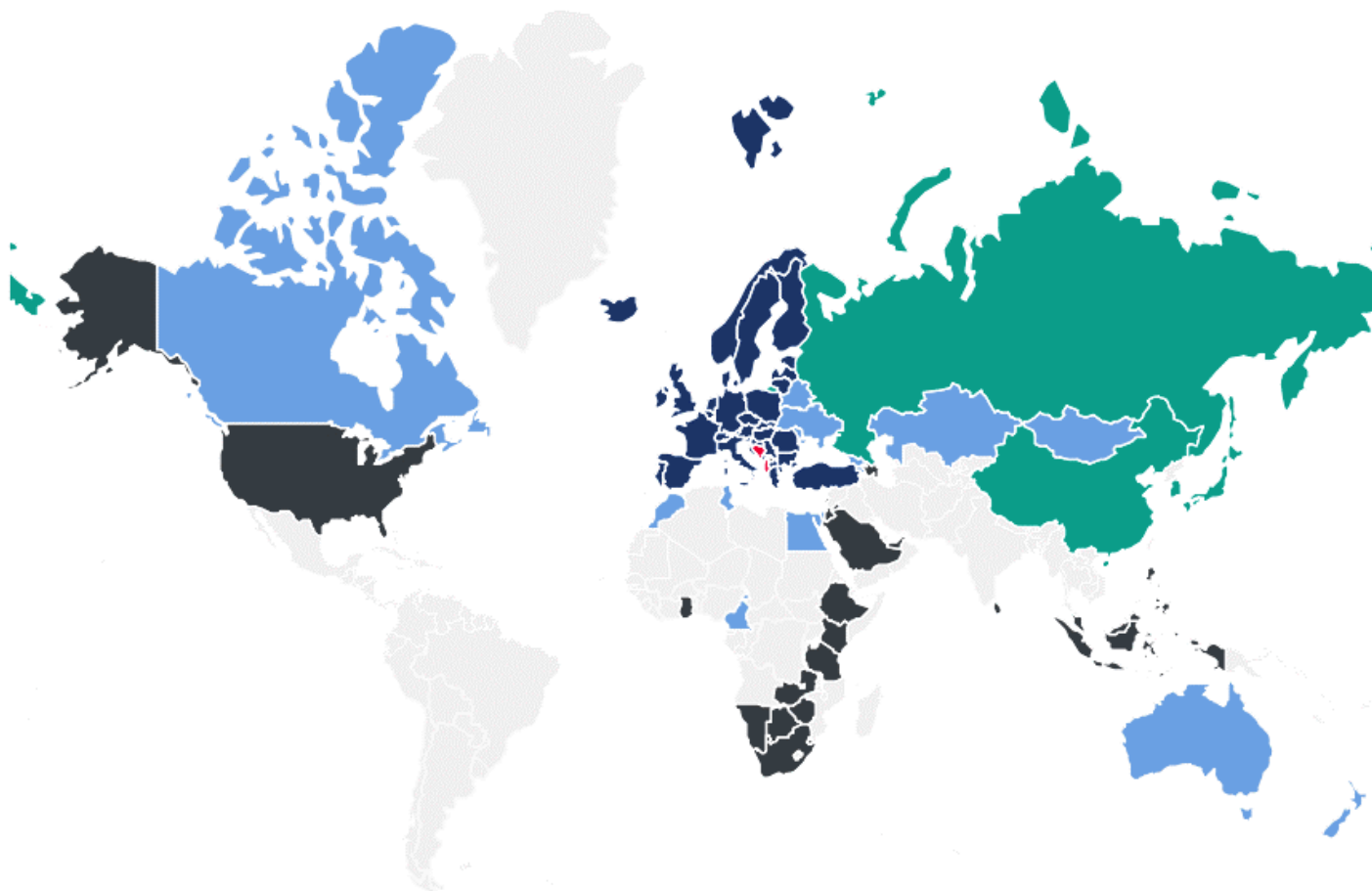




Cooperation with other regions: promoting the success of the European Standardization System (ESS) and achieving technical harmonization

Region to region cooperation





● Affiliate
 ● CSB
 ● CEN and CENELEC Member
 ● 3rd Country
● Cooperation Agreement

Global Outreach Report

Cooperation with National Standardization Bodies: contributing to the removal of Technical Barriers to Trade and facilitating market access



Adoption of European Standards (ENs)

- **88 521 CEN and CENELEC ENs** adopted in 36 Countries outside CEN and CENELEC membership
- **1 752 CEN and CENELEC ENs** are in the process of being adopted
- **18 countries** adopted in average **13%** of the CEN and CENELEC Transport portfolio
- CEN and CENELEC Affiliates adopted most Transport ENs (**Albania 88%, Bosnia and Herzegovina 46% and Montenegro 42%** of the CEN and CENELEC Transport portfolio)



Technical Cooperation

- **276 non-European observerships** in 180 CEN and CENELEC TCs
- CEN-CENELEC-JISC (Japan) **joint Working Group on Railways**



SESEC (China)

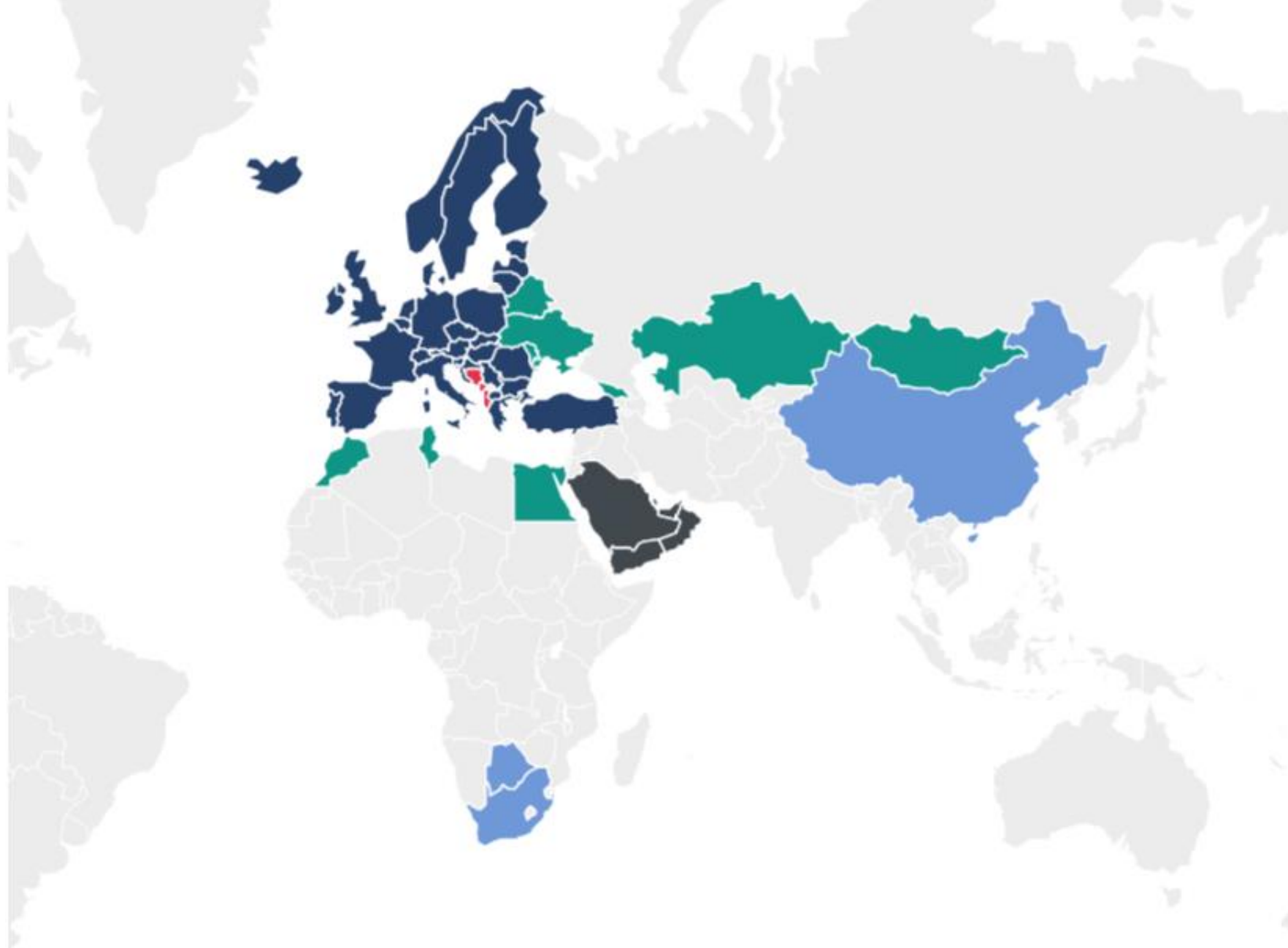
- Coordinated the European views and comments to influence the revision of the **Chinese Standardization law**



SESEI (India)

- Facilitated the dialogue with Indian Authorities to align India with the international on **Low Voltage Direct Current (LVDC)** standards

Geographical Update on Rail ENs



Where are
Rail ENs
adopted?

Geographical uptake of ENs



84% rail harmonization with the EU Candidate countries

DPS (Albania), BAS (Bosnia and Herzegovina), ISME (Montenegro)



22% rail harmonization with EU neighborhood countries

INS (Moldova), INNORPI (Tunisia), DSTU (Ukraine), GEOSTM (Georgia), IMANOR (Morocco), EOS (Egypt), BELST (Belarus)



Africa's particular interest in

EN 50162:2004 Protection against corrosion by stray current from direct current systems

EN 13230 Series Railway applications – Track- Concrete sleepers and bearers-parts 1-5



EN 13977:2005 in Gulf region

Railway applications - Track - Safety requirements for portable machines and trolleys for construction and maintenance

Therefore mandatory adoption by GSO members: UAE (ESMA), Bahrein (BSMD), Saudi Arabia (SASO), Oman (DGSM), Qatar (QS), Kuwait (KOWSMD), Yemen (YSMO)



Central Asia and China

EN 50126-1:1999 Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Basic requirements and generic process

EN 15227:2008+A1:2010 Railway applications - Crashworthiness requirements for railway vehicle bodies

EN 15085 Series Railway applications - Welding of railway vehicles and components - Part 1-5



The latest European Rail standards and it's applications across the whole European market

Railway Standardization Landscape

CEN/ISO

- CEN/TC 256 'Railways Application'
- ISO/TC 269 'Railways Application'

CENELEC/IEC

- CLC/TC 9x 'Electrical and electronic application for railways'
- IEC/TC 9 'Electrical equipment and system for railways'

JPC – Rail (Sector Forum Rail)

- responsible for overall coordination
- leadership of '[*Railways of the Future*](#)' event 2017
- strategy 2018



Comparison of Structures

CLC/TC 9 X established in 1992

IEC/TC 9 established in 1924

CLC TC 9 X

IEC TC 9

Direct Reporting
Working groups

SC 9XA
Communication
Signaling and
Processing Systems

SC 9XB Electrical,
electronic and
electromechanical
material o/b RS incl.
associated Software

SC 9XC Electric supply
and earthing systems
for public transport
equip and ancillary
apparatus

27 WG at int'l level
13 European Secretariats

Ad hoc and
Working groups

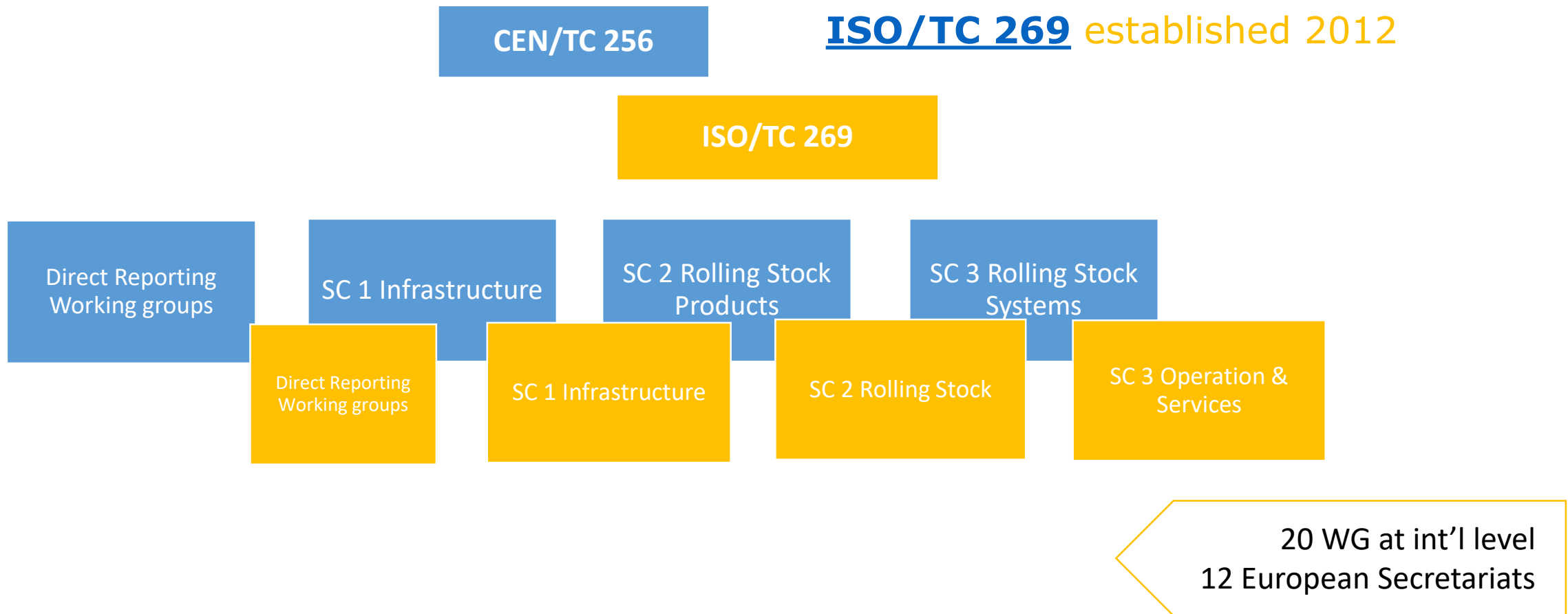
Project Teams

Maintenance
Teams

Comparison of Structures CEN/ISO

CEN/TC 256 established 1992

ISO/TC 269 established 2012





CEN/TC 256 'Railways Application'

Overview

- 258 published standards (including TS and TR)
- 105 in progress/revision

Vienna Agreement

- CEN adopted 2 standards developed by ISO/TC 43 Acoustics

Relation with legislation

- 127 CEN harmonized standards, out of which 2 are identical adoptions of ISO standards



ISO/TC 269 'Railways Application'

Overview

- 5 published standards (including TS and TR)
- 15 in progress/revision



CLC/TC 9x 'Electrical and electronic application for railways'

Overview

- 171 published standards (including TS and TR)
- 18 in progress/revision

Frankfurt Agreement

- 45 standards developed in parallel with IEC/TC 9

Relation with legislation

- 39 CENELEC harmonized standards, out of which 9 are identical adoptions of IEC standards



IEC/TC 9 'Electrical equipment and system for railways'

Overview

- 140 published standards (including TS and TR)
- 19 in progress/revision

Overview of European & International Railways Standards



EN 50126-1:1999

Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Basic requirements and generic process

Adopted in 10 countries: DPS (Albania), BAS (Bosnia and Herzegovina), INS (Moldova, Republic of), ISME (Montenegro), INNORPI (Tunisia), DSTU (Ukraine), MASM (Mongolia), GEOSTM (Georgia), KAZMEMST (Kazakhstan), BELST (Belarus)



EN 50122-2:2010

Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 2: Provisions against the effects of stray currents caused by d.c. traction systems

Adopted in 8 countries: DPS (Albania), BAS (Bosnia and Herzegovina), INS (Moldova, Republic of), ISME (Montenegro), INNORPI (Tunisia), DSTU (Ukraine), GEOSTM (Georgia), IMANOR (Morocco)



EN 13977:2011

Railway applications - Track - Safety requirements for portable machines and trolleys for construction and maintenance

Adopted in 8 countries: DPS (Albania), BAS (Bosnia and Herzegovina), INS (Moldova, Republic of), ISME (Montenegro), INNORPI (Tunisia), DSTU (Ukraine), IMANOR (Morocco), MASM (Mongolia)



EN 15227:2008+A1:2010

Railway applications - Crashworthiness requirements for railway vehicle bodies

Adopted in 8 countries: DPS (Albania), BAS (Bosnia and Herzegovina), INS (Moldova, Republic of), ISME (Montenegro), INNORPI (Tunisia), DSTU (Ukraine), GEOSTM (Georgia), KAZMEMST (Kazakhstan)



EN 14865-1:2009+A1:2010

Railway applications - Axlebox lubricating greases - Part 1: Method to test the ability to lubricate

Adopted in 7 countries: DPS (Albania), BAS (Bosnia and Herzegovina), INS (Moldova, Republic of), ISME (Montenegro), INNORPI (Tunisia), DSTU (Ukraine), IMANOR (Morocco)

Rail standards in India - Snapshot

Standards & Specification – India 1(2)

- Codes, standards and specifications: 6/10**

EN/BS EN	IS	IEC	IEEE	NFPA
5	1	1	2	1



- Rolling Stock: 41/42**

EN/BS EN	UIC	IEC	ISO	NFPA
29	6	4	2	1

Alignment and Track Work: 12/13

EN/BS EN	UIC	IS
4	8	1

- Signalling and Train Control:15/17 & Building services: 32/37**

EN/IEC	IEEE	BS EN
14	2	1

EN/BS EN	EN/ISO	IEC	NFPA	IEEE
25	2	5	3	2

Standards & Specification – India 2(2)

- **Electric power system: 11/11**

EN/BS EN	EN/IEC	IEC
3	2	6

- **Communication, Automotive Fare Collection systems and Station planning and Design: 7/16**

EN/BS EN	ISO/IEC	IEC	NFPA	IEEE	BIS/IS
4	2	1	3	1	5

70-100% Standards & Specifications in India are based on European/Global Standards

- Harmonized Standards are valuable tools that can business to:
 - ✓ ensure the quality and safety of products / services
 - ✓ achieve compatibility between products / components
 - ✓ access markets and sell to customers in other countries
 - ✓ satisfy customers' expectations and requirements
 - ✓ reduce costs, eliminate waste and improve efficiency (economies of scale)
 - ✓ comply with relevant national / international legislation and regulations
 - ✓ gain knowledge about new technologies and innovation

Thank you!

Dinesh Chand Sharma

(Seconded European Standardization Expert in India)

Director – Standardization & Public Policy

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