

Recent Status of International Standardization Activities in Railway Field

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Senior General Director

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Introduction of myself (Hiroshi TANAKA)

Professional Experiences:

April 1978 [Joined JNR](#) (Japanese National Railways)

April 1980 – March 1984: Researcher, Power Supply Laboratory, JNR

March 1984 – April 1990: Chief Researcher, Power Supply Laboratory, JNR and RTRI

April 1990 – February 1993: Deputy Manager, JR Division and Administration Division, RTRI

February 1993 – March 1997: Deputy Director, Japan Railway Group Paris Office (Paris)

March 1997 – February 2000: Manager, International Affairs Section, RTRI

February 2000 – February 2003: Senior Technical Advisor, World Division, UIC (Paris)

February 2003 – March 2005: General Manager, Information & International Affairs Division, RTRI

April 2005 – March 2010: Director, International Affairs Division, RTRI

April 2010 – Oct 2018: Director, International Railway Standards Center

[Oct 2018 – Present: Senior General Director, International Railway Center](#)

Others

2010 – 2016: Chairman of Japanese National Committee for IEC/TC9

(Electrical equipment and systems for railways)

2012 – Present: Chairman of Japanese National Committee for ISO/TC269 (Railway Application)

2012 – 2013: Planning Coordinator, Secretariat of Intellectual Property Strategy Headquarters,
Cabinet Secretariat (Prime Minister's office)

2012 – Present: Member of Accreditation Committee of National Institute of Technology and Evaluation

2015 – Present: Member of TEG (Technical Expert Group for Railway) for EPA (Economic Partnership Agreement) negotiation between Europe and Japan

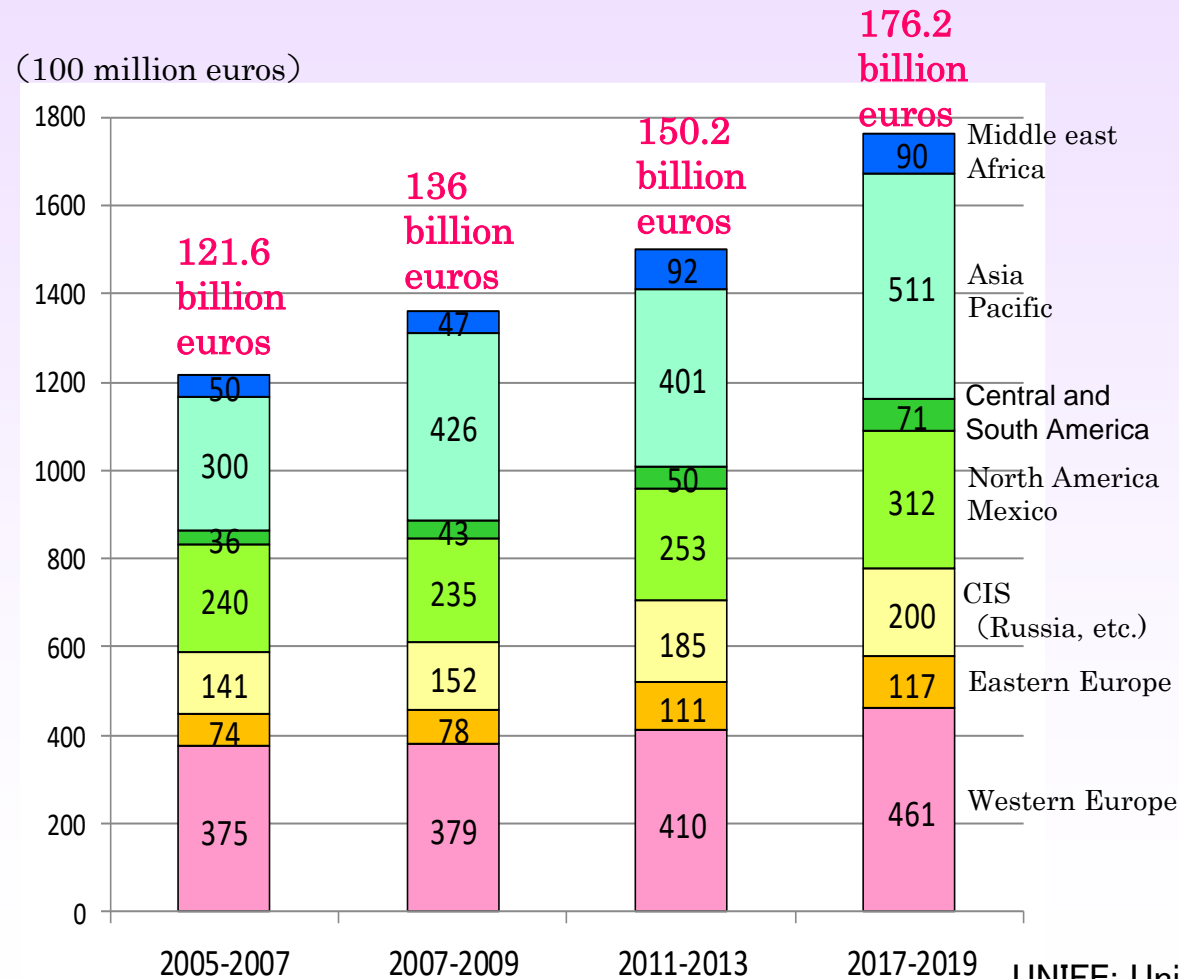
2015: Minister's Award from Ministry of Economy, Trade and Industry

How is the railway market situation?



Estimation of railway market size

(rolling stock, infrastructure, operation management system, maintenance service, etc.)

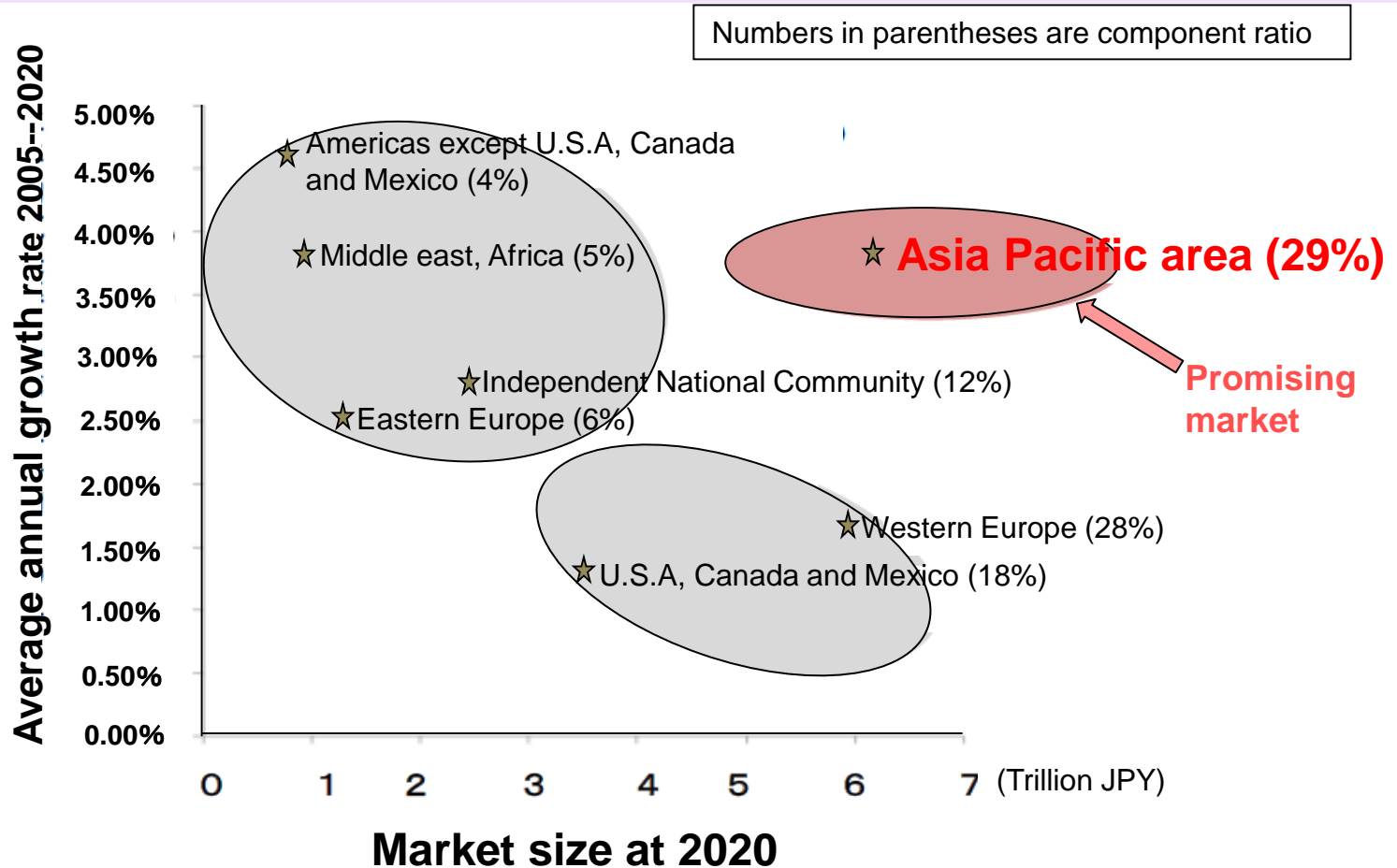


UNIFE's study shows that the world market size for railway industries will grow by 2.7% per year up to 2019

Extracted from "UNIFE" WORLD RAIL MARKET study"

UNIFE: Union des Industries Ferroviaires Européennes
(European Rail Supply Industry Association)

Estimation of regional railway market

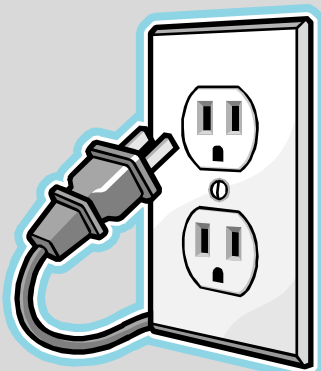
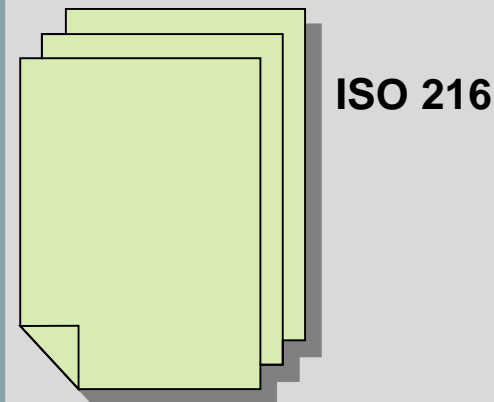
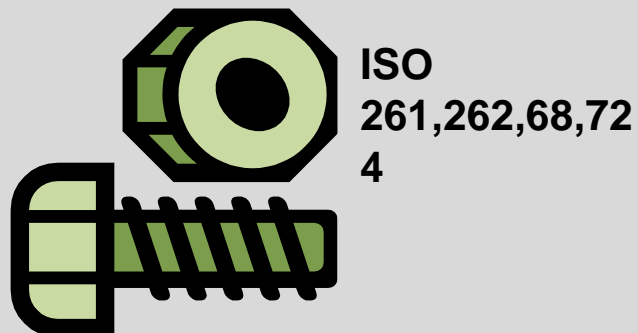


Data from a report of Ministry of Economy, Trade and Industry

**Where do they make
international standards?**



Examples of International Standards



IEC 60906-1
But only few country!



International Standardization Body



International Organization for Standardization(1947~, 162 countries, 21,000 standards)

Entire range of technology except that covered by IEC



International Electrotechnical Commission (1906~, 83 countries, 6,900 standards)

Electricity, electronics and related technologies



International Telecommunications Union (1932~,192 countries,4,300 standards)

Telecommunications and radio communications

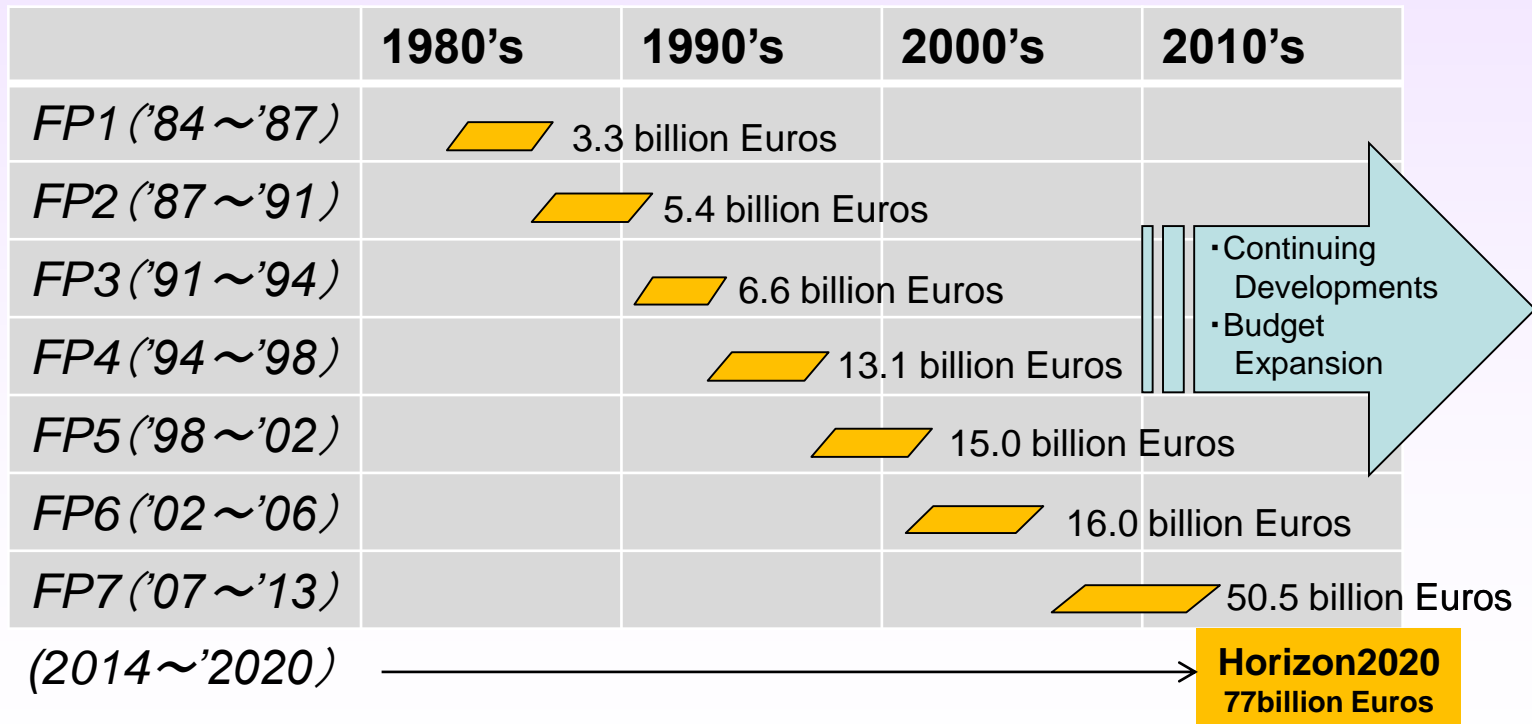
Movements in the world

(Important back ground of standardization activities)



The European Union's Research and Technological Development System

- European Research and Development Framework Project
 - The financial support system for research and development in the scientific field for the European Union (EU) started in 1984.
 - The 7th Framework Program (FP7) has been finished and the European R&D program is now taken over in the new structure “Horizon2020”



Standardization Bodies in Europe



European Committee for Standardization (1961~, 30 members+4 affiliates+8 partners)

- Harmonizes technical standardization except electrotechnical and telecommunications



European Committee for Electrotechnical Standardization(1973~, 28 members+7 associates)

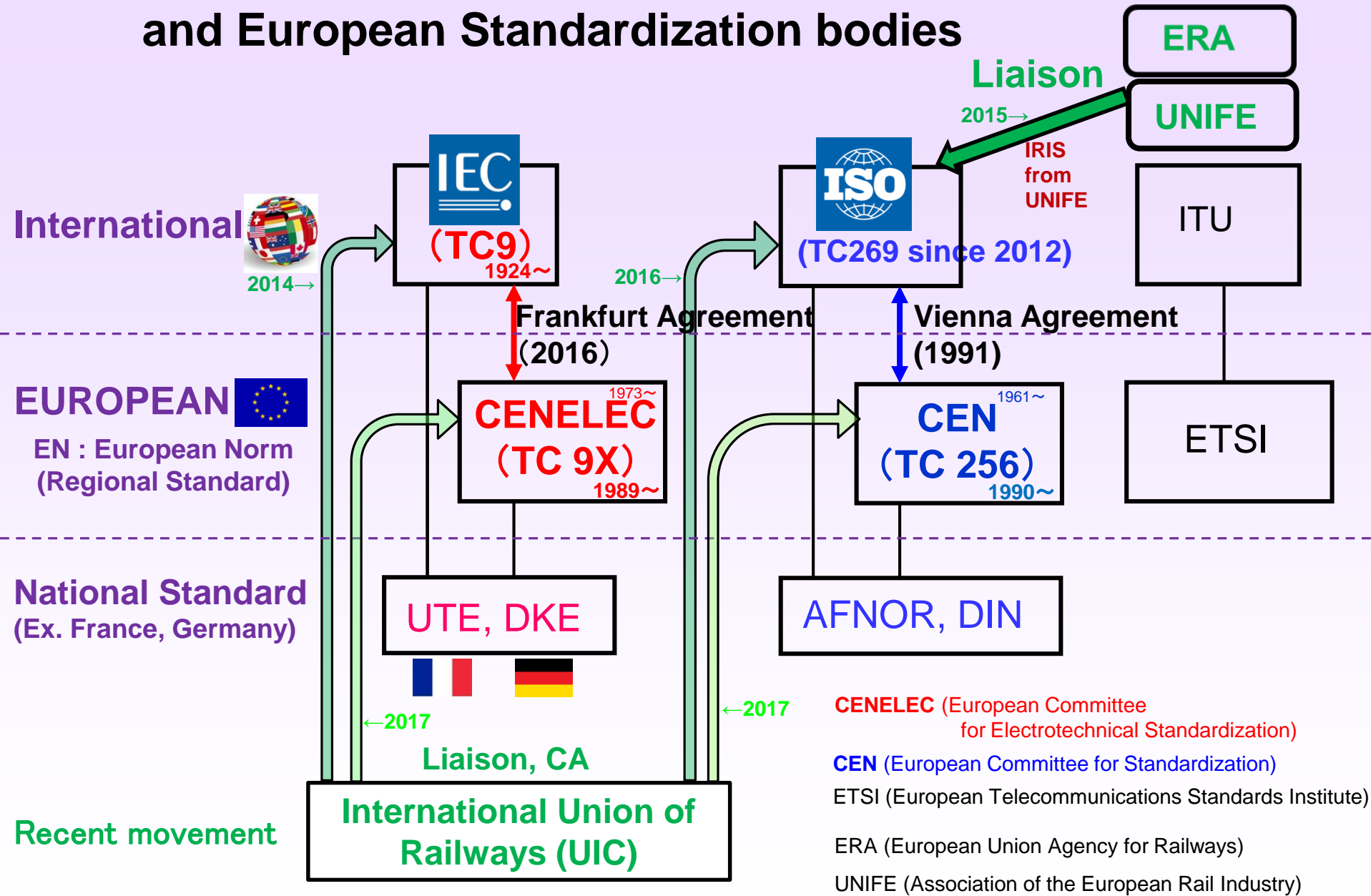
- Harmonizes all areas of standardization and conformity assessment in electrical, electronic and allied fields



European Telecommunications Standards Institute(1988~)

- Sets telecommunications standards for Europe

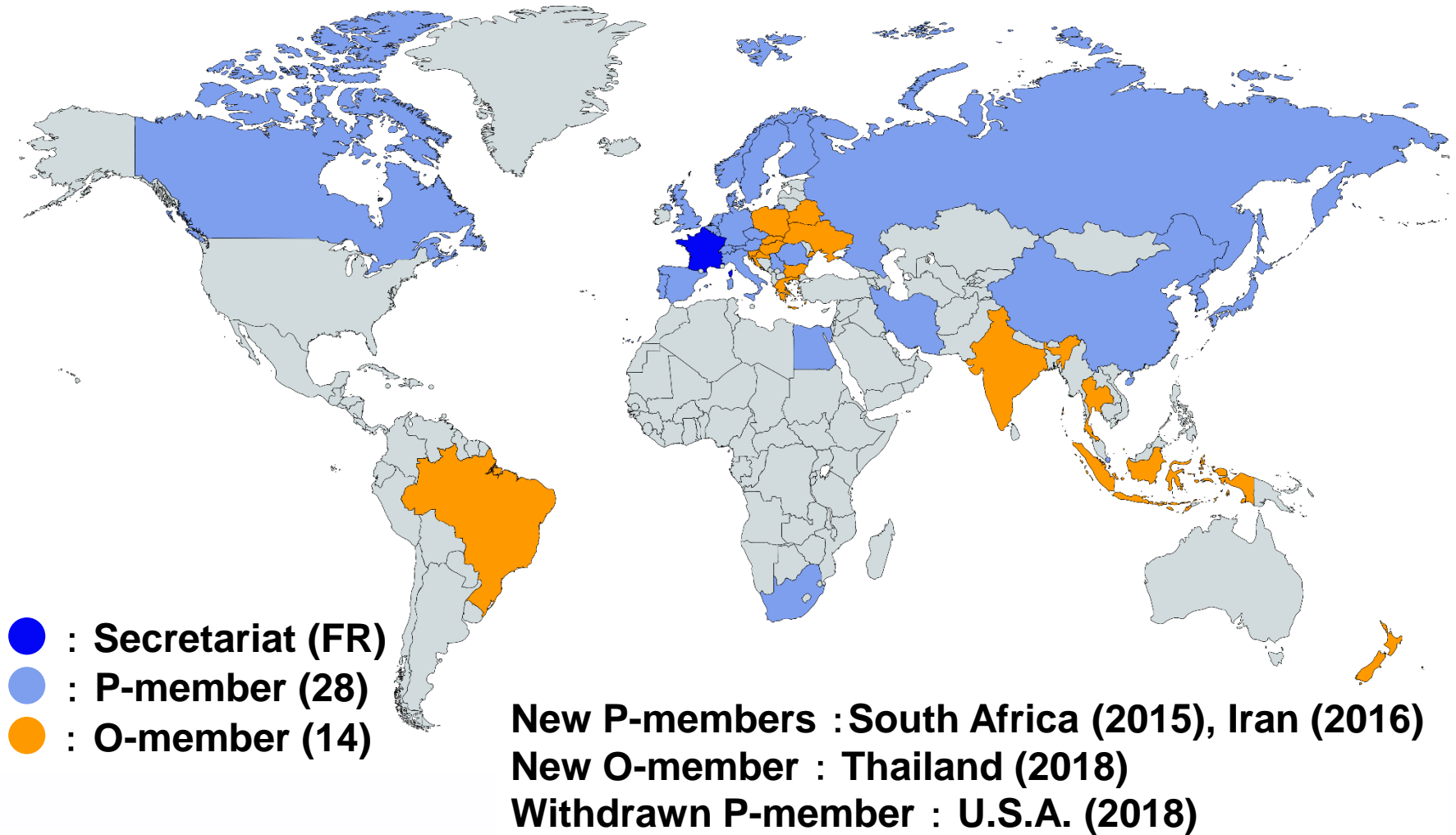
Relations between Int. Standardization bodies and European Standardization bodies



Situation of standards development in IEC TC9



IEC TC 9 member countries



Members of IEC/TC 9

Germany	DE	P-Member	Full Member	Poland	PL	O-Member	Full Member
Luxembourg	LU	P-Member	Full Member	Hungary	HU	O-Member	Full Member
Democratic People's Republic of Korea	KP	P-Member	Associate Member	India	IN	O-Member	Full Member
China	CN	P-Member	Full Member	Indonesia	ID	O-Member	Full Member
Switzerland	CH	P-Member	Full Member	Greece	GR	O-Member	Full Member
Canada	CA	P-Member	Full Member	Brazil	BR	O-Member	Full Member
Belgium	BE	P-Member	Full Member	Croatia	HR	O-Member	Full Member
Austria	AT	P-Member	Full Member	Ukraine	UA	O-Member	Full Member
Czech Republic	CZ	P-Member	Full Member	New Zealand	NZ	O-Member	Full Member
Singapore	SG	P-Member	Full Member	Slovakia	SK	O-Member	Full Member
Sweden	SE	P-Member	Full Member	Slovenia	SI	O-Member	Full Member
Russian Federation	RU	P-Member	Full Member	Bulgaria	BG	O-Member	Full Member
South Africa	ZA	P-Member	Full Member	Belarus	BY	O-Member	Full Member
Denmark	DK	P-Member	Full Member				
Egypt	EG	P-Member	Full Member				
Spain	ES	P-Member	Full Member				
Finland	FI	P-Member	Full Member				
France	FR	P-Member	Full Member				
United Kingdom	GB	P-Member	Full Member				
Italy	IT	P-Member	Full Member				
Japan	JP	P-Member	Full Member				
Netherlands	NL	P-Member	Full Member				
Norway	NO	P-Member	Full Member				
Portugal	PT	P-Member	Full Member				
Romania	RO	P-Member	Full Member				
Serbia	RS	P-Member	Full Member				
Iran	IR	P-Member	Full Member				

[Thailand](#) joined
as an O-member in November 2018

Withdrawal :

[United States of America](#)

US P-Member Full Member

Deliberation structure of IEC

Technical Committee TC9 treats
all of railway related standards

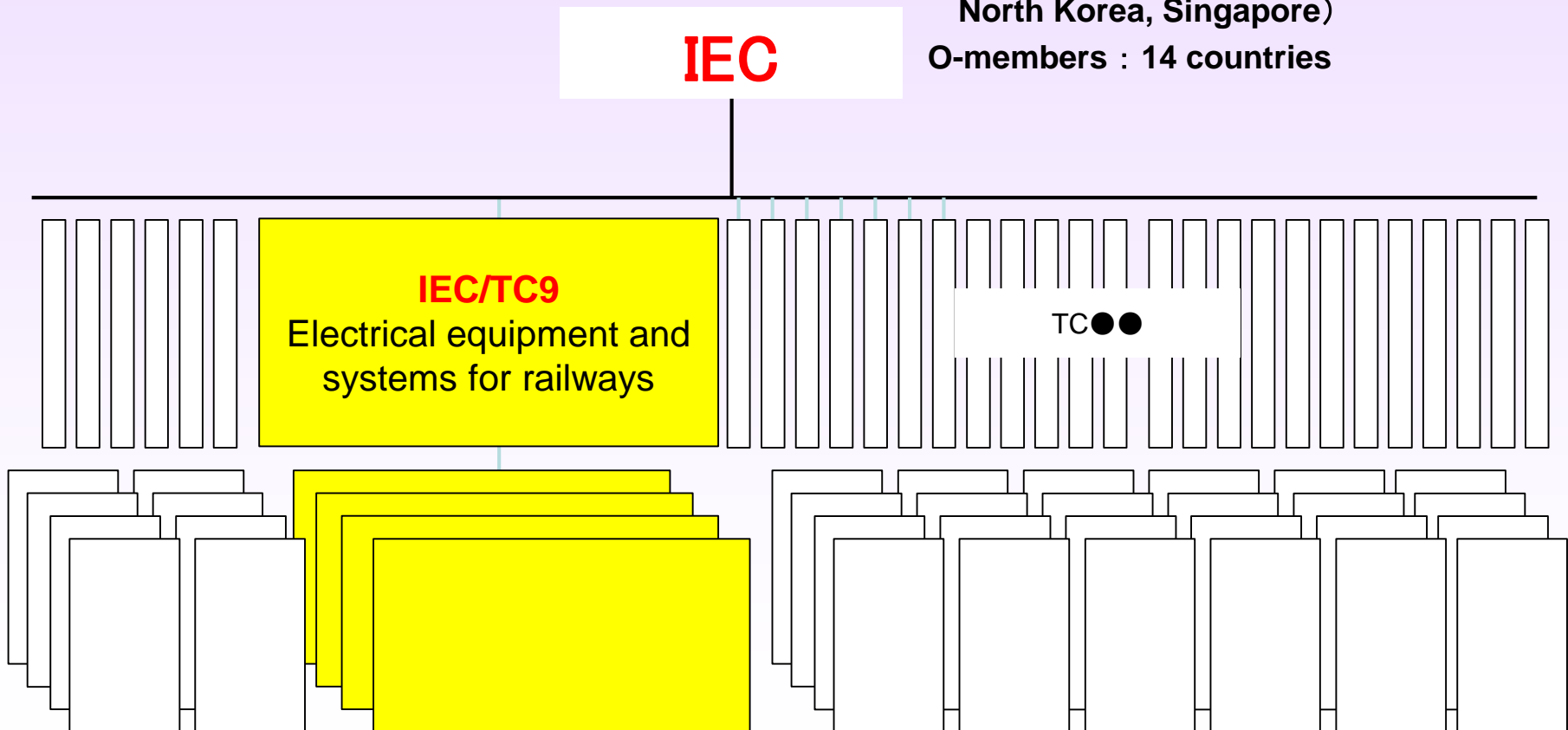
IEC/TC9 Chairman : Italy

Secretary : France

P-members : 28 countries

Europe 18, Asia 5 (Japan, China, Korea,
North Korea, Singapore)

O-members : 14 countries



IEC/TC 9 Activities

As of 2019-07-01

CAG	Ad hoc group	Working group	Project team		Maintenance team	
CAG	AHG 17 Transducer	WG 40 UGTMS	PT62848 - 2 Voltage limiting device	PT 62973-2 NiCd Batt.	MT 60077 Electric equipment for rolling stock	MT 62499 Carbon contact strip
SLG IEC-UIC	AHG 18 Shock and Vibration	WG 43 TCN	PT 62888 EMS	PT 62973-3 Lead Acid Batteries	MT 60349 Traction Motor	MT 62505 AC switch-gear
- SG Trainet	AHG 19 Energy Efficiency	WG 46 Multimedia	PT62912 - 2 DC signaling relay	PT 62973-4 Ni-MH Batteries	MT 61991 Electrical hazard	MT 62590 converter
- SG Multimedia	AHG 20 Information Security	WG 48 Driving data recording	PT 63190 Messenger wire	PT 63076 trolley bus	MT 61992 DC switch-gear	MT 62597 EMF TS=>IS
- SG OCL	AHG 21 Power Compensator	AHG 24 Durability				
	AHG 23 Stray Current Corr.	AHG 25 Aux. Li-ion Batteries				

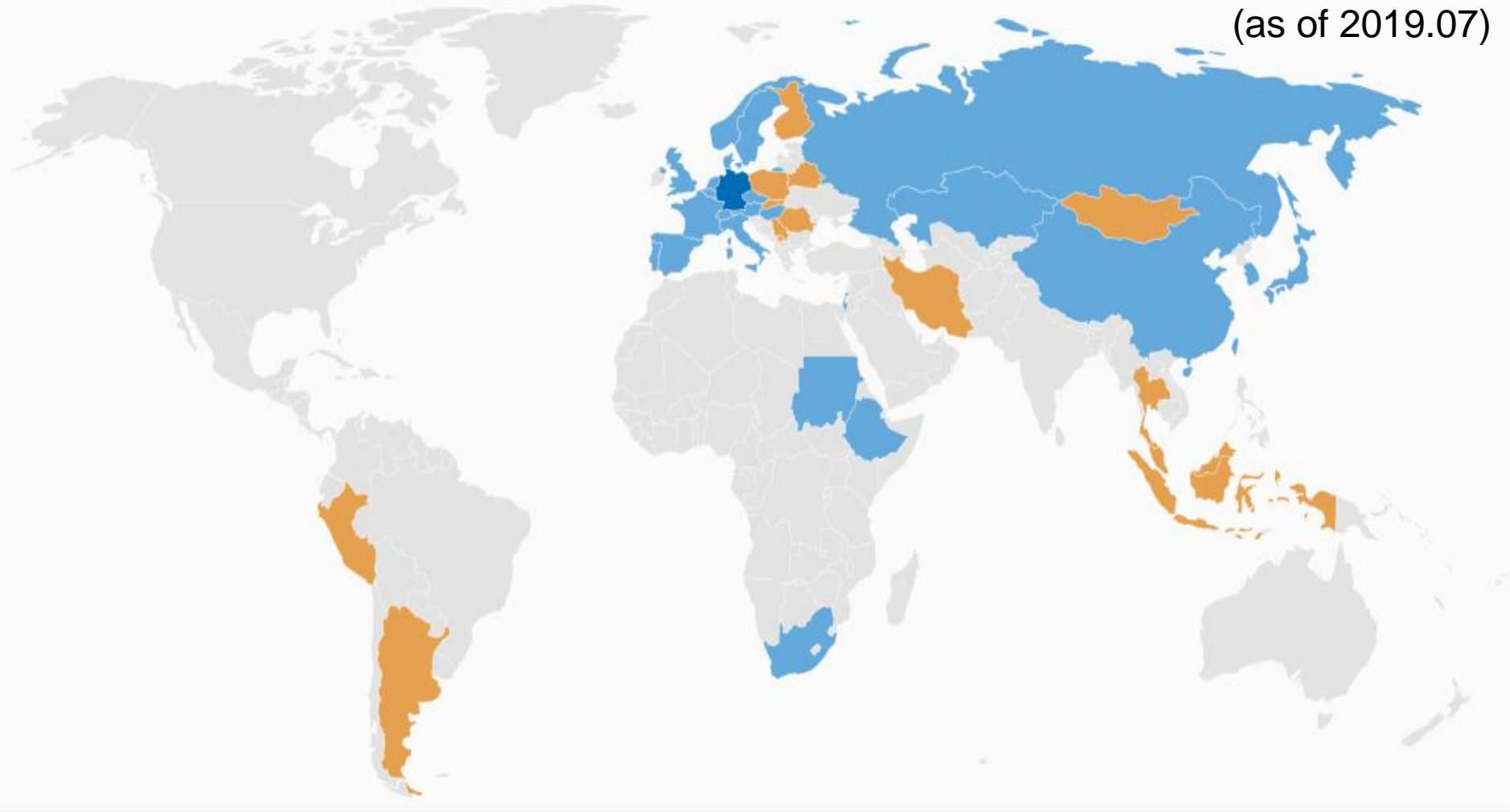
 New activity within a year

Situation of standards development in ISO TC269



ISO/TC 269 member countries

(as of 2019.07)



- : Secretariat (DE)
- : P-member (25)
- : O-member (13)

Members of ISO/TC 269

Participating Countries (25)

- Austria (ASI)
- Belgium (NBN)
- China (SAC)
- Czech Republic (UNMZ)
- Denmark (DS)
- Ethiopia (ESA)
- France (AFNOR)
- Germany (DIN)
- Hungary (MSZT)
- Israel (SII)
- Italy (UNI)
- Japan (JISC)
- Kazakhstan (KAZMEMST)
- Korea, Republic of (KATS)
- Luxembourg (ILNAS)
- Netherlands (NEN)
- Norway (SN)
- Portugal (IPQ)
- Russian Federation (GOST R)
- South Africa (SABS)

Observing Countries (13)

- Argentina (IRAM)
- Belarus (BELST)
- Finland (SFS)
- Iran, Islamic Republic of (ISIRI)
- Malaysia (DSM)
- Mongolia (MASM)
- Peru (INACAL)
- Poland (PKN)
- Romania (ASRO)
- Serbia (ISS)
- Slovakia (SOSMT)

Indonesia and Thailand joined
as an O-member in November 2018

- Spain (UNE)
- Sudan (SSMO)
- Sweden (SIS)
- Switzerland (SNV)
- United Kingdom (BSI)

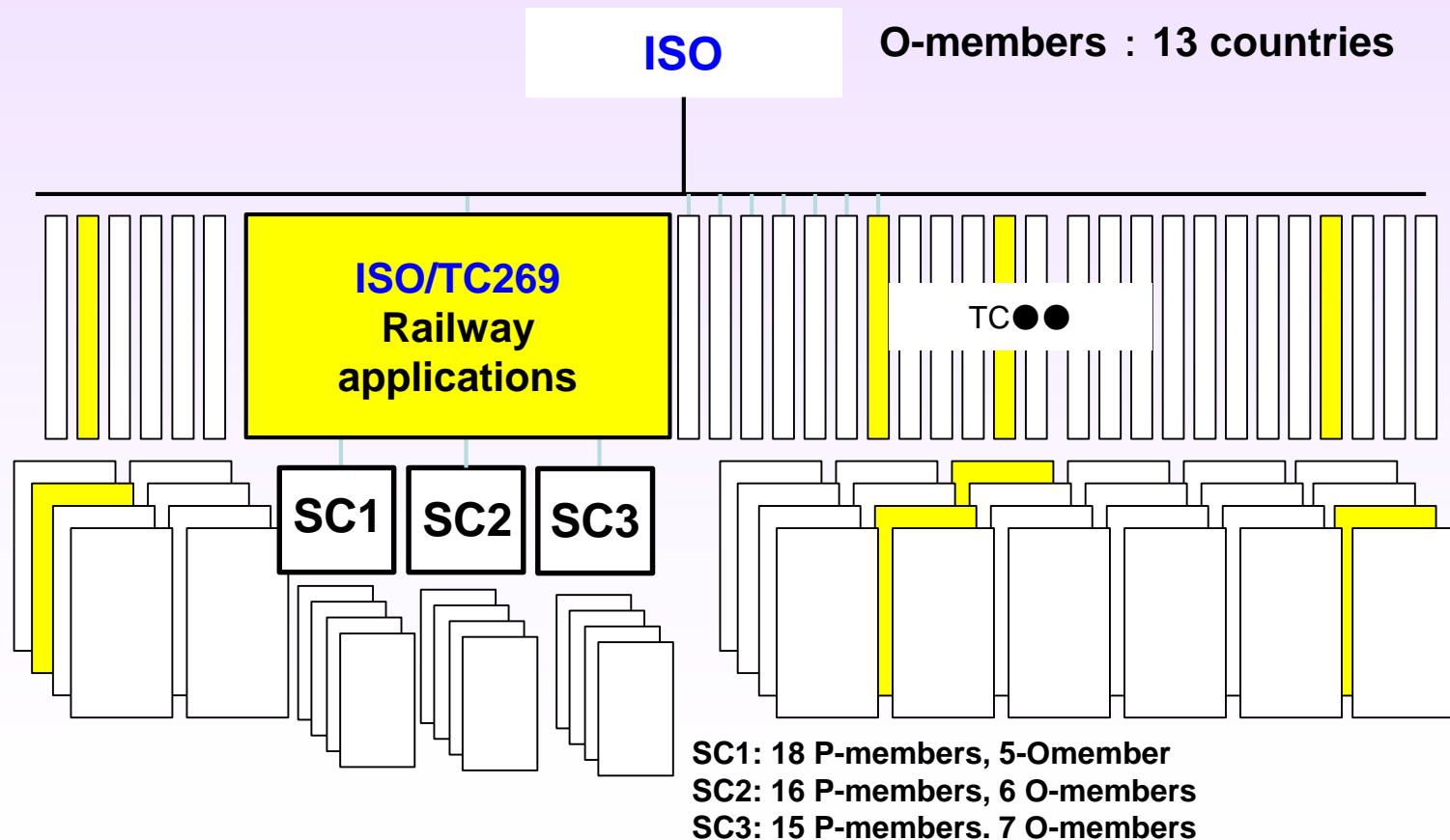
Withdrawal (1)

United States of America

Deliberation Structure of **ISO** (2016~)

**Technical Committee TC269 treats
all of new railway related standards**

ISO/TC269 Chairman : Japan
Secretary : Germany
P-members : 25 countries
O-members : 13 countries



Standard deliberation structure in ISO/TC 269

ISO/TC 269 (Railway Application)

SC 1 Infrastructure

WG1: Plastic sleepers
(ISO 12856-1,-2)

WG2: Track quality measurement

WG6: Concrete sleepers and bearers
(ISO 22480-1)

WG7: Fastening systems
(ISO 22074-1)

WG3: Rail welding

SC 2 Rolling stock

WG1: Brake calculation
(ISO 20138-1,-2)
(TR 22131)

WG2: HVAC
(ISO 19659-1,-2)

WG3: Body side glazing
(ISO 22752)

WG4: Recyclability of rolling stock
(ISO 21106)

WG5: Rubber suspension components

AG1: Passenger seat

AG2: Derailment detection

AG3: Interior passive safety

SC 3 Operations & Services

WG1: Operations for earthquake
ISO 22888

AG1: Maintenance documentation

WG2: Driving simulator

AG3: Running time Calculation

standards in red: published
WG: Working Group
AG: Ad-hoc group
Flag: Leading country

CAG

WG3: Rail project planning
(TR 21245-1,-2,-3)

WG5: (RQMS) Railway quality management system
(TS 22163)

AG7: Migration strategy

AG17: UIC/ISO strategic liaison group

AG18: (RQMS) Conformity assessment

New activity within a year

Situation of UIC's standardization activities



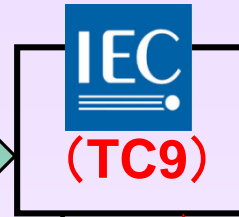
Relations between Int. Standardization bodies and European Standardization bodies

※Dresden Agreement(1996)→modified→Frankfurt Agreement(2016)

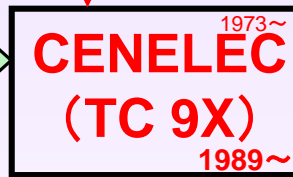
International



2014→



Frankfurt Agreement
(2016)

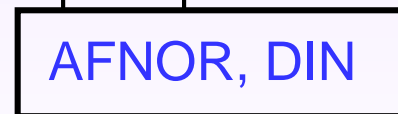
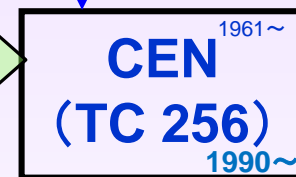


←2018

Liaison, CA



Vienna Agreement
(1991)



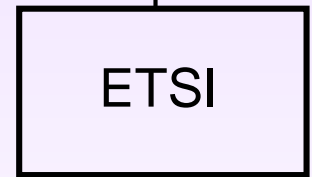
←2018 CENELEC (European Committee for Electrotechnical Standardization)

CEN (European Committee for Standardization)

ETSI (European Telecommunications Standards Institute)

ERA (European Union Agency for Railways)

UNIFE (Association of the European Rail Industry)



Liaison

IRIS from
UNIFE
2016

EUROPEAN



EN : European Norm
(Regional Standard)

National Standard
(Ex. France, Germany)

Recent movement

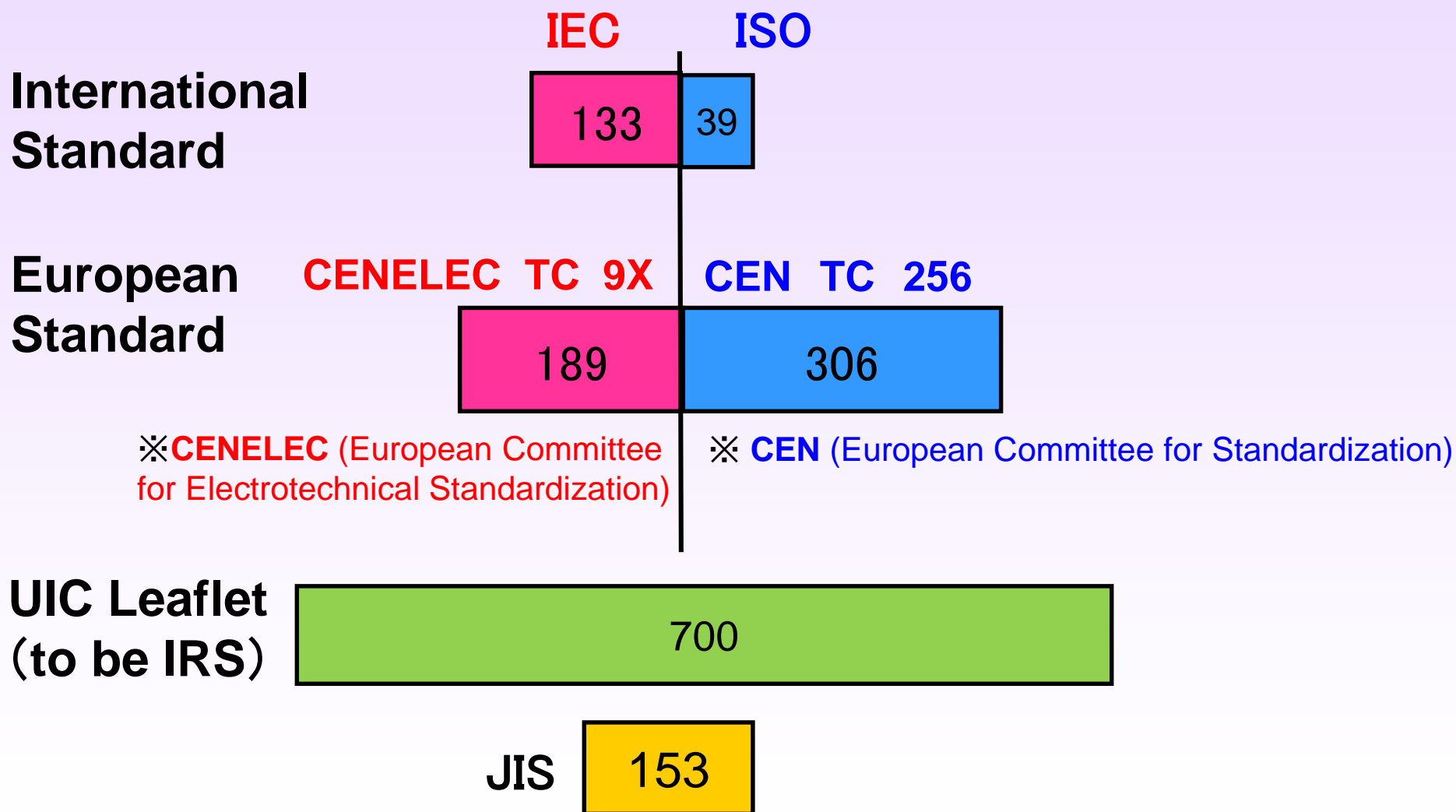
International Union of Railways (UIC)

Leaflet⇒IRS

UIC's Leaflet ➡ IRS migration plan

- No new UIC Leaflet after 2018
⇒ Proceed migration plan from **Leaflet to IRS**
- Review Leaflets in order to evaluate tasks of migration works
(on 3 periods before 2000, 2000-2014 and after 2015)
- By the end of 2018 ⇒ 25 IRSs + leaflet maintenance
- This year (2019) up to date ⇒ 15 IRSs, and soon 2 more IRSs
- By the end of 2020 ⇒ publish 100 IRSs
By the end of 2022 ⇒ rest of Leaflets (around 600) will become IRSs

Standards for Railway (as of July 2019)



Recent topics and conclusions

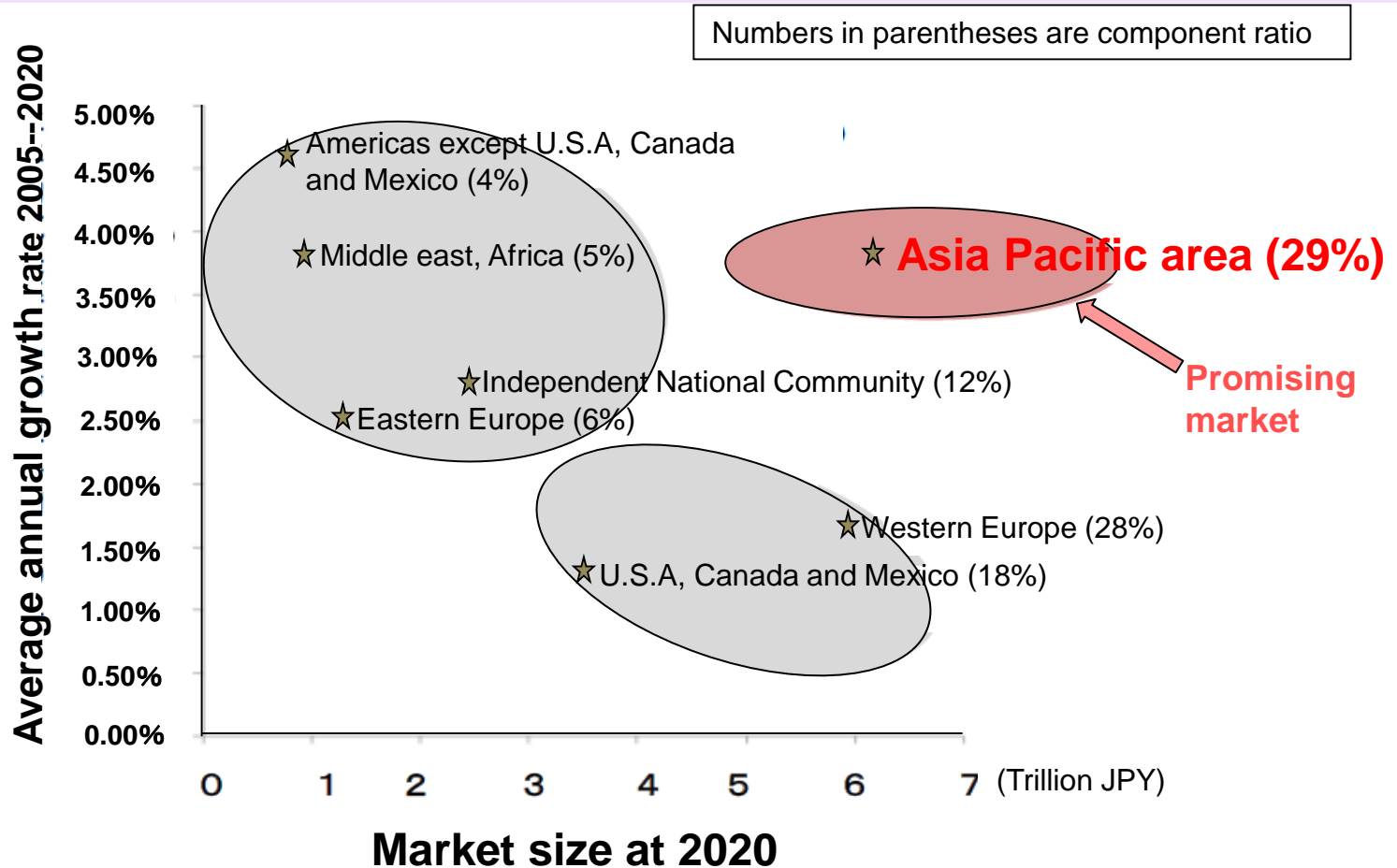


Recent topics on standardization

- **Railway Quality Management System** (UNIFE→IS)
- **RAMS** (EN review finished →IS review starts soon)
- Application of **Railway Project Planning standard**
⇒continuous introduction to the countries which have project plans
- **Energy efficiency**
(Future application of Guides 118, 119 and total energy management)
- **Data security** (Future application of Guide 120)

- **SE-Asian countries** started activities in **IEC** and **ISO**and **UIC**
Indonesia, Thailand, Philippines

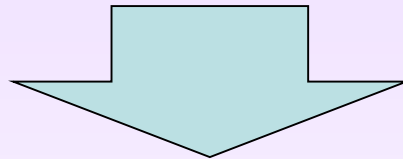
Estimation of regional railway market



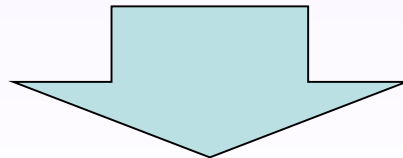
Data from a report of Ministry of Economy, Trade and Industry

Conclusion

- ☆ We have to **know** international standards
- ☆ We have to **use/apply** international standards
- ☆ We have to **bring up experts**



- ☆ We have to **merge** our own specifications into international standards
- ☆ We have to **propose** new standards based on our technologies or conditions



- ☆ **We have to develop a proper cooperation structure within Asian countries**



Thank you for your attention

<http://www.rtri.or.jp/eng/>

