



INTERNATIONAL UNION
OF RAILWAYS

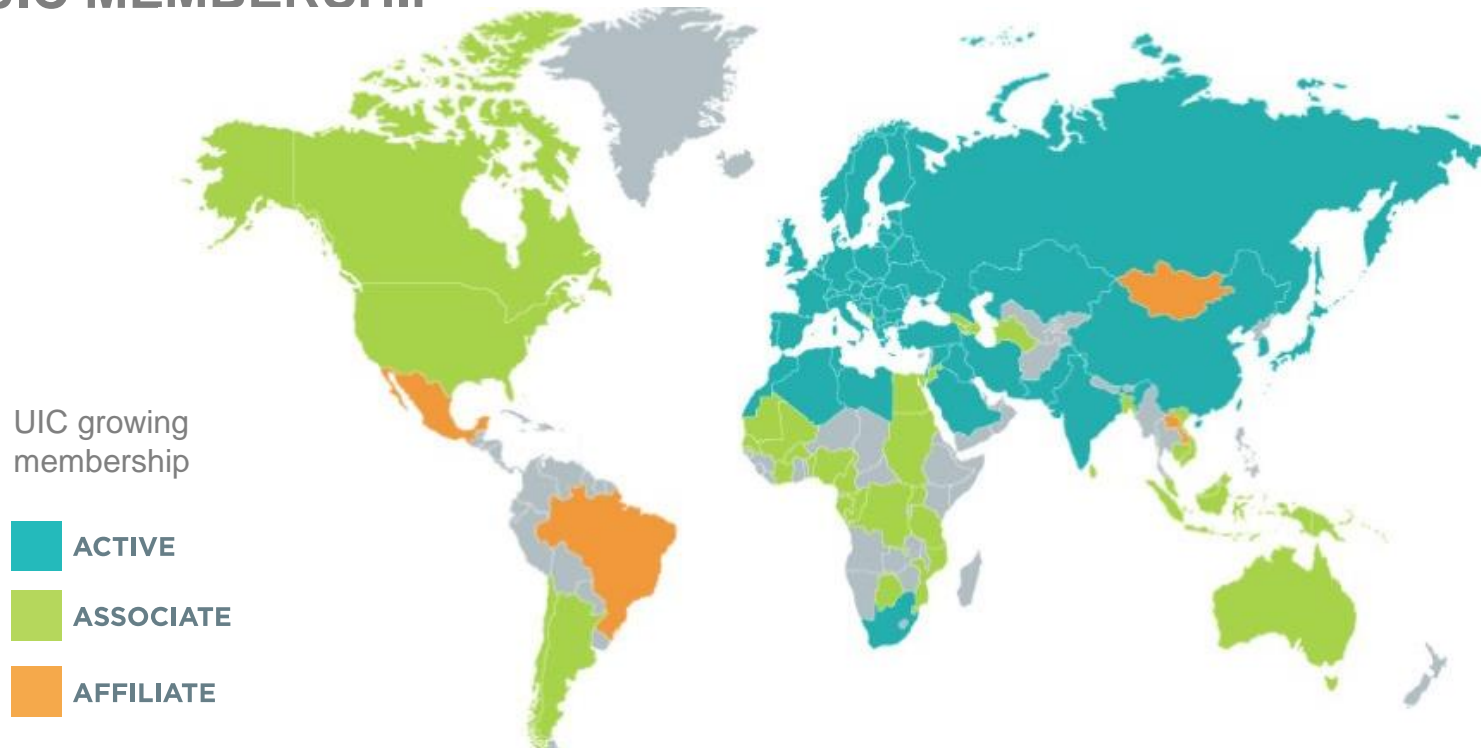
unity, solidarity, universality

APRA PROJECT INCUBATOR

Irina Petrunina

Adviser on CIS countries and international organisation in APRA

UIC MEMBERSHIP



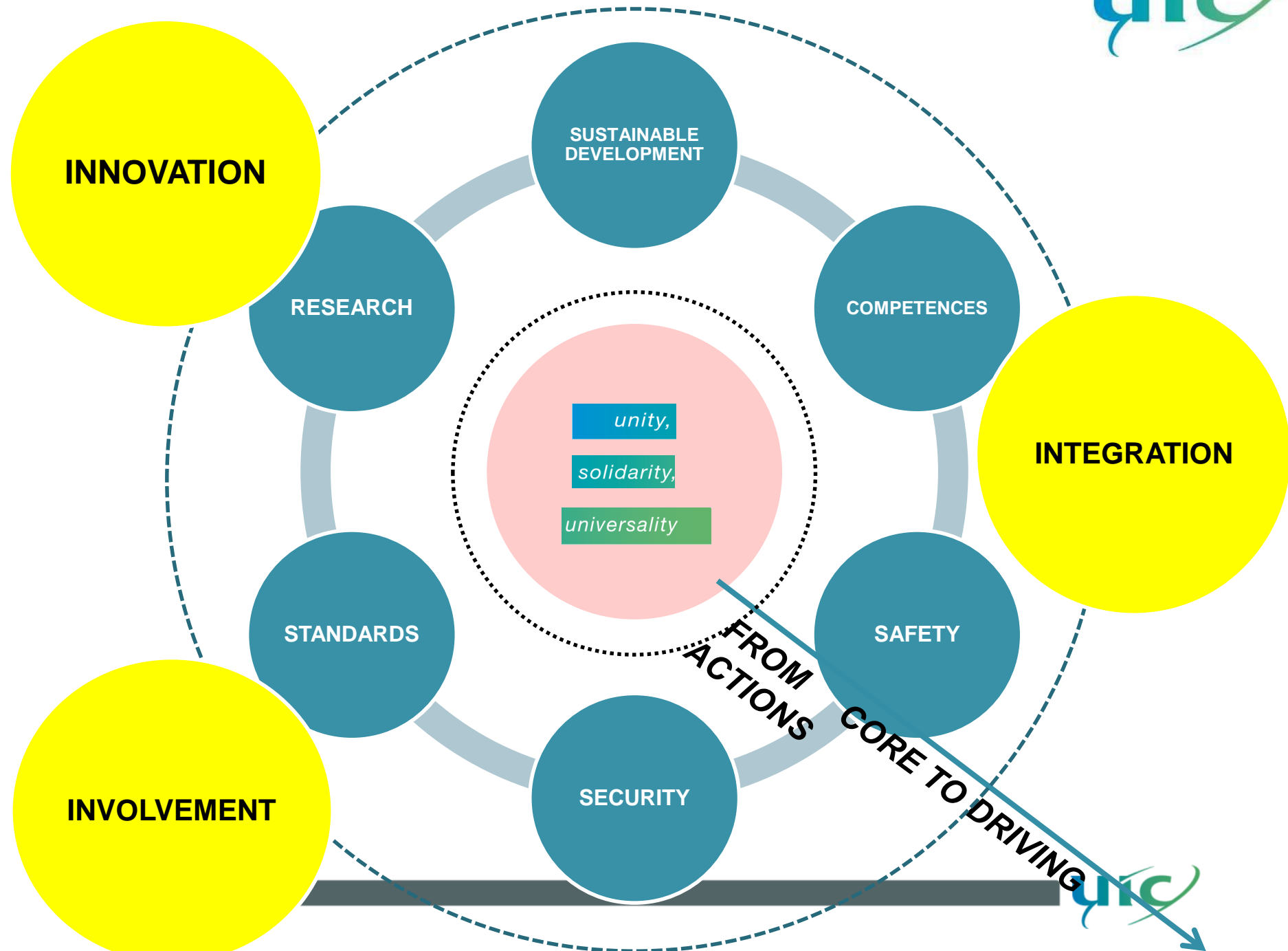
240 members on all continents

120 members in Europe

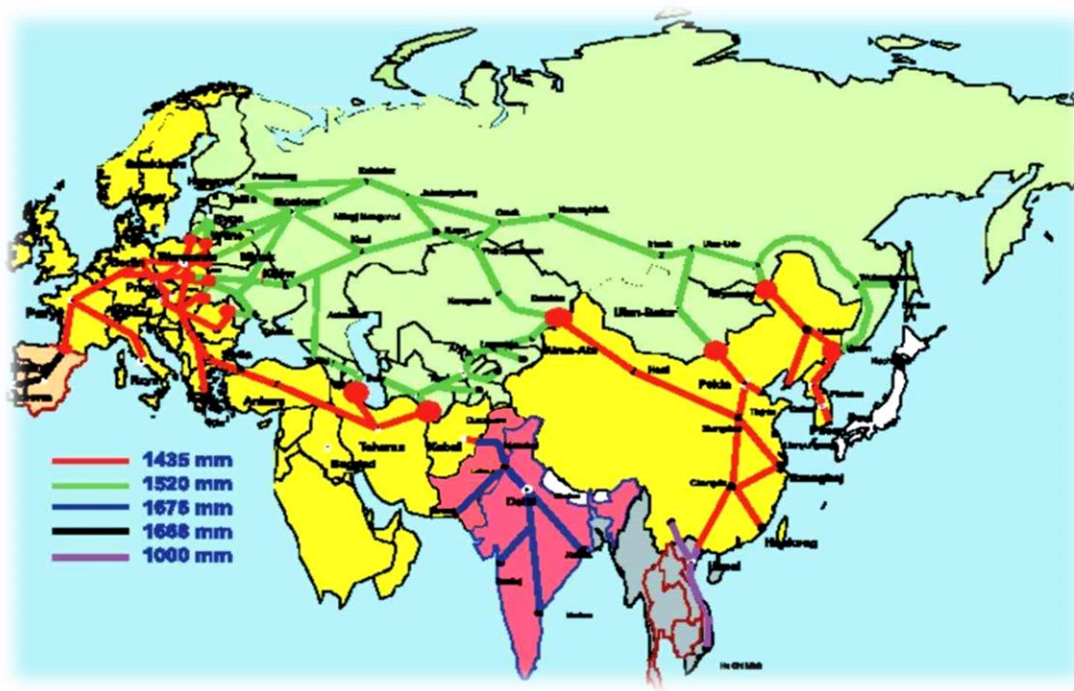
Rail Operating Community

- Operators
- Infrastructure Managers
- Research centres
- Secretariat of transportation (a few)

VALUES AND PILLARS OF UIC



Projects, New & Ongoing Studies, Recent & Future Meetings and Training Initiatives



UIC ASIA-PACIFIC VISION FOR 2050

Project proposals should fit in **one action area** !

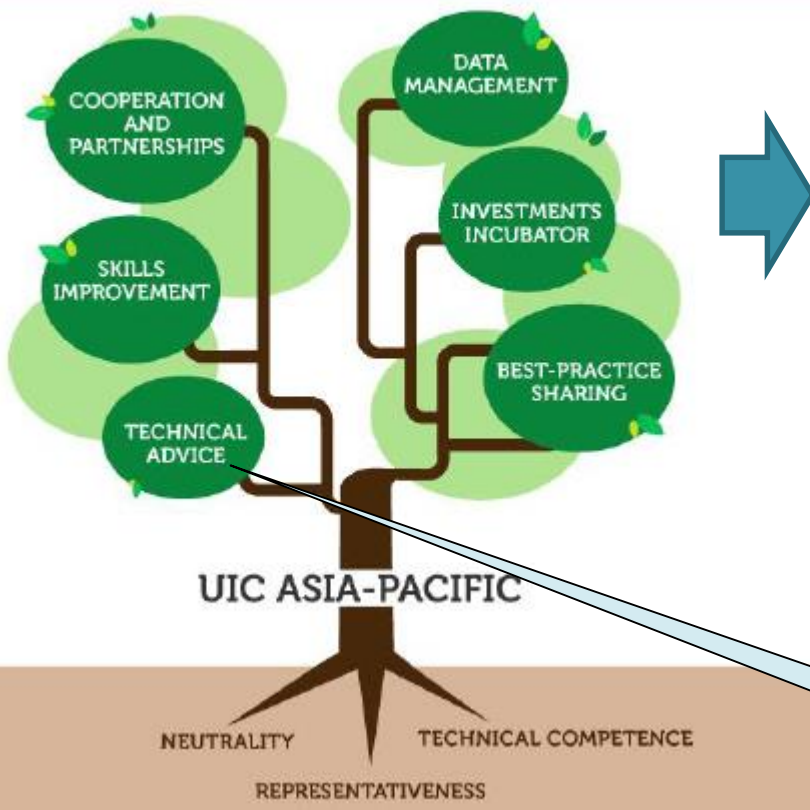
Project proposals should relate to **at least one box** !

Strategic Action Area for UIC Asia-Pacific

Framework Matrix for UIC Asia-Pacific

UIC ASIA-PACIFIC VISION

"To be a common voice on strategic issues for the transport sector and influence railway growth in the Asia-Pacific Region for the next decades"



Cost reduction / Efficiency Improvement
Harmonisation / Standardisation
Regional Integration
Research and Innovation
Quality and Customers
Environmental Sustainability
Urban Development
Safety
Security
Expertise development and training

Passenger	Freight	Rail System
	Heavy Haul (Core Focus)	
		Heavy Haul
	Heavy Haul	
	Heavy Haul	

Example:
Heavy Haul

APRA VISION 2050

Framework Matrix for UIC Asia-Pacific

	Passenger	Freight	Rail System
Cost reduction/ Efficiency improvement			
Harmonization/ Standardization			
Regional Integration			
Research and Innovation			
Quality and Customers			
Environmental Sustainability			
Urban Development			
Safety			
Security			
Expertise development and training			

The objectives of APRA PROJECT INCUBATOR:

- To reflect the needs of APRA members
- To assist in selecting the “hot” topics for urgent development
- To get access for APRA members to the best practices
- To upgrade the topics according to the APRA Vision strategy
- To advice for financial institutions on effective investments
- To unite the activity of partnership in Asia- Pacific Region

PROJECTS STARTED IN 2018

1. Exploratory study of new rail-type transportation systems and their impact on sustainable development, railway technology and standards, **MIIT**
2. Integration of reservation systems , **FPC**
3. Measures for effective developments of intermodal transport in the APR aimed at increasing the competitiveness of the railway transport, **RZD**
4. Modern technical rail maintenance, **VNIIZHT**
5. Methods of Assessment of Signaling Systems for Cybersecurity , **NIIAS**
6. Diagnostic system for the railway infrastructure installed on locomotive, **KTZ**
7. Research on Application of Big Data Technology in Wheel Rail Force Identification , **CARS**
8. The UIC Asia Pacific Control Command and Signalling (CCS) workshop (Australia 2018), **UIC**

Incubator boxes

1. Cost reduction/ efficiency improvement
2. Harmonization/ standardization
3. Regional integration
4. Research and innovation
5. Quality and customers
6. Environmental sustainability
7. Urban development
8. Safety
9. Security
10. Expertise development and training

1. Cost reduction/ efficiency improvement

- Train Electronic Route Map, NIIAS
- Big Data based Timetable Management
- Promotion of rail component in multimodal transit, MIIT
- Development of optimal wheel profile for 1435/1520 rolling stock, KTZ
- Wrought wheel performance improvement on the basis of comprehensive monitoring of operating conditions, MIIT
- Maintenance in Extreme conditions, UIC

2. Harmonization/ standardization

- Documentation development for 1435 mm gauge to be used on 1520 mm system side, KTZ

3.Regional integration

- Technical interoperability for gauge changing (AGCS application in APRA), UIC
- Data Base of Technical Requirements for APRA interoperability, UIC
- Development of 1435/1520 universal coupling system for rolling stock, KTZ

4.Research and innovation

- Research on Intelligent Control Technology of Braking System for EMU, CARS
- Physics of railway systems, UIC
- Broken rails detection and localization within 1520 system, KTZ
- Selection process of catenary and current collection System for HSL, VNIIZHT

5. Quality and customers

- Organization of maintenance of procured equipment, VNIIZHT
- Logistic conception for perishable goods delivery, KTZ.

6. Environmental sustainability

- Methodology of railway ecosystem observation and control, VNIIZHT
- Improvement of outputs and service extension of Ecopassenger APRA, UIC
- Environmentally sustainable and integrated approach for management of train & station garbage in Asia Pacific, CARS
- RailTopoModel extension for APRA region, UIC

7. Urban development

- Railway near-miss events analysis and management CARS
- Station connections to urban environment: evaluation of “station – city” balance, RZD
- Multiplicative model for effects from station construction / refurbishment, RZD
- The railway station of the future, UIC
- Transit-oriented development from stations, UIC
- Railway tourism - study on clients' needs, UIC
- Long term development of railway stations, UIC
- Station Managers Global Group, UIC

8. Safety

9. Security

- Standard checklist for station preparation for mass events, RZD
- Organization and securization of rail data exchange, MIIT

10. Expertise development and training

- Energy Efficiency Best Practice Workshops, UIC
- Comparative Study of HSR Talents Cultivation Modes Based on HSR Operation, CARS
- Promoting rail talents to implement AP vision 2050, MIIT
- Personnel training on the base of KTZ training centre, KTZ
- Benchmark on quality assessment of stations, UIC
- Best practices for Smart Solutions, UIC
- Enhanced Possibilities for APRA Projects' Planning, Monitoring and Follow-Up, MIIT
- State of the Art in Heavy Haul and Long Trains: Conference, **PERSERO**
- Workshop on accessibility, UIC

Projects ideas for 2019 - 2020

1. Research on Model of Safety Assessment of Newly-built Railway Opening Based on Good Practices from Asia-Pacific Countries, CARS
2. Track Economical Maintenance Decision based on Life Cycle Cost, CARS
3. Multilanguage B2B Platform for B2C Customer Applications, FPC
4. Integrated Protective System in AC traction power line with standardization and interoperability , KORAIL
5. Technology of voltage balance in AC railway system, KORAIL
6. Unified information space for Digital transport corridor , KTZ
7. Drones for Railway Infrastructure Monitoring , NIIAS
8. Measures for the effective development of multimodal transport in the APR aimed at increasing the competitiveness of the railway transport - phase 2, RZD
9. Technology for high-speed freight and passenger train traffic between China and the European Union, RZD
10. Increasing Rail Life In Bolted Joints Zone, VNIIZHT
11. Conception of railway tourism development in APRA region based on digital services application , VNIIZHT
12. Adaptation of existing rail infrastructure for higher speeds, MIIT

OSJD

EEU

TRACECA

CCTT

SSZD

UNECE

CRT

UNESCAP

ADB

Key activities of Transport Committee for railway transport:

- *Transport policy options and programs, regional agreements and mandates;*
- *Trans-Asian Railway and other initiatives, including inter-island shipping and maritime transport promoted by the Commission for planning and financing integrated intermodal transport and logistics systems;*
- *Support for the accession and implementation of international transport agreements;*
- *Harmonization of transport standards and documents;*
- *Applications of new transport technologies, including intelligent transport systems;*

Events:

Participation in Multilateral meeting of UIC APRA partner organizations, Paris, France, 15th March 2018

Common actions on Trans-Asian Railway network connectivity and interoperability:

- ***development rail-based international intermodal corridors for landlocked countries***
- ***regional transport infrastructure connectivity***
- ***introduction of new technologies and harmonized operational and technical regional standards.***
- ***border crossing facilitation***



1. Activities aimed at enhancing the effectiveness of the Asia – Europe freight transportation by rail :

development of strategies compliance for international corridors (joint seminar, cross participation in events)

- development of infrastructural projects (" Promotion of rail component in multimodal transit ")
- digitalization (CCTT IT WG, SSZD- UIC BIM WG)
- Electronic seals for freight corridors in APRA region
- Europe- Trans Siberian line leaflet (CCTT- UIC)

2. Activities for regional cooperation

Project proposals from APRA incubator:

- Unified information space for Digital transport corridor
- Technical interoperability for gauge changing (AGCS application in APRA), UIC
- Data Base of Technical Requirements for APRA interoperability, UIC



SSZD (Union of Railway Constructors)

Working Group BIM:

Business goals and deadlines

1. Eurasia Economic Union
2. Europe
3. Derived goals and deadlines for standardization
4. Railway system representation (functional breakdown, product breakdown): can we set up a universal representation as a basis for future modeling
5. Existing standards and standards development
6. EU: Industry Foundation Classes (building SMART International) and RailTopoModel (UIC)
8. GOST standards or other standards
9. Opportunities, domains and means for cooperation



PROPOSALS FOR 2019

- Workshop on BIM
- **Participation in UIC/OSJD joint working group on development of IRS for 1520 under RSD/RSF/Standardisation Unit**
- Participation in development of High speed Eurasian projects



EU (Eurasian Economic Union)

EVENTS:

- 1. Action Plan 2018 was signed in January 2018 full version can be loaded from UIC EXTRANET**

JOINT ACTIVITIES

Cross participation in Commissions and Working groups in the fields of :

Passenger transportation

- Development of proposal for common approach to improve the quality of international passenger service
- Development of strategy to create international speed and high speed transportation in EEU

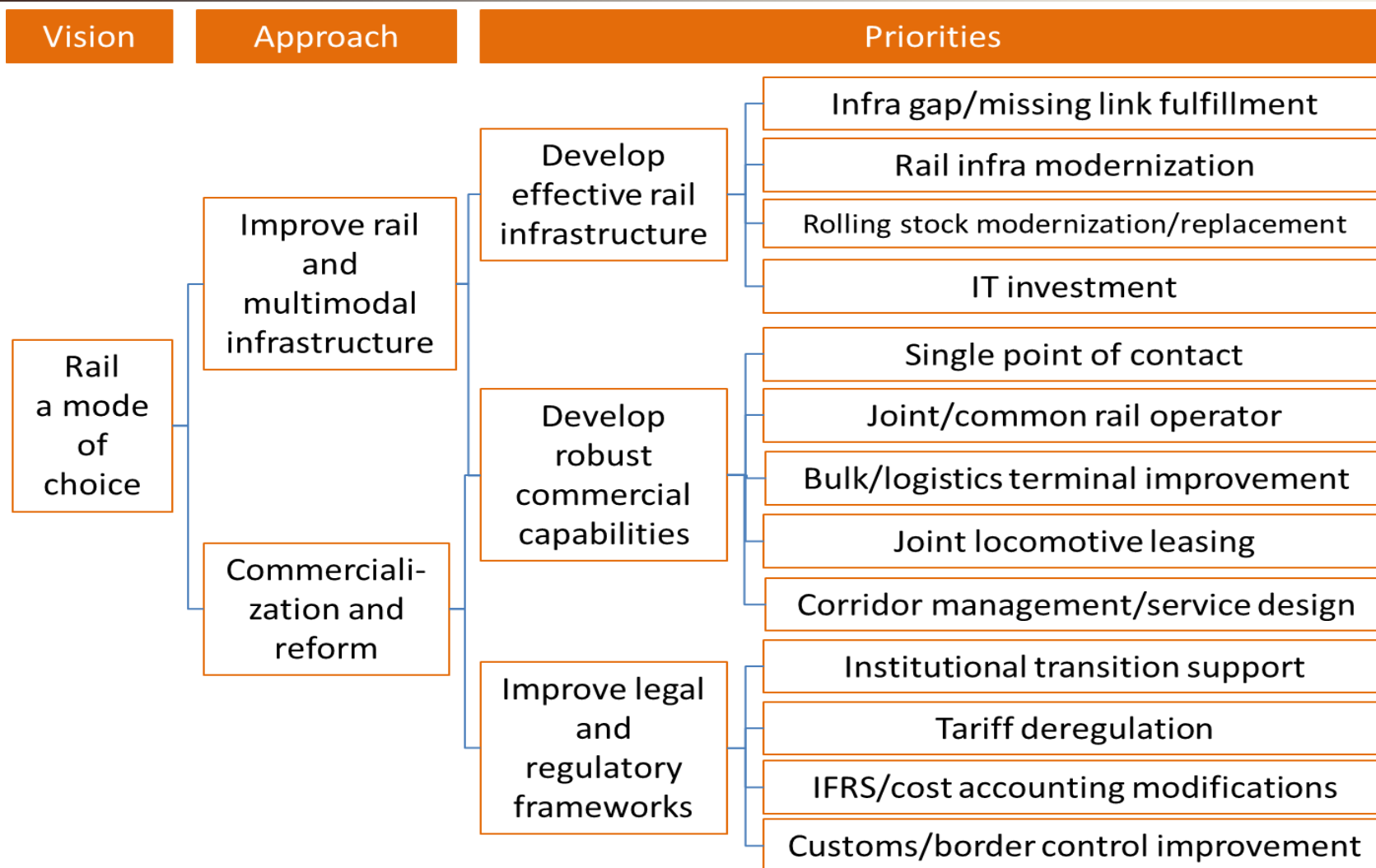
Freight transportation

- Pilot project Dostyk-Brest- Dostyk to study the interaction of participants involved in this transportation process as well as state authorities
- Implementation of paperless technologies

Technical regulation

- Evaluation of technical and legal interoperability

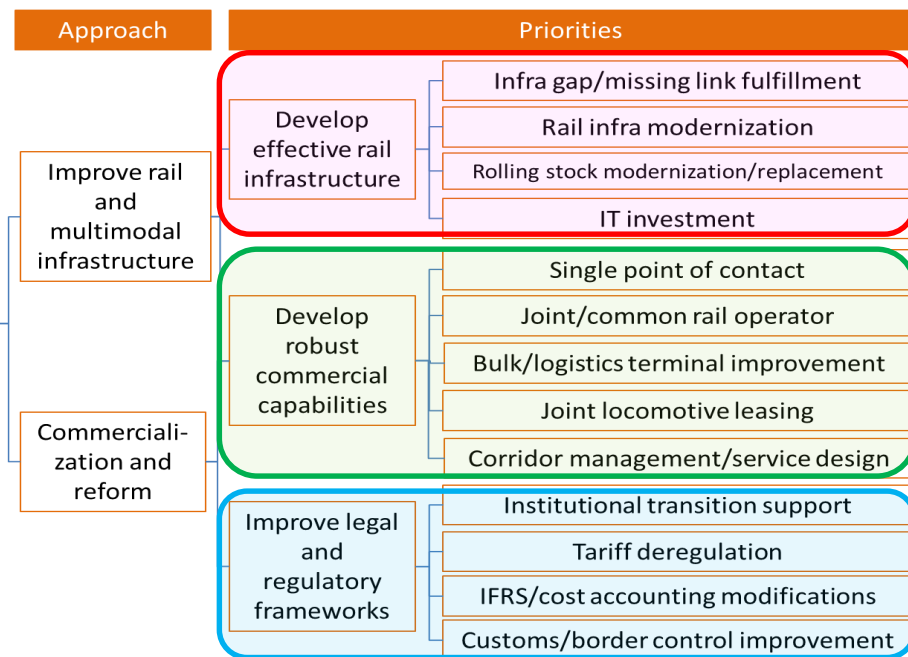
Action Plan for CAREC Railway Strategy



IT=information technology, IFRS=International Financial Reporting Standards

vs APRA VISION 2050

CAREC Railway Strategy

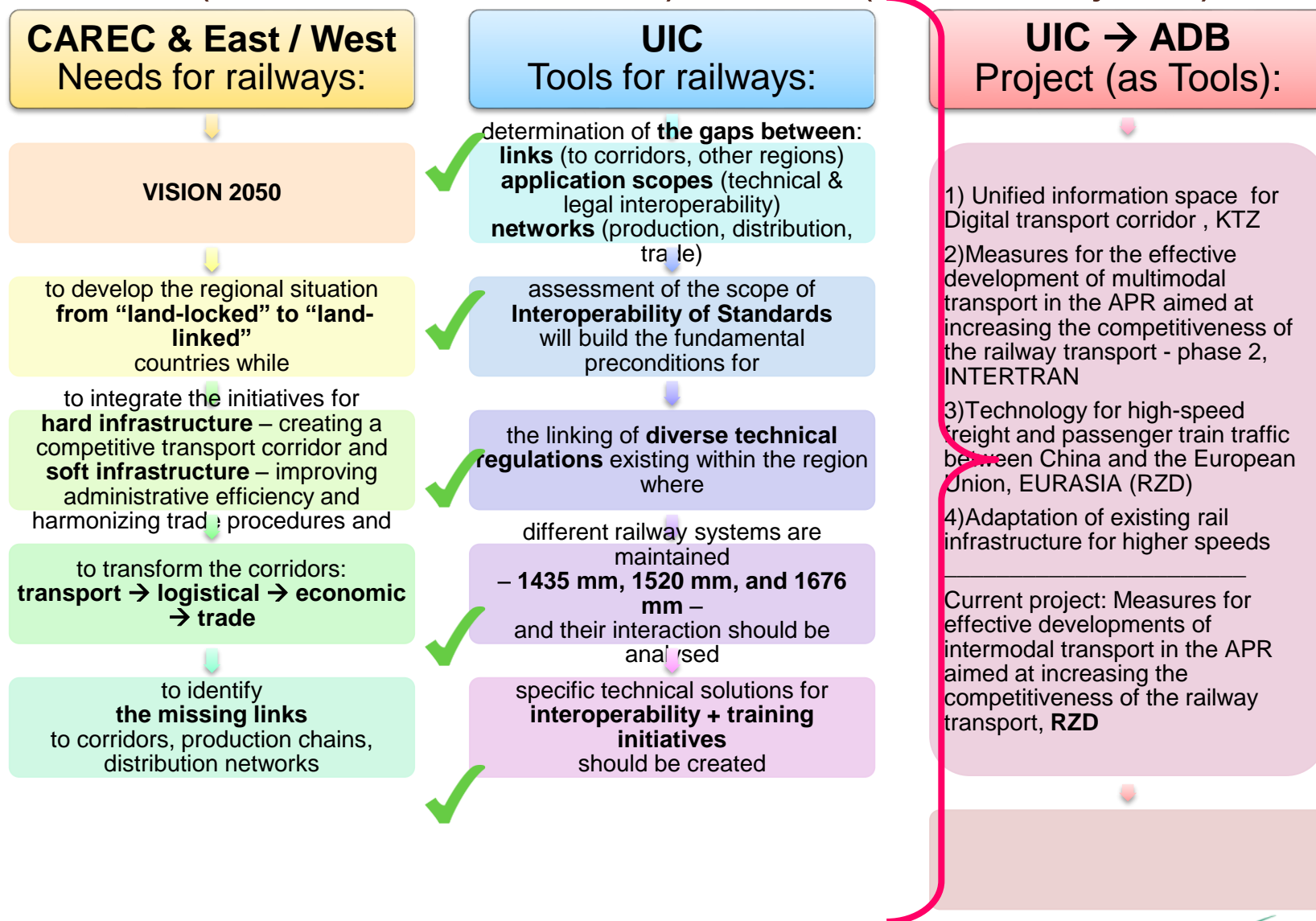


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- Infra investment projects: C/B analysis, Multi-criteria analysis -> Prioritization -> AP706
- Corridor management: International corridors -> AP707
- Interoperability of regional standards -> AP708

CAREC (BASIC CONCEPTS) ↔ UIC (Tools/Projects)



UIC APRA

Technical interoperability for gauge changing (AGCS application in APRA), UIC
Data Base of Technical Requirements for APRA interoperability, UIC
Unified information space for Digital transport corridor, KTZ

Measures for the effective development of multimodal transport in the APR aimed at increasing the competitiveness of the railway transport - phase 2, INTERTRAN

3) Technology for high-speed freight and passenger train traffic between China and the European Union, EURASIA (RZD)

4) Adaptation of existing rail infrastructure for higher speeds

IUC- PARTNERS

UIC- UNESCAP

Introduction of new technologies and harmonized operational and technical regional standards.

UIC-OSJD

Joint working group on development of IRS for 1520 under RSD/RSF/Standardisation Unit

UIC-EEU

Technical regulation/Evaluation of technical and legal interoperability

UIC- SSZD

Working group on BIM

UIC – CCTT

Electronic seals for freight corridors in APRA region (IRS)



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unity, solidarity, universality

**Thank you
for your attention!**