Interreg ADRION ADRIATIC-IONIAN
EUROPEAN UNION
European Regional Development Fund - Instrument for Pre-Accession II Fund
EUSAIR FACILITY POINT

EU Strategy for the Adriatic and Ionian Region
EUSAIR

ISSUE PAPER V

TEN-T Completion

APPLICABILITY OF THE EMTM TO THE ASSESSMENT OF TRANSNATIONAL TRANSPORT POLICIES

EUSAIR MULTIMODAL TRANSPORT MODEL: BASICS

Multimodal

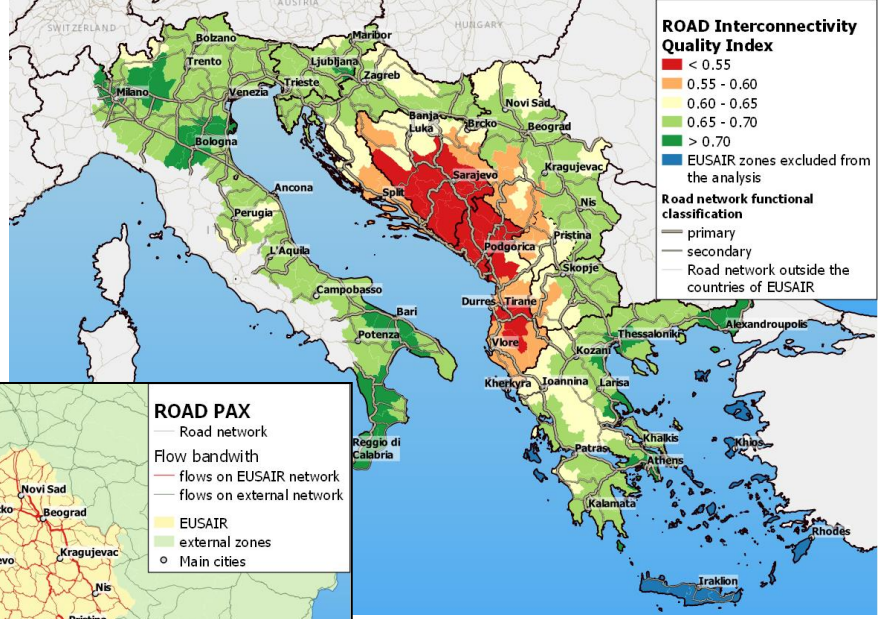
- Passenger & freight transport
- Rail
- Road (public and private transport)

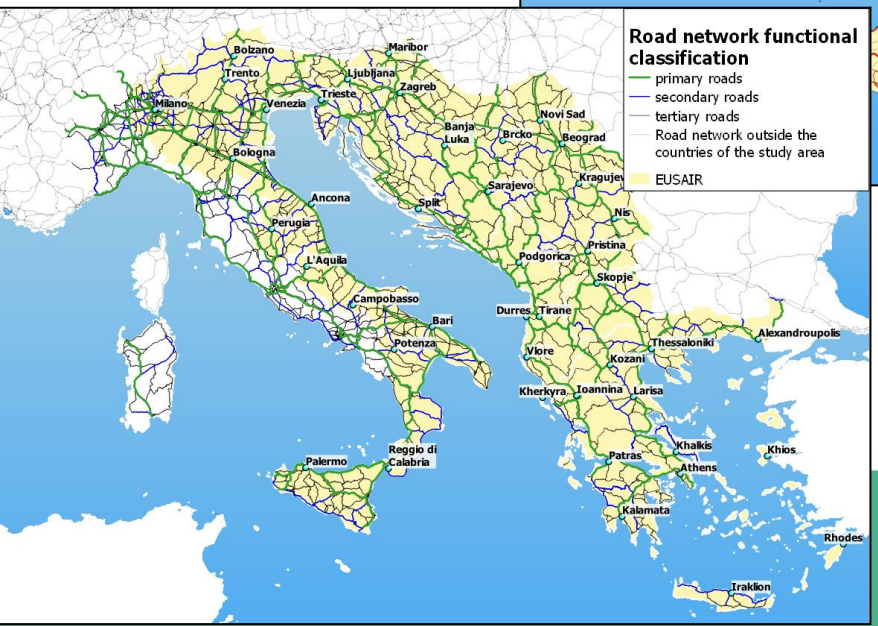
Zones covered

- Adriatic-Ionian Countries (232 zones NUTS 3 or equivalent)
- External zones (138 *NUTS3/2/1/0)*

EUSAIR MULTIMODAL TRANSPORT MODEL: USE

- Represent the current and future layout and characteristics of the networks
- Assess the performance of transport networks (e.g. accessibility/ interconnectivity)





- Assess the performance of transport systems (e.g. capacity and modal share)
- Provide information for impact assessment analyses on transport operations and the environment

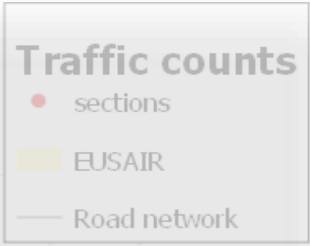
EMTM NETWORK MODELLING: SOURCES AND PROCESS

The rail and road networks have been defined based on the ETISplus European Project and TENtec

OpenRailwayMap and OpenStreeMap have been consulted and data from the network statements and motorway/highway agencies have been used to update/confirm data encoded in ETISplus and TENtec

Networks have been finally validated through TSG 2 Members, involving country experts from the Ministries and National Infrastructure Managers

EMTM DEMAND MODELLING: DATA AND PROCESS



Data collection
- Socioeconomic data (GDP, population, car ownership)
- Demand data (EUROSTAT, COMEXT, PRODCOM, ETIS+, DG MOVE)
- Aggregated statistics (pax/pax-km, tonnes/tonnes-km)

Data harmonization
- Update to a common 2017 base year
- Cross-check of transport data vs socioeconomic data

Base Year demand estimation
- National generation/attraction factors (trips/inh., tonnes/GDP by mode)
- Distribution based on ETIS+ (pax) and gravity model (freight)
- 5 x 2 matrices (pax-commuting/business/vacation/private, freight)

Calibration and validation
- AADT flows on the road network
- Aggregated statistics (pax/pax-km, tonnes/tonnes-km, modal share)

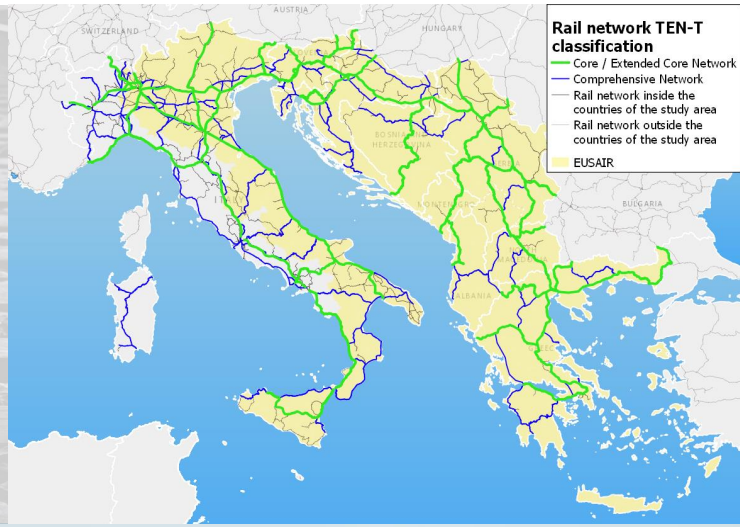
Future Years demand estimation
- Socioeconomic data projections applied to the base year (GDP, population, car ownership)

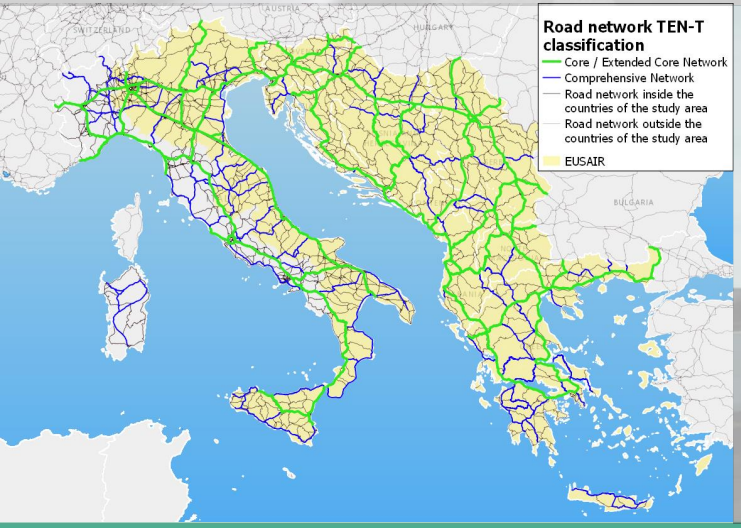
TEN-T CORE AND EXTENDED CORE COMPLETION SCENARIO AT 2040
NETWORK MODEL ASSUMPTIONS

Rail network: as per COM(2021) 812 final

Rail Transport Requirements

- All lines: EU Track Gauge, Electrification, ERTMS
- Pax lines: 160 km/h
- Freight lines: Axle Load (22.5 tonnes), Train Length (740 m), Speed (100 km/h), Intermodal gauge (P 400)





Road network: as per COM(2021) 812 final

Road Transport Requirements

- Express road/motorway

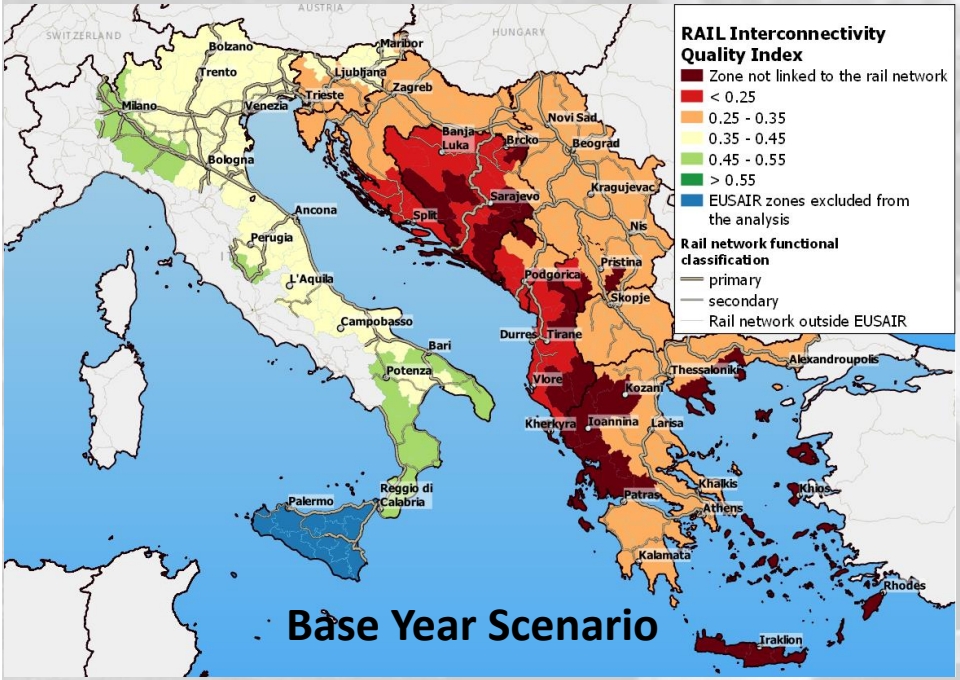
TEN-T CORE AND EXTENDED CORE COMPLETION SCENARIO AT 2040
RESULTS: RAIL CONNECTIVITY

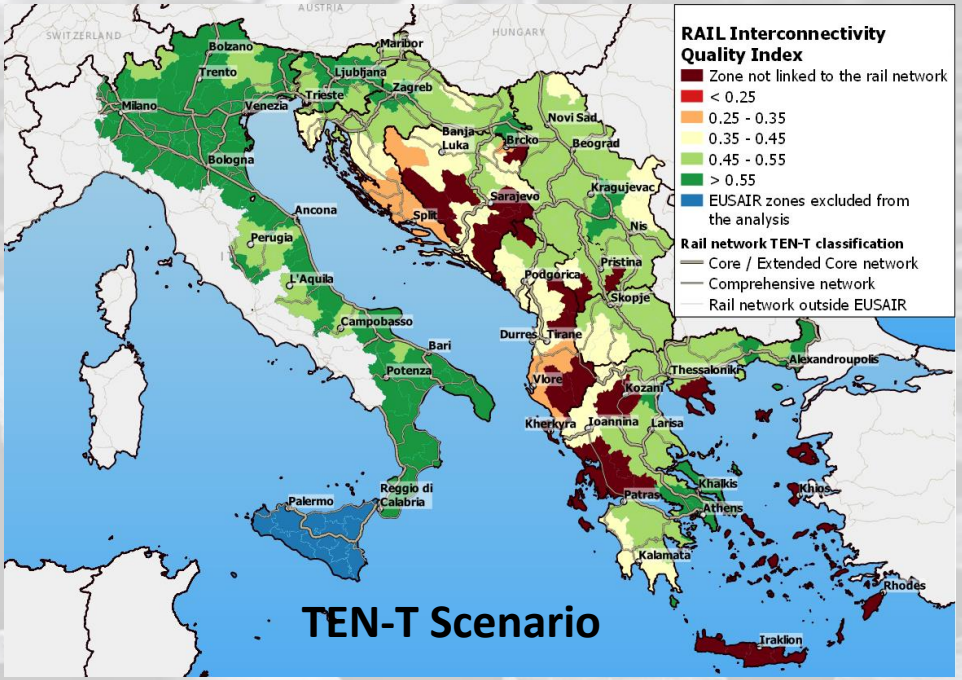
	NO RAILWAY	ICI < 0.3	0.3 < ICI < 0.45	ICI > 0.45
Base Year	6,81%	18,60%	55,74%	18,85%
TEN-T Completion	5,98%	1,38%	10,10%	82,54%

Rail Infrastructure Connectivity Index (ICI) definition:

- *The rail Infrastructure Connectivity Index (ICI) is calculated as the average of the ratios between the simulated inter-zonal travel time on the existing networks and a road-related reference travel time calculated assuming reference speeds of 120 km/h on the entire road network*
- *The index is evaluated for each zone with reference to all the other zones of the EUSAIR region and the values, between 0 and 1, represent the infrastructural gap compared to the reference performance*
- *The table shows percentages of population living in the area of analysis by index bandwidth*

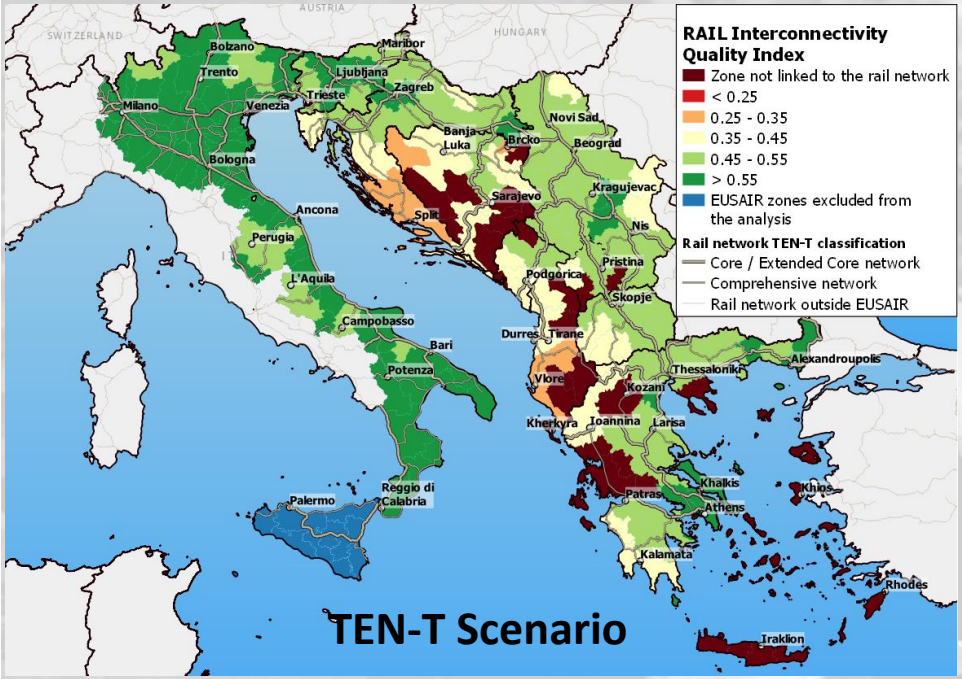
RAIL CONNECTIVITY INDEX 1/2

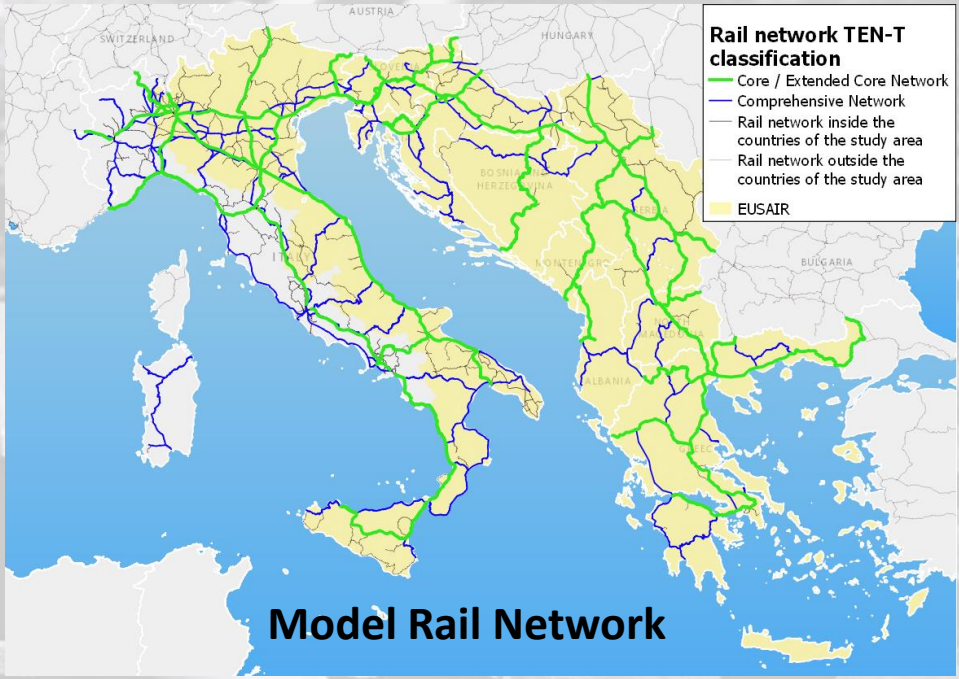




- Rail connectivity is particularly poor at present in the Eastern part of the Adriatic-Ionian region and in Western Balkans
- The completion of the TEN-T Core and Extended Core network will significantly improve rail accessibility in the Adriatic-Ionian region
- Gaps for rail transport may remain in and/or between Croatia, Bosnia & Herzegovina, Montenegro, Albania, Greece and North Macedonia

RAIL CONNECTIVITY INDEX 2/2





- The completion of the comprehensive links in Albania and Greece, as well as between Albania, Greece and North Macedonia would further increase accessibility
- Some gaps may ultimately remain between Croatia, Bosnia & Herzegovina, Montenegro along the Adriatic coast, even upon completion of the comprehensive network

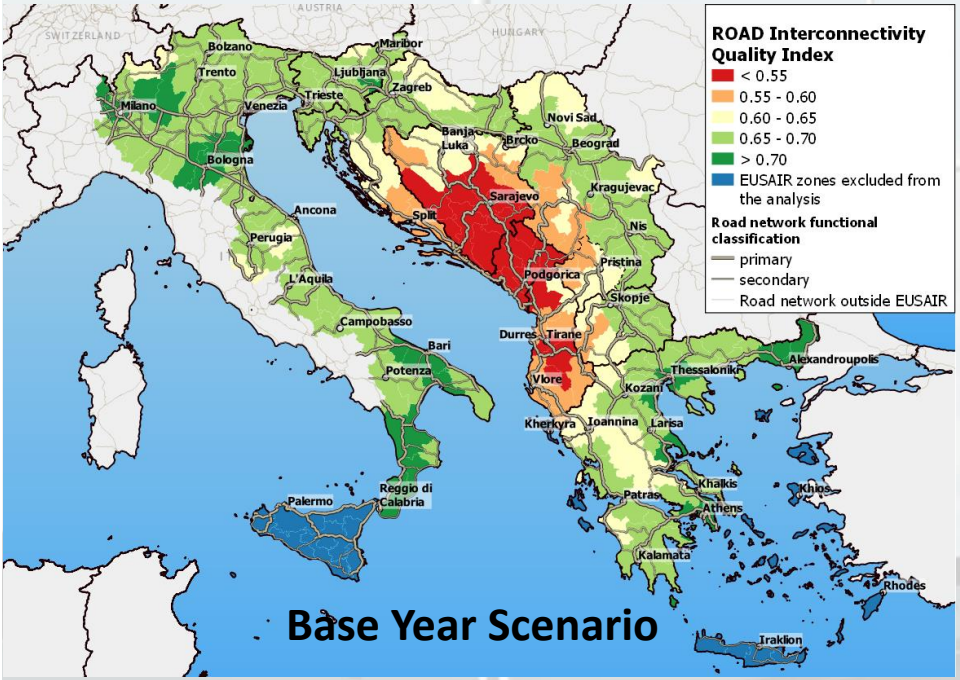
TEN-T CORE AND EXTENDED CORE COMPLETION SCENARIO AT 2040
RESULTS: ROAD CONNECTIVITY

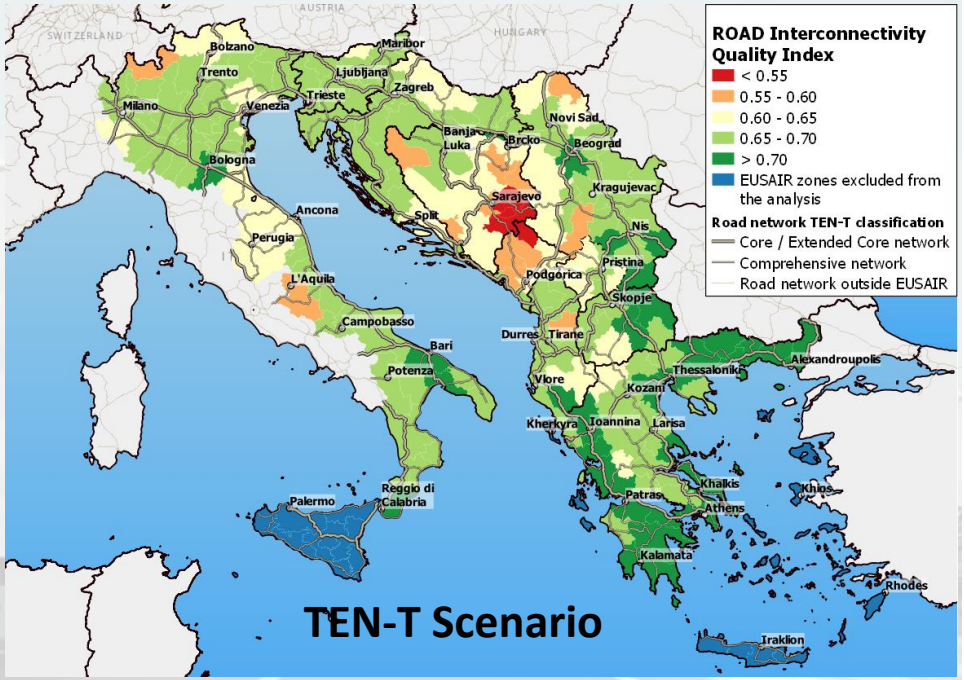
	ICI < 0.60	0.60 < ICI < 0.65	0.65 < ICI < 0.70	ICI > 0.70
Base Year	12,49%	9,50%	48,78%	29,23%
TEN-T Completion	4,02%	18,06%	57,29%	20,64%

Road Infrastructure Connectivity Index (ICI) definition:

- *The road Infrastructure Connectivity Index (ICI) is calculated as the average of the ratios between the simulated inter-zonal travel time on the existing networks and a road-related reference travel time calculated assuming reference speeds of 120 km/h on the entire road network*
- *The index is evaluated for each zone with reference to all the other zones of the EUSAIR region and the values, between 0 and 1, represent the infrastructural gap compared to the reference performance*
- *The table shows percentages of population living in the area of analysis by index bandwidth*

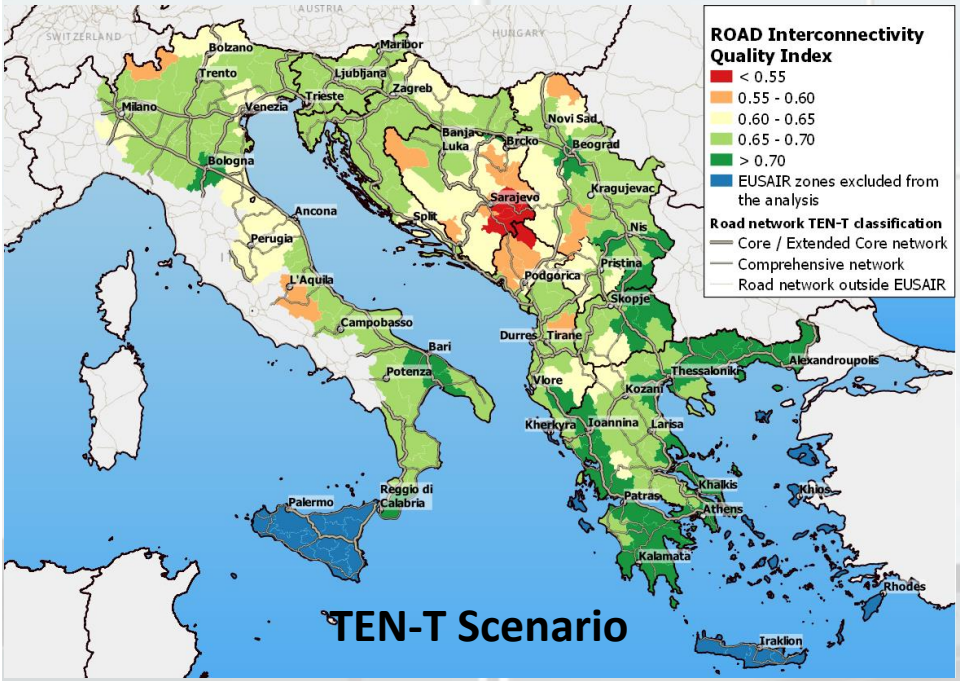
ROAD CONNECTIVITY INDEX 1/2

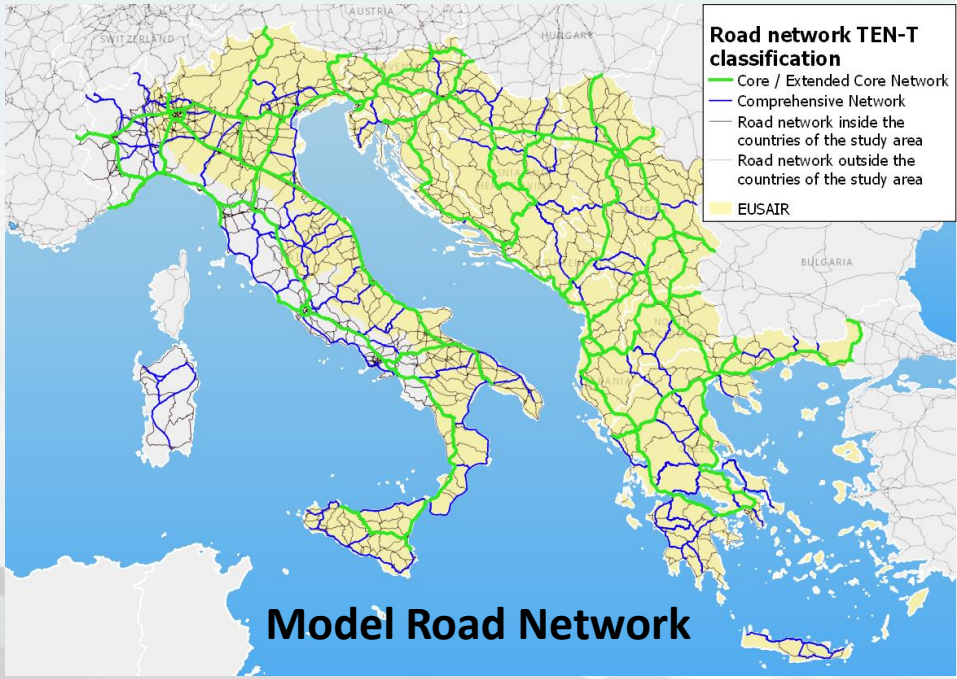




- Road connectivity is particularly poor at present in the Western Balkans along the Adriatic coast
- The completion of the TEN-T Core and Extended Core network will significantly improve road accessibility in the Adriatic-Ionian region
- Road congestion is not a critical issue, except within and around metropolitan areas

ROAD CONNECTIVITY INDEX 2/2





- Gaps for road transport may remain between Bosnia & Herzegovina – Serbia/Montenegro
- These gaps would be removed by the completion of the TEN-T comprehensive road links

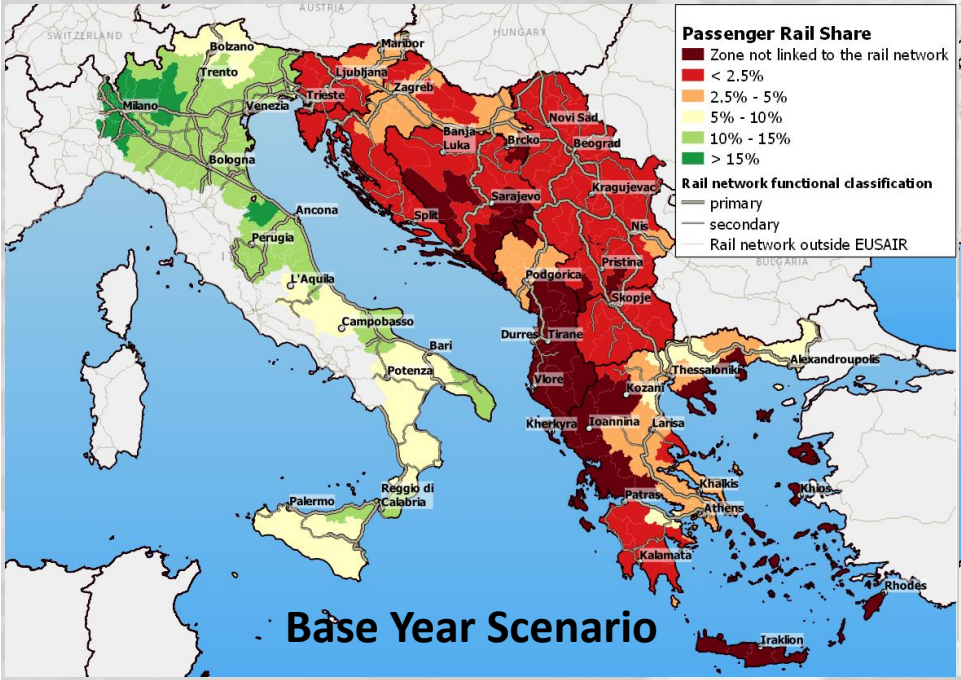
TEN-T CORE AND EXTENDED CORE COMPLETION SCENARIO AT 2040
RESULTS: MODAL SHARE FOR PASSENGER TRANSPORT

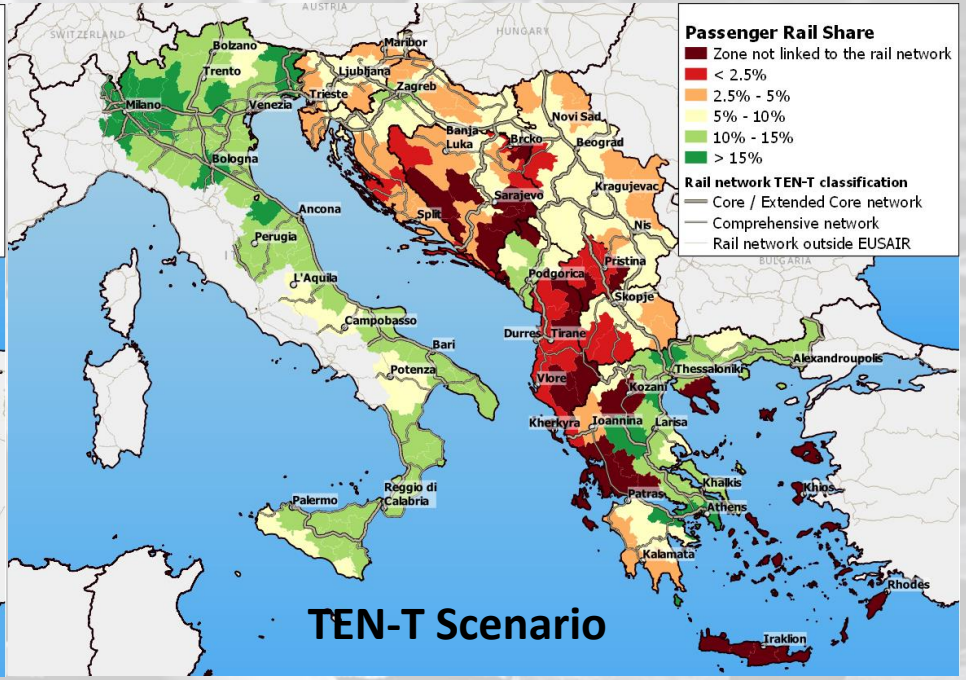
Mode	Base Year	TEN-T
	78.19 %	77.29 %
	12.11 %	10.02 %
	9.70 %	12.69 %

Passenger and freight modal shares

- *The passenger modal shares by country are calculated based on the transport activity (passenger-km and tonnes-km) on the network ("territorial" approach by EUROSTAT and DG MOVE Pocketbook)*
- *Passenger modal shares by zone is instead calculated based on the sum of the pax transport volumes generated and attracted in each zone*

RAIL PASSENGER MODAL SHARE





- The modal share of public transport (bus and rail) slightly increases (from 21.8% to 22.7%), but with a very mixed trend, due to the generalised decline of bus (-2%, mainly in Eastern EUSAIR countries) and different growth in rail by country (+3%)

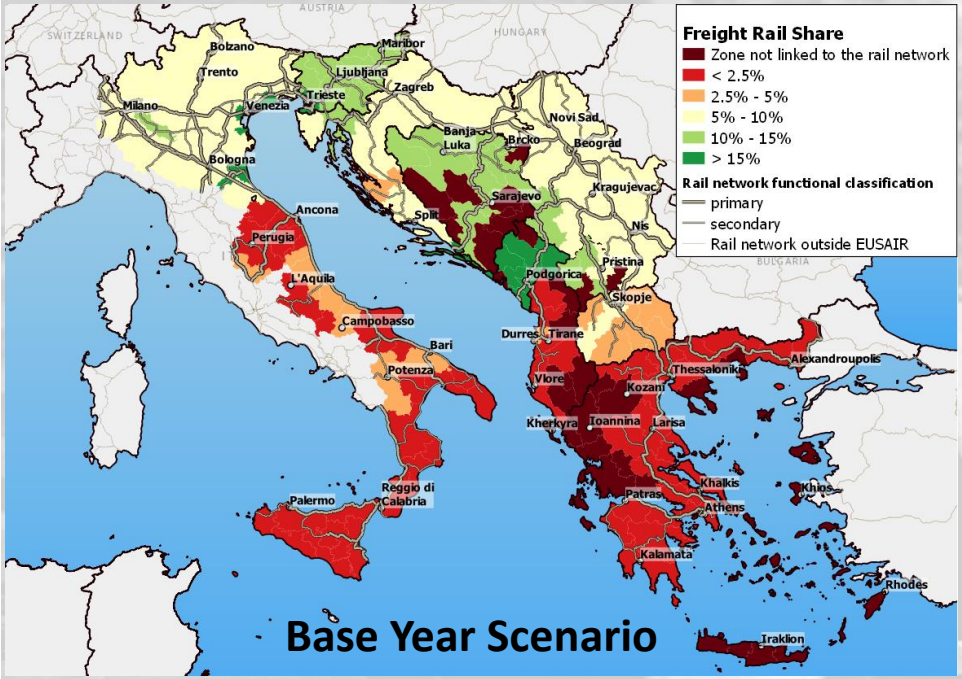
TEN-T CORE AND EXTENDED CORE COMPLETION SCENARIO AT 2040
RESULTS: MODAL SHARE FOR FREIGHT TRANSPORT

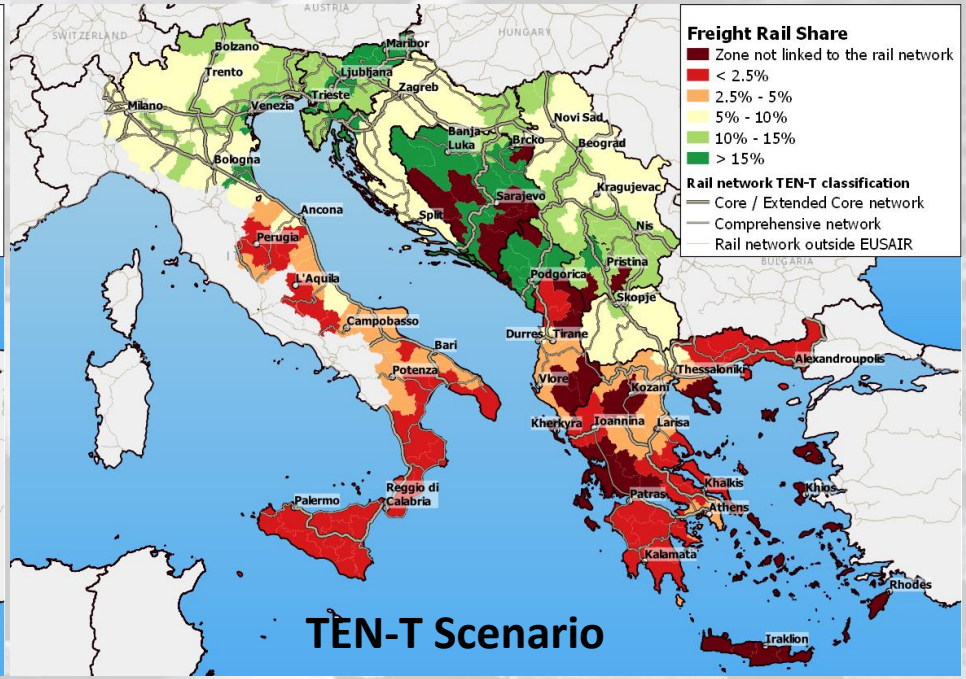
Mode	Base Year	TEN-T
	86.40 %	80.08 %
	13.60 %	19.92 %

Passenger and freight modal shares

- *The freight modal shares by country are calculated based on the transport activity (passenger-km and tonnes-km) on the network ("territorial" approach by EUROSTAT and DG MOVE Pocketbook)*
- *Passenger modal shares by zone is instead calculated based on the sum of the freight transport volumes generated and attracted in each zone*

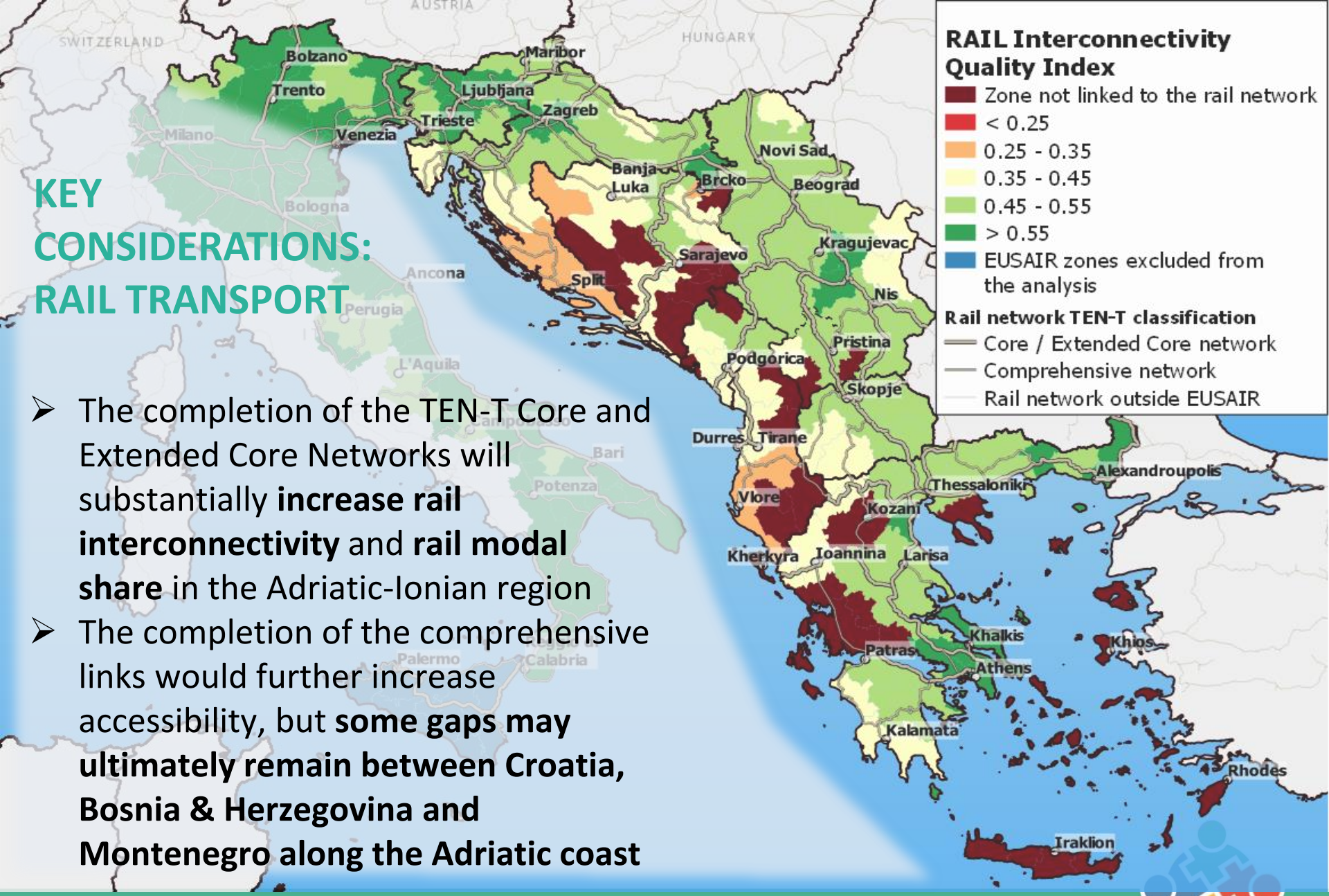
RAIL FREIGHT MODAL SHARE





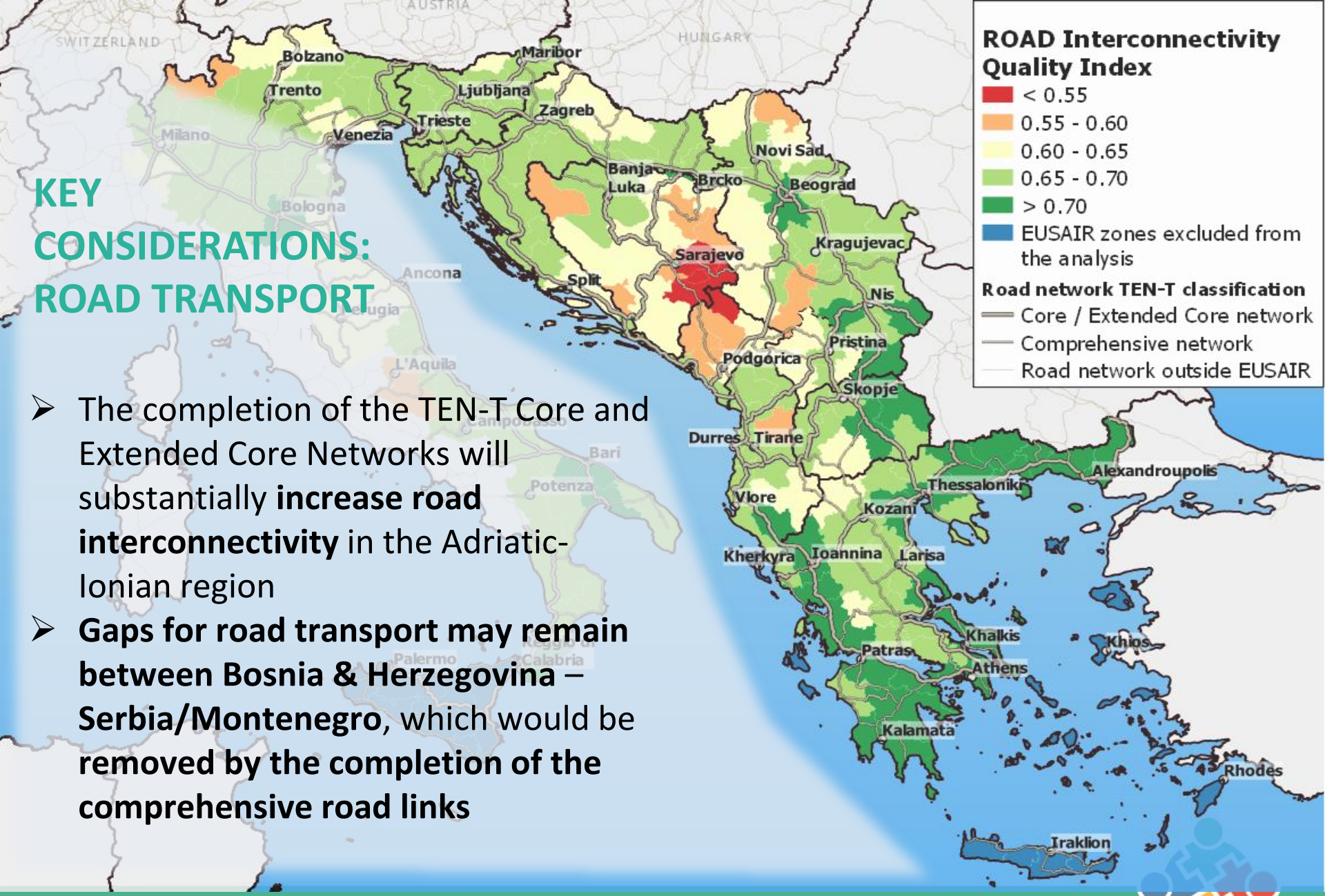
- In the EUSAIR region, the modal share of rail freight transport rises from 13.6% to 19.9% upon completion of the TEN-T Core and Extended Core Network
- Bosnia & Herzegovina, Croatia, and Serbia will register over 20% of rail freight modal share and Slovenia over 40%

KEY CONSIDERATIONS: RAIL TRANSPORT



- The completion of the TEN-T Core and Extended Core Networks will substantially **increase rail interconnectivity** and **rail modal share** in the Adriatic-Ionian region
- The completion of the comprehensive links would further increase accessibility, but **some gaps may ultimately remain between Croatia, Bosnia & Herzegovina and Montenegro along the Adriatic coast**

KEY CONSIDERATIONS: ROAD TRANSPORT



- The completion of the TEN-T Core and Extended Core Networks will substantially **increase road interconnectivity** in the Adriatic-Ionian region
- **Gaps for road transport may remain between Bosnia & Herzegovina – Serbia/Montenegro**, which would be **removed by the completion of the comprehensive road links**

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