



# Adriatic Ionian Region Masterplan for Transport Interconnectivity (AIM-TI)

## *Status of implementation of the EUSAIR Multimodal Transport Model*

June 2020



# CONTENT

## Recalling the purpose of the EMTM

### Updated EMTM socio-economic data

- Feedback and inputs from the TSG2 Members on the socio-economic data
- Updated socio-economic data

### Updated EMTM network data

- Feedback and inputs from the TSG2 Members on the network layout and parameters
- Updated road, rail and IWW networks
- Presentation of the maps related to the network parameters using GIS

### Transport and traffic (demand) data collection process

- Review of the transport and traffic data available from EUROSTAT
- Network

### Next steps



# SUMMARY OF THE PURPOSE OF THE EMTM

## Transport model in support of the elaboration of the Adriatic Ionian Region Master Plan for Transport

- Describe the current situation of the road and rail networks
  - Describe and map the network parameters
  - Identify gaps with reference to relevant regulations (TEN-T)
- Assess the performance of the road, rail and short sea shipping (limited to freight) transport system
  - Analyse and map traffic flows along the network
  - Support the identification of capacity bottlenecks
- Assess the impact of the planned projects on the road and rail network
  - 2030 scenarios
  - Identify persisting gaps in terms of infrastructure performance and capacity
- The model will cover the full national network for all countries

## GIS based maps in support of the elaboration of the Adriatic Ionian Region Master Plan for Transport

- Rail, Road and Inland Waterways



# Status of implementation of the EUSAIR Multimodal Transport Model

**Updated EMTM socio-economic data**



# EMTM DATA VALIDATION AND INTEGRATION: SOCIOECONOMIC

## Socio-economic data

- Inputs received from Albania, Montenegro and Serbia for the year 2017
  - GDP data for Montenegro are not available at the regional/municipality level
  
- New data are publicly available for Kosovo\* for the year 2017
  - Data for GDP and employment are not available at the regional/municipality level
  
- New data are publicly available for Bosnia and Herzegovina and Brcko District for the year 2017
  - Population data at the regional/municipality level are available for 2013
  - Data for employment are not available at the regional/municipality level

\* Reference to Kosovo in this Presentation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence



# SOCIO-ECONOMIC DATA: POPULATION

COUNTRY	POPULATION	SOURCE
ALBANIA	2017	EUROSTAT
BOSNIA AND HERZEGOVINA	2013	Institute for Statistics of Federation of BiH/FIS
	2017	Institute for Statistics of Republika Srpska/RSIS
CROATIA	2017	EUROSTAT
GREECE	2017	EUROSTAT
ITALY	2017	EUROSTAT
KOSOVO*	2017	Kosovo* Agency of Statistics ASK
MONTENEGRO	2017	Statistical Office of Montenegro MONSTAT
NORTH MACEDONIA	2017	EUROSTAT
SERBIA	2017	EUROSTAT
SLOVENIA	2017	EUROSTAT

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## SOCIO-ECONOMIC DATA: GDP

COUNTRY	GDP	SOURCE
ALBANIA	2017	EUROSTAT
BOSNIA AND HERZEGOVINA	2017**	Agency for Statistics of Bosnia and Herzegovina
CROATIA	2017	EUROSTAT
GREECE	2017	EUROSTAT
ITALY	2017	EUROSTAT
KOSOVO*	2017*	Kosovo* Agency of Statistics ASK
MONTENEGRO	2017*	EUROSTAT
NORTH MACEDONIA	2017	EUROSTAT
SERBIA	2017	EUROSTAT
SLOVENIA	2017	EUROSTAT

Notes: \*available for the entire country only; \*\* available for FBiH, RS and Brčko District

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## SOCIO-ECONOMIC DATA: EMPLOYMENT

COUNTRY	EMPLOYMENT	SOURCE
ALBANIA	2017	Regional Statistical Yearbook
BOSNIA AND HERZEGOVINA	2017*	Agency for Statistics of Bosnia and Herzegovina
	2017	Institute for Statistics of Republika Srpska/RSIS
CROATIA	2017	EUROSTAT
GREECE	2017	EUROSTAT
ITALY	2017	EUROSTAT
KOSOVO*	2017*	Kosovo* Agency of Statistics ASK
MONTENEGRO	2017	Statistical Office of Montenegro MONSTAT
NORTH MACEDONIA	2017	EUROSTAT
SERBIA	2017	EUROSTAT
SLOVENIA	2017	EUROSTAT

Note: \*available for the entire country only

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# STUDY AREA AND ZONING SYSTEM

NUTS3 or  
equivalent level  
of detail zones:

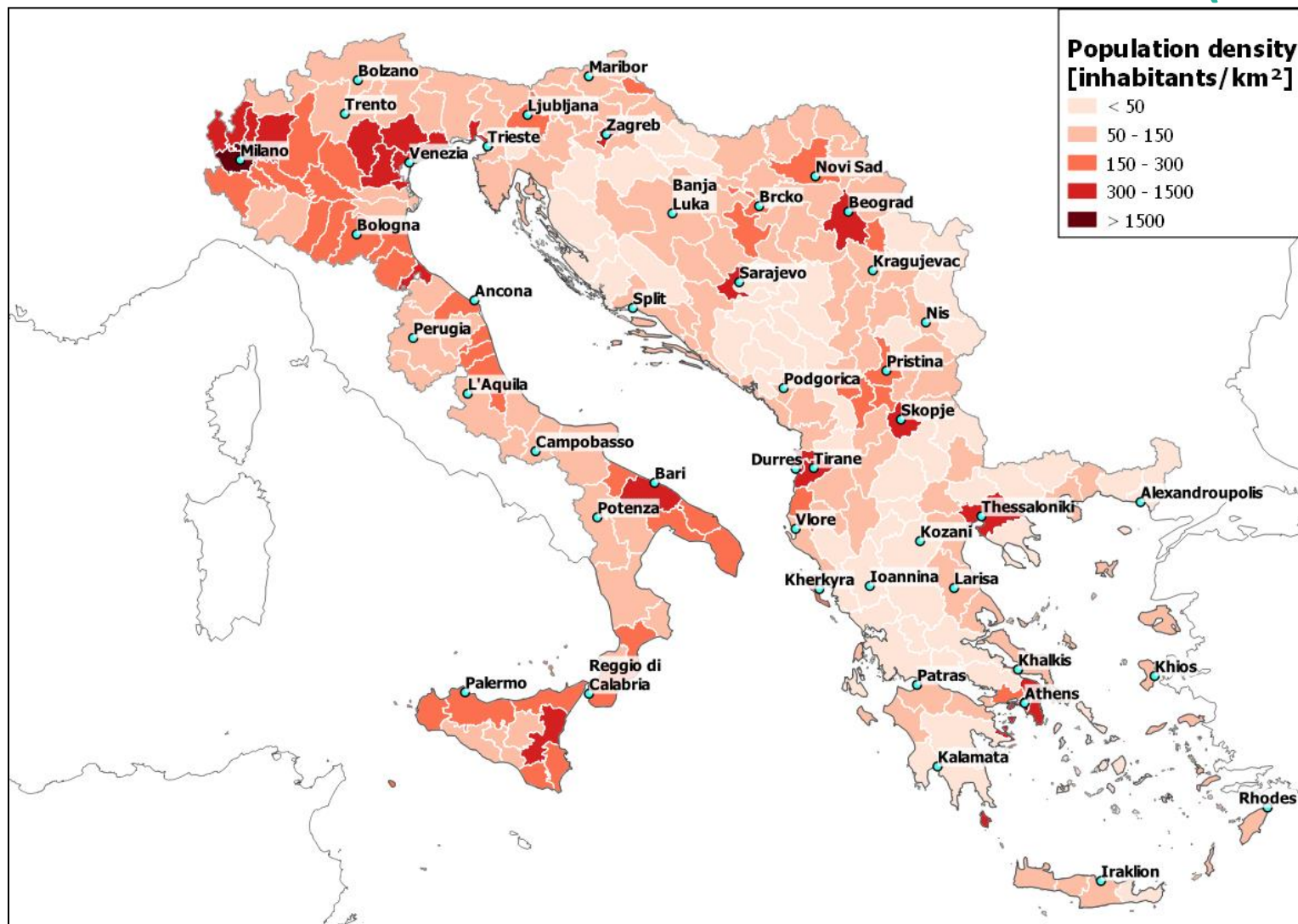
COUNTRY	ZONES
ALBANIA	12
BOSNIA AND HERZEGOVINA	18
CROATIA	21
GREECE	52
ITALY	69
KOSOVO* (under United Nations Security Council Resolution 1244/99)	7
MONTENEGRO	8
NORTH MACEDONIA	8
SERBIA	25
SLOVENIA	12
<b>TOTAL</b>	<b>232</b>



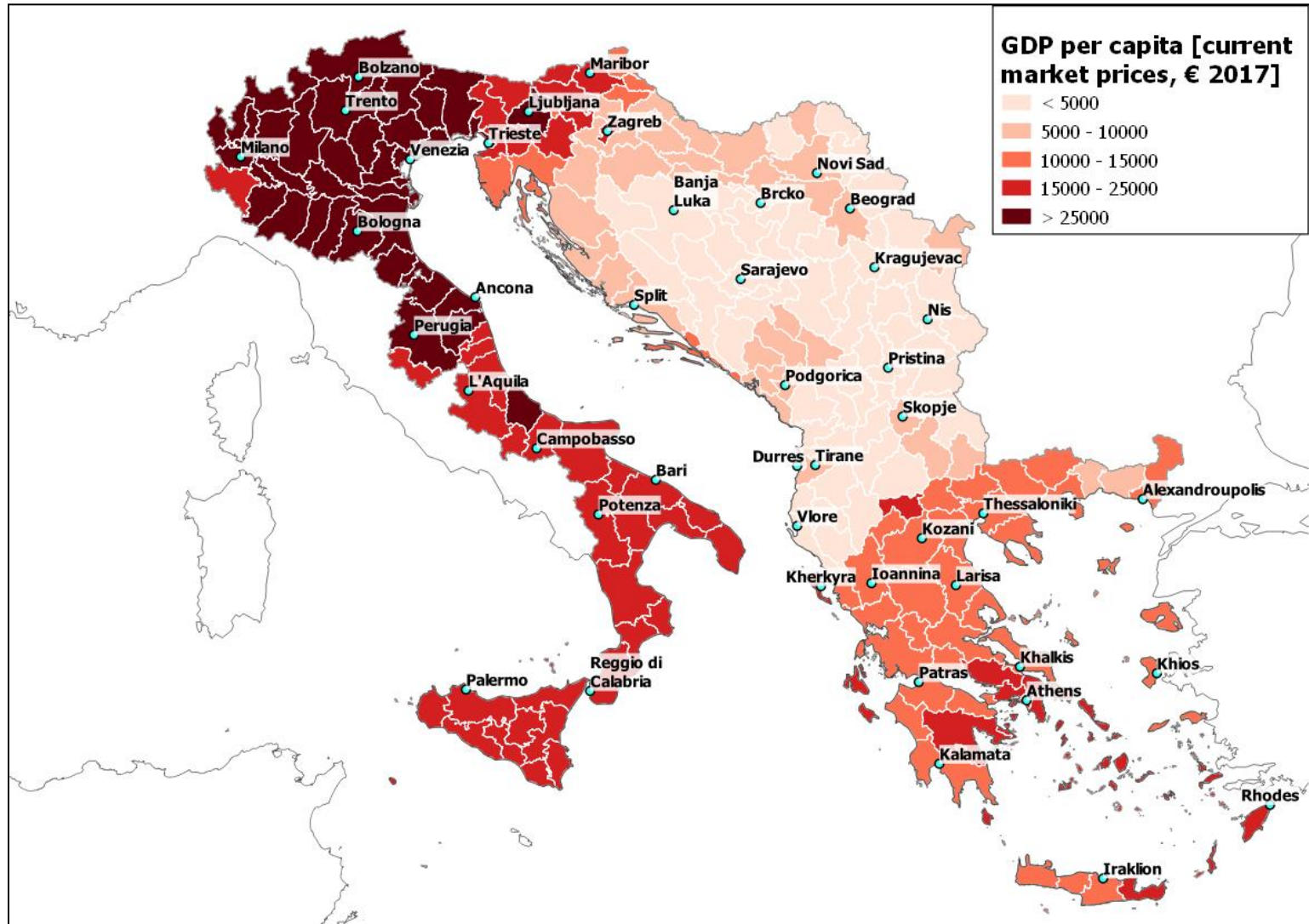
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# UPDATED SOCIO-ECONOMIC DATA: POPULATION DENSITY (2017)

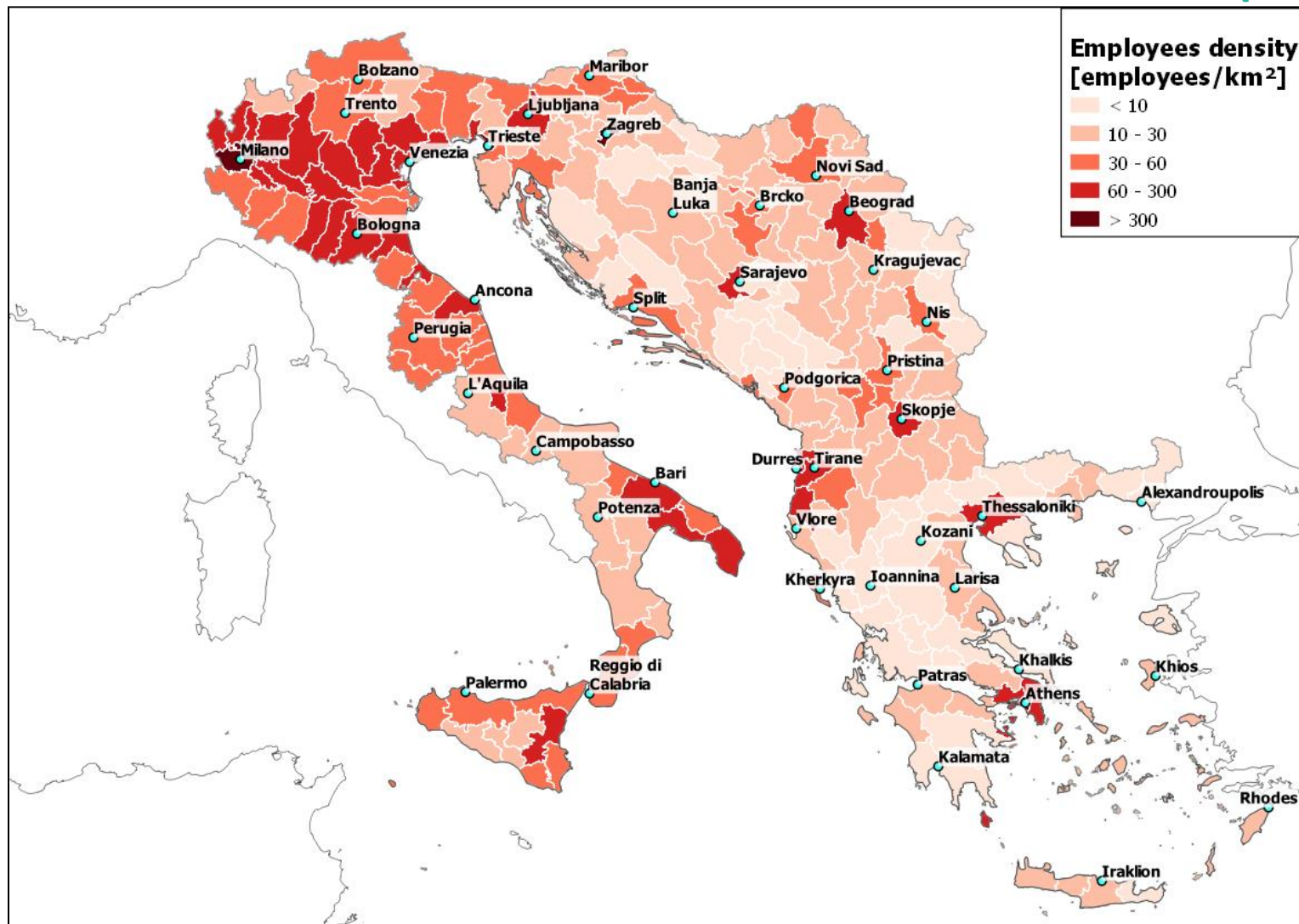


# UPDATED SOCIO-ECONOMIC DATA: GDP PER CAPITA (2017)





# UPDATED SOCIO-ECONOMIC DATA: EMPLOYMENT DENSITY (2017)



# Status of implementation of the EUSAIR Multimodal Transport Model

**Updated EMTM network data**



# EMTM DATA VALIDATION AND INTEGRATION: NETWORKS

## Road

- Information was provided to check/integrate the classification of certain links (Serbia, Slovenia, North Macedonia) and add some last mile sections (Greece, Friuli Venezia Giulia); Albania provided the outcome of the National Transport Plan

## Rail

- Information was provided to check/integrate the classification of certain links and their characteristics (Serbia, Slovenia, Greece, North Macedonia, Friuli Venezia Giulia), Albania provided the outcome of the National Transport Plan (Model)
- Data provided for the characteristics of the network (North Macedonia, Abruzzo, Puglia, Friuli Venezia Giulia)
- Some requests were made to adjust the legend of the map for speed classification of railway lines (Montenegro/Friuli Venezia Giulia)

## IWW

- Inputs received from Serbia, Emilia Romagna and Friuli Venezia Giulia Regions about the alignment and characteristics of the network

## Notes

- The requested amendments were considered in the updating of the networks
- The classification of the network adopted in the model responds to functional and not administrative purposes



## AVAILABILITY OF ROAD AND IWW PARAMETERS DATA

COUNTRY	TRAFFIC LANES	TOLL ROADS
ALBANIA	X	X
BOSNIA AND HERZEGOVINA	X	X
CROATIA	X	X
GREECE	X	X
ITALY	X	X
KOSOVO*	X	X
MONTENEGRO	X	X
NORTH MACEDONIA	X	X
SERBIA	X	X
SLOVENIA	X	X

COUNTRY	CEMT CLASS	MAX DRAUGHT OF VESSEL	MIN BRIDGE CLEARANCE
BOSNIA AND HERZEGOVINA	X	X	X
CROATIA	X	X	X
ITALY	X	X	X
SERBIA	X	X	X

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## AVAILABILITY OF RAIL PARAMETERS DATA

COUNTRY	NUMBER OF TRACKS	TRACTION	TRACK GAUGE mm	STRUCTURE GAUGE EN15273	COMBINED TRANSPORT PROFILE SWAP BODIES
ALBANIA	X		X		
BOSNIA AND HERZEGOVINA					
CROATIA	X	X	X	X	X
GREECE	X	X	X	X	X
ITALY	X	X	X	X	X
KOSOVO*	X	X	X	X	
MONTENEGRO	X	X	X	X	
NORTH MACEDONIA	X	X	X	X	X
SERBIA	X	X	X	X	
SLOVENIA	X	X	X	X	X

*Information currently unavailable may be provided as they become available for integration in the EMTM database over the course of the study*

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## AVAILABILITY OF RAIL PARAMETERS DATA 2/2

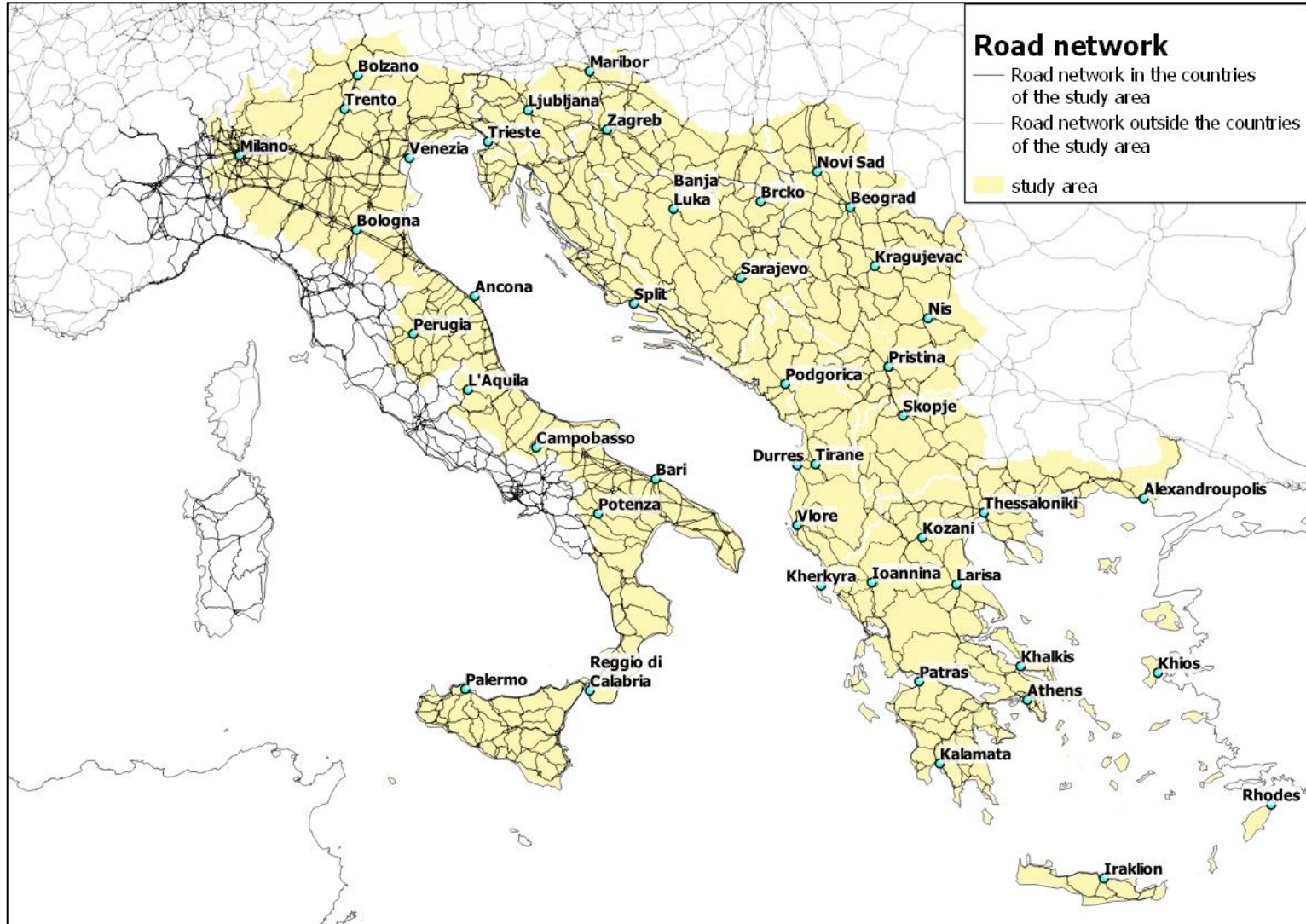
COUNTRY	COMBINED TRANSPORT PROFILE SEMITRAILERS	MAX SPEED PAX TRAINS km/h	MAX SPEED FREIGHT TRAINS km/h	MAX AXLE LOAD tonnes	VOLTAGE volt	MAX TRAIN LENGTH m
ALBANIA				X		
BOSNIA AND HERZEGOVINA						
CROATIA	X	X	X	X	X	X
GREECE	X	X	X	X	X	X
ITALY	X	X	X	X	X	X
KOSOVO*		X		X	X	X
MONTENEGRO		X		X	X	X
NORTH MACEDONIA	X	X		X	X	X
SERBIA		X		X	X	X
SLOVENIA	X	X	X	X	X	X

***Information currently unavailable may be provided as they become available for integration in the EMTM database over the course of the study***

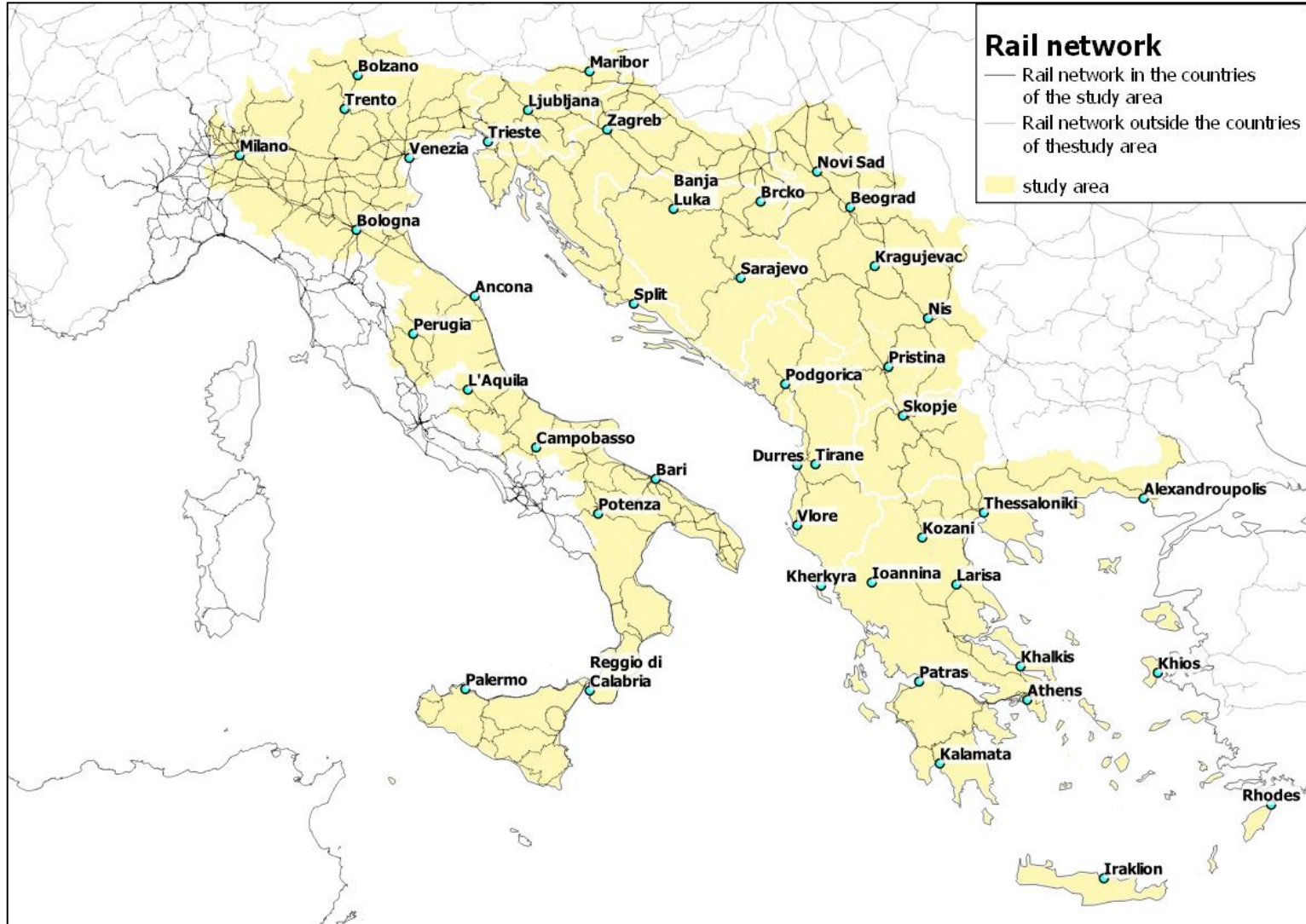
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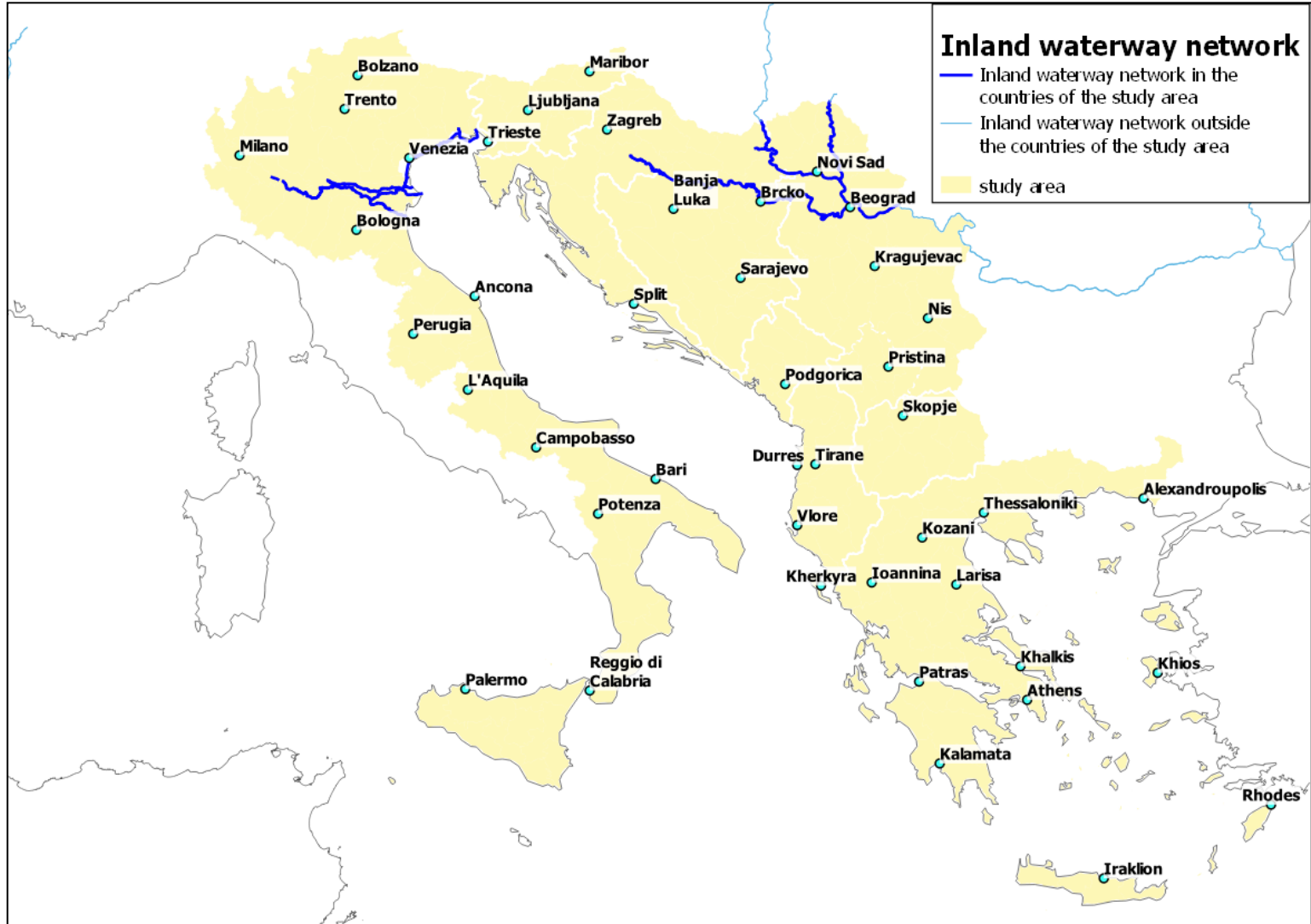
# UPDATED ROAD NETWORK LAYOUT



# UPDATED RAIL NETWORK LAYOUT



# UPDATED INLAND WATERWAY NETWORK LAYOUT (IWW)



# **Status of implementation of the EUSAIR Multimodal Transport Model**

**Presentation of the maps related to the network parameters  
using GIS**



# Status of implementation of the EUSAIR Multimodal Transport Model

**Transport and traffic (demand) data collection process**





# DEMAND DATA COLLECTION: TRADE AND TRAFFIC

## Trade

- The Consultant will independently process these data based on EUROSTAT

## Traffic and transport data

- Road, rail, maritime, IWW and air transport and traffic data (for the year 2017) to be processed based on EUROSTAT for those countries for which information is available
- TSG2 Members to possibly integrate the database for countries for which information is not available from EUROSTAT with “equivalent” data
- Available road traffic counting data to be possibly provided by TSG2 Members for all countries

## Short Sea Shipping

- Data on routes and traffic to be possibly provided by TSG2 Members and/or collected as part of the Masterplan technical assistance contract (Maritime dimension)

## Note

- Data could be available from recently completed/ongoing projects (e.g. Interreg Italy-Croatia MoS initiative, SEETO/TC database)



# DATA COLLECTION: EUROSTAT RAIL DEMAND DATA 1/2

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Railway transport measurement - passengers</b>				
Passenger transport by type of transport	Total, National, International, International Incoming, International Outgoing	pax, pax*km	HR, GR, IT, MK, SI	rail_pa_typepas
International transport of passengers between the reporting country and the country of embarkation/disembarkation	Country of embarkation/disembarkation	pax	HR, GR, MK, SI	rail_pa_intgong, rail_pa_intcmng
National and international railway passengers transport by loading/unloading NUTS 2 region	NUTS2 of embarkation/disembarkation	pax	HR, GR, IT, MK, SI	tran_r_rapa

***TSG2 Members of those countries for which EUROSTAT data are not available from EUROSTAT are kindly requested to provide this information from national sources or studies***





# DATA COLLECTION: EUROSTAT RAIL DEMAND DATA 1/2/EXAMPLE

## *Passenger transport by type of transport (detailed reporting only) [rail\_pa\_typepas]*

Millions of passenger-kilometres	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	1,112	1,109	3	1,104	1,102	2
Croatia	736	713	23	747	726	21
Italy	52,778	52,124	653	55,037	54,385	652
Slovenia	570	525	45	568	524	45
North Macedonia	59	59	0	63	63	0

Thousand passengers	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	15,359	15,337	22	16,795	16,778	17
Croatia	19,803	19,513	290	20,244	19,942	301
Italy	848,757	846,081	2,676	866,588	863,992	2,596
Slovenia	13,002	12,592	410	13,105	12,677	428
North Macedonia	500	495	5	540	534	6



## DATA COLLECTION: EUROSTAT RAIL DEMAND DATA 2/2

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Railway transport measurement - goods</b>				
Goods transported by type of transport (National, International Incoming, International Outgoing and transit)	Total, National, International, International Incoming, International Outgoing, Transit	tonnes , tonne*km	HR, GR, IT, ME, MK, SI	rail_go_typepas
Goods transported by group of goods	Group of goods (NST 2007)	tonnes , tonne*km	HR, GR, IT, MK, SI	rail_go_grpgood
International transport of goods between the reporting country and the loading/unloading country	Country of loading / unloading	tonnes , tonne*km	HR, GR, IT, MK, SI	rail_go_intcmgn, rail_go_intgong
National and international railway goods transport by loading/unloading NUTS 2 regio			HR, GR, IT, MK, SI	tran_r_rago
<b>Railway traffic</b>				
Traffic of trains on the rail network	Freight trains / Pax trains	trains/ section	HR, IT, MK, SI	rail_tf_ns15_**

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# DATA COLLECTION: EUROSTAT RAIL DEMAND DATA 2/2/EXAMPLE

## *Goods transported by type of transport [rail\_go\_typepas]*

Million tonne-kilometre	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	358	58	299	408	12	396
Croatia	2,509	934	894	2,555	893	1,014
Italy	22,064	10,272	11,792	21,797	10,299	11,498
Slovenia	4,447	629	2,947	4,390	616	3,041
Montenegro	169	95	62	113	39	68
North Macedonia	277	2	103	307	1	123

Thousand tonnes	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	1,328	170	1,156	1,358	34	1,325
Croatia	11,482	3,394	4,242	11,879	3,328	5,348
Italy	93,666	32,325	61,341	96,090	34,350	61,739
Slovenia	18,597	3,064	12,344	18,355	3,025	12,504
Montenegro	1,558	905	585	966	336	581
North Macedonia	1,558	14	851	1,679	9	935



# DATA COLLECTION: EUROSTAT ROAD DEMAND DATA 1/2

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Road transport equipment - stock of vehicles</b>				
Stock of vehicles by category and NUTS 2 regions	Total / Lorries / Road tractors / Trailers and semi-trailers / Motorcycles / Passenger cars / Motor coaches, buses and trolley buses / Special vehicles	vehicles	HR, GR, IT, SI	tran_r_vehst
<b>Road freight transport measurement</b>				
<b>Total road freight transport</b>				
Summary of annual road freight transport by type of operation and type of transport	Total, Loaded Total, Loaded National, Loaded International, International loaded in reporting country	tonnes, tonne*km, veh*km	HR, GR, IT, SI	road_go_tatott
Annual road freight transport, by type of goods and type of transport	Group of goods (NST 2007)	tonnes, tonne*km	HR, GR, IT, SI	road_go_tatg
<b>National road freight transport</b>				
National annual road transport by group of goods and type of transport	Group of goods (NST 2007)	tonnes	HR, GR, IT, SI	road_go_nat7gtt

***TSG2 Members of those countries for which EUROSTAT data are not available from EUROSTAT are kindly requested to provide this information from national sources or studies***



# DATA COLLECTION: EUROSTAT ROAD DEMAND DATA 1/2/EXAMPLE

*Summary of annual road freight transport by type of operation and type of transport [road\_go\_ta\_tott]*

Million tonne- kilometre	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	388,898	379,887		361,947	351,477	
Croatia	72,343	58,919	13,424	74,009	58,892	15,117
Italy	885,451	864,194	21,256	920,732	896,442	24,291
Slovenia	86,212	54,028	32,184	85,406	50,164	35,242

Thousand tonnes	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	15,359	15,337	:c	16,795	16,778	:c
Croatia	19,803	19,513	13,424	20,244	19,942	15,117
Italy	848,757	846,081	21,256	866,588	863,992	24,291
Slovenia	13,002	12,592	32,184	13,105	12,677	35,242



# DATA COLLECTION: EUROSTAT ROAD DEMAND DATA 2/2

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Road freight transport measurement</b>				
<b>International road freight transport</b>				
International annual road freight transport - goods loaded/unloaded in reporting country, by group of goods and type of transport	Group of goods (NST 2007), Country of loading / unloading	tonnes	HR, GR, IT, SI	road_go_ia_lggtt, road_go_ia_ugtt
Annual cross-trade road freight transport by link, group of goods and type of transport	Group of goods (NST 2007), Country of loading / unloading	tonnes	HR, GR, IT, SI	road_go_cta_gtt
Road cabotage by reporting country and country in which cabotage takes place	Country of transit	tonnes, tonne*km	HR, GR, IT, SI	road_go_ca_hac
<b>Road freight transport by NUTS3 area</b>				
National annual road freight transport by regions of loading (NUTS 3) and by group of goods	Group of goods (NST 2007)	tonnes	HR, GR, IT, SI	road_go_na_rl3g
National annual road freight transport by regions of unloading (NUTS 3) and by group of goods	Group of goods (NST 2007)	tonnes	HR, GR, IT, SI	road_go_na_ru3g
Annual road freight transport by region of loading	Country of loading / unloading	tonnes, tonne*km, journeys	HR, GR, IT, SI	road_go_ta_rl
Annual road freight transport by region of unloading	Country of loading / unloading	tonnes, tonne*km, journeys	HR, GR, IT, SI	road_go_ta_ru

***TSG2 Members of those countries for which EUROSTAT data are not available from EUROSTAT are kindly requested to provide this information from national sources or studies***



# DATA COLLECTION: EUROSTAT ROAD DEMAND DATA 2/2/EXAMPLE

**International annual road freight transport - goods loaded in reporting country, by group of goods and type of transport [road\_go\_ia\_lgtt]  
Goods unloaded in European Union 27 countries (from 2020)**

Thousand tonnes	2017				2018			
	Total transported goods	GT01 - Products of agriculture, hunting, and forestry; fish and other fishing products	GT02 - Coal and lignite; crude petroleum and natural gas	....	Total transported goods	GT01 - Products of agriculture, hunting, and forestry; fish and other fishing products	GT02 - Coal and lignite; crude petroleum and natural gas	....
Greece	4,423	1,632	0	....	5,233	1,747	0	....
Croatia	4,568	468	98	....	5,364	551	7	....
Italy	7,336	800	28	....	8,192	1,107	79	....
Slovenia	10,565	2,726	15	....	12,102	2,425	15	....



# DATA COLLECTION: EUROSTAT MARITIME DEMAND DATA

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Maritime transport - main annual results</b>				
Country level - gross weight of goods handled in all ports		tonnes	HR, GR, IT, SI, ME	mar_mg_aa_cwh
Country level - passengers embarked and disembarked in all ports		pax	HR, GR, IT, SI, ME	mar_mp_aa_cph
Maritime transport of passengers by NUTS 2 regions	Passengers (embarked, disembarked, total)	pax	HR, GR, IT, SI	tran_r_mapa_nm
<b>Maritime transport - passengers - detailed annual and quarterly results</b>				
Passengers transported to/from main ports by country	Total, inwards, outwards flow / partner	pax (excl. cruises)	HR, GR, IT	mar_pa_qm_**
<b>Maritime transport - goods - detailed annual and quarterly results</b>				
Gross weight of goods transported to/from main ports by country	Total, inwards, outwards flow / partner / type of cargo	tonnes	HR, GR, IT, ME, SI	mar_go_qm_**
Maritime transport of freight by NUTS 2 regions	Freight (loaded, unloaded, total)	tonnes	HR, GR, IT, SI	tran_r_mago_nm

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# DATA COLLECTION: EUROSTAT MARITIME DEMAND DATA EXAMPLE

*Country level - gross weight of goods handled in all ports [mar\_mg\_aa\_cwh]*

	2017	2018
Thousand tonnes	<i>Total transport</i>	<i>Total transport</i>
Greece	181,261	190,523
Croatia	20,798	21,573
Italy	475,164	501,958
Slovenia	22,311	23,127
Montenegro	2,096	1,956

*Country level - passengers embarked and disembarked in all ports [mar\_mp\_aa\_cph]*

	2017	2018
Thousand passengers	<i>Total transport</i>	<i>Total transport</i>
Greece	70,023	72,520
Croatia	31,327	32,658
Italy	73,876	85,382
Slovenia	31	24
Montenegro	1,377	1,383



# DATA COLLECTION: EUROSTAT IWW DEMAND DATA

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Inland waterways transport measurement - goods</b>				
Transport by type of good (from 2007 onwards with NST2007)	Total, National, International, International Incoming, International Outgoing, Transit, Group of goods (NST 2007)	tonnes, tonne*km	HR, IT	iww_go_atygo

***TSG2 Members of those countries for which EUROSTAT data are not available from EUROSTAT are kindly requested to provide this information from national sources or studies***



# DATA COLLECTION: EUROSTAT IWW DEMAND DATA EXAMPLE

*Country level - gross weight of goods handled in all ports [iww\_go\_atygo]  
Total transported goods (NST 2007, 20 groups)*

Million tonne- kilometre	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Croatia	813	13	21	678	16	28
Italy	61	61		74	74	

Thousand tonnes	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Croatia	6,221	58	517	5,182	72	519
Italy	434	434		355	355	



# DATA COLLECTION: EUROSTAT AIR TRANSPORT DEMAND DATA 1/2

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Air transport measurement - passengers</b>				
<b>National air passenger transport by country and airports</b>				
National air passenger transport by reporting country	Passengers on board, passengers carried, Commercial passenger air flights	Passenger, flight	HR, GR, IT	avia_panc
National air passenger transport by main airports in each reporting country	Passengers on board (total/arrival/departure), passengers carried (total/arrival/departure), Commercial passenger air flights (total/arrival)	Passenger, flight	HR, GR, IT, ME, SI	avia_pana
<b>International intra-EU air passenger transport by country and airports</b>				
International intra-EU air passenger transport by main airports in each reporting country and EU partner country	Passengers on board (total/arrival/departure), passengers carried (total/arrival/departure), Commercial passenger air flights (total/arrival)	Passenger, flight	HR, GR, IT, ME, SI	avia_painac

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# DATA COLLECTION: EUROSTAT AIR TRANSPORT DEMAND DATA

## 1/2/EXAMPLE

### *National air passenger transport by reporting country [avia\_panc]*

Passenger	2017		2018	
	<i>Passengers carried</i>	<i>Passengers on board</i>	<i>Passengers carried</i>	<i>Passengers on board</i>
Greece	8,334,939	8,332,976	8,553,566	8,549,772
Croatia	526,609	569,273	528,486	573,815
Italy	31,120,613	31,215,024	32,182,610	32,304,585

Commercial Passenger Air Flights	2017	2018
	<i>Flights</i>	<i>Flights</i>
Greece	100,771	105,458
Croatia	8,817	8,979
Italy	249,235	253,099



# DATA COLLECTION: EUROSTAT AIR TRANSPORT DEMAND DATA 2/2

MEASURE	BREAKDOWN	UNIT OF MEASURE	AVAILABILITY	EUROSTAT TABLES
<b>Air transport measurement - passengers</b>				
<b>Detailed air passenger transport by reporting country and routes</b>				
Air passenger transport between the main airports of COUNTRY and their main partner airports (routes data)	Passengers on board (total/arrival/departure), passengers carried (total/arrival/departure), passengers seats available (total/arrival/departure), commercial passenger air flights (total/arrival/departure)	Passengers, flights, seats and berths	HR, GR, IT, ME, MK, SI	avia_par_**
Air transport of passengers by NUTS 2 regions	Passengers carried (arrivals, departures, total)	Passengers	HR, GR, IT, SI	tran_r_avpa_nm
<b>Air transport measurement - freight and mail</b>				
Freight and mail air transport by reporting country	Total, national, international / Freight and mail on board (total, arrivals, departures, loaded, unloaded) / Freight and mail commercial air flights (total, arrivals, departures)	Tonnes, flights	HR, GR, IT, ME, SI, MK	avia_gooc
Air transport of freight by NUTS 2 regions	Freight and mail (loaded, unloaded, total)	Tonnes	HR, GR, IT, SI	tran_r_avgo_nm

***TSG2 Members of those countries for which EUROSTAT data are not available from EUROSTAT are kindly requested to provide this information from national sources or studies***



# DATA COLLECTION: EUROSTAT AIR TRANSPORT DEMAND DATA

## 2/2/EXAMPLE

*Freight and mail air transport by reporting country [avia\_gooc]  
Freight and mail on board*

Tonne	2017			2018		
	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>	<i>Total transport</i>	<i>National transport</i>	<i>International transport</i>
Greece	69,012	3,443	65,569	96,868	6,573	90,295
Croatia	9,457	484	8,973	11,907	404	11,503
Italy	1,076,385	49,738	1,026,647	1,062,598	50,499	1,012,099
Slovenia	12,057	0	12,057	12,343	0	12,343
Montenegro	869	0	869	915	0	915
North Macedonia	2,820	0	2,820	3,298	0	3,298



# DATA COLLECTION: ROAD TRAFFIC COUNTING DATA 1/2

## Road traffic volumes per road section (vehicle per year) for the year 2017:

- Location (latitude, longitude and street name)
- Car traffic flow: Average Annual Daily Traffic (AADT) of cars per section – i.e. the number of cars per year travelling on a section on both directions divided by 365
- Freight traffic flow: AADT of trucks per section – i.e. the number of light and heavy trucks per year travelling on a section on both directions divided by 365
- **TSG2 Members are kindly requested to provide the above information either directly or by indicating the relevant source/contact**

## Additional information on road traffic (if available):

- Average car occupancy (pax/car including the driver) and average cargo weight (tons / truck) on the national network





# DATA COLLECTION: ROAD TRAFFIC COUNTING DATA EXAMPLE

## Main sources for Italy:

- AADT on national road network (source: ANAS, database PANAMA)
- AADT on motorway concessions (source: MIT)
- AADT on regional roads (source: regional traffic monitoring centres)



Location of traffic counting	Number of monitored days per year	Annual Average Daily Traffic (light vehicles)	Annual Average Daily Traffic (heavy vehicles)
A1, Km 9.630, Carlentini (SR)	344	28.609	2.137
A19, Km 10.900, Altavilla Milicia(PA)	345	31.910	2.004
A19, Km 112.500, Enna(EN)	247	6.003	1.319



# DATA COLLECTION: SHORT SEA SHIPPING

## Main Short Sea Shipping routes between ports in the study area

- Origin and destination port
- Frequency (number of weekly services)
- Key information about each route: type of transport (passengers/freight/mix), type (Pax, RoPax, Container, General Cargo) and size of ships (DWT, length, capacity for passengers)

## Main Routes crossing the Adriatic Sea

### Weekly frequency

Brindisi-Igoumenitsa	14
Bari-Durazzo	7
Bari-Igoumenitsa-Patraso	7
Brindisi - Valona	6
Ancona-Igoumenitsa-Patraso	6
Patraso-Ancona	6
Igoumenitsa-Ancona	6
Ancona-Igoumenitsa-Patraso	4
Ancona-Igoumenitsa-Patraso	4
Ancona-Spalato	4
Trieste-Pendik	4
Ancona-Durazzo	3



# Status of implementation of the EUSAIR Multimodal Transport Model

**Next steps**



## NEXT STEPS

Task	Deadline	Responsibility
<b>Socioeconomic data and networks</b>		
Finalise network model	September 2020	Consultant
Presentation of the final network model at coming events of the TSG2 Transport Subgroup	Autumn 2020	Consultant
<b>Demand data</b>		
Provide input on traffic data collection (bilateral email between TSG2 Members and Consultant)	Mid-July 2020	TSG2 Members
Discussion about any outstanding issue on traffic data collection at coming events of the TSG2 Transport Subgroup	Autumn 2020	All
Finalise demand model and base year model scenario	February 2021	Consultant
Presentation of the base year model at coming events of the TSG2 Transport Subgroup	Spring 2021	Consultant



## NEXT STEPS

### Summary of key information to be provided by mid-July 2020 at the latest:






- Provide EUROSTAT equivalent data (if available) for those countries for which EUROSTAT data are not available
- Provide road traffic data collected by any permanent system of traffic counting/data collection in place and/or details of the source
- Indicate any (international) project dedicated to the collection/production of demand and traffic data that can be used for the EMTM and/or provide directly relevant data to the consultant
- If a transport model was developed in your country and surveys were developed to calibrate it, provide survey data to the Consultants, if available and possible
- Exchanges between the Consultant and the TSG2 Members will occur bilaterally via e-mail. The Consultant is also available to organise web based bilateral meetings to facilitate the data collection and transferring process



***Presentation prepared by Tplan Consulting S.r.l.  
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# **BACK UP SLIDES**

## **Network Model and Parameters**



# ELABORATION OF THE NETWORK

## Rail network

- Elaborated on the basis of the European network developed as part of the ETISplus European Project and TENtec
- Updated on the basis of OpenRailwayMap encoded information and data from the network statements of the national Infrastructure Managers

## Road network

- Elaborated on the basis of the European network developed as part of the ETISplus European Project and TENtec
- Updated on the basis of information available in documents published by European motorway concessionaires

## IWW network

- Elaborated on the basis of the TENtec system





# CLASSIFICATION OF THE LINKS

## Road and/or rail links

### ***Primary links***

- Links of highest importance for long-distance traffic across and beyond the borders of the Adriatic Ionian Region (generally corresponding to core network links and additional comprehensive links where appropriate)

### ***Secondary links***

- Links of highest importance for interconnecting the main regions (NUTS 2) within the Adriatic Ionian Region (generally corresponding to the comprehensive links not classified as primary roads)

### ***Tertiary links (i.e. regional roads and railways)***

- Other links not belonging to the primary and secondary networks, providing connectivity between the EMTM TAZs (NUTS 3)

## Inland waterway links

***Single classification corresponding to the core network***



# ROAD AND IWW PARAMETERS

## Road parameters

### ***Number of traffic lanes***

- Classifies the road network according to the number of traffic lanes per direction

### ***Tolled/toll free***

- Classifies the road network according to the application of tolls (direct /indirect) to users

## IWW parameters

### ***CEMT class***

- Classifies the IWW network according to the lowest categories of navigable inland waterways on the section (Class (length/beam) I to III, IV, V a, V b, VI a, VI b, VI c, VII). According to the definition in 1992: see also <http://www.itf-oecd.org/resolution-no-922-new-classification-inland-waterways>

### ***Maximum draught of vessel/convoy (cm)***

- Classifies the IWW network according to the maximum allowed vessel/convoy size in draught in centimetres at reference water level. A default value is provided based on the CEMT classification (CEMT class)

### ***Minimum bridge clearance (cm)***

- Classifies the IWW network according to the minimum height under bridges in centimetres on the section at reference high water level available for vessel/convoy to pass the section. A default value is provided based on the CEMT classification (CEMT class)



# RAIL PARAMETERS 1/3

## ***Number of tracks***

- Classifies the rail network according to the number of tracks

## ***Traction***

- Classifies the rail network according to the electrification (electrified / non-electrified)

## ***Voltage (Volt)***

- Classifies the rail network according to the voltage for electrified sections (25000 Volts, 50Hz AC / 15000 Volts, 16 2/3 Hz AC / 3000 Volts DC / 1500 Volts DC / Other)

## ***Track gauge (mm)***

- Classifies the rail network according to the track gauge in mm (1000, 1435, 1520, 1524, 1600, 1668)

## ***Structure gauge (EN 15273)***

- Classifies the rail network according to the structure gauge. 3 international gauges defined in EN 15273, UK gauges W9 and above defined in Railway Group Standard GE/RT8073. GA GAUGE: Total height 3.85 m above the rail and 1.28 m on either side of the track axis / GB GAUGE: Total height 4.08 m above the rail and 1.28 m on either side of the track axis / GC GAUGE: Total height 4.65 m above the rail and 1.45 m on either side of the track axis. W GAUGES (for UK only) to indicate W9 and above (see reference Railway Group Standard GE/RT8073). Other (to be noted according to the Standard EN 15273 Annex C and D)



## RAIL PARAMETERS 2/3

### ***Combined transport profile for swap bodies***

- Classifies the rail network according to the combined transport profile for swap bodies, as defined in UIC Code 596-6. The technical number is made up of the wagon compatibility code (1 letter) and the standard combined transport profile number (2 digits when width  $\leq$  2500 mm or 3 digits when,  $2500 < \text{width} \leq 2600$  mm). (C 22, C 32, C 38, C 45, C 50, C 55, C 60, C 65, C 70, C 80, C 90, C 341, C 349, C 351, C 357, C 364, C 380, C 385, C 390, C 395, C 400, C 405, C 410, C 420, Other)

### ***Combined transport profile for semi-trailers***

- Classifies the rail network according to the combined transport profile for semi-trailers, as defined in UIC Code 596-6. The technical number is made up of the wagon compatibility code (1 letter) and the standard combined transport profile number (2 digits when width  $\leq$  2500 mm or 3 digits when  $2500 < \text{width} \leq 2600$  mm). (P 32, P 38, P 45, P 50, P 55, P 60, P 65, P 70, P 80, P 90, P 341, P 349, P 351, P 357, P 380, P 385, P 390, P 395, P 400, P 405, P 410, P 420, Other)

### ***Maximum operating speed for passenger trains (km/h)***

- Classifies the rail network according to the highest operating speed allowed for passenger service taking into account technical characteristics of the infrastructure (No speed limit set,  $V < 80$ ,  $80 \leq V < 100$ ,  $100 \leq V < 120$ ,  $120 \leq V < 160$ ,  $160 \leq V < 200$ ,  $200 \leq V < 250$ ,  $250 \leq V < 300$ ,  $V \geq 300$ )



## RAIL PARAMETERS 3/3

### ***Maximum operating speed for freight trains (km/h)***

- Classifies the rail network according to the highest operating speed allowed for freight service taking into account technical characteristics of the infrastructure (No speed limit set,  $V < 80$ ,  $80 \leq V < 100$ ,  $100 \leq V < 120$ ,  $120 \leq V < 160$ )

### ***Maximum axle load (tonnes)***

- Classifies the rail network according to the maximum axle load ( $m < 16$  t,  $16$  t  $\leq m < 18$  t,  $18$  t  $\leq m < 20$  t,  $20$  t  $\leq m < 22,5$  t,  $22,5$  t  $\leq m < 25$  t,  $25$  t  $\leq m < 27,5$  t,  $27,5$  t  $\leq m < 30$  t,  $m \geq 30$  t)

### ***Maximum train length (m)***

- Classifies the rail network according to the maximum train length ( $L < 200$  m,  $200 \leq L < 400$  m,  $400 \leq L < 500$  m,  $500 \leq L < 600$  m,  $600 \leq L < 740$  m,  $740 \leq L < 1050$  m,  $1050 \leq L < 1500$  m,  $m \geq 1500$  m)

### **Sources for the analysis of the rail network and related parameters:**

- TENtec data 2015 for Italy, Slovenia, Croatia and Greece
- Network statement 2019 for Serbia and Montenegro
- Network statement 2017 for North Macedonia
- Network statement 2015 for Kosovo\*
- Network statement 2019 for Albania (no detailed parameters available)
- No sources for Bosnia and Herzegovina

\* Reference to Kosovo in this Presentation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence



## **BACK UP SLIDES**

**Updated Network Parameters Maps**

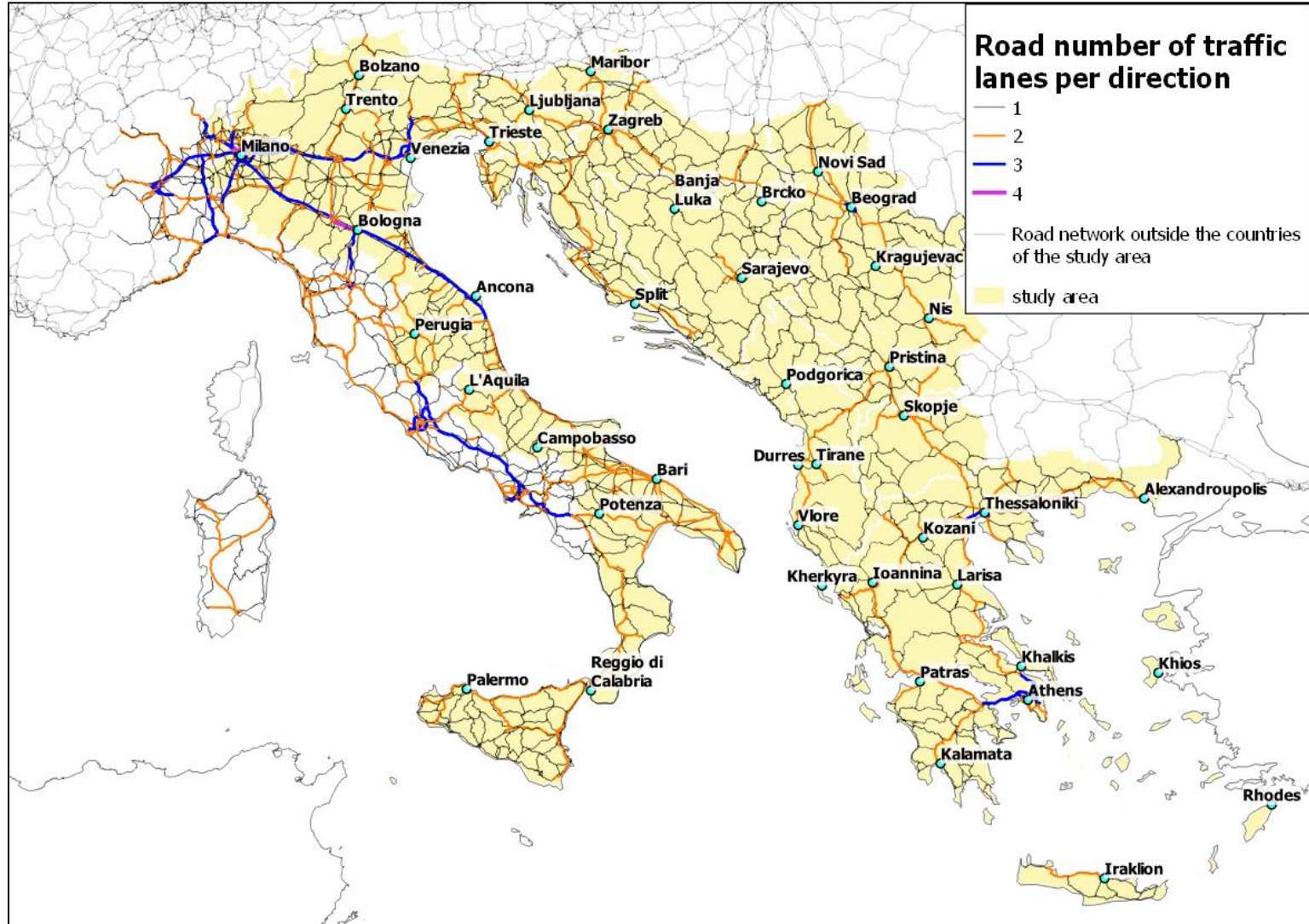


# UPDATED ROAD NETWORK: FUNCTIONAL CLASSIFICATION





# UPDATED ROAD NETWORK: TRAFFIC LANES

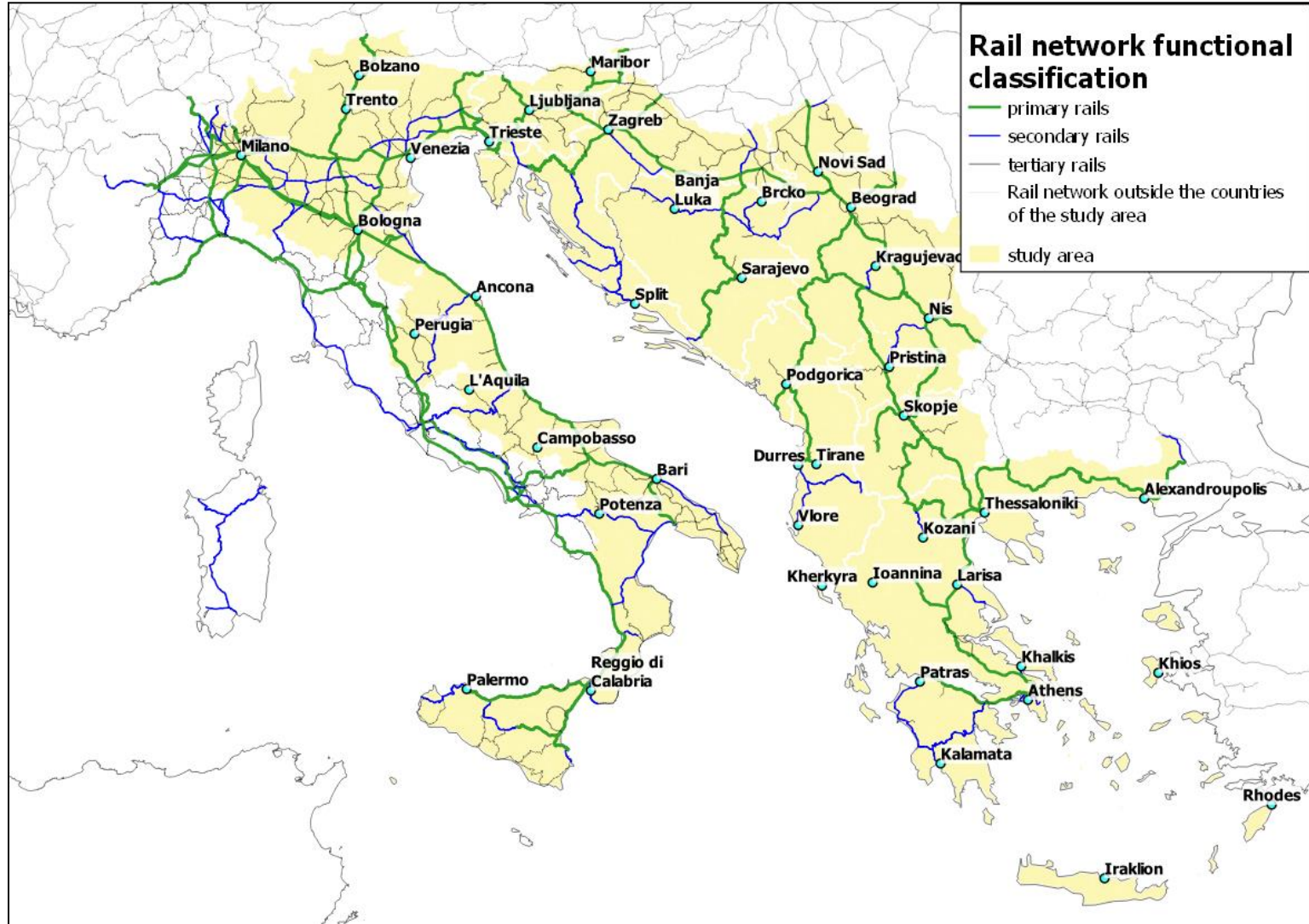




# UPDATED ROAD NETWORK: TOLL ROADS

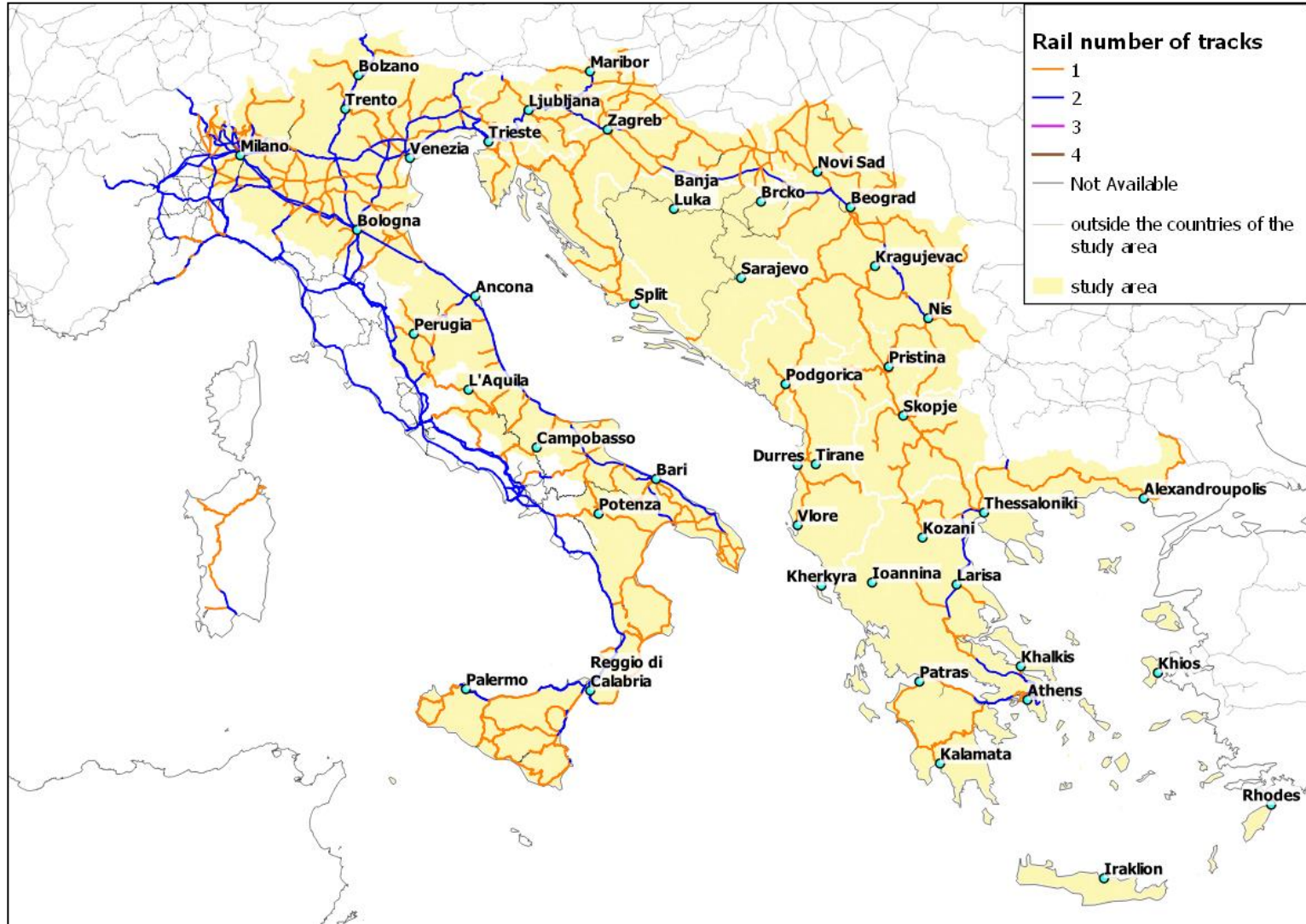


# UPDATED RAIL NETWORK: FUNCTIONAL CLASSIFICATION

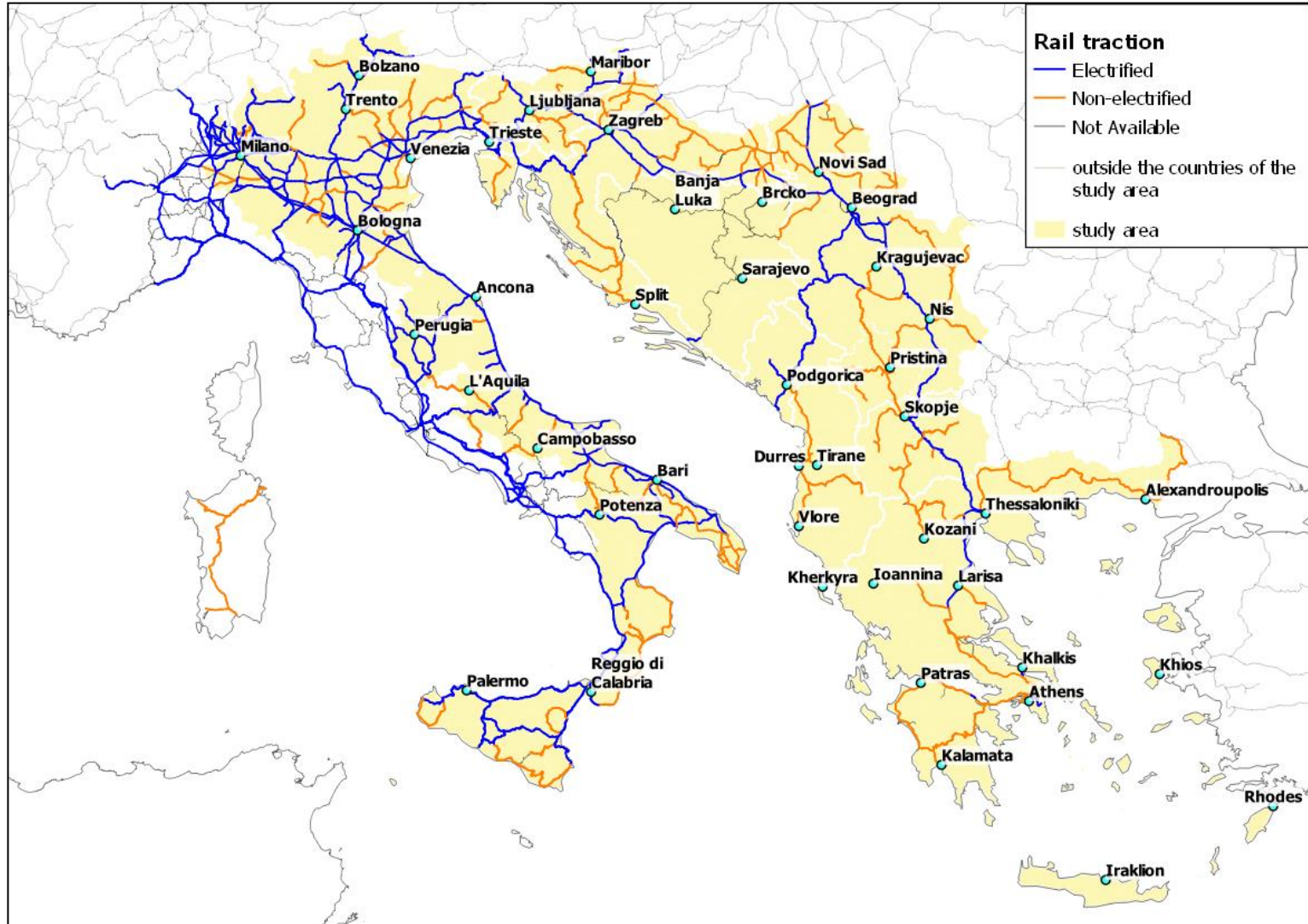




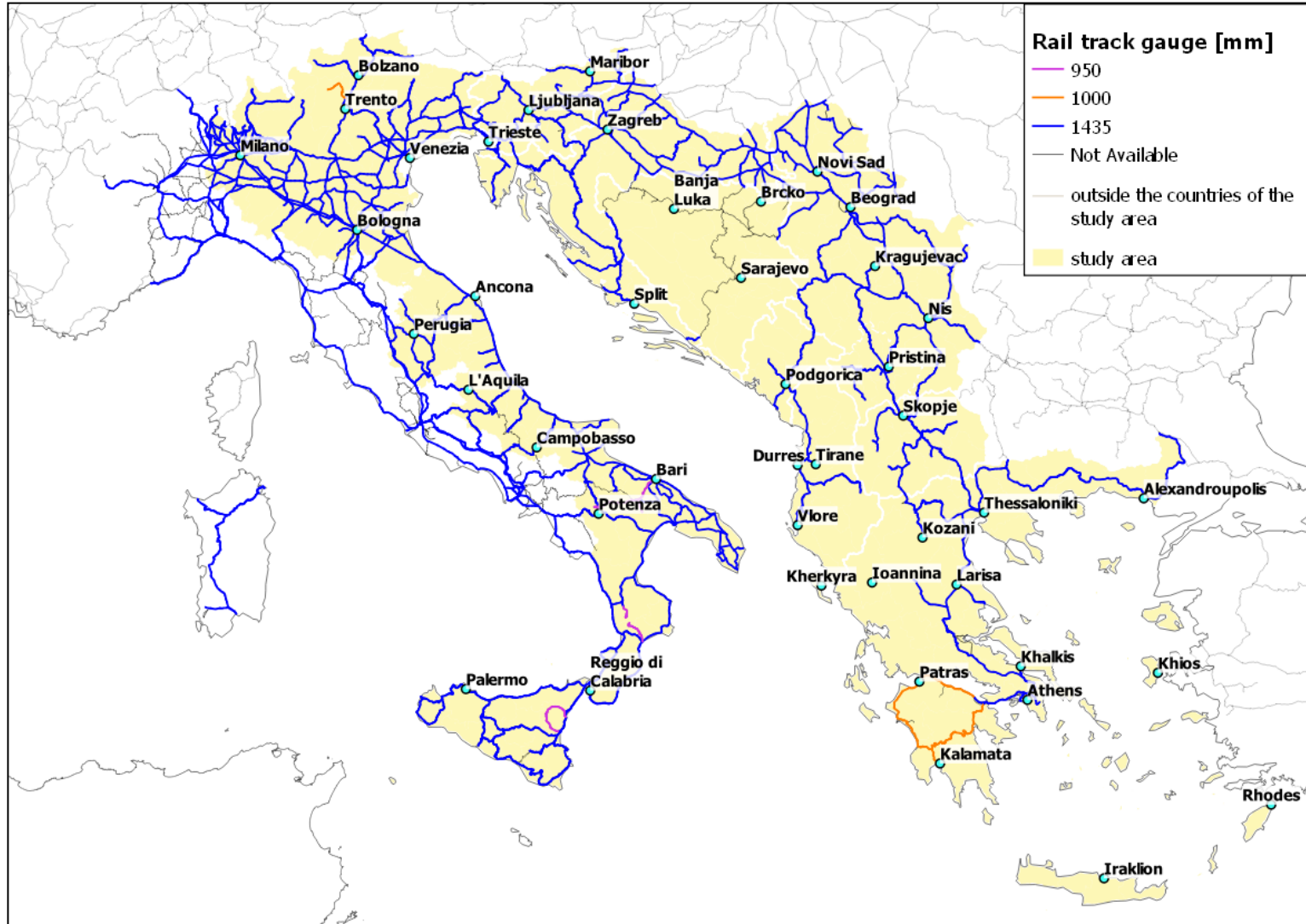
# UPDATED RAIL NETWORK: NUMBER OF TRACKS



# UPDATED RAIL NETWORK: TRACTION

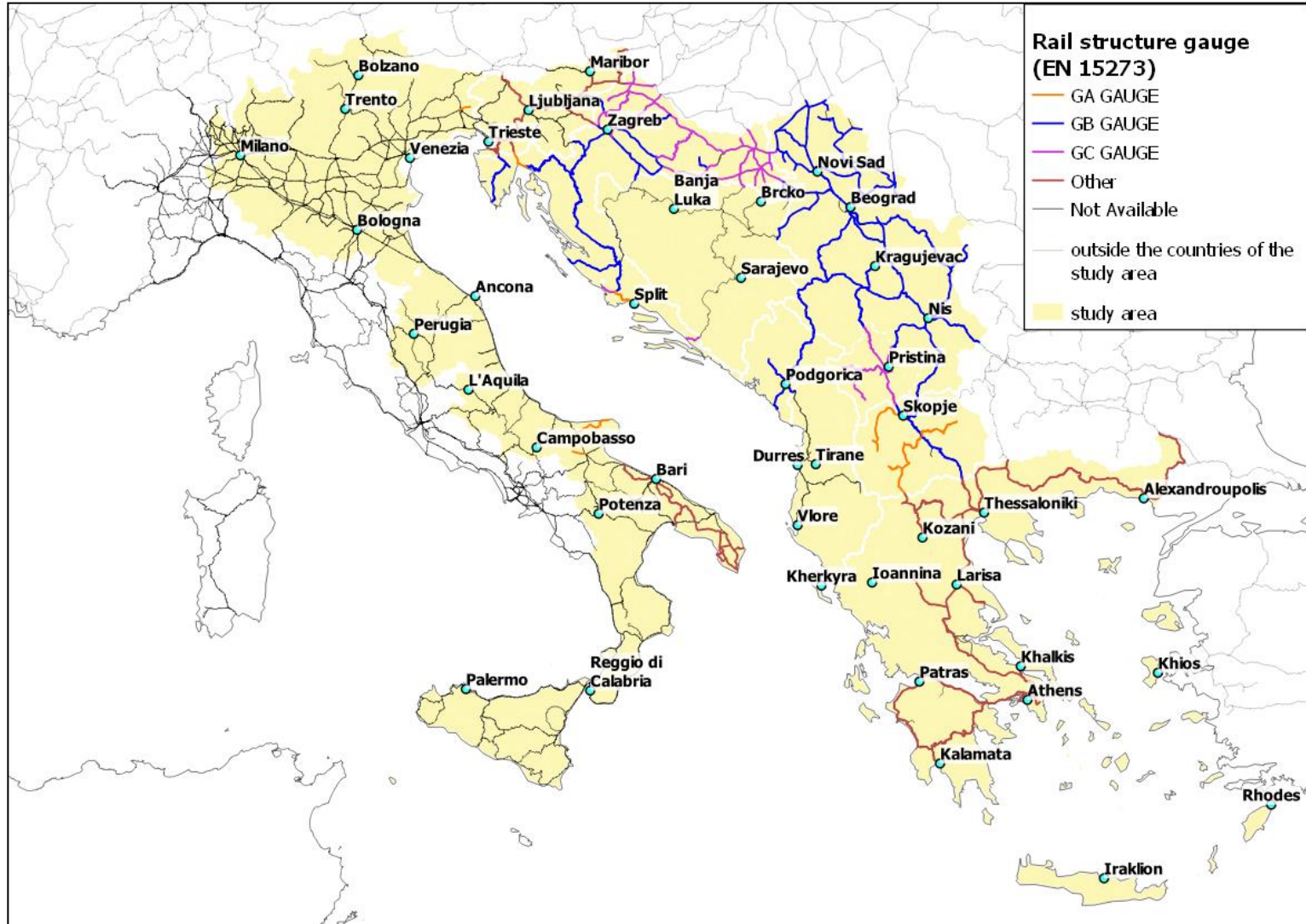


# UPDATED RAIL NETWORK: TRACK GAUGE

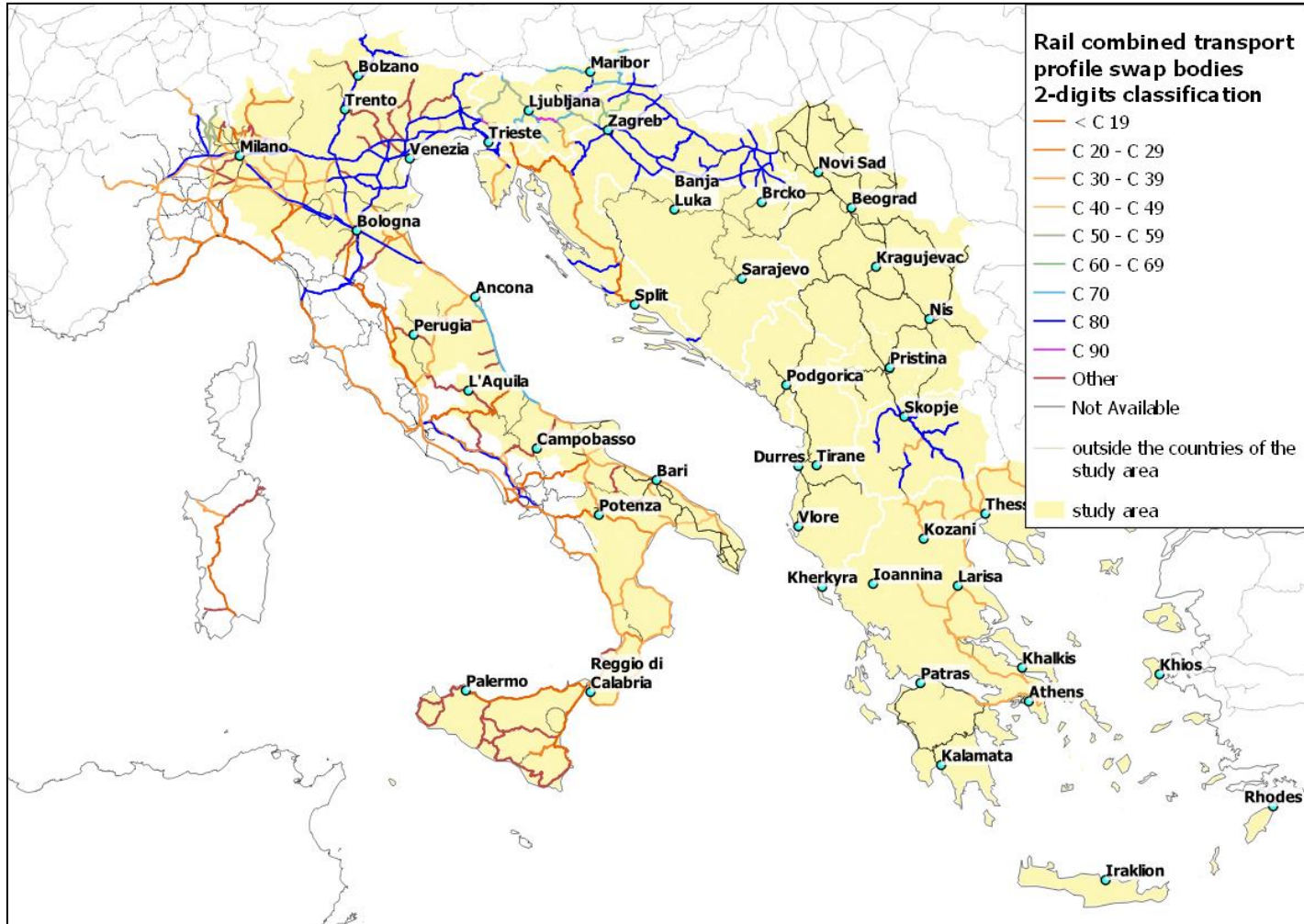




# UPDATED RAIL NETWORK: STRUCTURE GAUGE



# UPDATED RAIL NETWORK: COMBINED TRANSPORT PROFILE SWAP BODIES

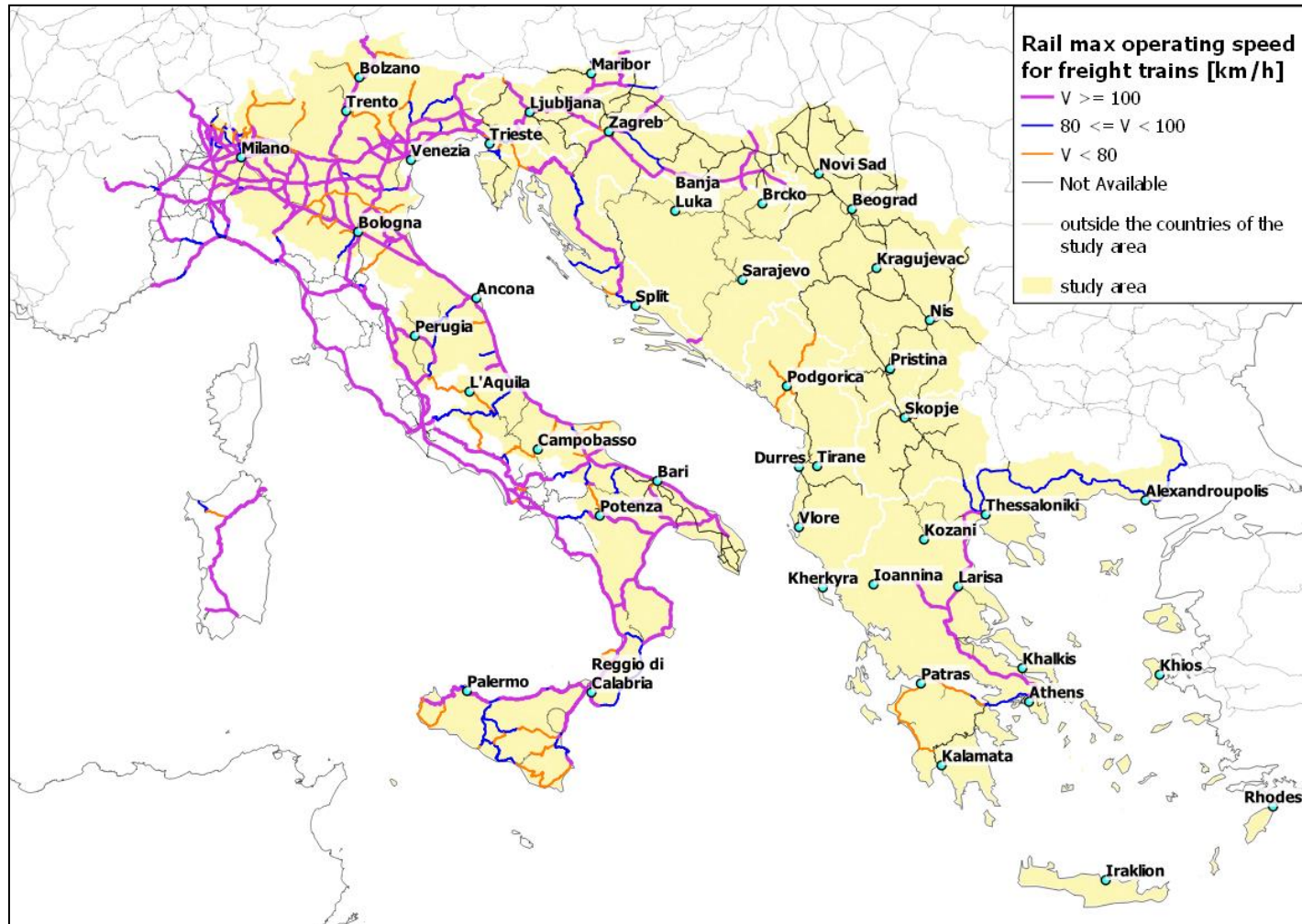


# UPDATED RAIL NETWORK: MAX OPERATING SPEED (PASSENGER TRAINS)

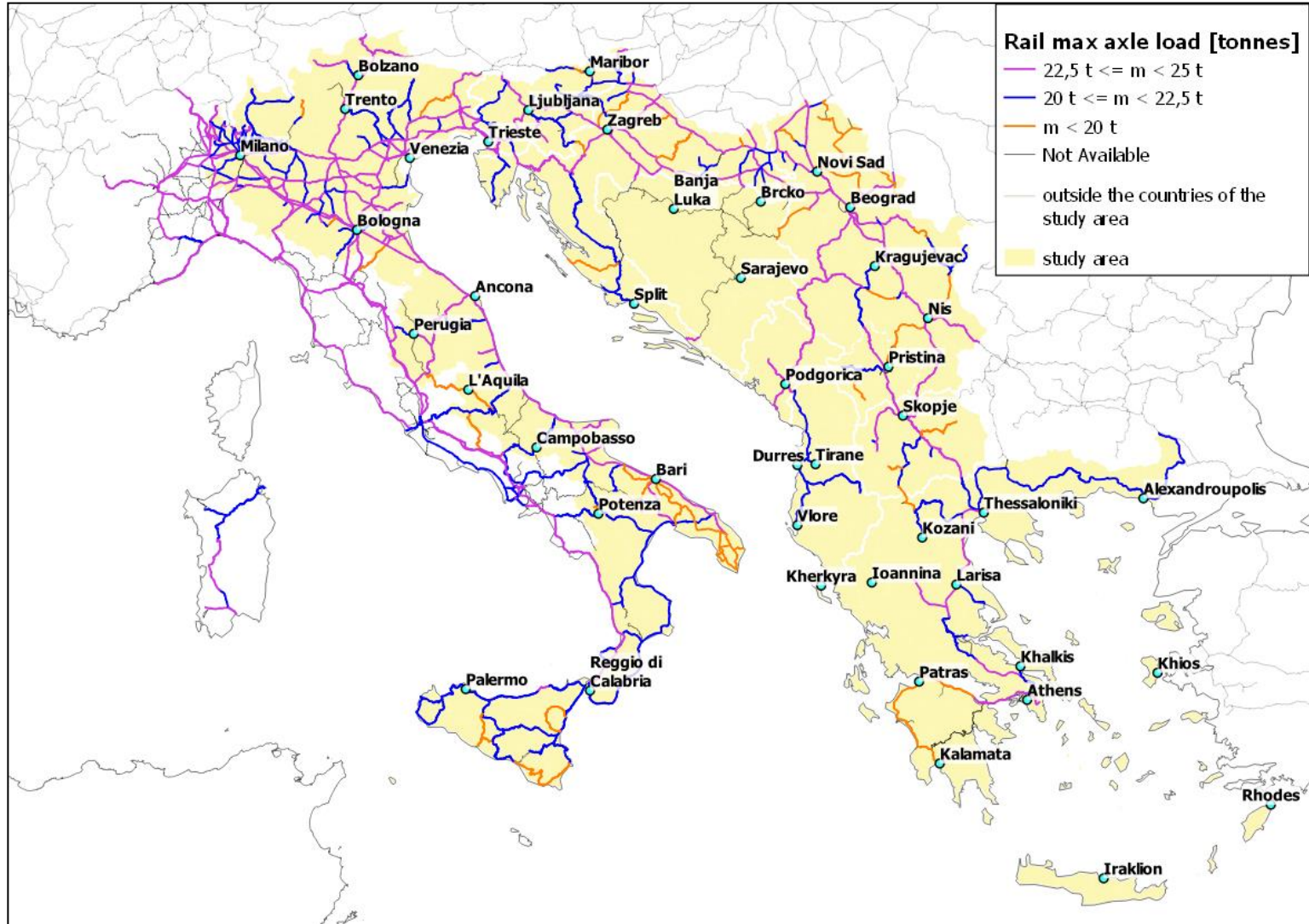




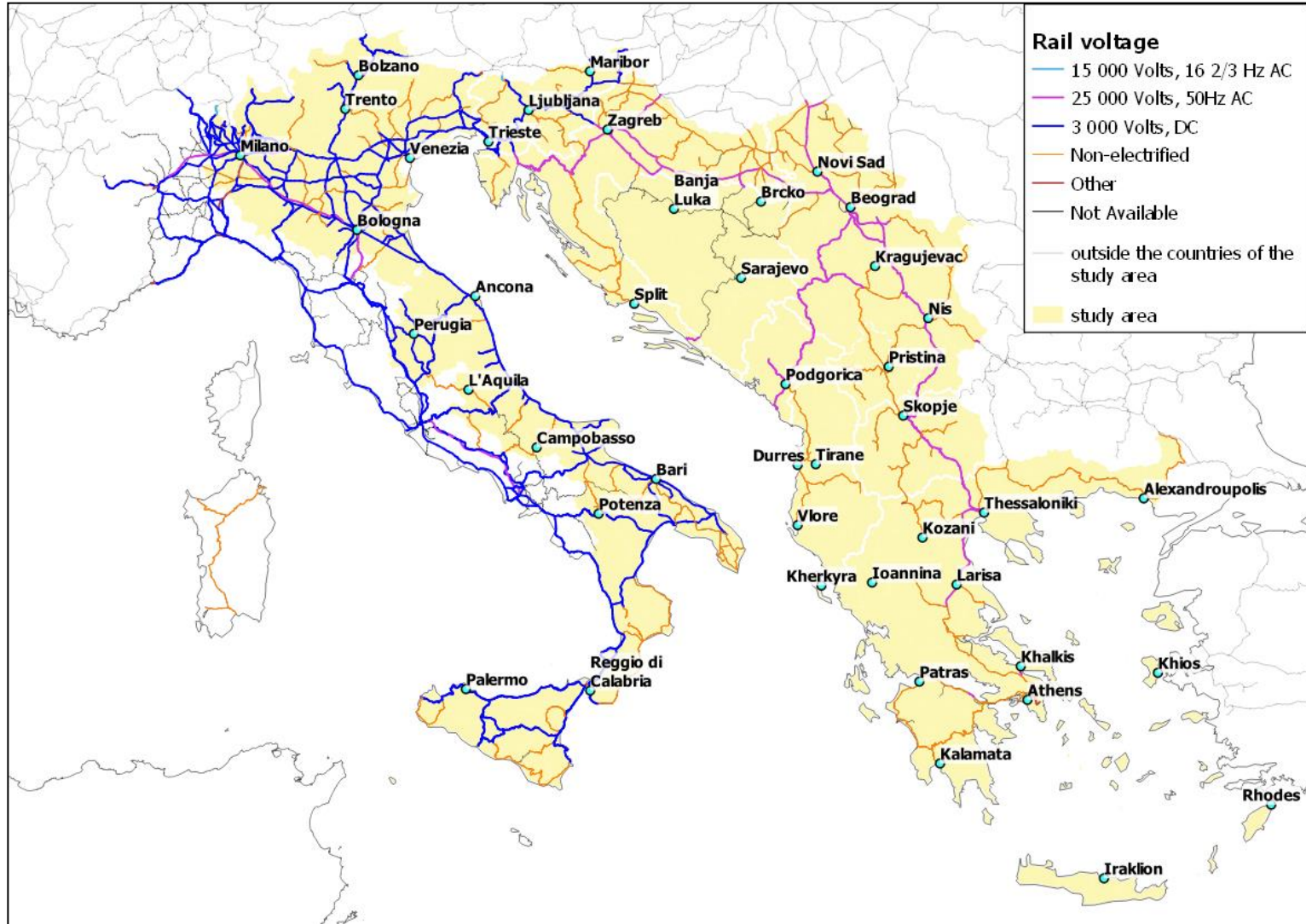
# UPDATED RAIL NETWORK: MAX OPERATING SPEED (FREIGHT TRAINS)



# UPDATED RAIL NETWORK: MAX AXLE LOAD

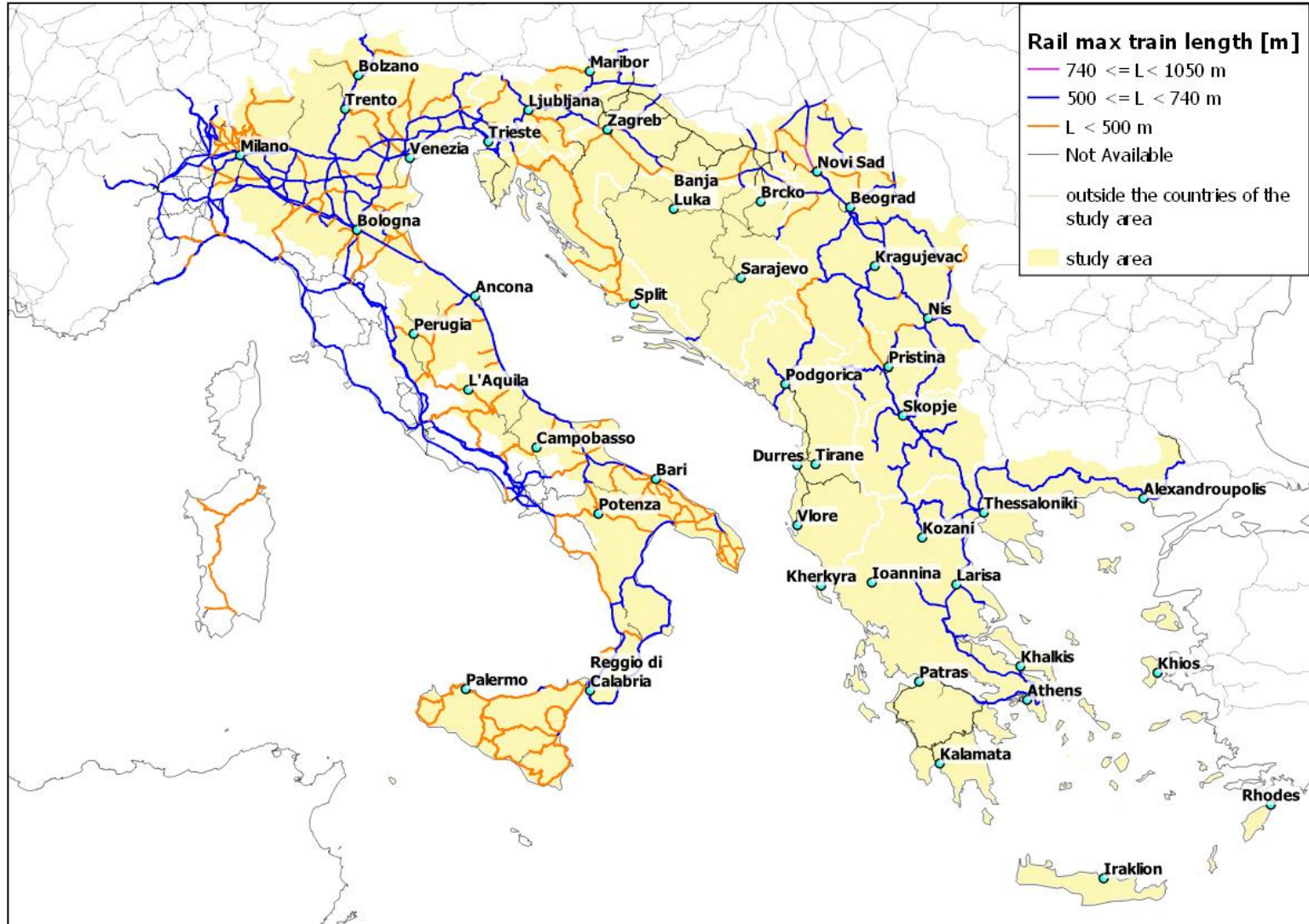


# UPDATED RAIL NETWORK: VOLTAGE

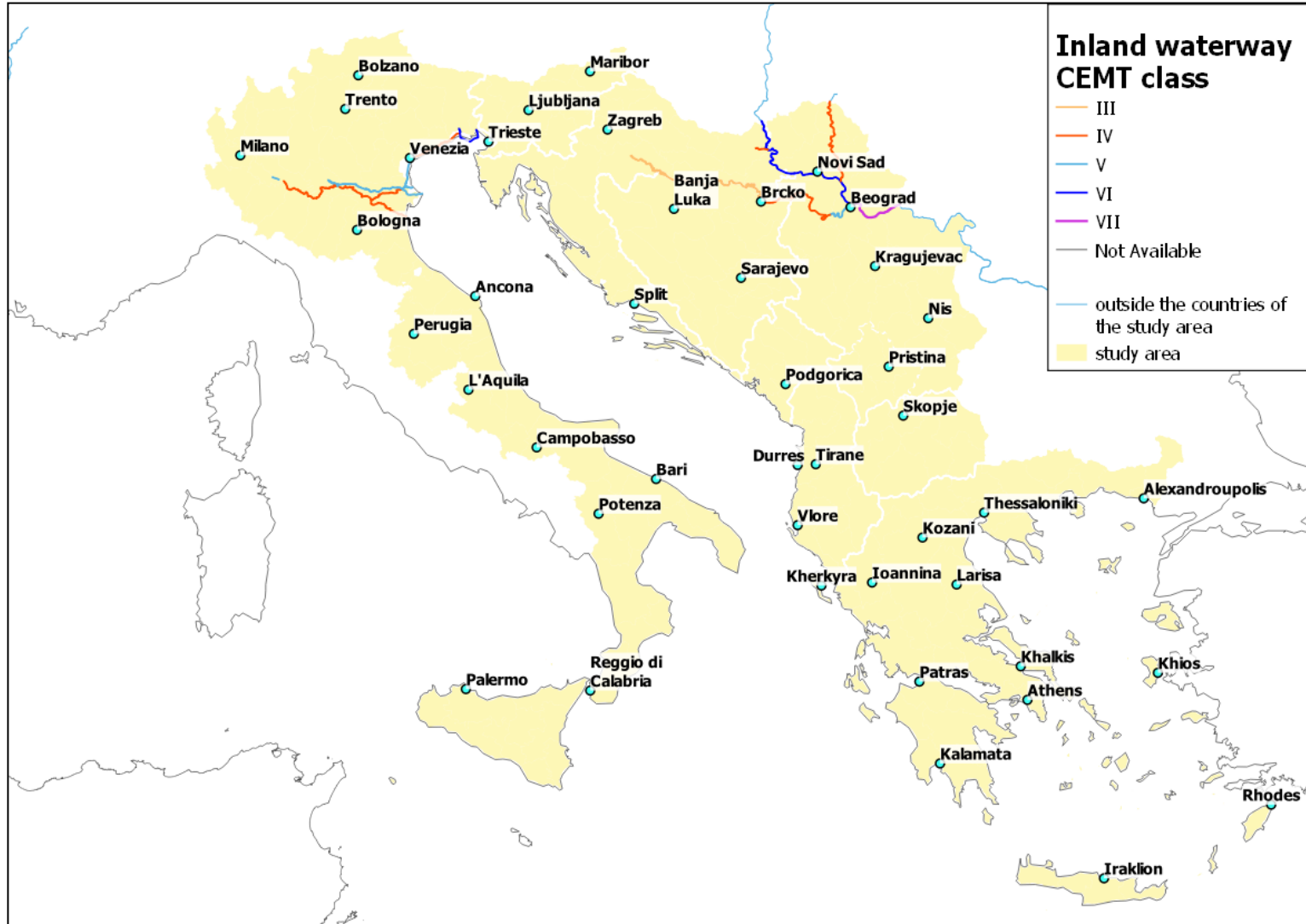




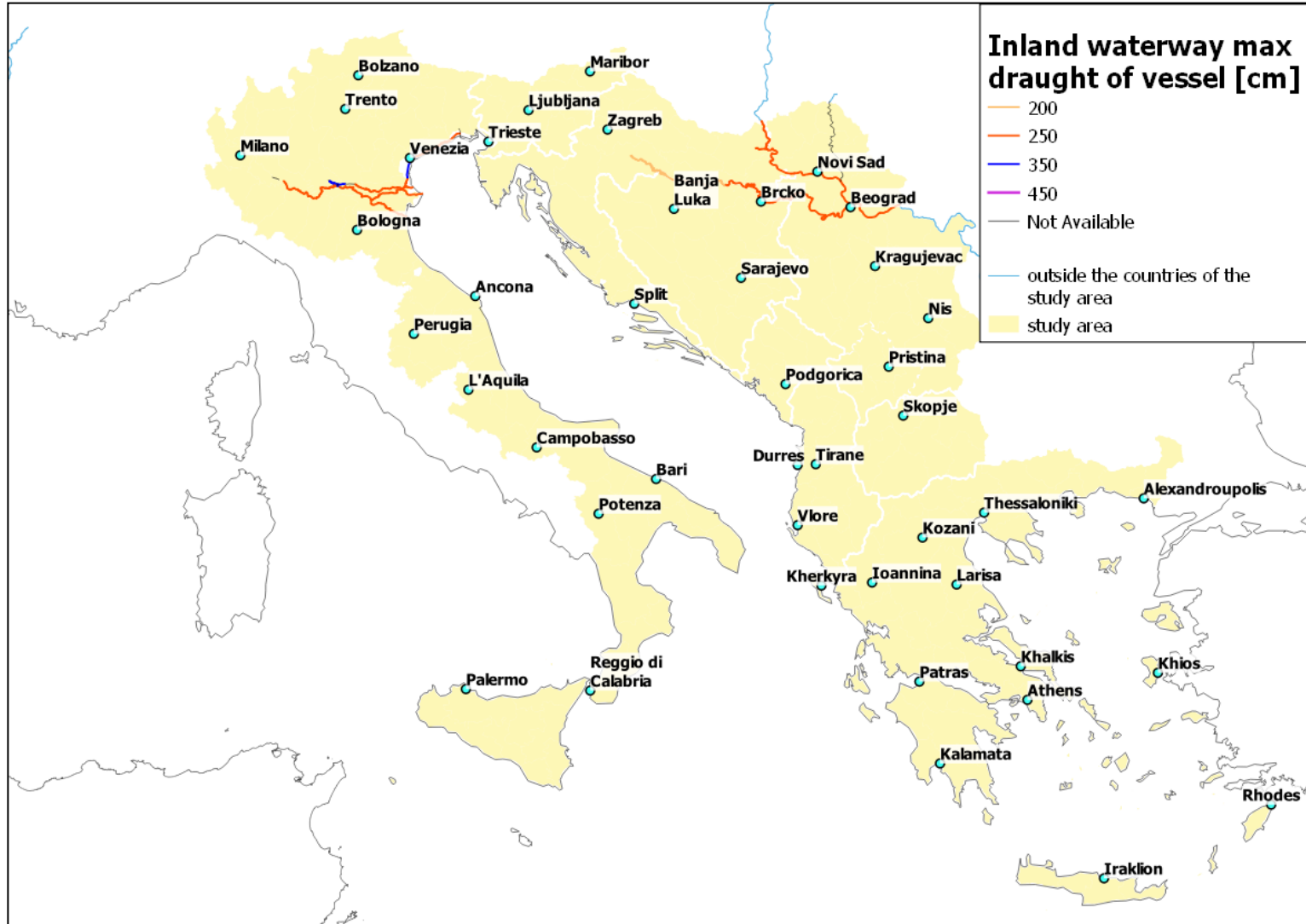
# UPDATED RAIL NETWORK: MAX TRAIN LENGTH



# UPDATED IWW NETWORK: CEMT CLASS



# UPDATED IWW NETWORK: MAX DRAUGHT OF VESSEL



# UPDATED IWW NETWORK: MIN BRIDGE CLEARANCE

