Issue Paper 2
Multimodal transport simulation models

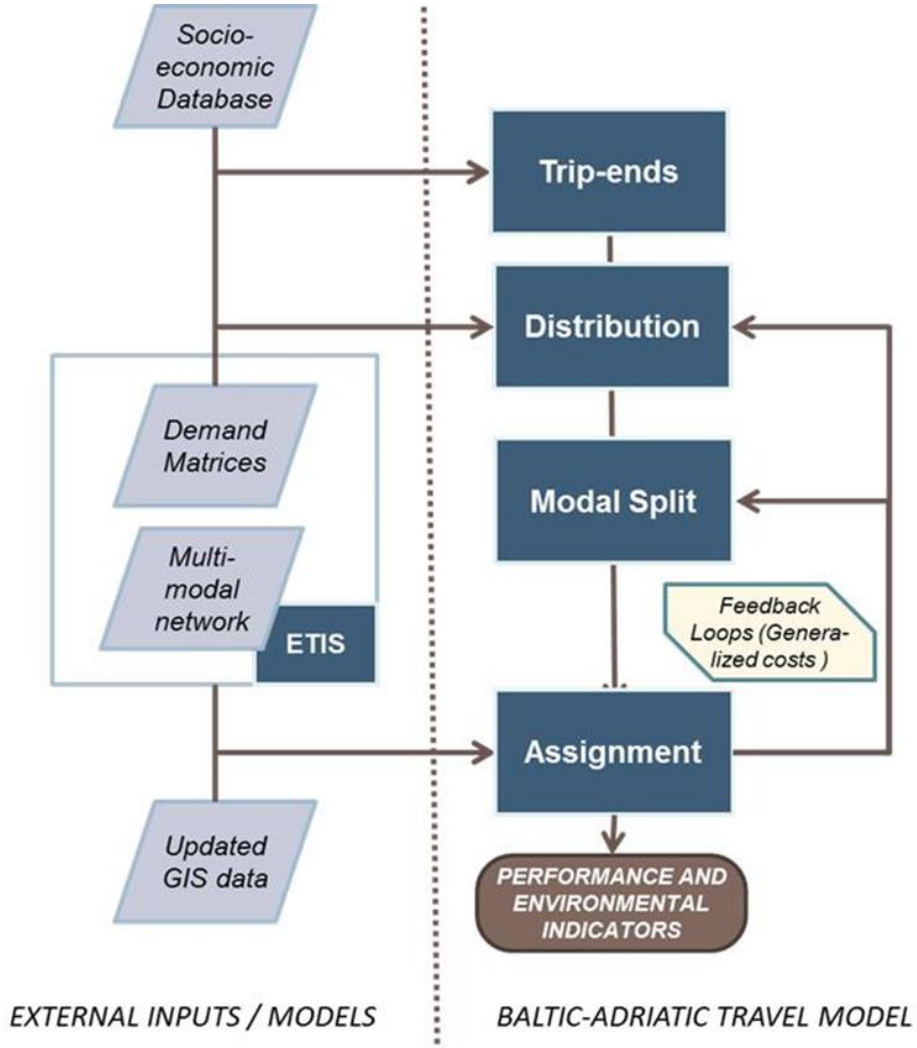
EXAMPLE OF THE BALTIC-ADRIATIC MULTIMODAL MODEL - BAMM

tplan

Scope and methodology of the BAMM

Our Transport Market Study (TMS) pursues a threefold propose of:

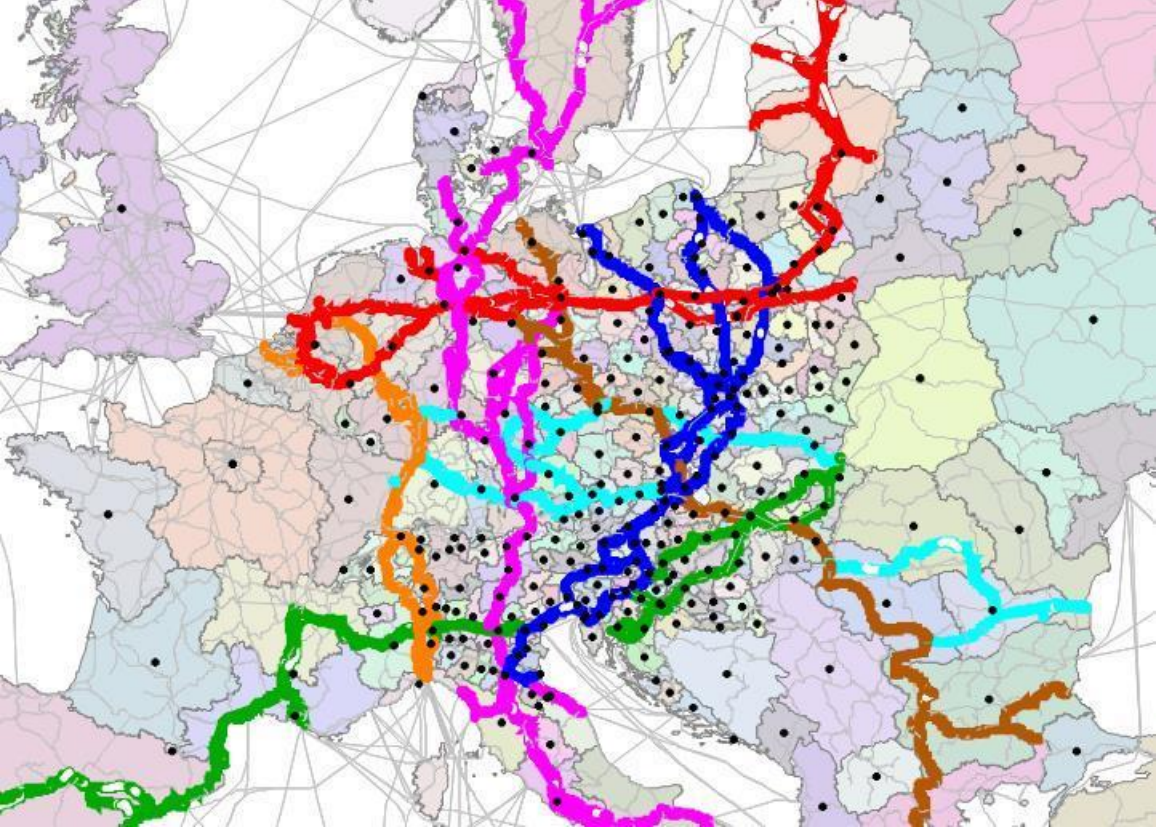
- Providing a comprehensive view on the current multimodal transport flows on the rail and road corridor infrastructure and at the main interconnecting nodes (maritime and inland ports, airports);
- Measuring the current performance of rail and road transport along the corridor and developing a prognosis of its evolution during the time horizon of the corridor work plan (2014-2030), also including the effects of the work plan investments;
- Supporting the definition of the critical issues on the BA Corridor, complementing the analysis of the compliance and quality of the infrastructure with a view on the possible issues related with the transport infrastructure capacity on the road and rail networks.



Model scenarios

Four main scenarios were developed for the prognosis of the rail and road performance, gradually introducing different assumptions on a step-by-step basis, thus allowing for the separate assessment of their effects:

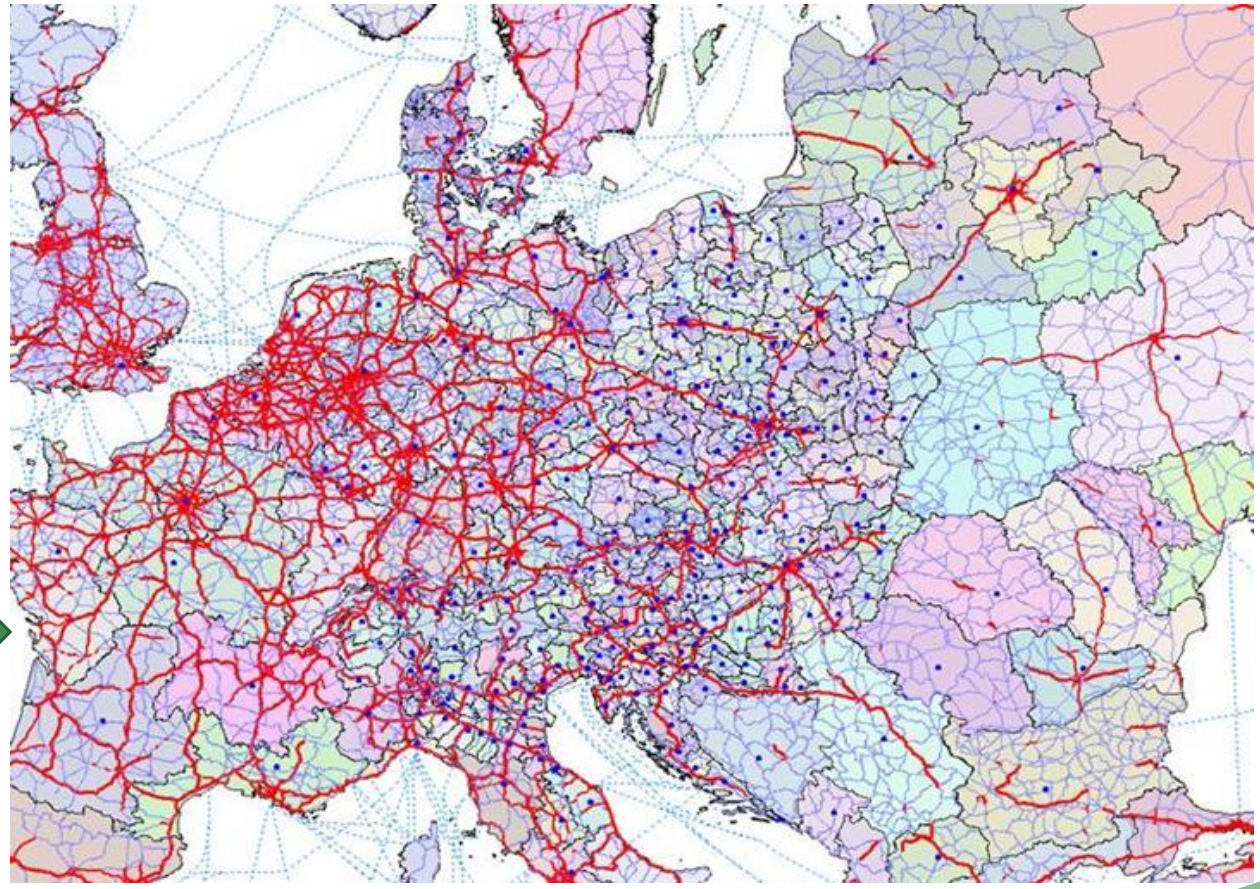
- **2014 (current scenario)** – describing the interaction of the current travel and transport demand and the current corridor infrastructure;
- **2030T (Do Nothing scenario at 2030)** – describing the interaction of the travel and transport demand at 2030 and the current corridor infrastructure (as in scenario 2014);
- **2030WP (Work Plan scenario at 2030)** – describing the interaction of the travel and transport demand at 2030 (as in scenario 2030T) and the corridor infrastructure improved based on the major rail and road investments included in the corridor work plan;
- **2030RP (Rail Policy scenario at 2030)** – describing the interaction of the travel and transport demand at 2030 and the corridor infrastructure improved based on the major rail and road investments included in the corridor work plan (as in scenario 2030WP), combined with policy and administrative measures aimed at reducing by 20% the generalized transport cost of the rail mode compared to the road transport (such as the internalization of the total transport costs, the promotion of more attractive rail services, the effect of the on-going liberalization process in railways and the IV railway package, the removal of administrative and operational barriers).



Rail network showing encoded CNC alignments

Country	Number of Zones
Poland	66
Czech Republic	14
Slovakia	8
Austria	35
Italy	42
Slovenia	12
External Zones	139
Total Zones	316

Road network



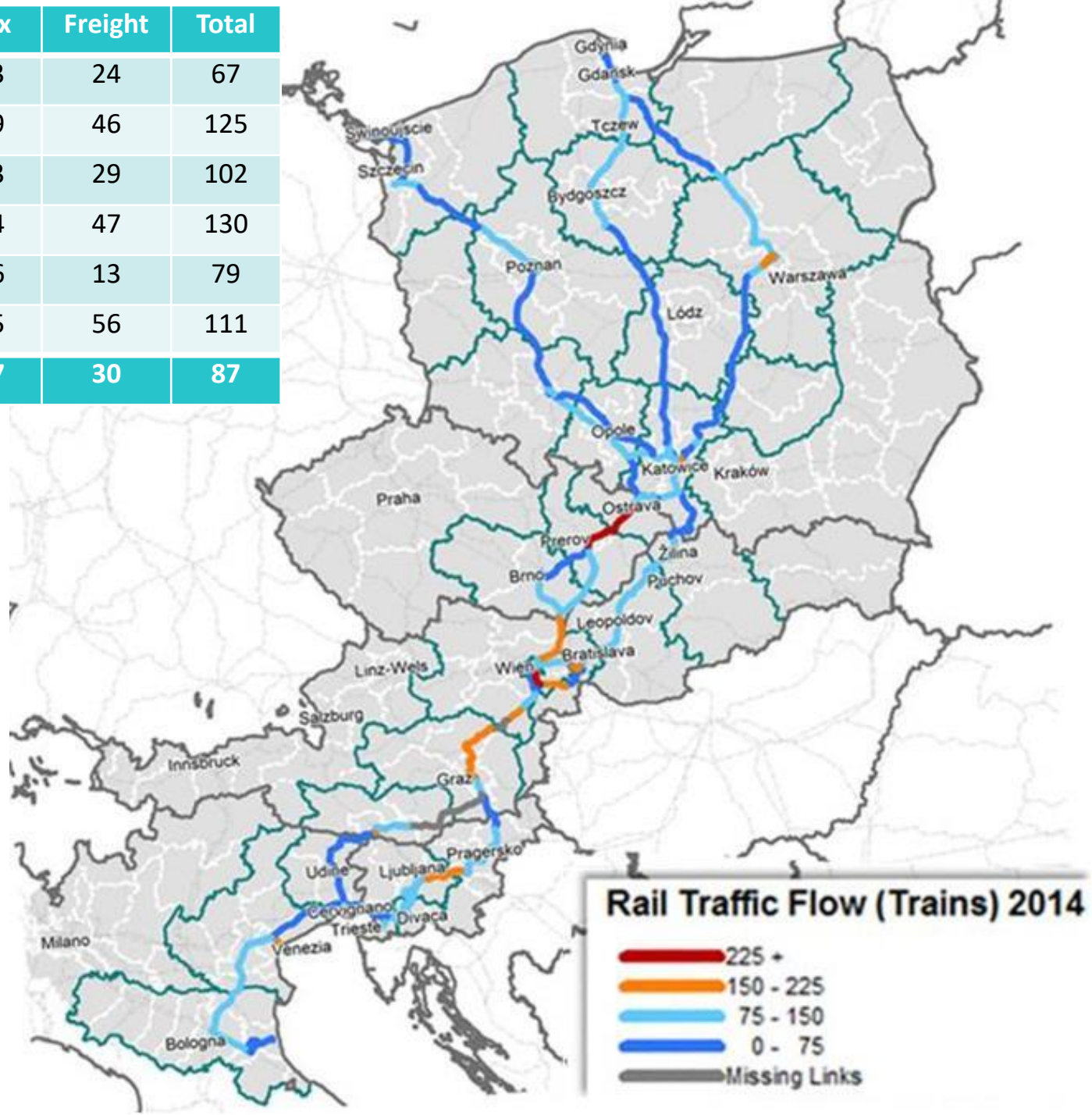
Zones, rail and road networks

Performance of the rail transport system

Train traffic flows on the BA Corridor (trains/day, 2014)

- The highest level of traffic is in the central section between Graz and Ostrava, with traffic volumes peaking in the urban area of the Wien node and between the Prerov junction and Ostrava

Country Section	Pax	Freight	Total
Poland	43	24	67
Czech Republic	79	46	125
Slovakia	73	29	102
Austria	84	47	130
Italy	66	13	79
Slovenia	55	56	111
Entire corridor	57	30	87

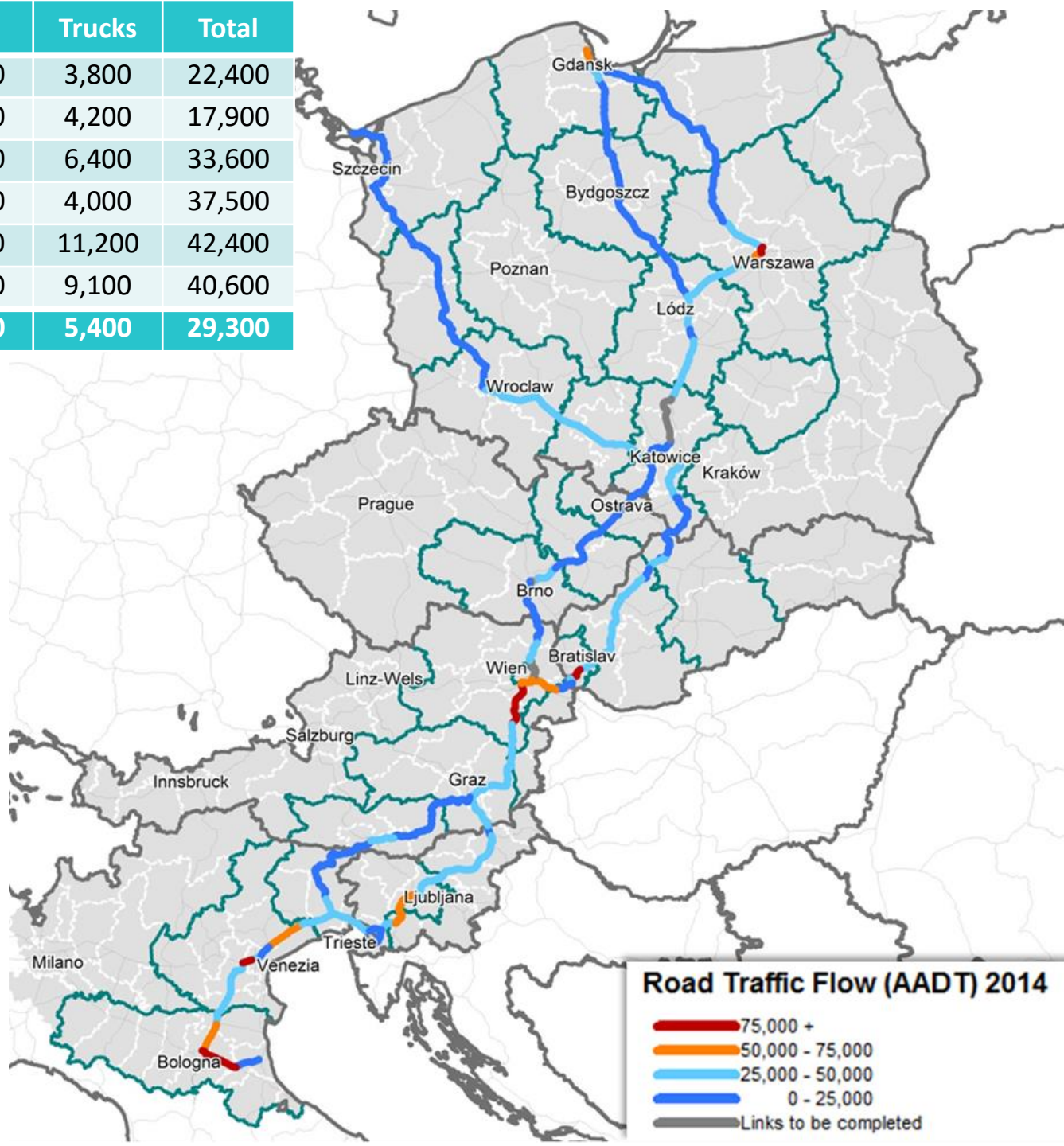


Performance of the rail transport system

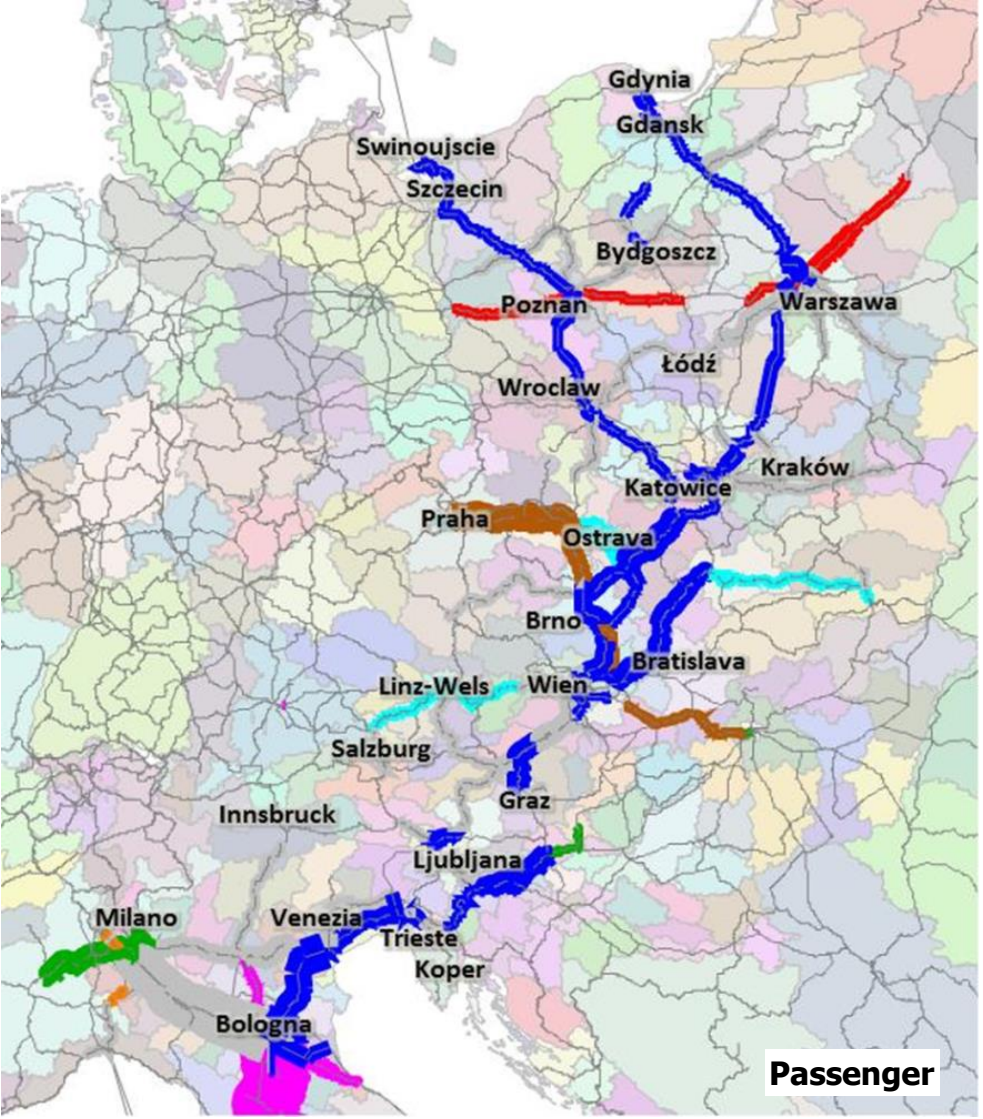
Vehicle traffic flows on the BA Corridor (vehicles/day, 2014)

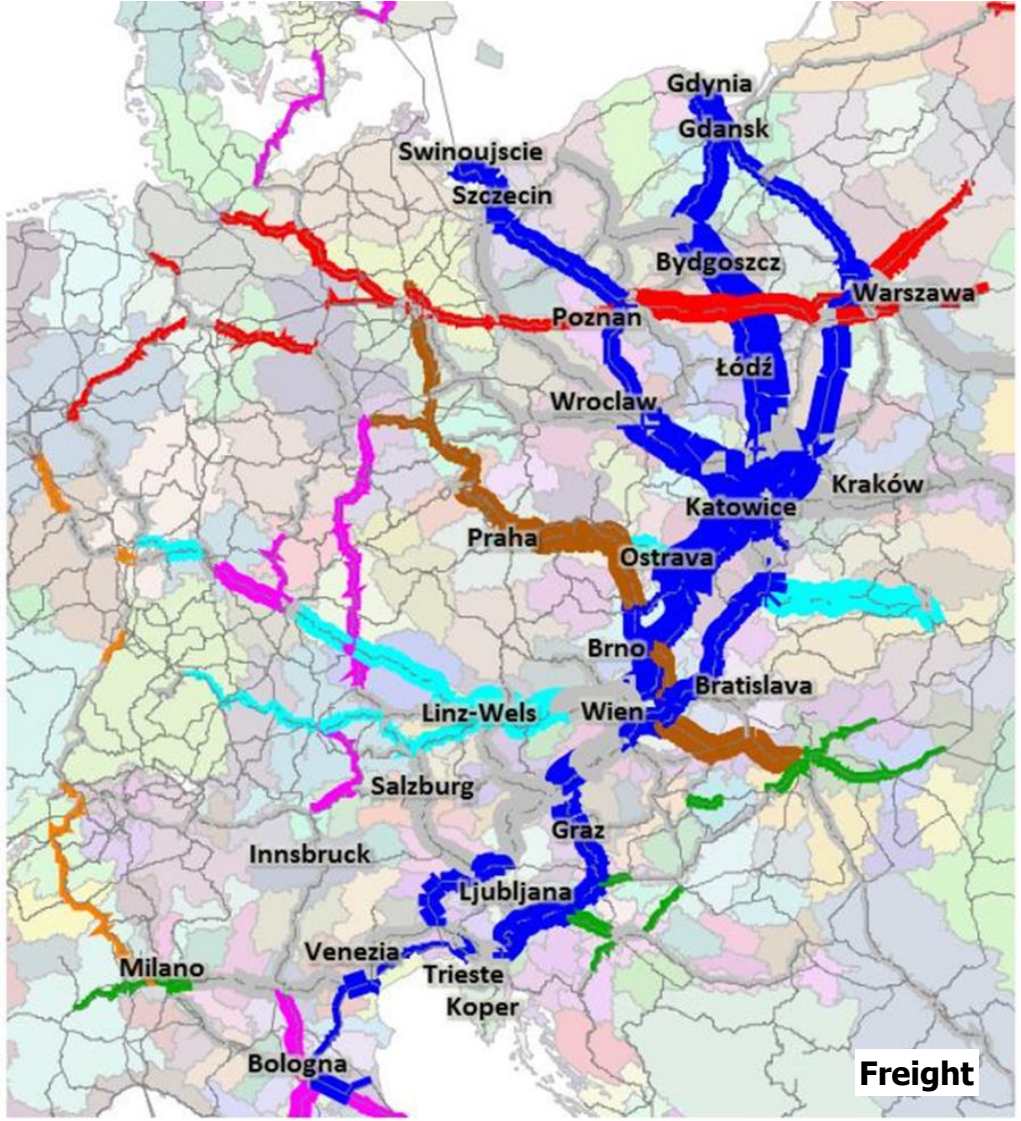
- The current road traffic volumes on the BA Corridor infrastructure are relatively constant in the sections belonging to Slovakia, Austria, Italy and Slovenia, where traffic exceeds 30 thousands vehicle/ day; volumes are lower in Poland and Czech Republic, where the infrastructure is still under development
- Volumes are higher in the approach and within the main urban nodes, in particular Gdansk, Warsawa, Brno, Bratislava, Wien, Ljubljana, Venezia and Bologna

Country Section	Cars	Trucks	Total
Poland	18,700	3,800	22,400
Czech Republic	13,800	4,200	17,900
Slovakia	27,200	6,400	33,600
Austria	33,500	4,000	37,500
Italy	31,300	11,200	42,400
Slovenia	31,500	9,100	40,600
Entire Corridor	**23,900**	**5,400**	**29,300**



Rail passenger and freight flows along the BA corridor (2014)





Flows on the BA Corridor

Exchange flows between the BA Corridor and other core/comprehensive infrastructure:

North Sea – Baltic Corridor

Mediterranean Corridor

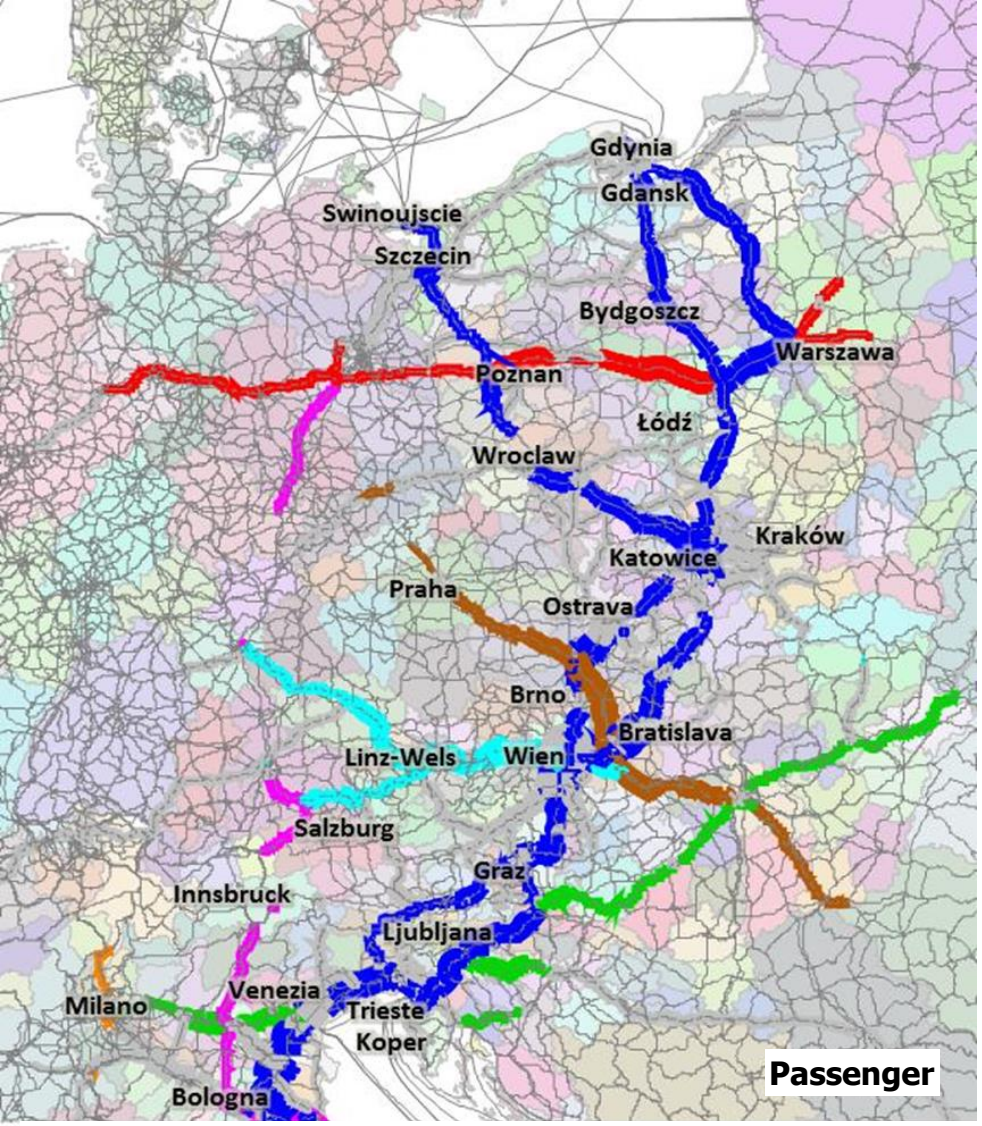
Rhine – Danube Corridor

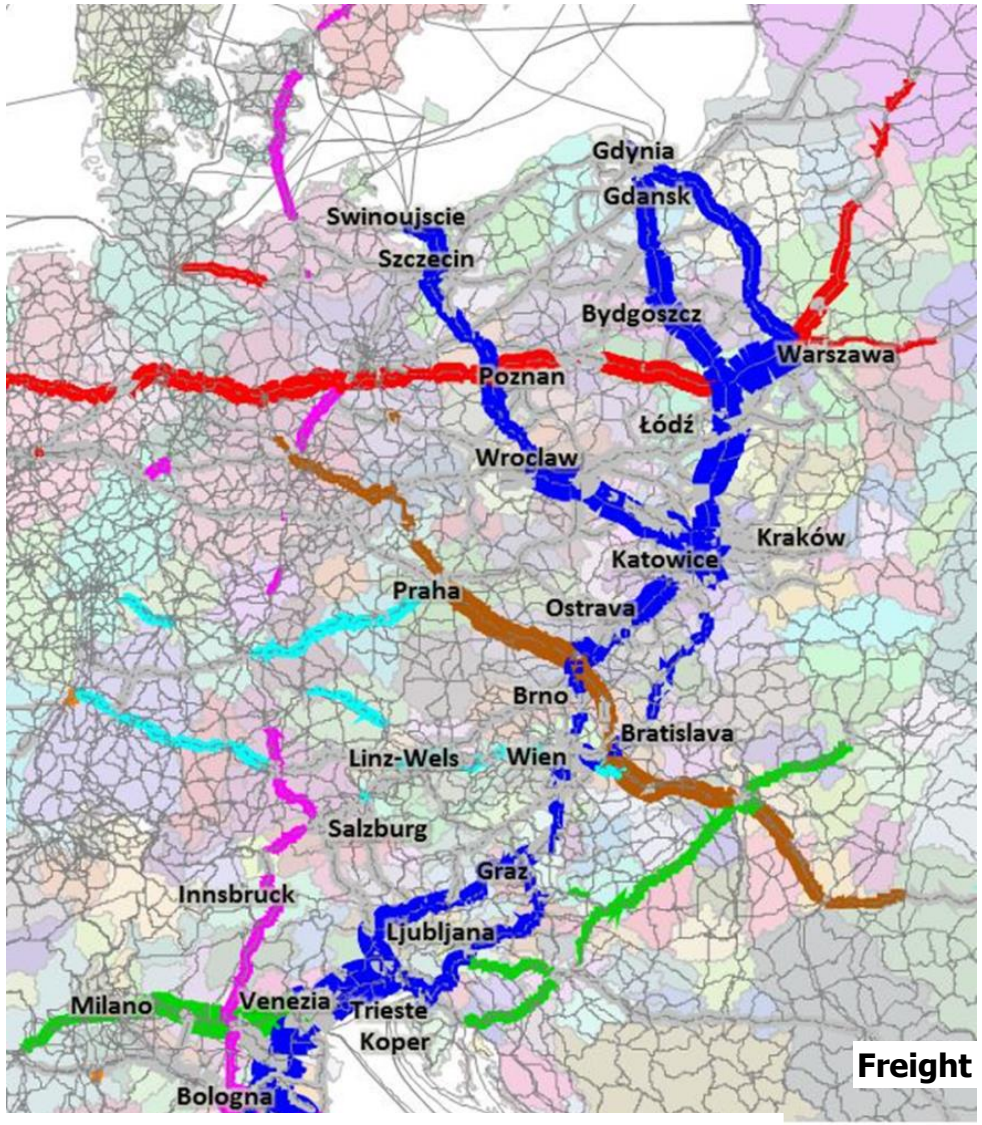
Orient / East Med Corridor

Scandinavian - Mediterranean Corridor

Other core road network

Road passenger and freight flows along the BA corridor (2014)





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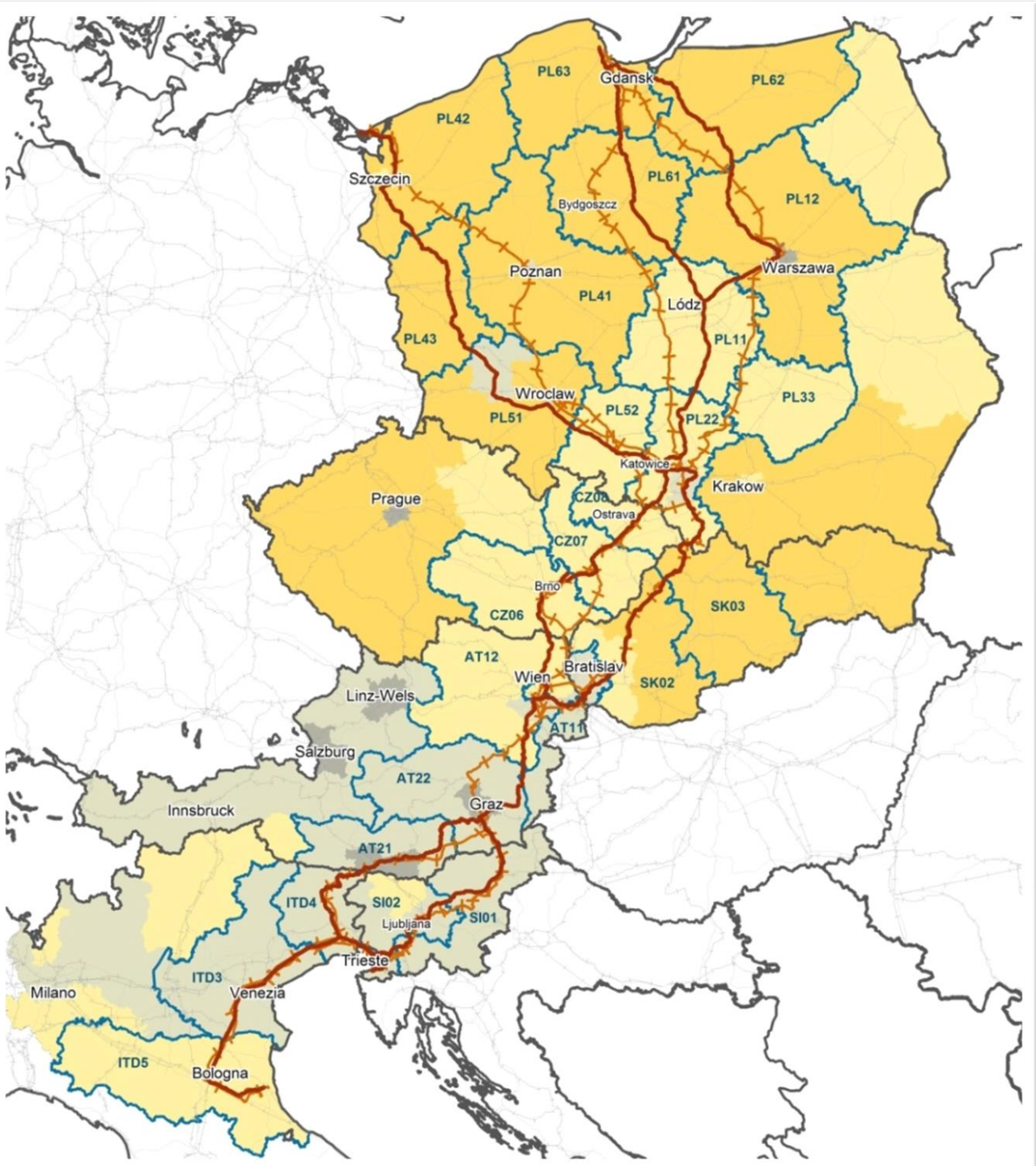
Other core road network

Passenger Traffic Growth

Growth of Trips (2010-230)

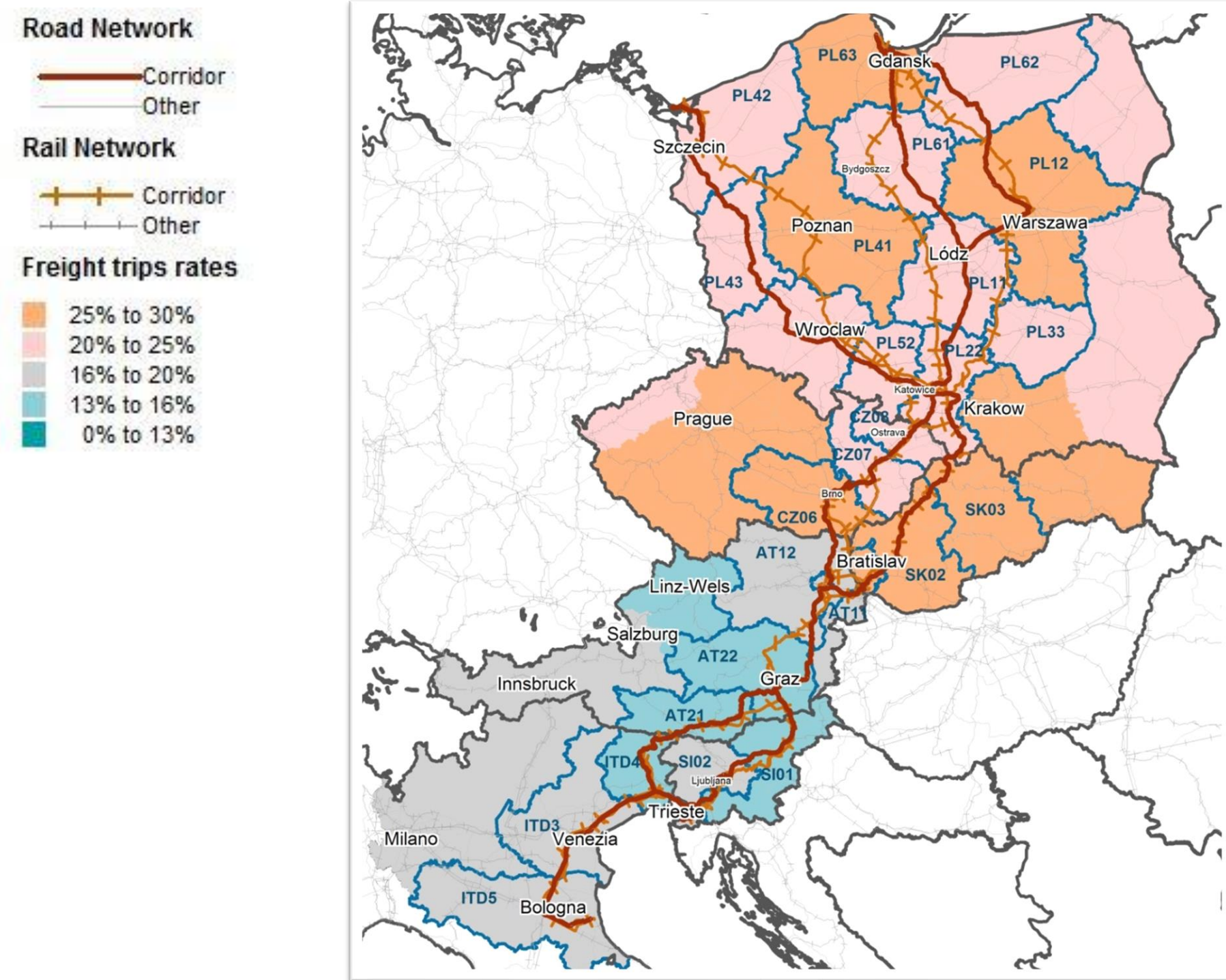
- In line with the expected population and particularly GDP per capita growth rates in the BA Corridor Member States, the increase in personal travel is higher in the northern regions of Poland, Slovakia and Czech Republic
- The corridor study area is estimated to register a 25% increase in passengers trips by 2030



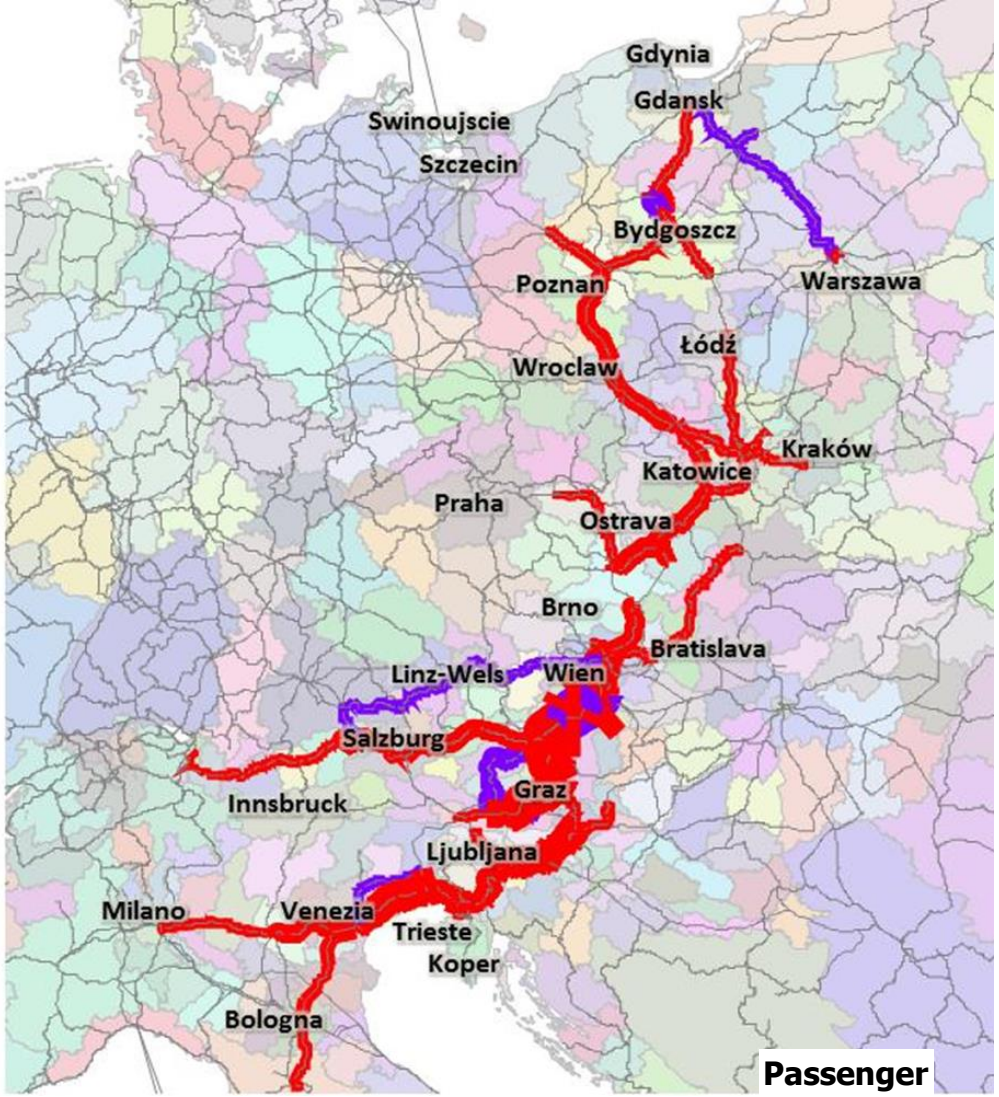
Freight Traffic Growth

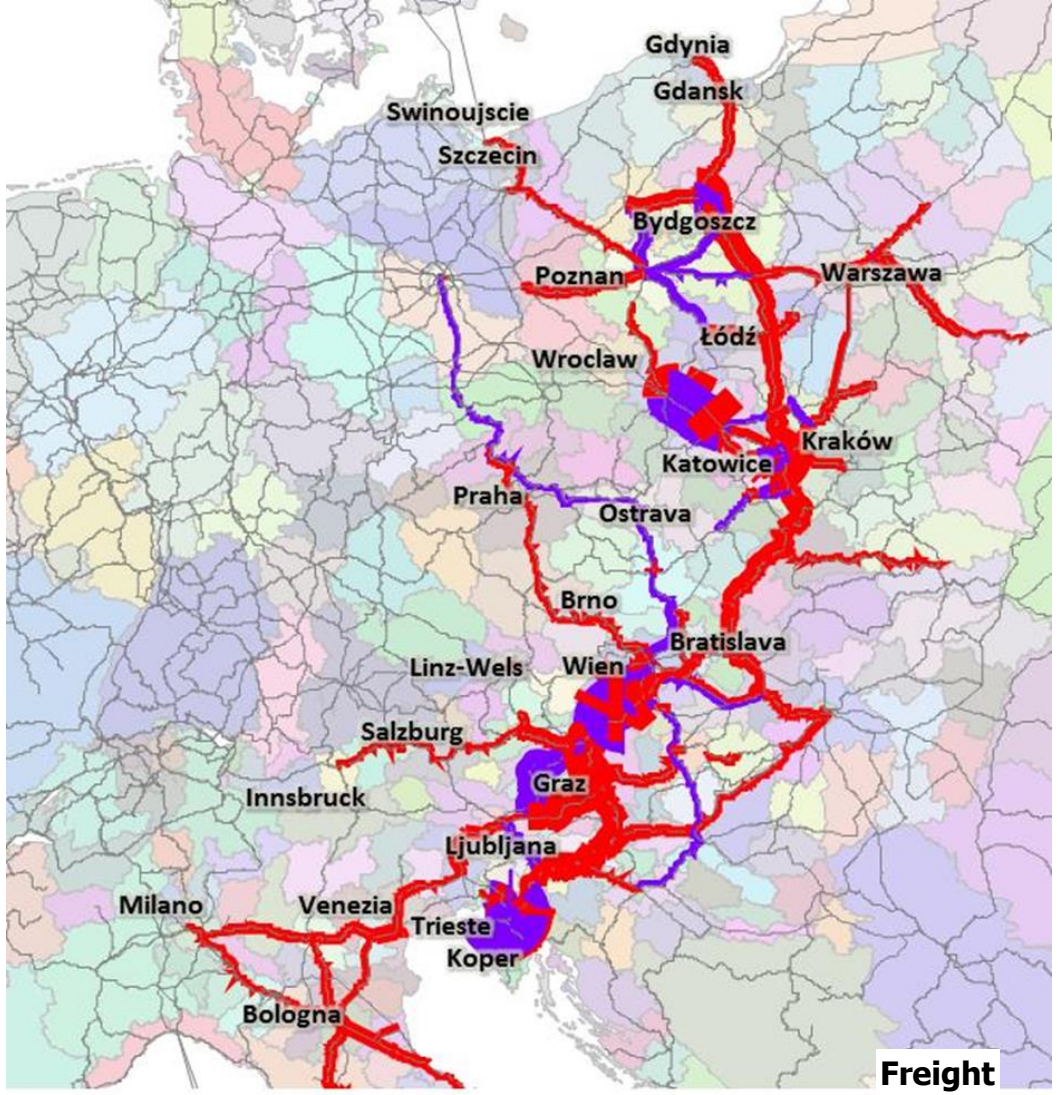
Loaded and unloaded tonnes (2010-2030)

- In line with the projected GDP growth, in the BA Corridor Member States, freight traffic is expected to register higher increases in Poland, and particularly Slovakia and Czech Republic
- The total traffic demand growth for the corridor study area is forecasted to be 30% by 2030



Impact of work plan investments on the rail flows

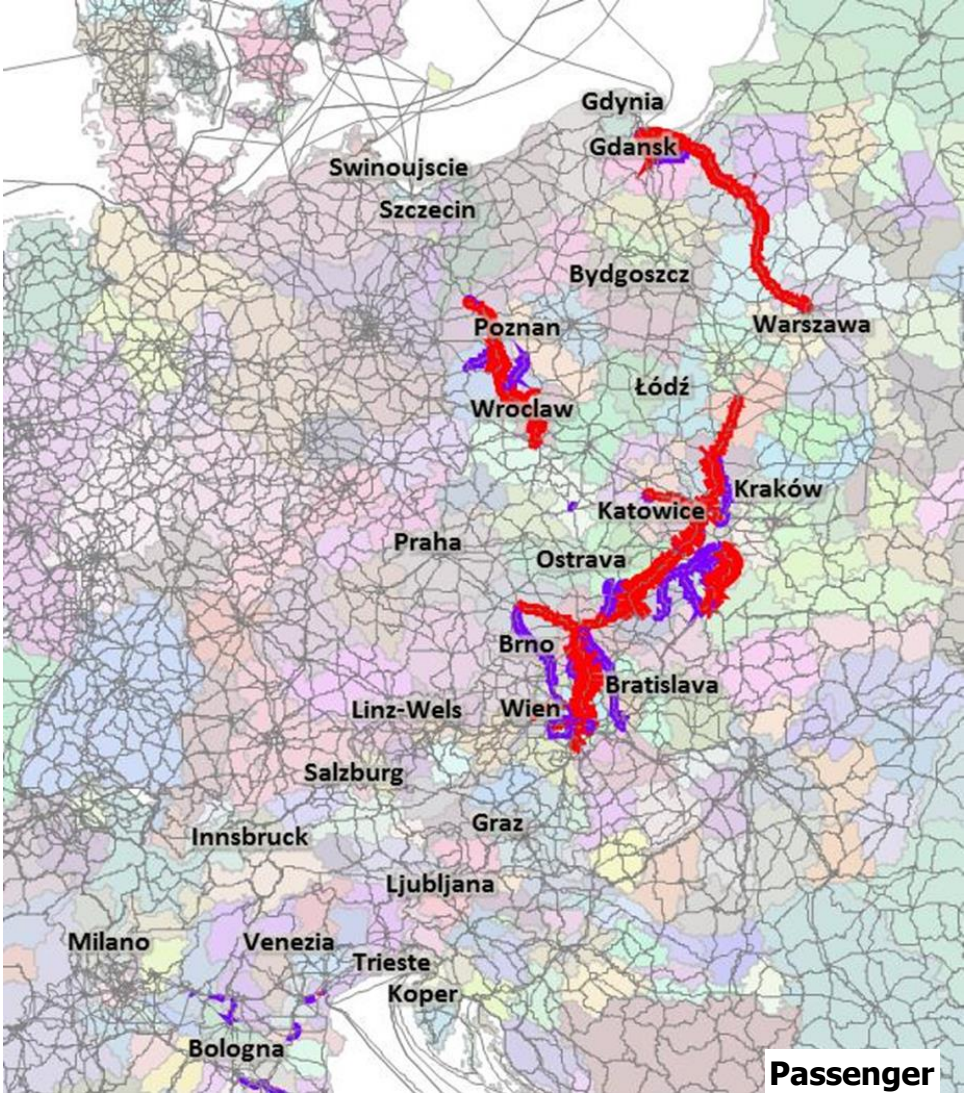


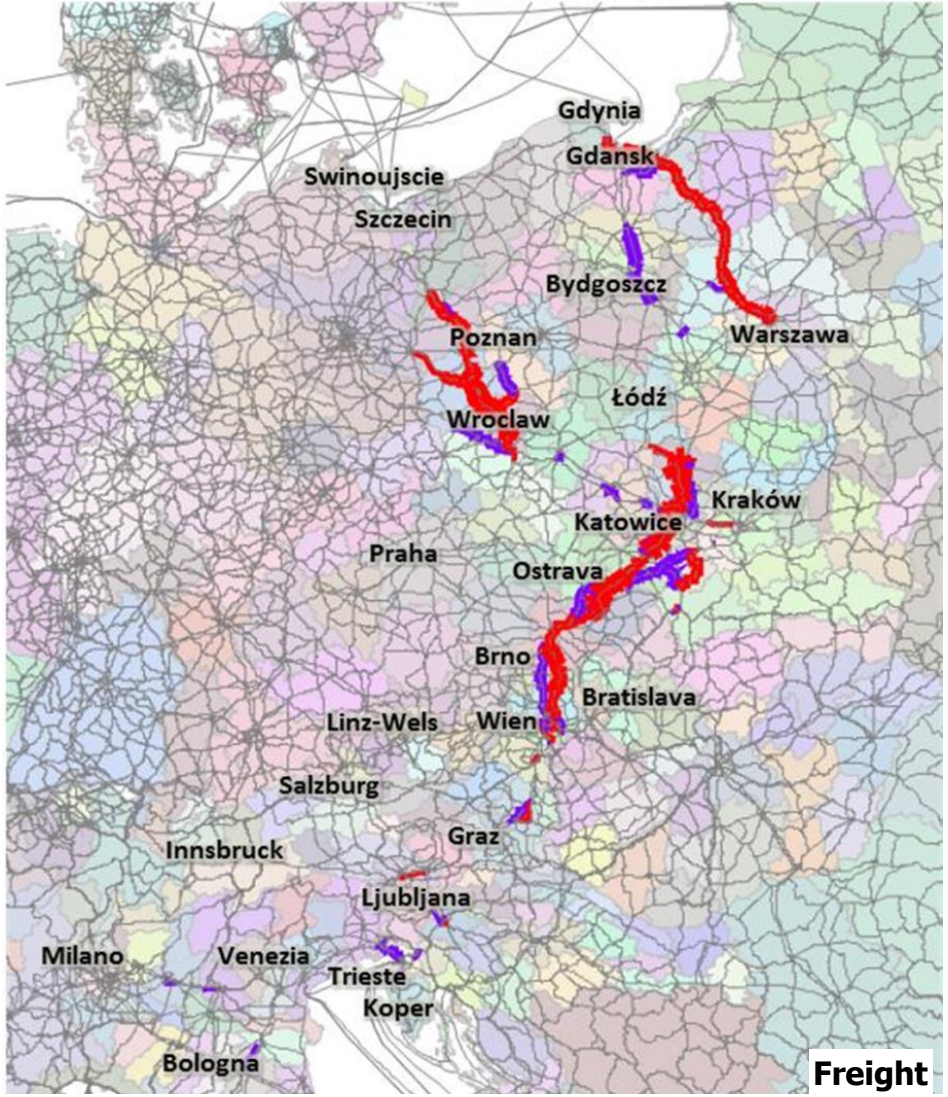


Rail passenger and freight flows along the BA corridor (2030, work plan scenario)

- Rail flows in the work plan scenario grow along the entire corridor, due to the combined effect of modal shift and diversion from alternative routes

Impact of work plan investments on the road flows

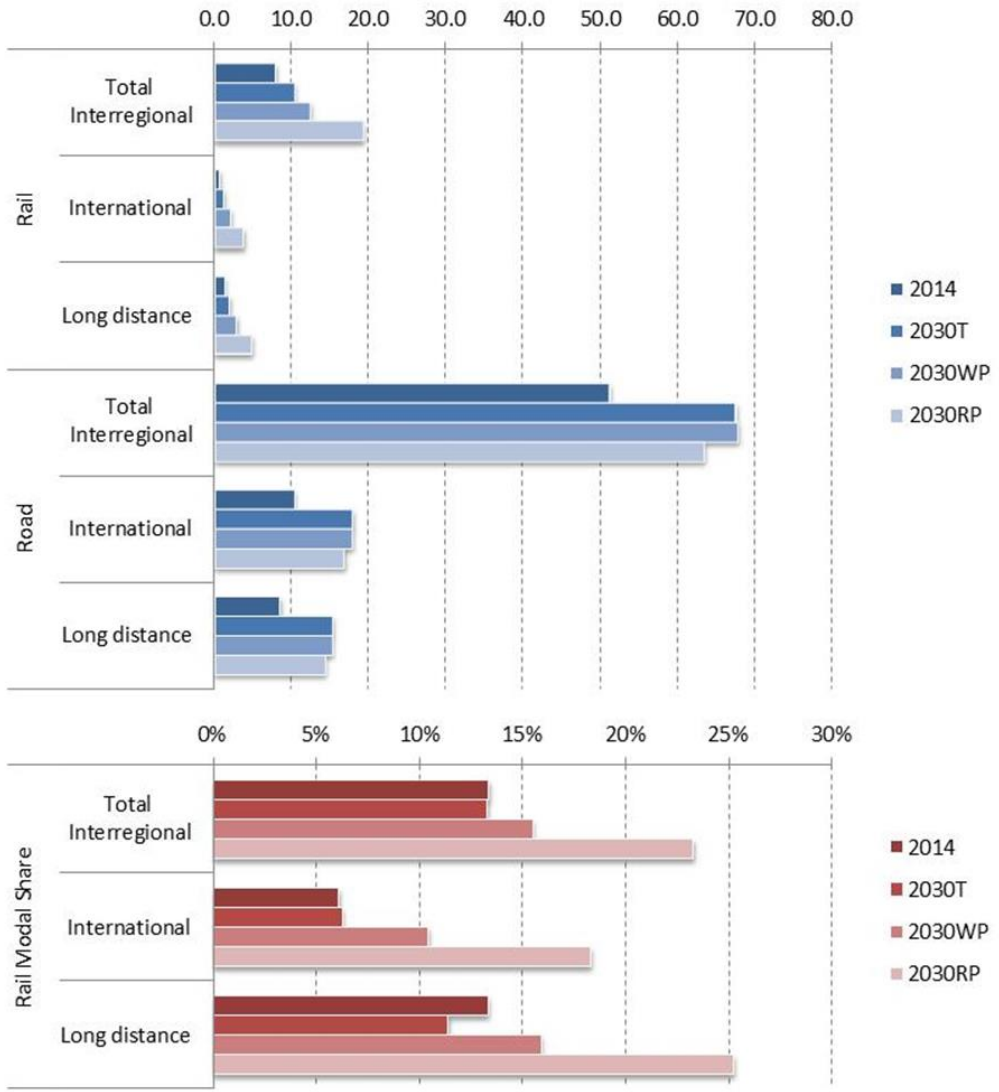




Road passenger and freight flows along the BA corridor (2030, work plan scenario)

- Flows on the road network increase on sections where road improvements projects are located, mainly due to diversion from alternative routes.
- Traffic reduction due to modal shift generally occurs, but it is not visible at this scale

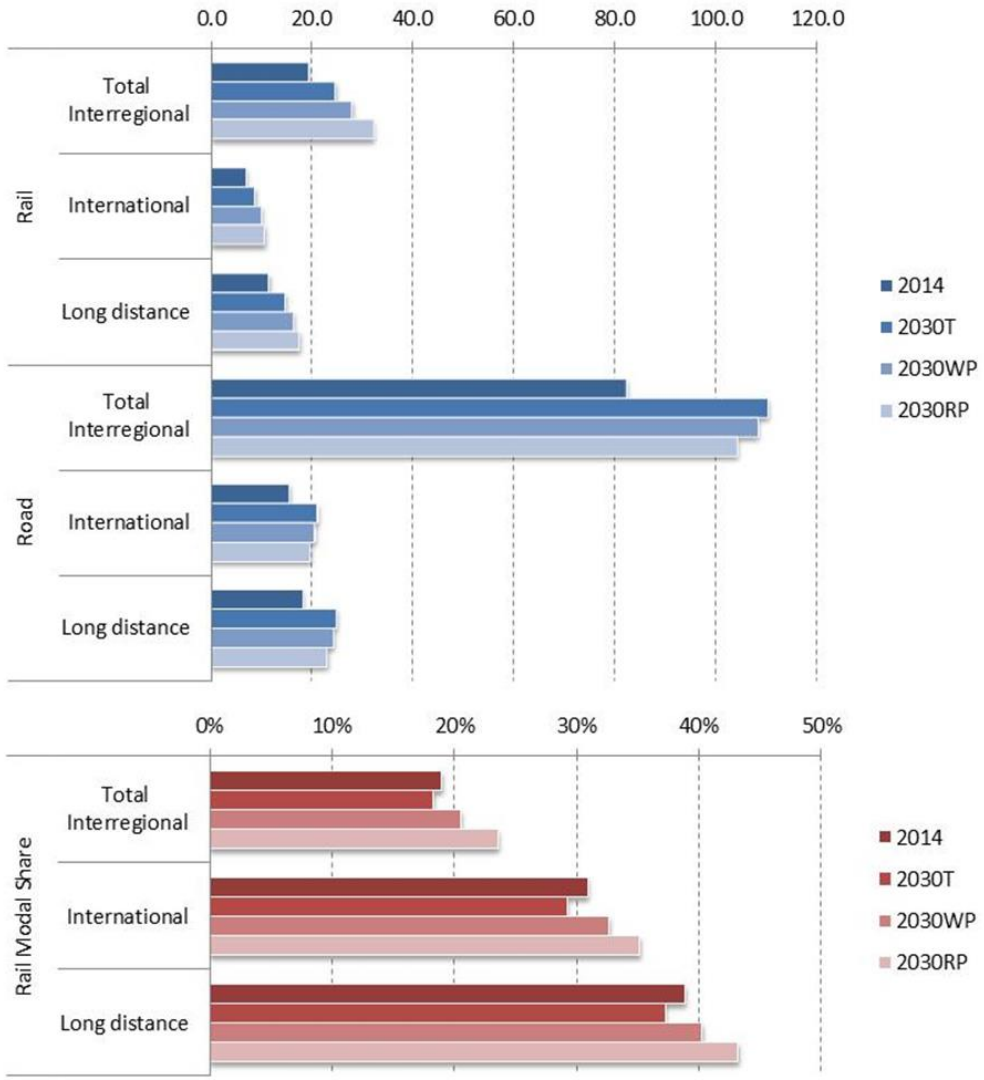
Passenger transport market: KPIs



Performance and modal share of the BA transport modes (millions of pax*km/year):

- The current rail model share is around 13% for passengers (measured in pax*km)
- Without any significant investment, rail share is expected to be stable for passengers (13%)
- The work plan investments have a positive, although limited, effect in counterbalancing this trend, with rail demand overcoming the current market shares (15% for passengers), segments;
- The results of the last scenario (2030RP) show that additional policy and administrative measures could contribute to a great extent in the promotion of rail transport, with market shares rising to 23% of interregional demand for passenger

Freight transport market: KPIs



Performance and modal share of the BA transport modes (millions of tons*km/year)

- The current rail model share is around 19% for freight (in tons*km); the rail modal share is significantly higher for long distance freight transport (39%); it is worth noting in this respect that the corridor already satisfy the 2030 freight modal share target of the 2011 White Paper (30% rail share on transport longer that 300 km);
- In the do-nothing scenario, rail freight share is expected to slightly decline (18%)
- In the do-something scenarios rail market share for freight grows up to 21% in the work plan scenario and 24% in the rail policy scenario (43% for long distance transport).

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European Regional Development Fund - Instrument for Pre-Accession II Fund
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