

Passenger Mobility in the Baltics

A Catalyst for Regional Cohesion

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AECOM

10 benefits from Rail Baltica (source RB Rail AS)

- 1. A powerful catalyst for sustainable economic growth in the Baltic States**
- 2. A new standard of passenger and freight mobility**
- 3. A new economic corridor will emerge**
- 4. Sustainable employment and educational opportunities**
- 5. An environmentally sustainable infrastructure**
- 6. New opportunities for multimodal freight logistics development**
- 7. New intermodal transport solutions for passengers**
- 8. Safety and performance improvements**
- 9. A new value platform for digitalization and innovation**
- 10. Completion of Baltic integration in the European Union transport ecosystem**

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Passenger Benefits

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**Mobility
Benefits**

Mobility

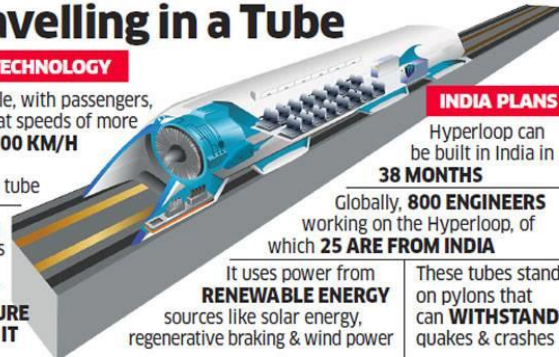


Travelling in a Tube

THE TECHNOLOGY

A capsule, with passengers, travels at speeds of more than **1200 KM/H** inside a vacuum tube

Vacuum tube has an area of **LOW PRESSURE INSIDE IT**



INDIA PLANS

Hyperloop can be built in India in **38 MONTHS**

Globally, **800 ENGINEERS** working on the Hyperloop, of which **25 ARE FROM INDIA**

It uses power from **RENEWABLE ENERGY** sources like solar energy, regenerative braking & wind power

These tubes stand on pylons that can **WITHSTAND** quakes & crashes

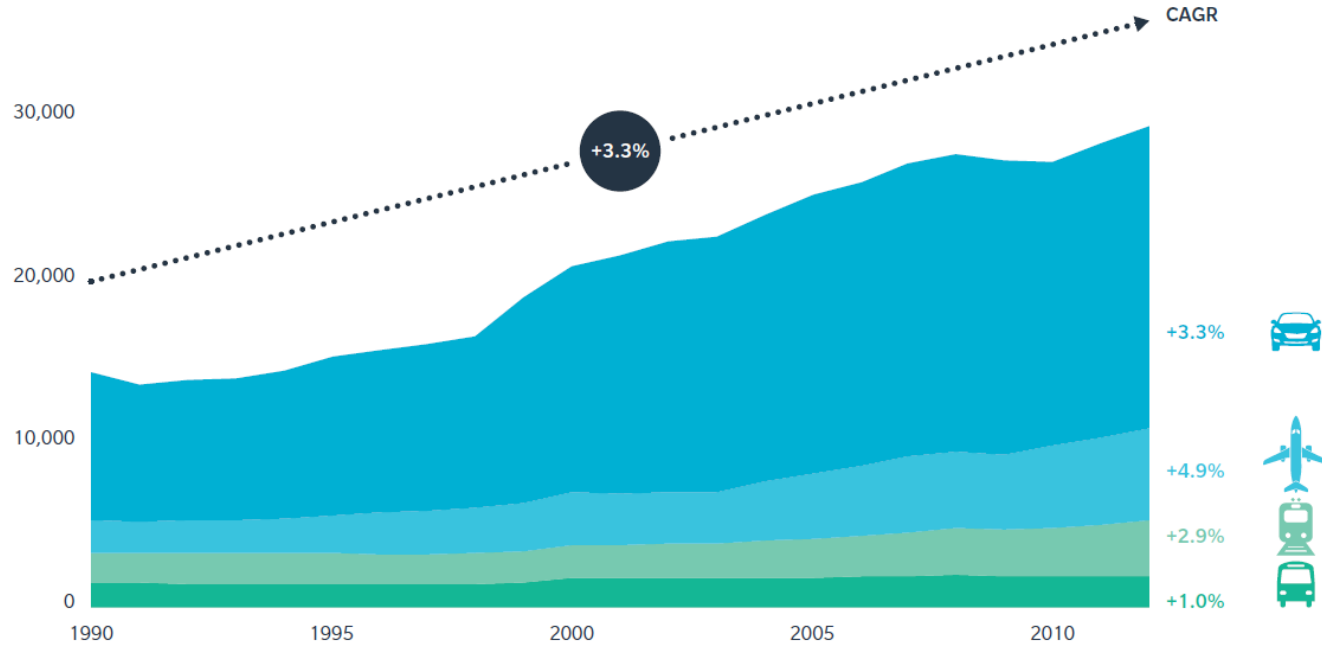
Passenger Mobility

The single most important measure of urban vitality is the extent to which cities, and their citizens, are connected with each other.



Passenger Movement Trends

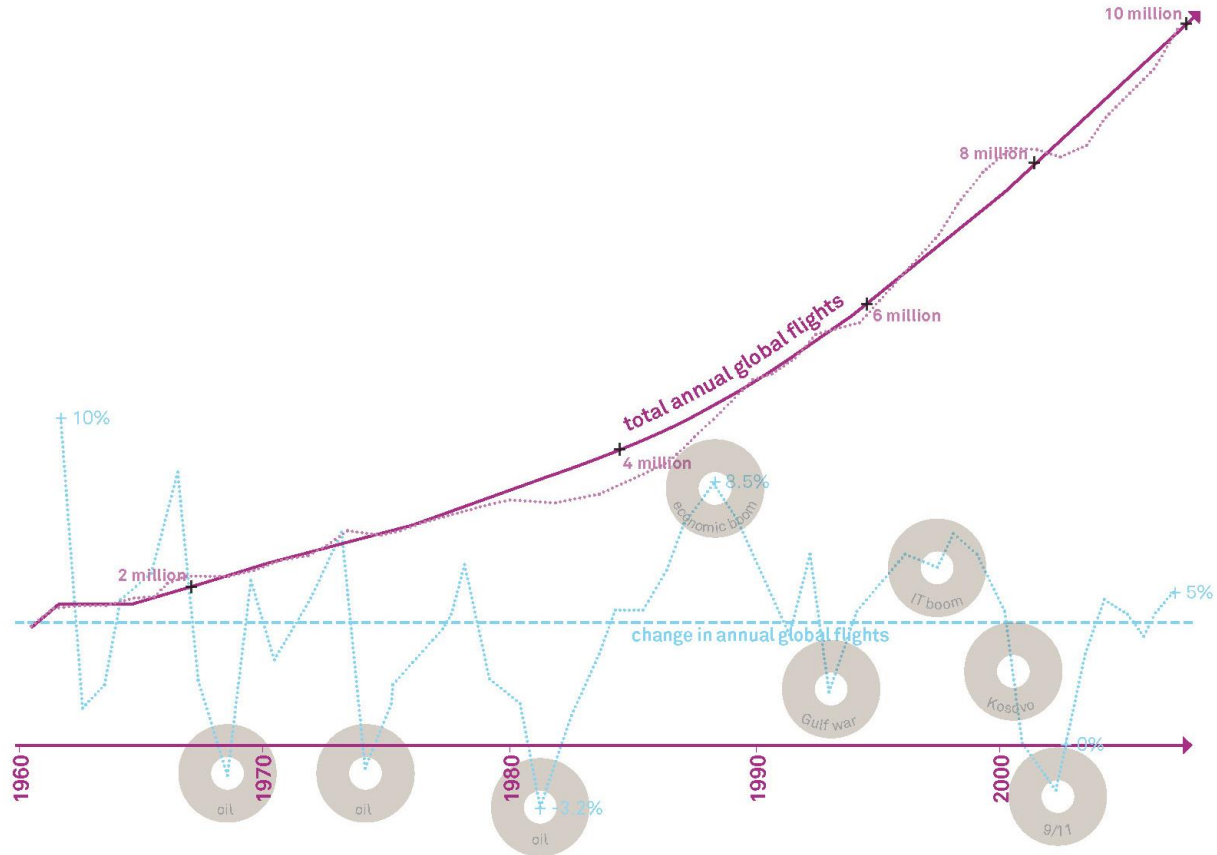
PASSENGER FLOWS HAVE GROWN FOR ALL MODES OVER THE PAST 25 YEARS
BILLIONS OF PASSENGER-KILOMETERS



Note: Based on data for 54 countries, covering all global regions. CAGR = compound annual growth rate.

Source: OECD, Oxford Economics, IATA WATS, Oliver Wyman analysis.

Passenger Movement Trends

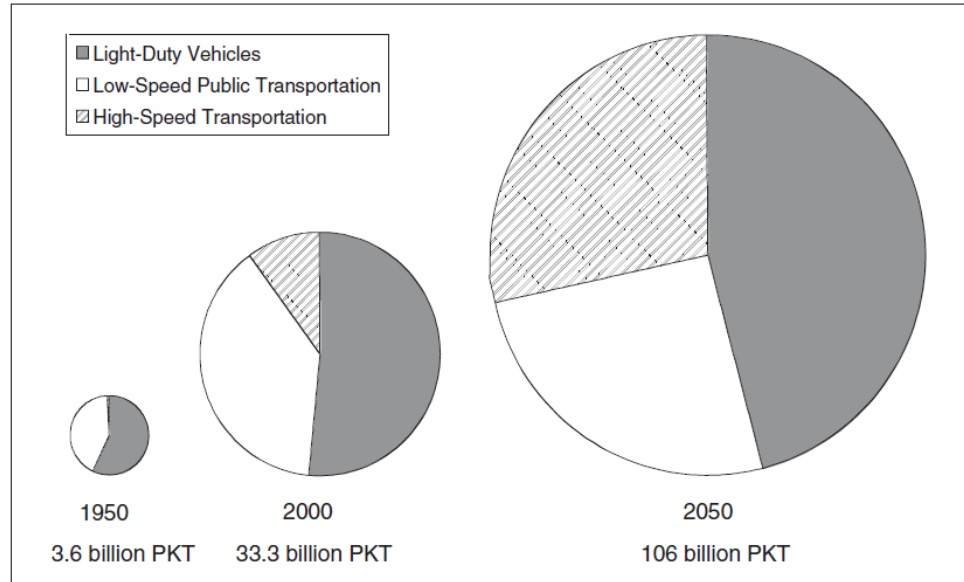


Passenger Movement Trends

Global passenger-km traveled, by major mode of transport, in 1950, 2000, and 2050 (projected). Size of pies corresponds to PKT, which has been multiplied nearly 10 times through 2000 and is likely to be multiplied by a factor of 30 by 2050.

For comparison, GDP has grown by factors of 7 and 20, respectively.

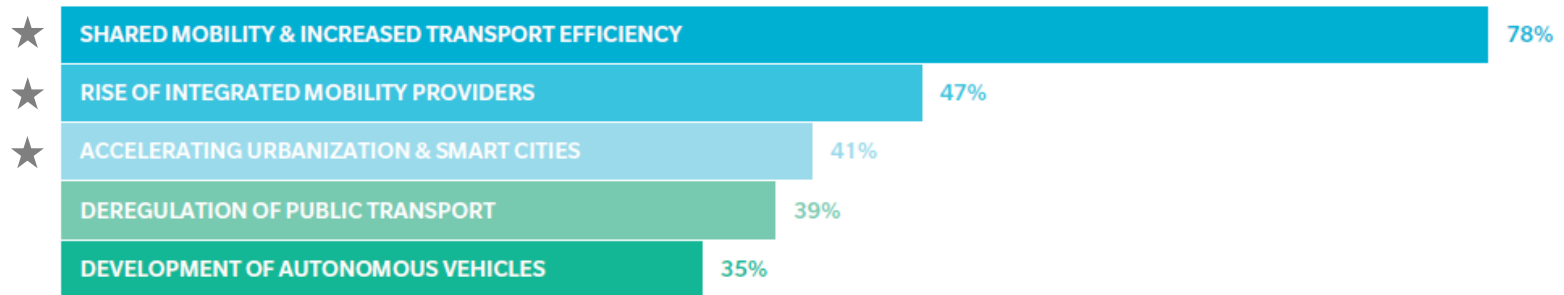
(Source: Long-term Trends in Global Passenger Mobility, A. Shafer)



Passenger Movement Trends – Shared/Integrated/Urban

SURVEY SAYS: MOST RELEVANT MOBILITY TRENDS

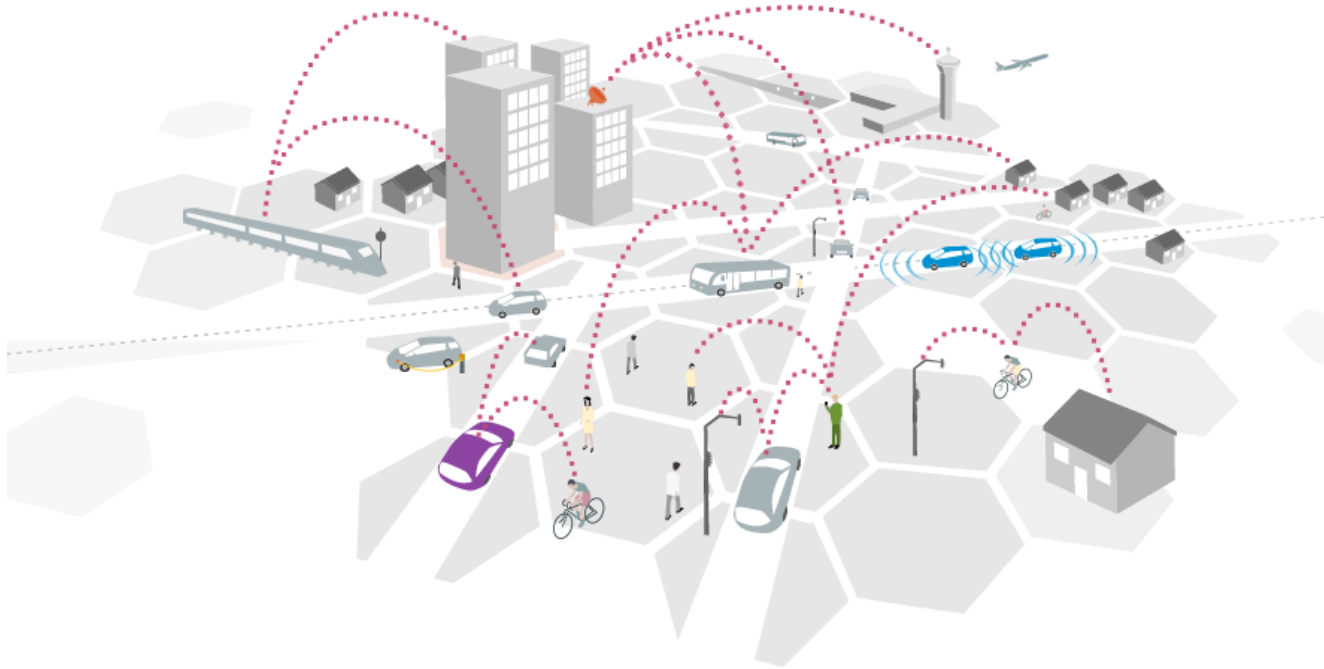
PERCENTAGE OF RESPONDENTS WHO CITED AS A “TOP THREE” TREND



Note: Multiple answers possible.

Source: Oliver Wyman Mobility 2040 survey analysis.

Me + Us + All = Mobility

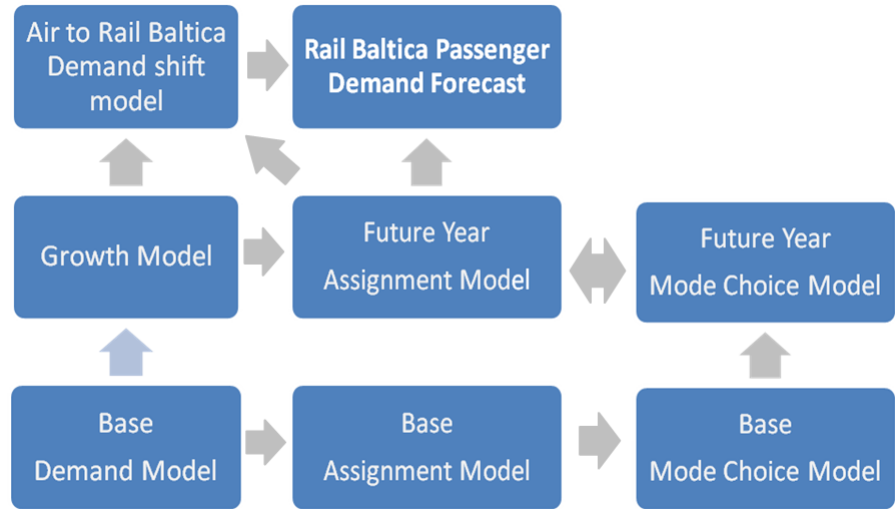


Passenger Movement Rail Baltica – Passenger Model Assumptions

Demand Basis:

Existing observed (2009) demand for travel between key origin / destination pairs - DATA

Synthetic demand model (from origin and destination socioeconomic characteristics and journey generalised costs) – FOR DATA GAPS



Average Annual Growth in Passenger Demand by Region

Period	Estonia	Latvia	Lithuania	Baltic Region	International
2009 - 2020	1.50%	0.63%	1.14%	1.06%	0.88%
2020 - 2030	1.46%	1.25%	1.15%	1.23%	0.84%
2030 - 2040	1.52%	1.35%	1.16%	1.29%	0.88%

Passenger Movement Rail Baltica – 2010 existing data

	Rail	Road (Car)	Road (Coach)	Air	Total
E S T O N I A					
Tallinn – Riga	0	1520	320	430	1,650
Tallinn – Kaunas	0	60	8	0	128
Tallinn – Vilnius	0	160	40	200	400
Tallinn - Warsaw	0	30	2	100	142
L A T V I A					
Riga – Tallinn	0	1520	320	430	1,650
Riga – Vilnius	0	560	300	420	1,680
Riga – Kaunas	0	340	120	70	770
Riga - Warsaw	0	45	6	100	186
L I T H U A N I A					
Vilnius – Riga	0	560	300	420	1,680
Vilnius – Warsaw	14	80	60	120	254
Vilnius – Tallinn	0	160	40	220	480
Kaunas – Riga	0	340	120	70	770
Kaunas - Warsaw	10	420	40	0	350
Kaunas - Tallinn	0	60	8	0	88



Passenger Movement Rail Baltica – 2010 forecasts

2-way Daily Flow	Red			Orange			Yellow			Green		
	2020	2030	2040	2020	2030	2040	2020	2030	2040	2020	2030	2040
Tallinn to Parnu	3,015	3,361	3,721	2,261	2,485	2,755	-	-	-	-	-	-
Parnu to Riga	2,168	2,432	2,695	1,510	1,672	1,867	-	-	-	-	-	-
Tallinn to Tartu	-	-	-	-	-	-	3,068	3,378	3,716	2,144	2,305	2,545
Tartu to Valmiera	-	-	-	-	-	-	1,819	2,088	2,276	1,043	1,150	1,272
Valmiera to Riga	-	-	-	-	-	-	2,735	3,062	3,314	1,805	1,926	2,083
Riga to Jelgava	-	-	-	3,067	3,324	3,625	-	-	-	3,325	3,581	3,867
Jelgava to Kaunas	-	-	-	2,034	2,211	2,402	-	-	-	2,157	2,343	2,530
Riga to Panevezys	2,566	2,837	2,945	-	-	-	2,603	2,883	2,989	-	-	-
Panevezys to Kaunas	4,611	4,972	5,120	-	-	-	4,649	5,018	5,165	-	-	-
Kaunas to Poland	1,114	1,038	856	857	768	710	1,104	1,021	836	844	751	694



Passenger Movement Rail Baltica – 2010 modal shift

2020 (Total trips per day, 2-way)		Red	Yellow	Green	Orange
★ { Trips Diverted from Existing modes	Car	2,133 (28%)	2,322 (25%)	1,632 (26%)	1,473 (27%)
	Bus	3,452 (45%)	3,894 (43%)	2,379 (38%)	2,122 (39%)
	Rail	222 (3%)	827 (9%)	819 (13%)	481 (9%)
	Air	844 (11%)	771 (8%)	599 (10%)	698 (13%)
★ {	Induced Trips	1,039 (14%)	1,332 (15%)	804 (13%)	722 (13%)
Total Rail Baltica Trips per Day		7,689	9,146	6,234	5,496

Passenger Movement Rail Baltica

URBAN connectivity is important

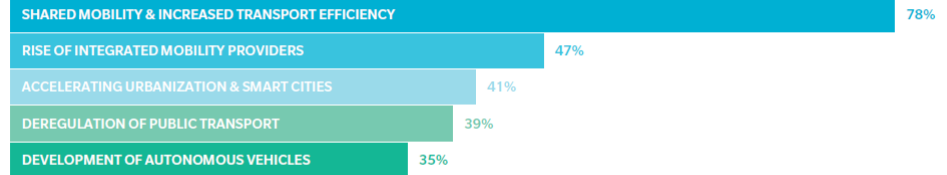
INTEGRATED multi-modal offering is important

SHARED transport is important

REDUCED TRAVEL TIME is important

SURVEY SAYS: MOST RELEVANT MOBILITY TRENDS

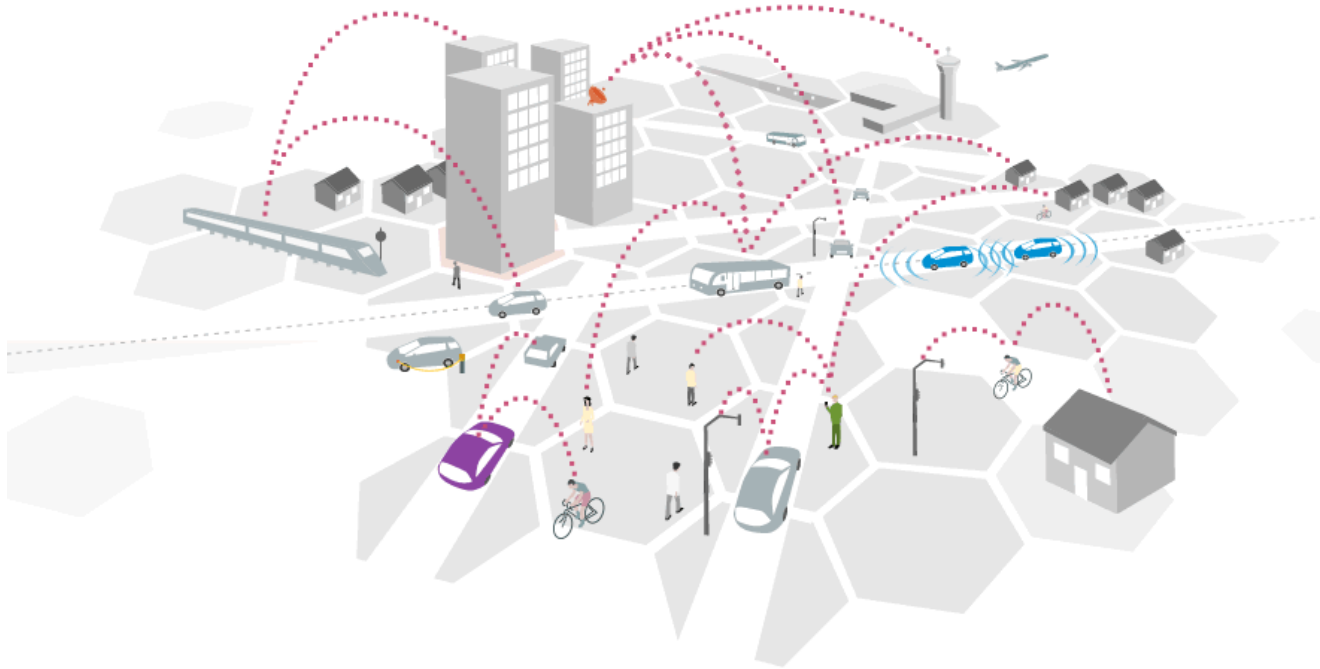
PERCENTAGE OF RESPONDENTS WHO CITED AS A "TOP THREE" TREND



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Mobility = Regional Cohesion



Regional Cohesion – New HSR Rail Corridor Case Studies

England/France: Channel Tunnel

Japan: Shinkansen

France: Train à Grande Vitesse (TGV)

Germany: Neubaustrecken

Spain: Alta Velocidad Española (AVE)

Italy: Rete Alta Velocità/Alta Capacità (AV/AC)

HSR lines IMPROVE ACCESSIBILITY between the cities connected by the service...

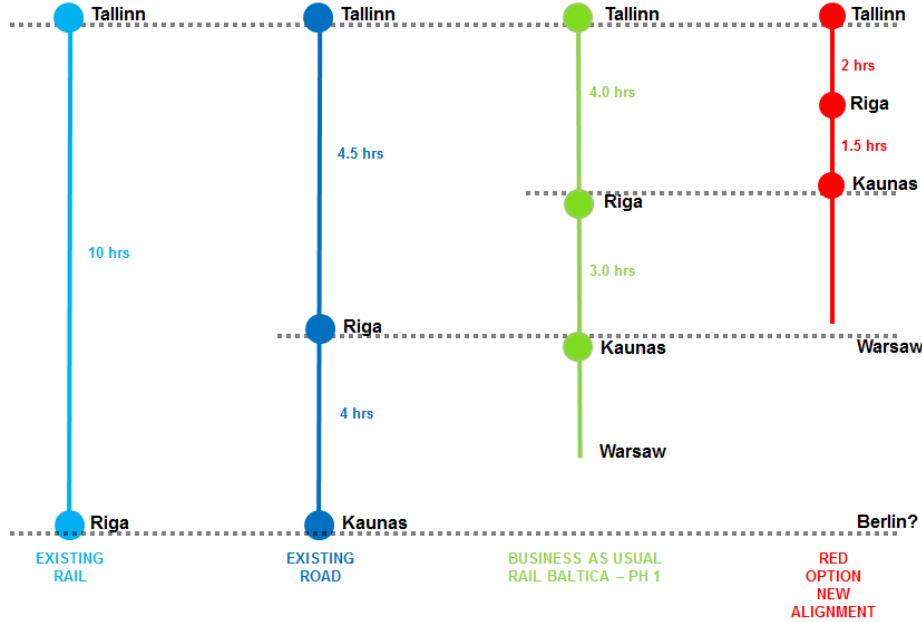
BUT

HSR lines also DISARTICULATE the space between these cities...

(what has been referred to as the tunnel effect (Gutiérrez Puebla, 2005)).

Hence, HST lines do not seem to increase inter-territorial cohesion, but rather they promote territorial polarization.

Regional Cohesion - Baltics



SPEED and INTEGRATED NETWORK are KEY

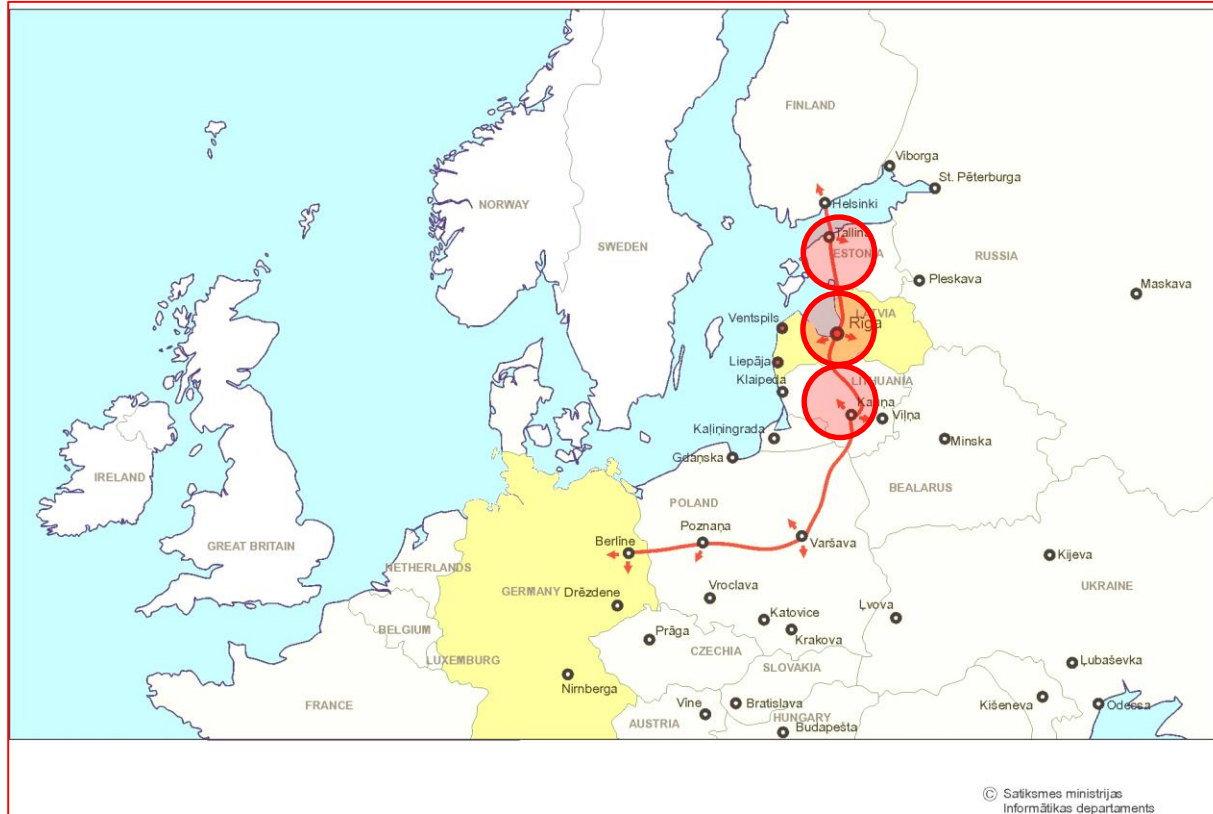


Regional Cohesion – Spatial Development Zone

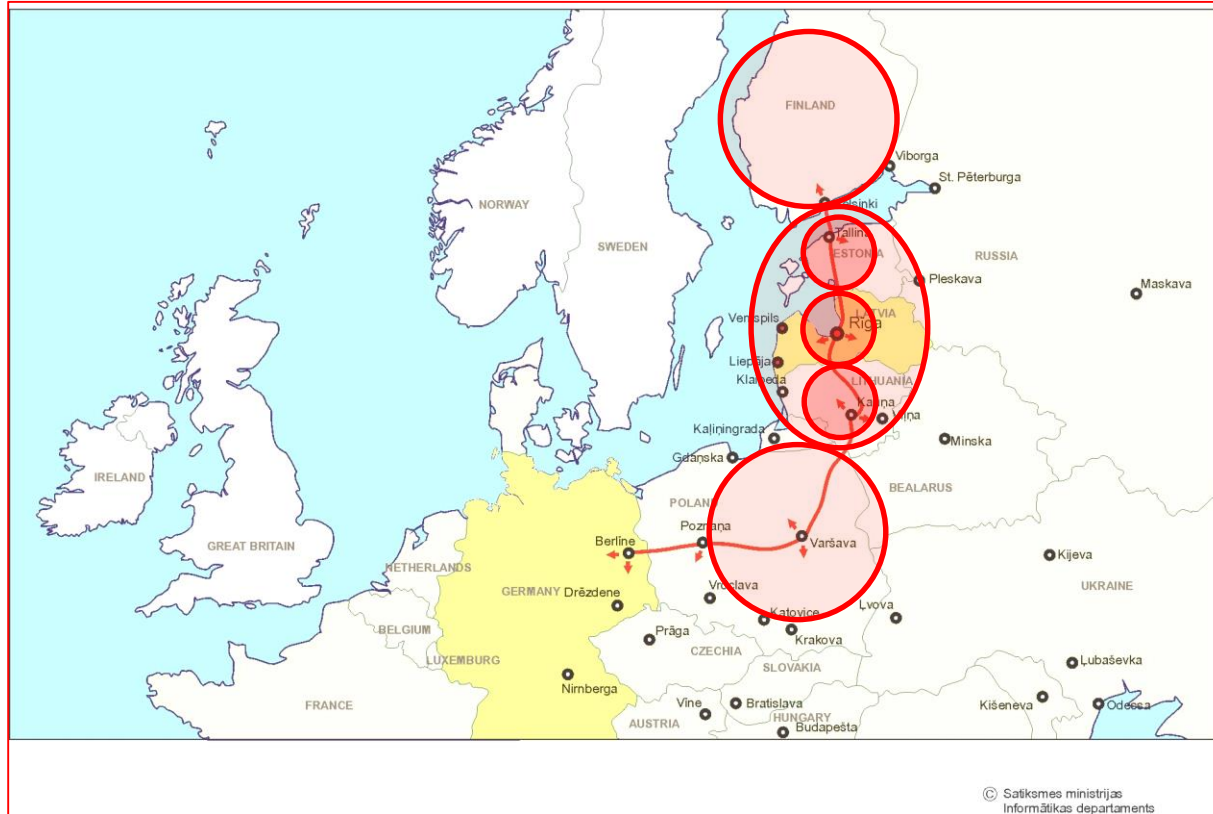


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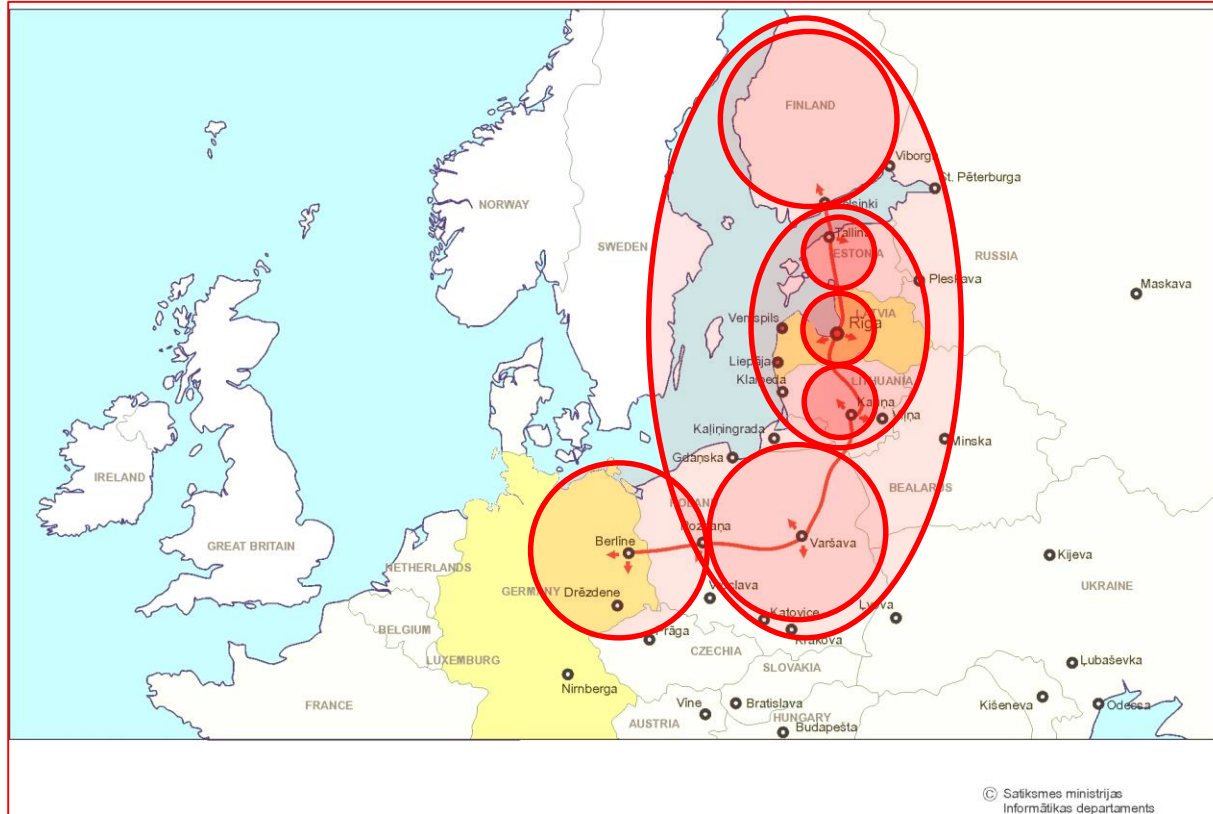
Regional Cohesion – Spatial Development Zone



Regional Cohesion – Spatial Development Zone



Regional Cohesion – Spatial Development Zone



Regional Cohesion – Passenger Benefits

Me = the region is SMALLER

Better URBAN connectivity – quicker trips to Tallinn/Vilnius/Warsaw

Convenience of MULTI-MODAL shared transportation modes (Center + Airport)

INTEGRATED & INNOVATIVE digital platform for ticketing/services/solutions

Us = the region is STRONGER

URBAN centers work as a PAN-BALTIC economy of agglomeration

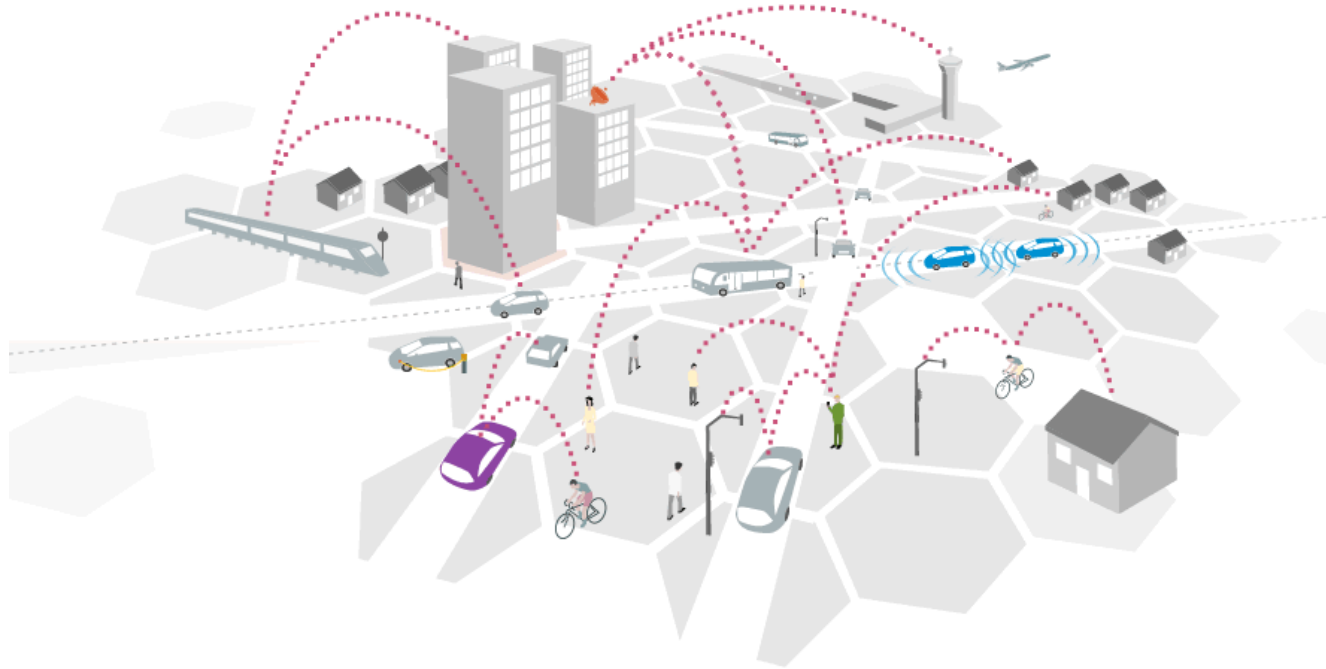
CONVERGENCE of Baltic labor markets – efficient commuter patterns

ALL = the region is INTEGRATED with the EU

BALTICS --- NORDICS --- NORTHERN EUROPE

EU Cohesion & Resilience – Intergrated TEN-T Transportation Network

Me + Us + All = Mobility



Thank You

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