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Rail Baltica progress and the opportunities for the freight logistics industry

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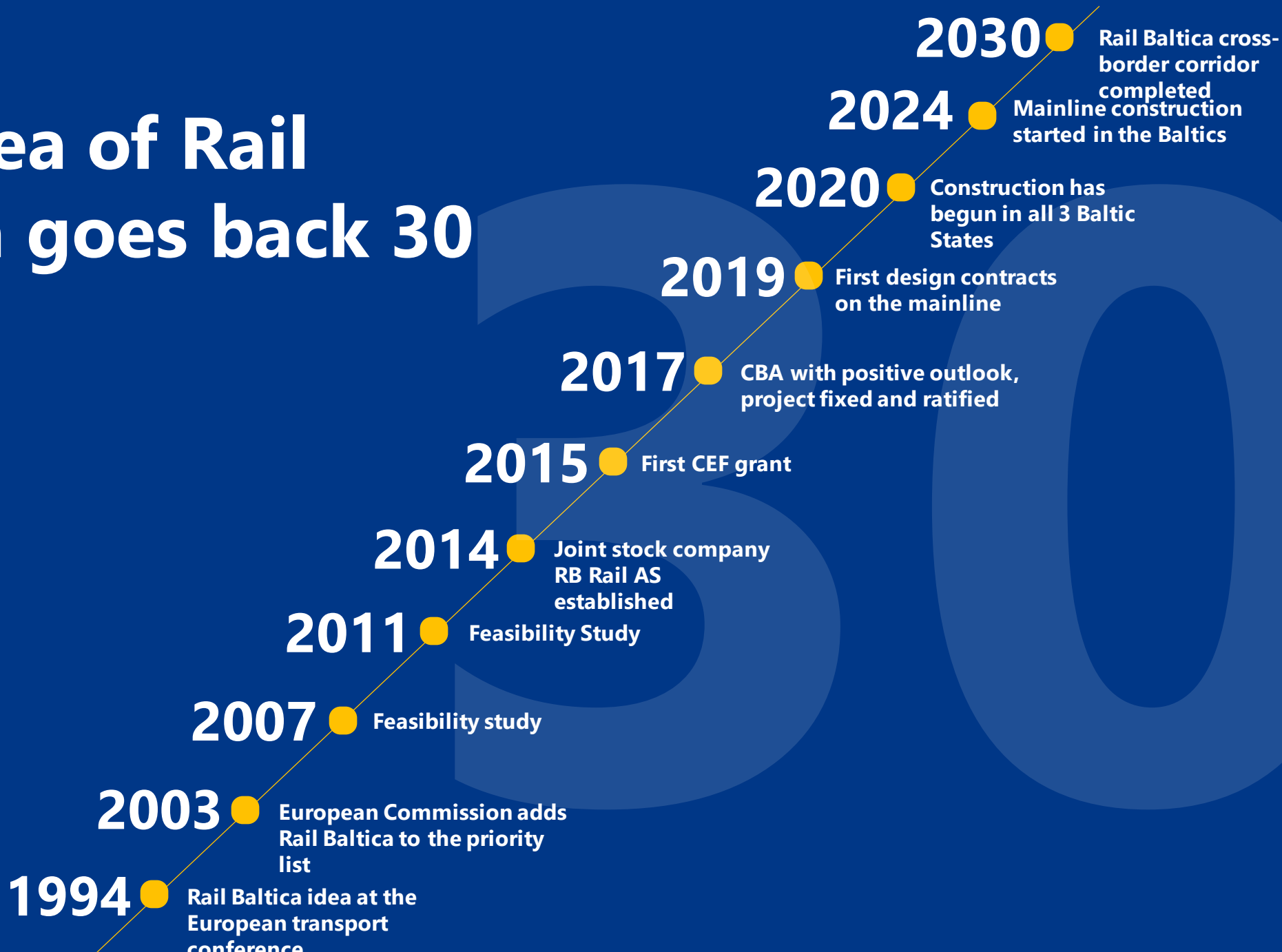
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The idea of Rail Baltica goes back 30 years



Potential infrastructure synergies along the Rail Baltica multimodal transport corridor

- Part of the North Sea - Baltic Sea TEN-T corridor and part of the Baltic Sea - Black Sea - Aegean Sea TEN-T corridor*
- Bridging a missing transport link by 2030
- Delivering EU, regional and national ambitions
- Best-practice learning, building and sharing
- Geopolitical obligation, not just a necessity

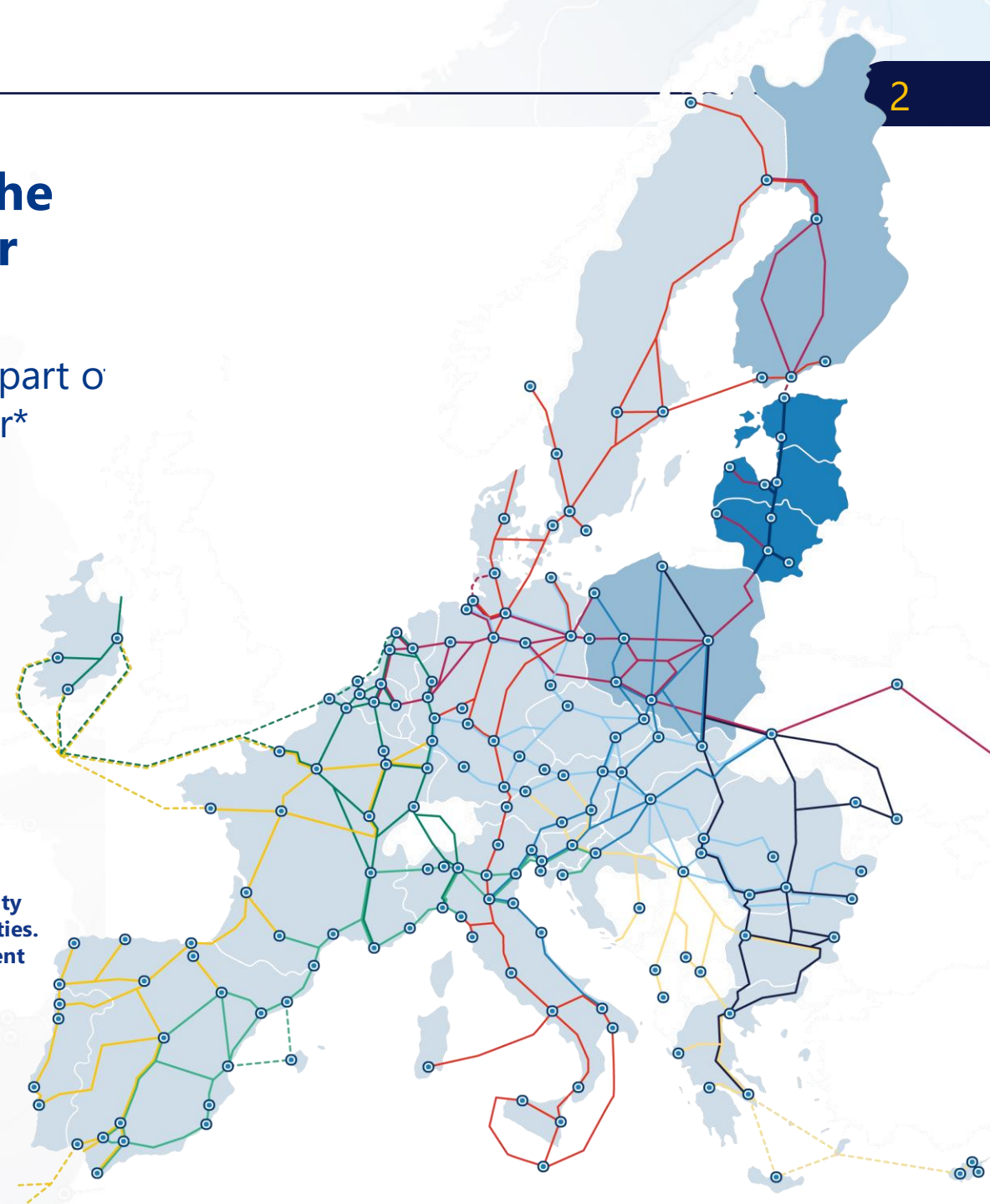
Removing a bottleneck for cargo and passenger traffic.
High speed railway



Climate, sustainability and safety goals. Sustainable economic development

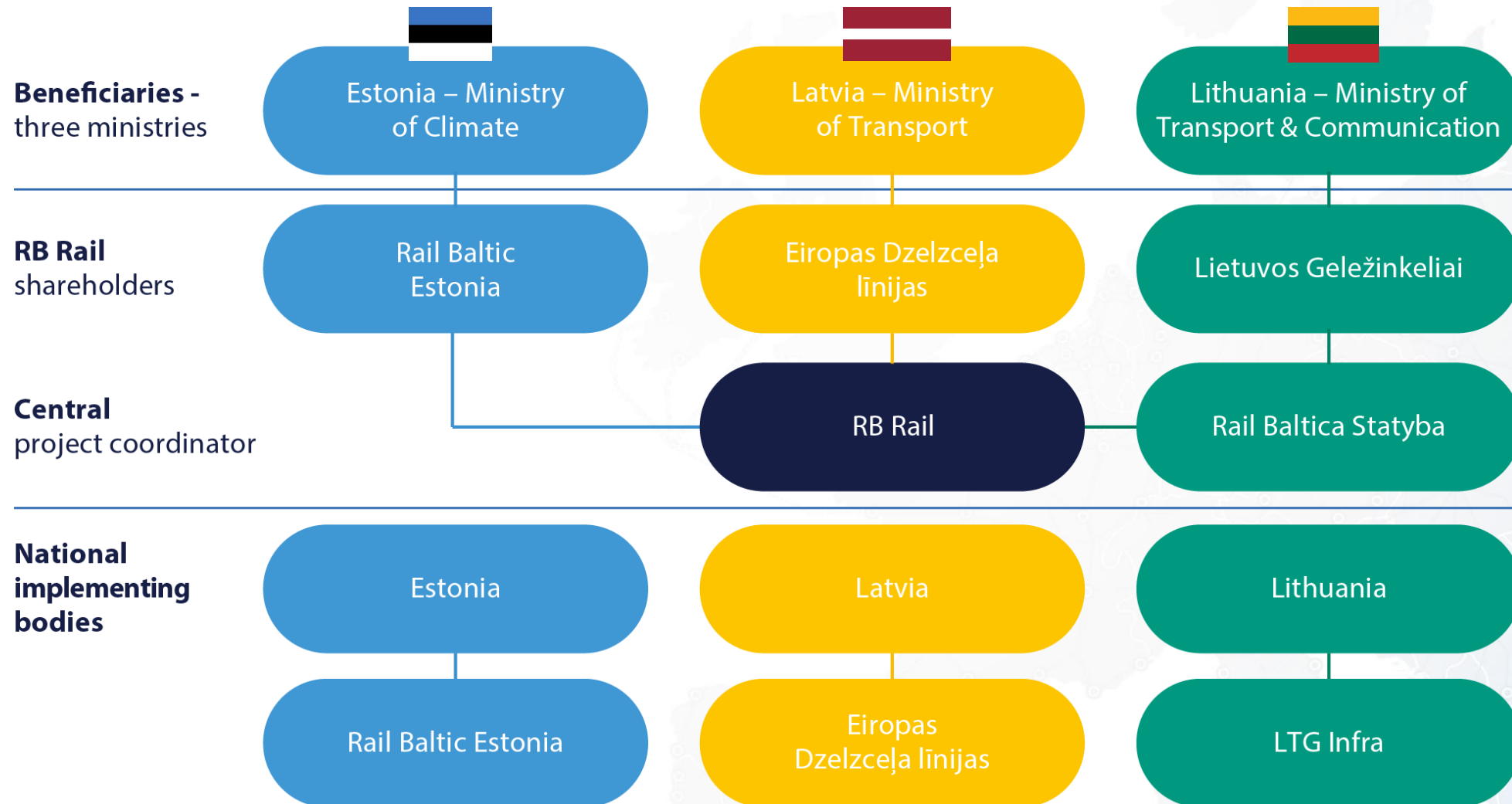


Multimodal connectivity and business opportunities.
Catalyst for development



*According to 5/12/2022 General Agreement of the EU TTE Minister's Council

Project delivery team



Construction work progress across the Baltics

Estonia



- Construction tenders announced for 52.6km mainline infrastructure and intersections
- First mainline construction agreement signed (east side of Ülemiste station)
- The first phase of the Ülemiste terminal construction begun
- 12 railway crossings completed, 6 railway crossings in construction, 11 railway crossings in preparation for the construction or contract signing.

Latvia



- Continuing design for the mainline, facilities, cargo terminal, and regional stations, with 30 master designs covering 110km (out of 265 km).
- Mainline construction agreement for 200km signed; construction base being prepared for the first 13km of the mainline.
- Construction ongoing at Rail Baltica Riga Central Station and International Airport 'Riga' sections.

Lithuania



- Kaunas – Lithuanian/Latvian border: 28 km of embankment with the construction of structures started; construction of bridge over Neris river in progress;
- Ongoing tenders: Kaunas-Šveicarija and Ramygala-Šėta (priority part) sections (for construction of 36 km of embankment, engineering structures and access roads).
- Access roads in section Žeimiai-Šveicarija (13,7km) are finished.

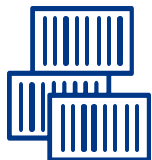
Basis for new economic corridor and military mobility

Seamless Passenger services

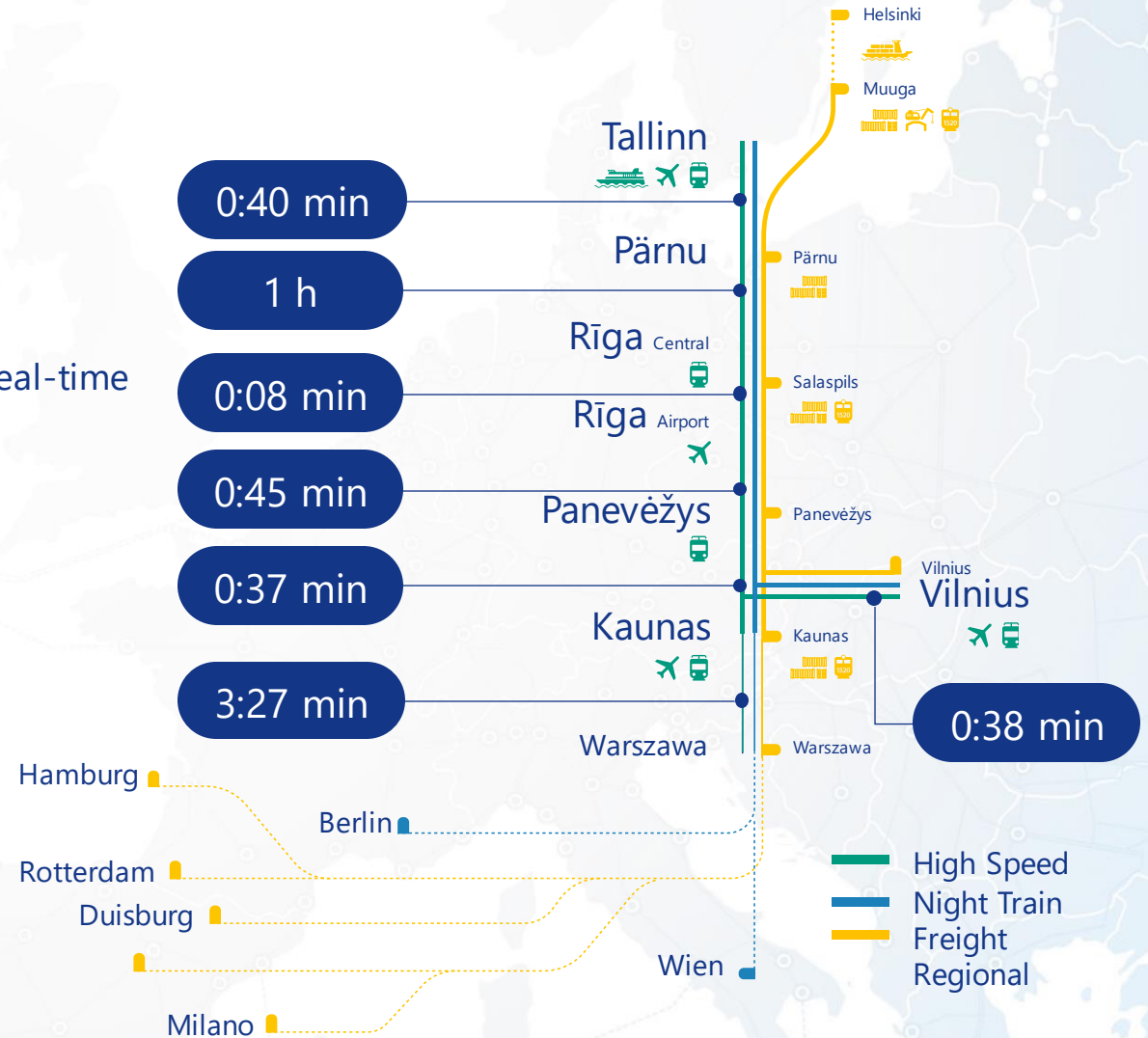


- Interline/codeshare ticketing
- Single check-in for entire journey
- Integrated baggage solutions with 'track & trace'
- Digitalization as enabler of seamless services (e.g., real-time information sharing with airport/airline)

Intermodal Logistics



- New intermodal options
- Opportunities for air freight integration
- E-commerce logistics
- Solutions also for maritime-rail



Questions for future passengers

1. Do you, as a private individual, plan to use the RB railway line in the future?
2. Which is more important to you: travel time or ticket price?
3. Would you use car-carrier train service on Rail Baltica railway line?

Traffic volume forecast to and from Finland (2046)

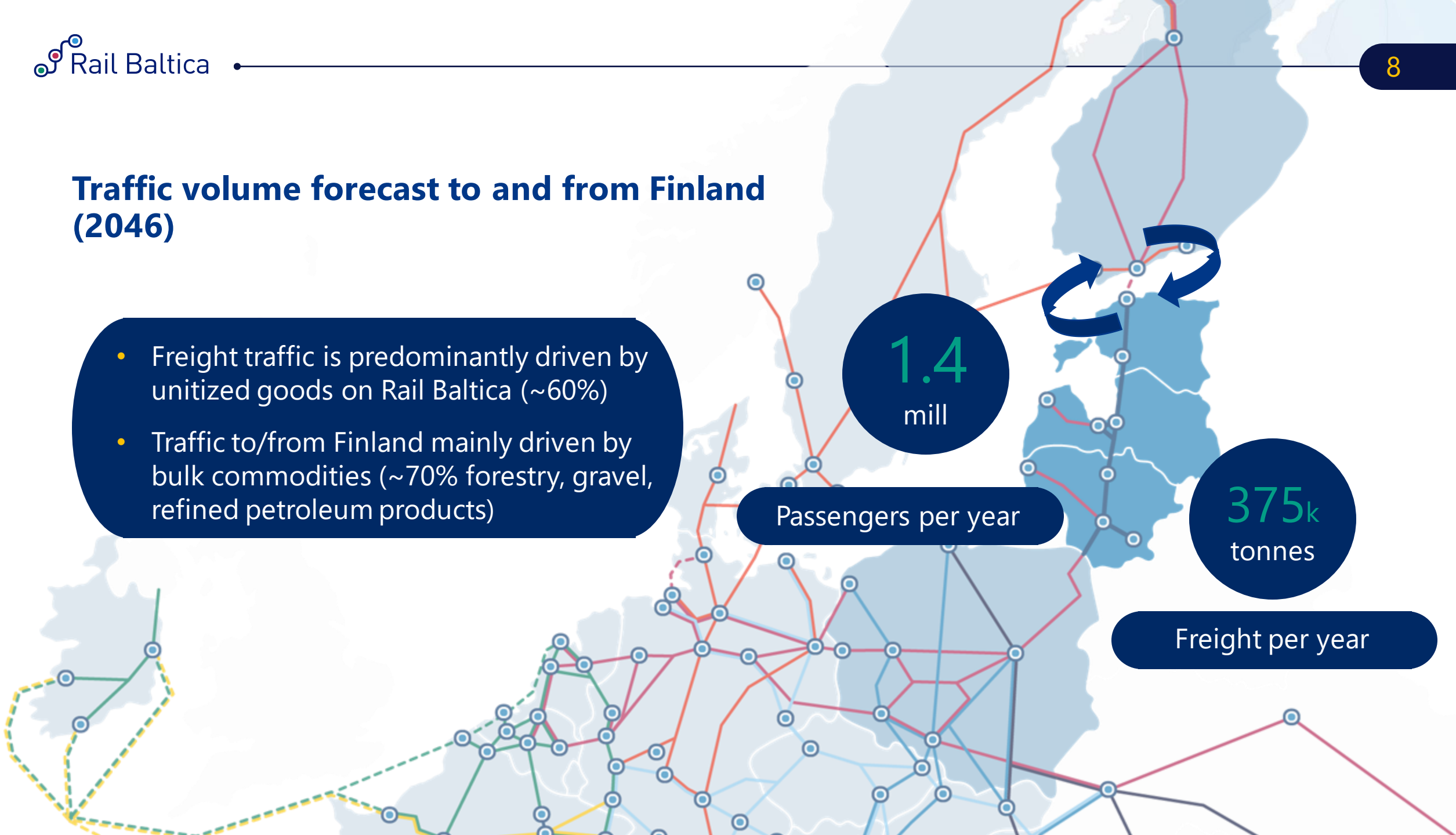
- Freight traffic is predominantly driven by unitized goods on Rail Baltica (~60%)
- Traffic to/from Finland mainly driven by bulk commodities (~70% forestry, gravel, refined petroleum products)

1.4
mill

Passengers per year

375k
tonnes

Freight per year



Freight logistics

Findings from freight user survey

Overall tendencies:

1. **High uncertainty** about future freight movements through Russia and Belorussia
2. **Constant shortage of drivers for trucks.** Forwarders do not see any improvement in the future either, because the new generation does not want to be truck drivers
3. More and more companies are asking for **environmentally friendly supplies**, but not everyone is willing to pay a bit more for that

Rail Baltica:

1. From customers perspective infrastructure managers and operators should develop **one, seamless network across Rail Baltica line**
2. **Time and cost of service** are crucial for railway to compete with existing types of transportation, and it must include smooth transshipment service at freight terminals
3. **Online data exchange** is highly desirable for day-to-day information exchange, like, cargo accompanying documents, track and trace capabilities, information on delays, problems encountered both at terminals and during rail freight transportation

Questions for future freight users

1. Would your company consider to use RB railway line for freight transportation?
2. What type of cargo would you prefer to ship with Rail Baltica from/to Finland?
 - a) Bulk
 - b) Unitized (containers and semi-trailers)

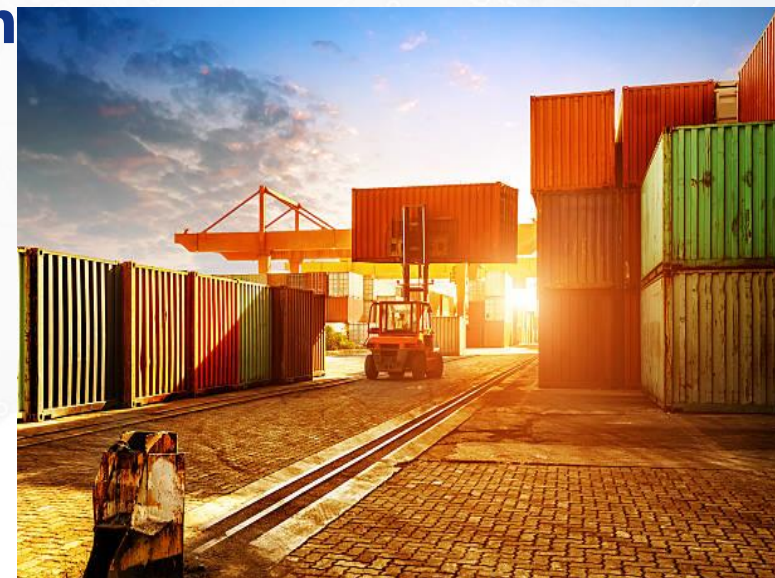
Open access logistics facilities

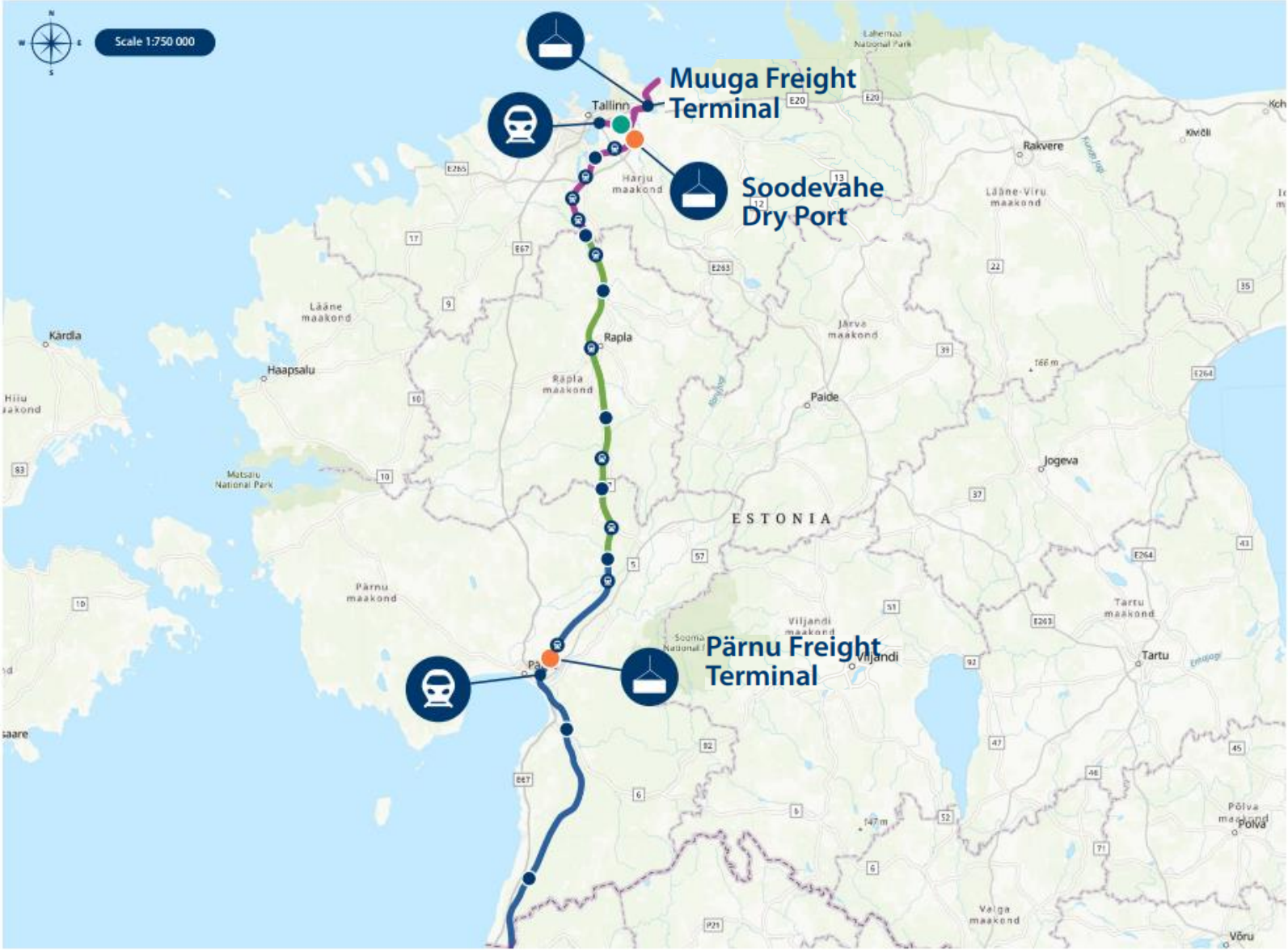
Accessibility for cargo handling:

- Connection to several multimodal and intermodal terminals in the Baltic countries: Muuga, Soodevahe, Pärnu, Salaspils, RIX, Panevėžys, Kaunas, Vilnius and others, opportunity for direct access connections to industrial facilities
- Additional business opportunities for courier-post companies at passenger stations

Multiple cargo handling options based on location

Air to Rail
 Marine to Rail
 Rail to Rail
 Road to Rail
 ("Piggyback» and
 Rolling Road")



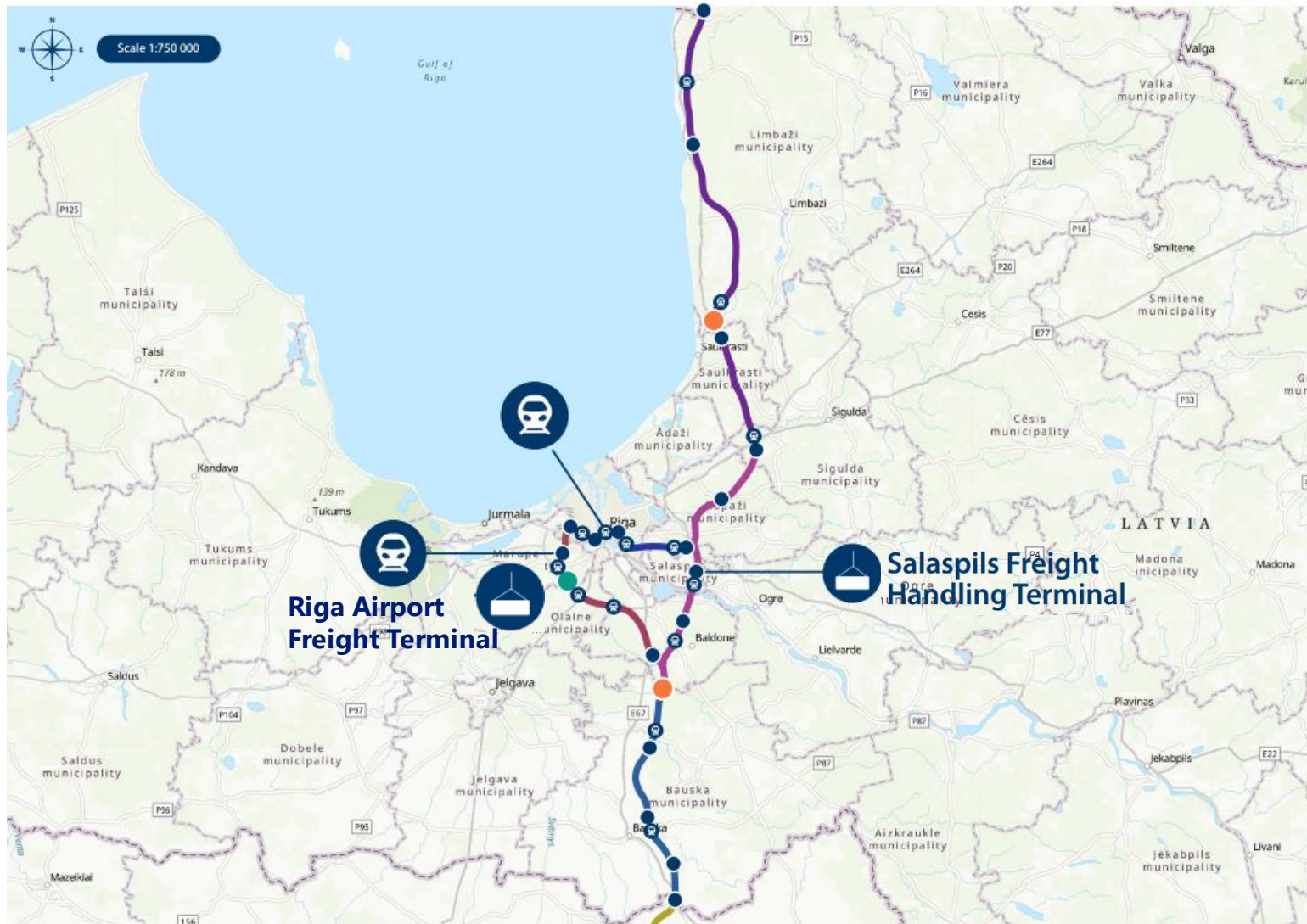


Estonia

Map markings

Stations / Stops / Terminals

-  International Passenger Terminal
-  Freight Terminal
-  Infrastructure Maintenance Facility
-  Heavy Rail Fleet Depot

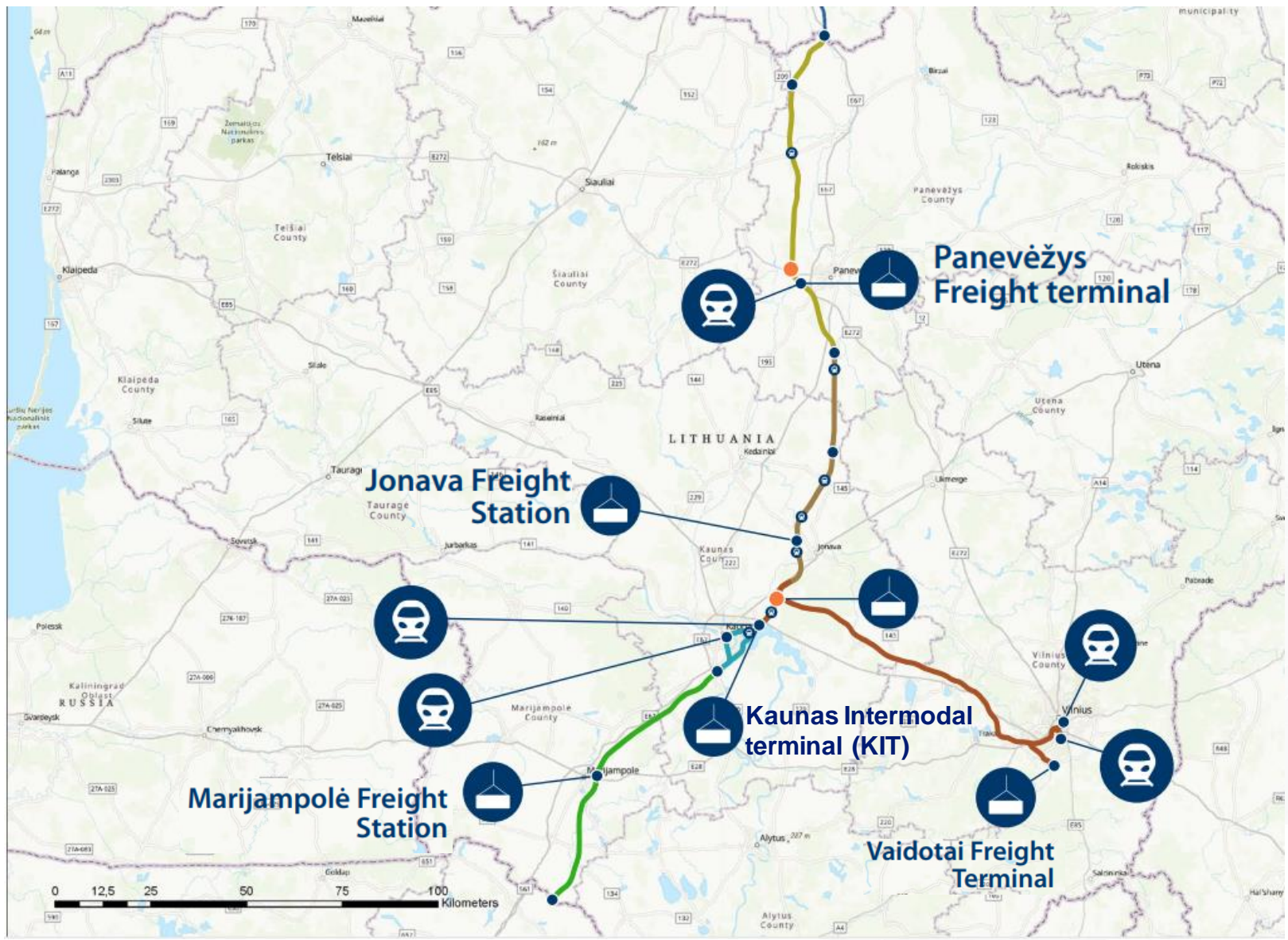


Latvia

Map markings

Stations / Stops / Terminals

-  International Passenger Terminal
-  Freight Terminal
-  Infrastructure Maintenance Facility
-  Heavy Rail Fleet Depot



Lithuania

Map markings

Stations / Stops / Terminals

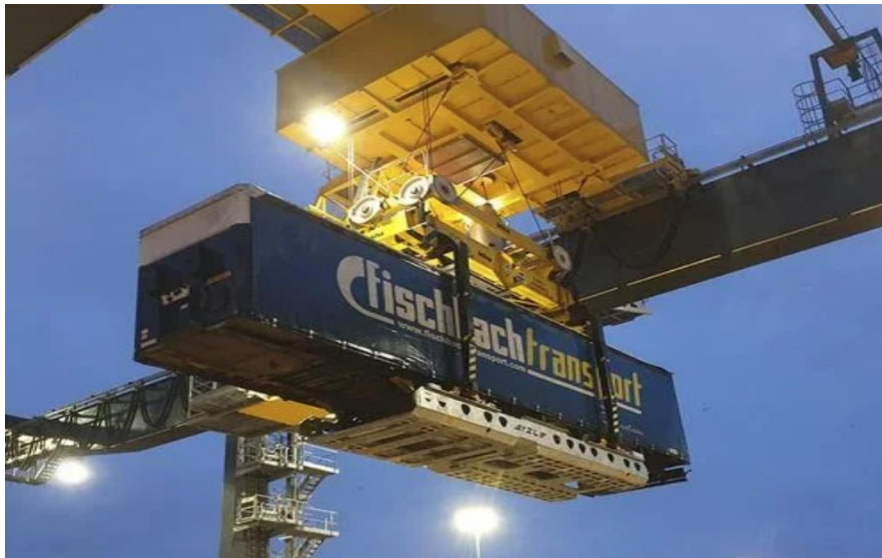
-  International Passenger Terminal
-  Freight Terminal
-  Infrastructure Maintenance Facility
-  Heavy Rail Fleet Depot

Possible handling technologies for combined transport

Possible options*	Type	Simultaneous operations
Craneable trailers / swap bodies	Unaccompanied delivery (UCT)	Possible with multiple cranes and/or transfer units
NiKRASA or VEGA		
Modalohr		
CargoBeamer		
Megaswing		
RoLa	Accompanied delivery (ACT)	NO
GetLink-Eurotunnel-Le Shuttle		Possible

*Other options are available also

NiKRASA or VEGA (UCT)



MODALOHR (UCT)



CARGO BEAMER (UCT)



MEGASWING (UCT)



GetLink-Eurotunnel-Le Shuttle (ACT)



ROLA (ACT)



Survey questions on freight technology

Which type of combined transportation (road-rail) would you prefer to use?

- a) With truck driver accompanying the truck and trailer
- b) Unaccompanied trailer

Dedicated solution for Parcels and Post



Varamis Rail «Swift express», UK

Regional passenger train adapted for goods transportation in roll containers and pallets.

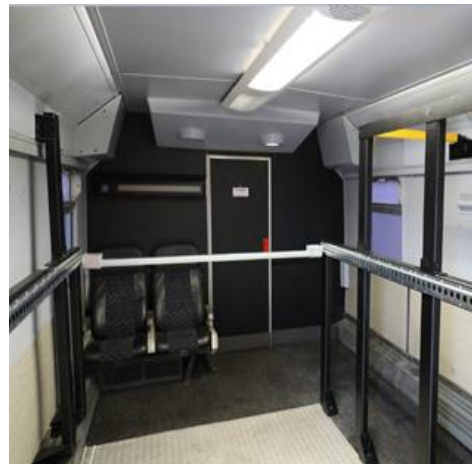
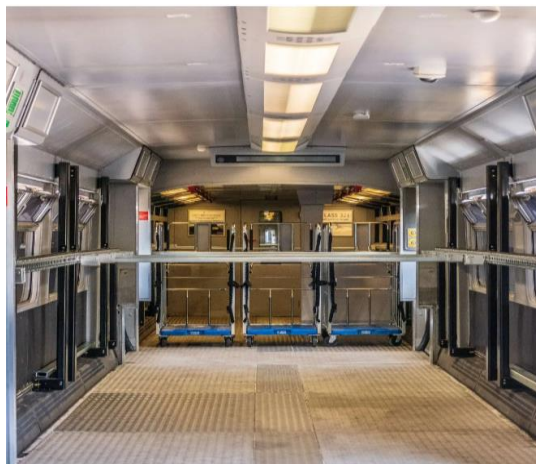
Max speed: 160 km/h

The train consists of 12 coaches, which is +/- 13 semi-trailers.

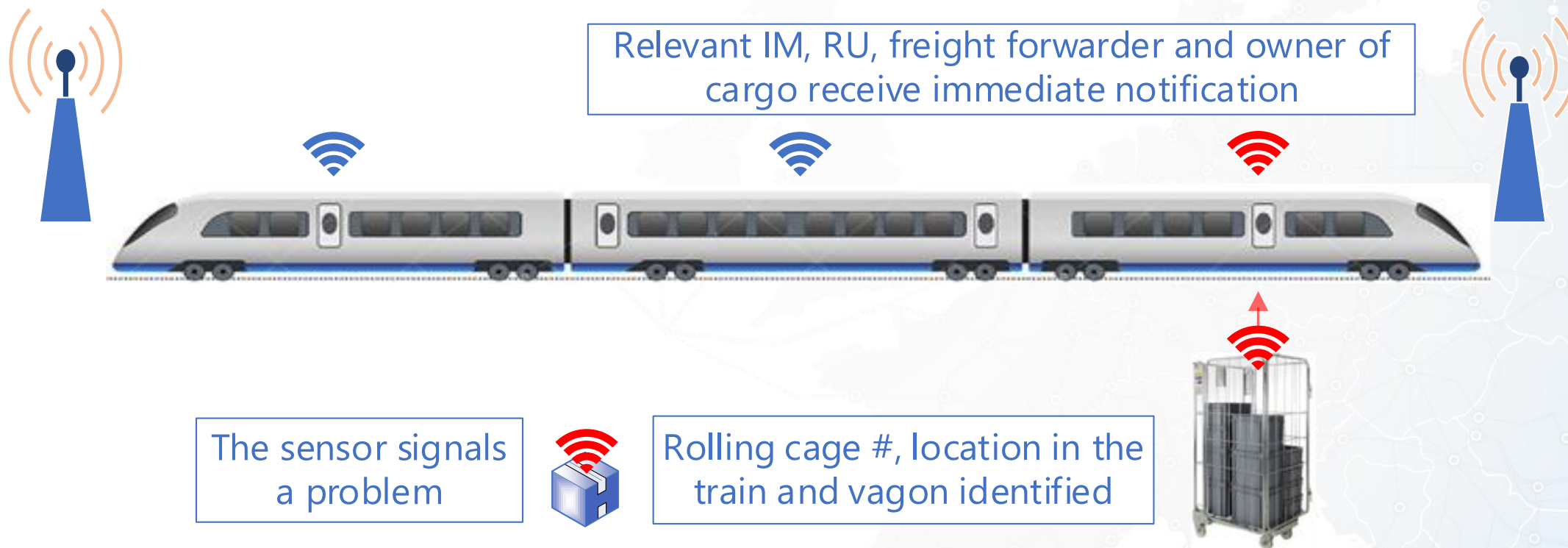
Approximately 650 roll containers in total.

Container volume (71x80x180), approximately 1m³

Total train 9,5 tons per coach, total 114 tons per train.



High need to ensure online traceability of shipments and activities



Survey question on parcels

What do you think about a special train just for parcels, mainly but not only for parcels?

- a) Yes
- b) No

Innovation and Digitalization

RailCDM & Similar

Review of RailCDM Project

Comparison with A-CDM

Implications for CCS

Implications for IT Strategy

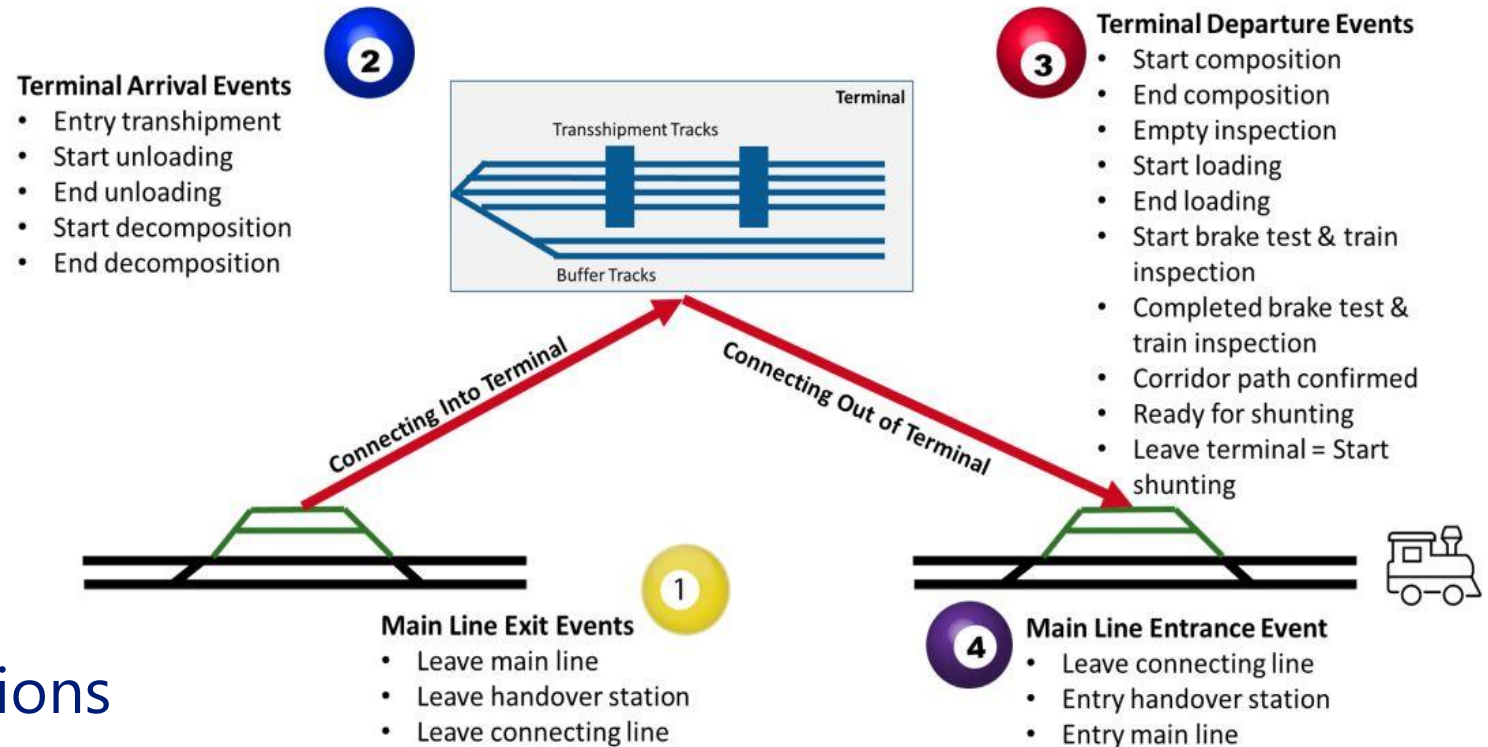
Multivendor Solutions

Standards-driven

Published/Shared specifications

Common formats & protocols

Open standards



Technologies to Watch

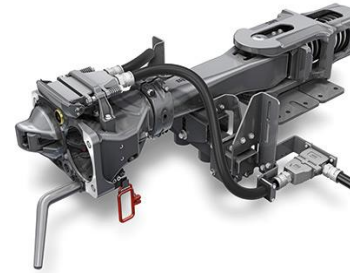
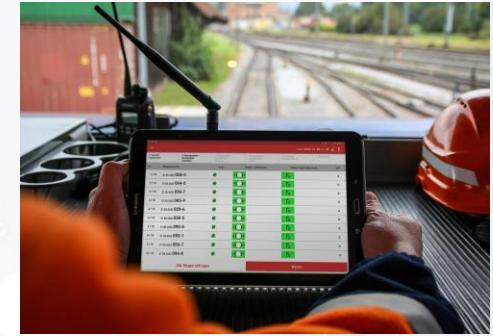
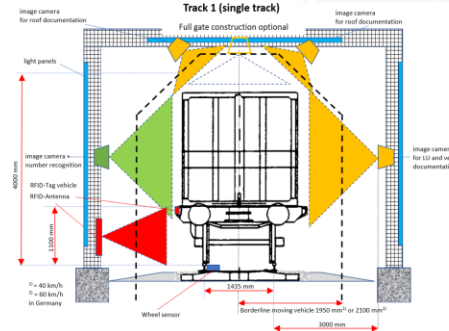
Rail Operations

- Digital Automatic Coupler (DAC)
- Train integrity (via DAC, FRMCS, other)
- Digital brake testing

Intelligent Video Gate & related Remote driving & shunting

Autonomous vehicles

- Medium Trucks
- "Full size" Trucks
- Terminal Tractors
- AI & related



Construction materials logistics

Consolidated material supply. Quantities to be delivered.



8 000 000 tons of railway ballast

EQUAL TO:



2 x Great Pyramids of Giza



130 000 x train wagons
5 200 train sets



3 370 000 pcs. of concrete sleepers

EQUAL TO:



650 x Great Wall of China



14 500 x train wagons
580 train sets

Country	Tons	Wagons	Trucks
Estonia	2 145 670	35 000	89 400
Latvia	2 387 050	39 000	99 400
Lithuania	3 539 240	56 000	147 400

Country	Pcs.	Tons	Trucks
Estonia	977 000	293 000	12 200
Latvia	978 000	294 000	12 300
Lithuania	1 415 000	425 000	17 700



240 000 tons of rails

EQUAL TO:



33x Eiffel towers



3 500x train wagons

Quantities to be delivered.



570 sets of Turnouts systems (300 km/h)
563 sets of Turnouts systems (200 km/h)
250 sets of Rail expansion joints



5 500 km of Multiducts
3 000 km of Ducts
9 000 pcs. of Manholes
480 km of Cable channels



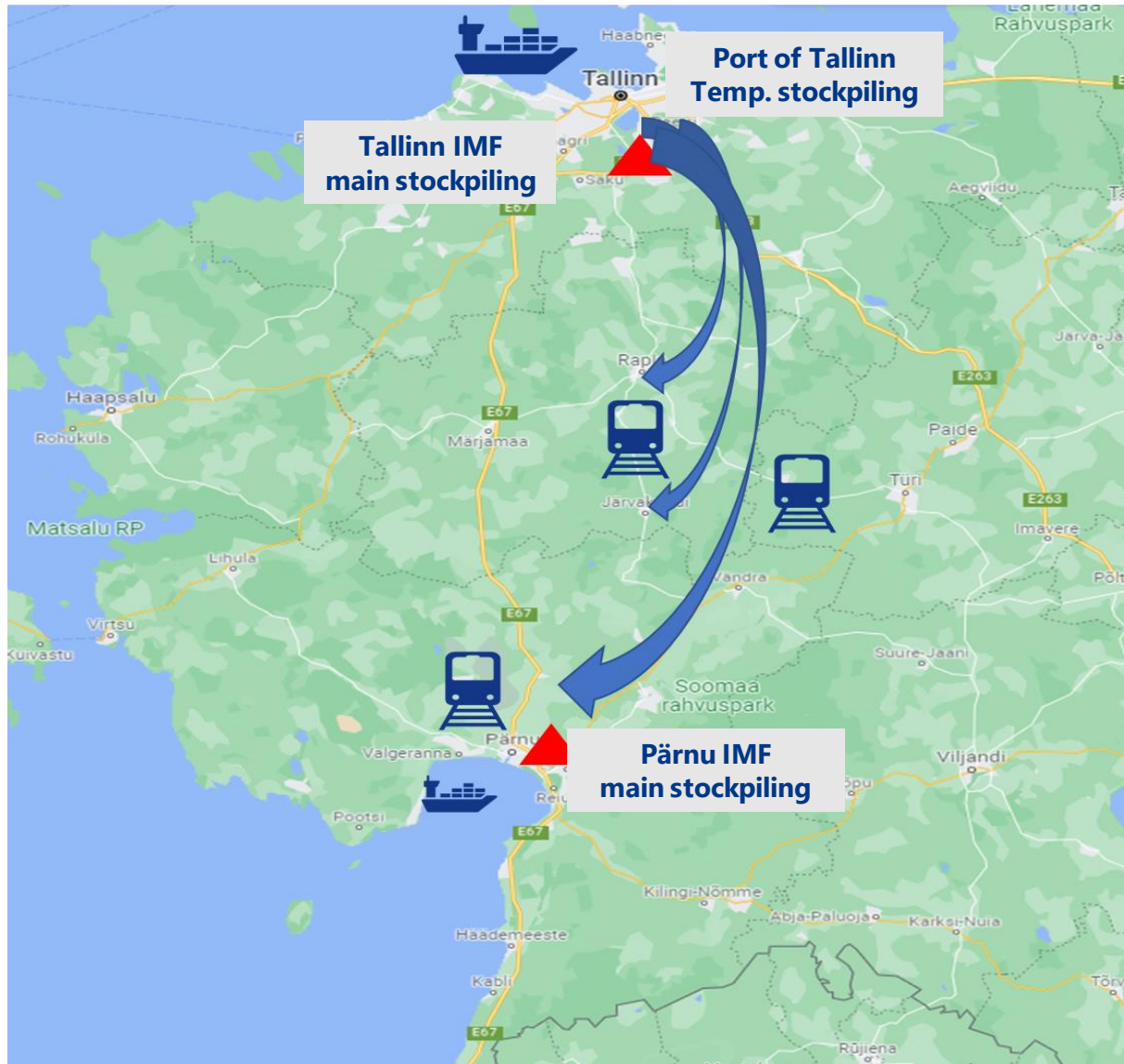
223 km of Noise barriers



1533 km of safety fences

Country	Tons	Length, km	Wagons
Estonia	70 600	1 177	1 020
Latvia	71 000	1 183	1 010
Lithuania	103 000	1 717	1 470

Possible scenarios for logistics of ballast (EE)



2,2 M tons of railway ballast to be delivered to **Estonia** (1 vessel every week almost 3 years in a row).

Scandinavia, **Finland** and Scotland could be the main options, therefore Port of Tallinn and Pärnu to be involved.

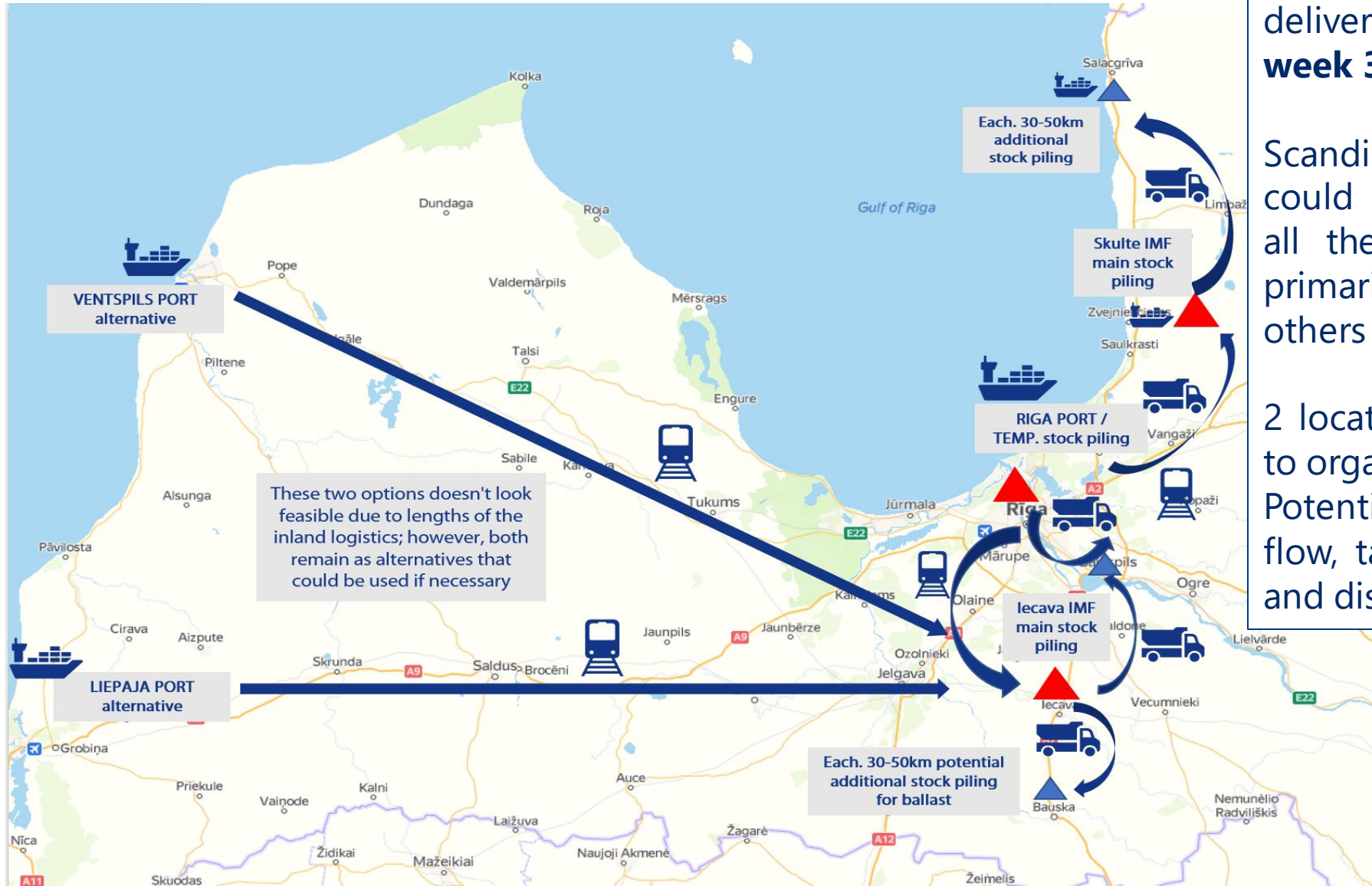
2 locations (future IMFs) will be used as primary locations to organize ballast stockpiling: Tallinn and Pärnu.

Delivery on existing 1520 mm rail is a priority wherever it's technically possible from ports to IMF and to the main line.

Shorter distances of 30-60 km from Tallinn port could be covered by trucks delivering straight from port area.

Due to nature (the space required for ballast storage) and complexity of the import operations an additional stockpiling for ballast could be assessed e.g. each 40-50km)

Possible scenarios for logistics of ballast (LV)

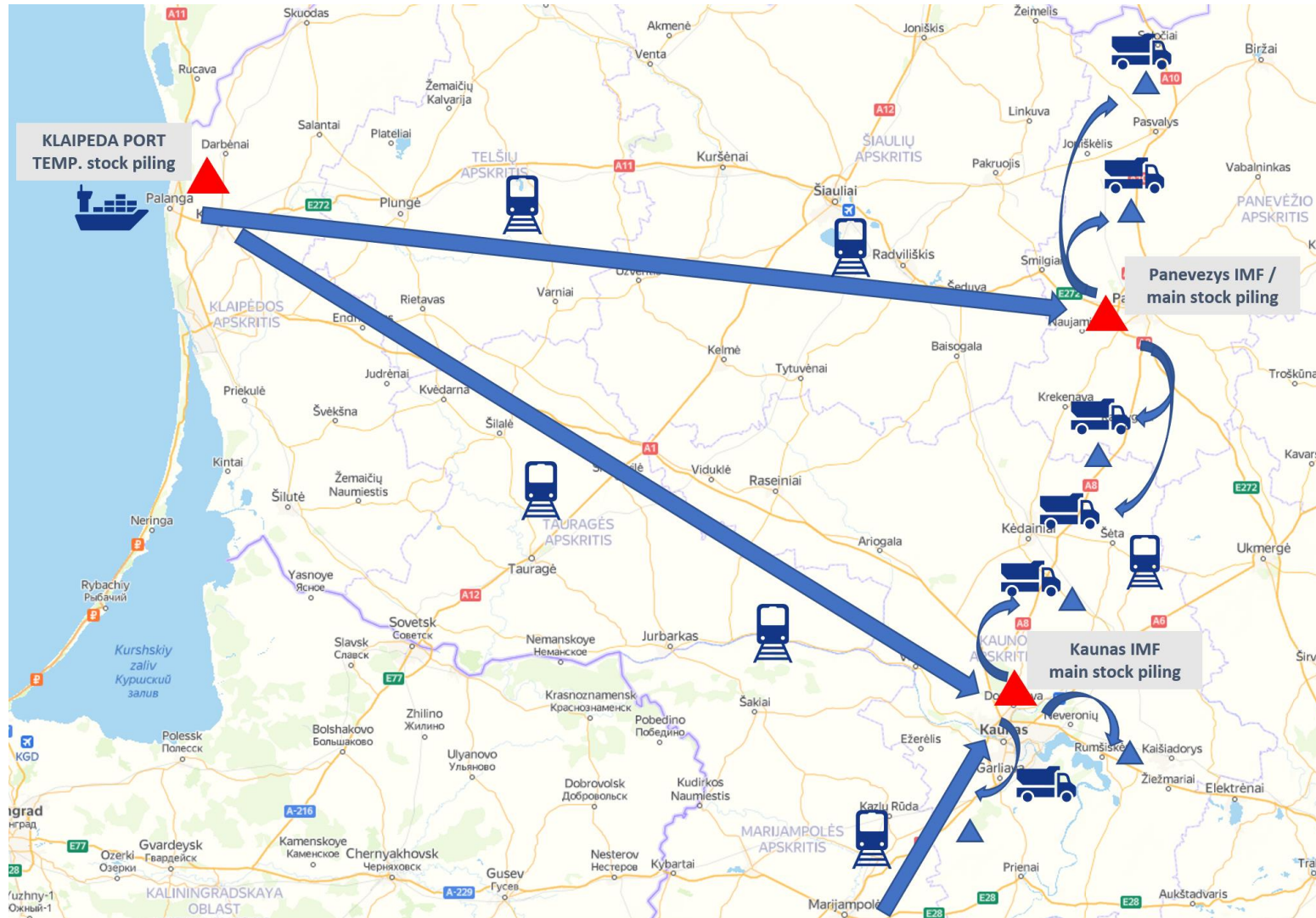


2,4 M tons of railway ballast to be delivered to **Latvia (1 vessel every week 3 years in a row).**

Scandinavia, **Finland** and Scotland could be the main options, therefore all the main ports to be involved: primarily Riga, Skulte and Salacgriva, others as alternative.

2 locations (future IMFs) will be used to organize ballast stockpiling. Potential challenges with product flow, taking in account the quantities and distances for deliveries.

Possible scenarios for logistics of ballast (LT)



3,6 M tons of railway ballast to be delivered to **Lithuania (2 vessels every week almost 3 years in a row)**.

2 locations (future IMF`s) will be used as primary locations to organize ballast stockpiling: Kaunas and Panevežys.

Delivery on existing 1520 and 1435 mm rail is a priority wherever it is technically possible from ports to IMF and to the main line.

Rail Baltica in Estonia

PROJECT SCOPE IN ESTONIA

- 213 km of double-track main line
- Ülemiste and Pärnu international passenger terminals
- Muuga freight terminal
- Pärnu freight terminal + IMF
- Soodevahe dry-port + IMF
- Ülemiste rolling stock depot
- 12 regional stations
- 100+ railway crossings
- 33 ecoducts
- Gas pipeline and HV line crossings
- 21,5 km of noise barriers



CURRENT STATE

COMPLETED

- 10 RAILWAY CROSSINGS
- 1 HV LINE CROSSING
- 1 STAGE OF PÄRNU PASSENGER TERMINAL

CONSTRUCTION / CONTRACT STAGE

- 12 RAILWAY CROSSINGS
- 3 GAS AND HV LINE CROSSINGS
- 2 ÜLEMISTE JOINT TERMINAL STAGES
- 1 STAGE OF SOODEVAHE IMF WORKS

PROCUREMENT STAGE

- 10 RAILWAY CROSSINGS
- 2 STAGES OF ÜLEMISTE JOINT TERMINAL
- 1 HV LINE CROSSING
- 8 MAIN LINE SECTIONS



MUUGA FREIGHT TERMINAL

- Located in Muuga Harbour, it is the only Rail Baltica freight terminal directly connected to a harbour.
- Also the northernmost and largest freight terminal on Rail Baltica.
- A multimodal freight terminal where operators can accept or dispatch goods to both the 1435 mm and the 1520 mm gauge rail networks.

Current state of the project

The master design is in the development stage (end at the latest 2026) and the preparations for the construction procurement, have started. The beginning of the construction works is planned for 2027.

Works to be carried out:

- General construction, construction of 1520 mm gauge track railway infrastructure, road infrastructure and facilities.
- Construction of the 1435 mm track gauge railway infrastructure, rolling stock service depot and traffic control center.



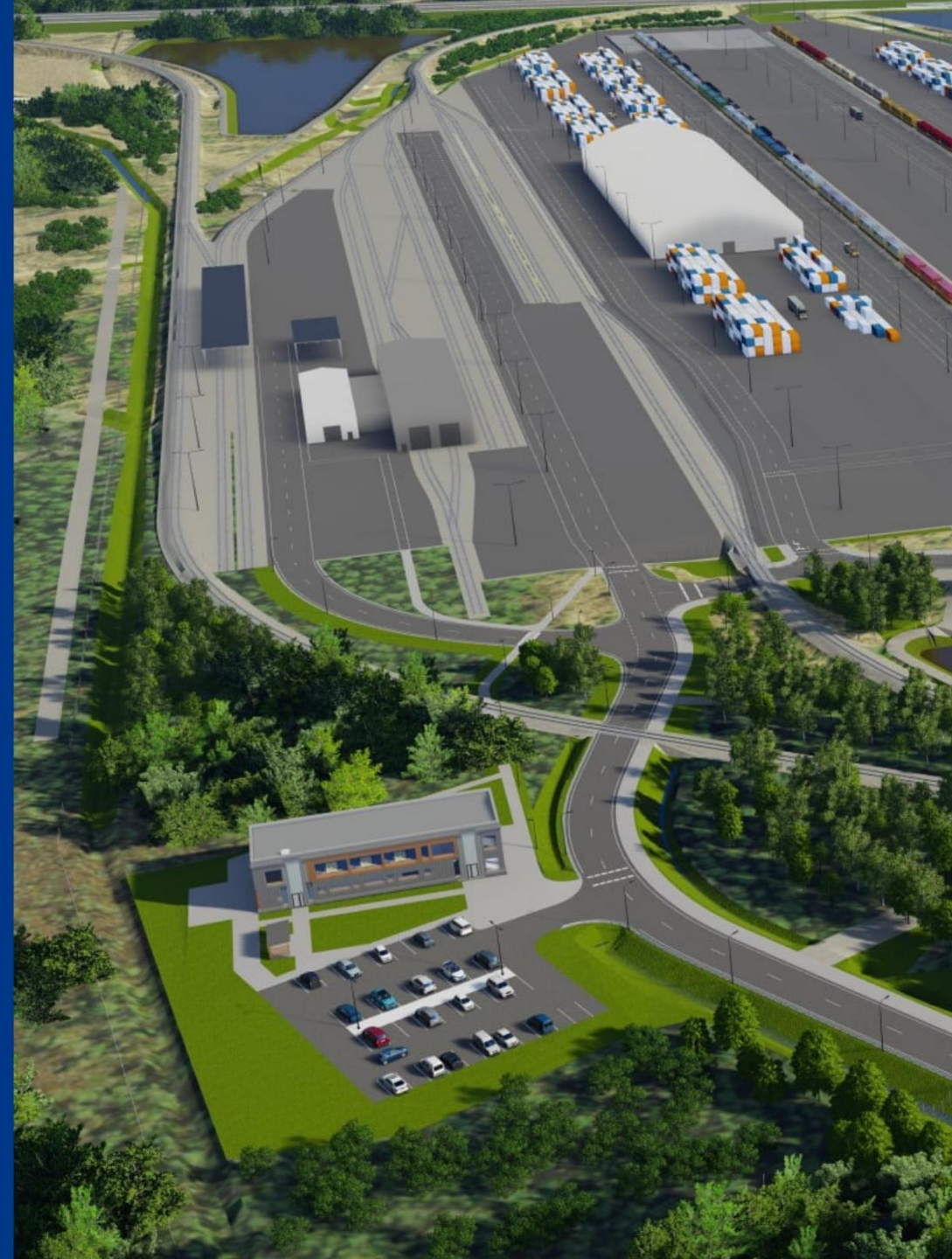
PÄRNU FREIGHT TERMINAL & IMF

- Planned to be built on the outskirts of Pärnu town in the **Niidu business area**. The area of the terminal and maintenance centre will also partially extend to the territory of **Tori municipality**.
- For servicing freight trains, Pärnu freight terminal allows the transshipment of goods between rail and road transport, storage and sorting of goods, assembly of rolling stock and other activities related to freight transport.

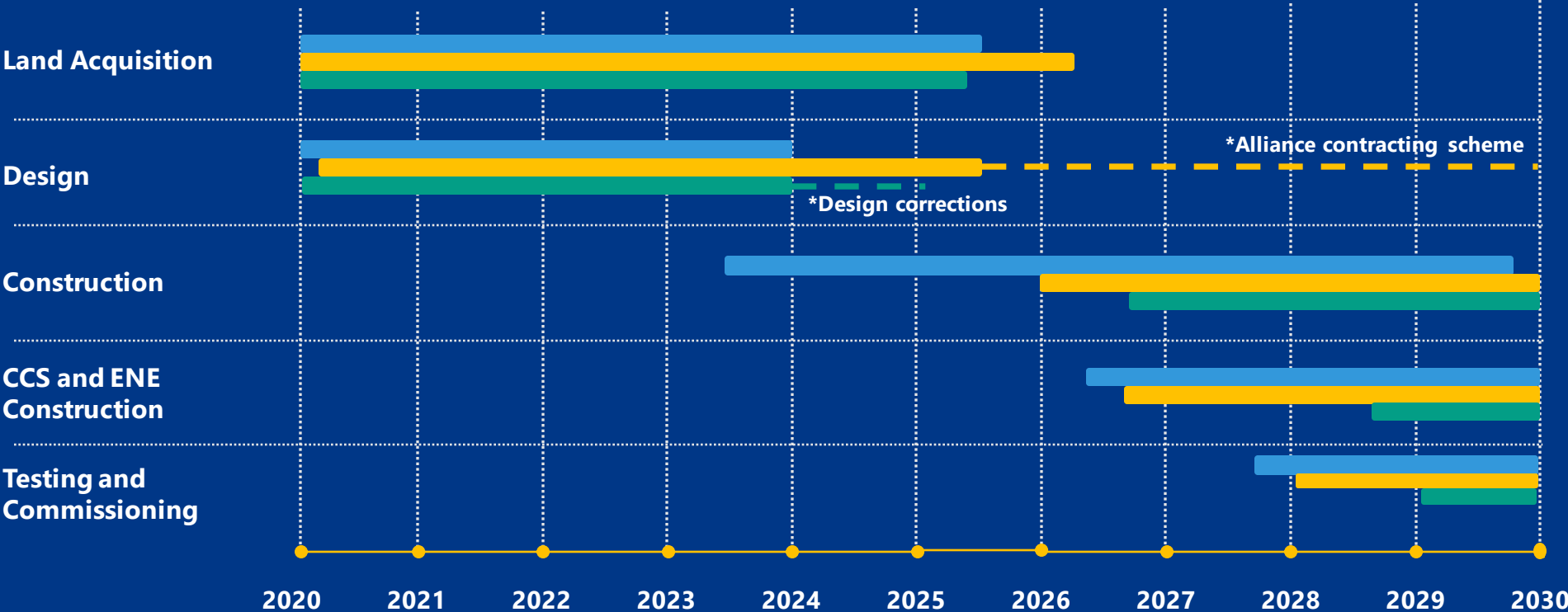
Current state of the project

The preliminary design of the Pärnu freight terminal and infrastructure maintenance center is being completed.

Works to be carried out: excavation filling, excavation works, embankment construction, utilities.



PROJECT TIMELINE IN ESTONIA



- Ülemiste – Pärnu
- Pärnu – Estonian/Latvian State Border
- Muuga - Soodevahe

Thank you!

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