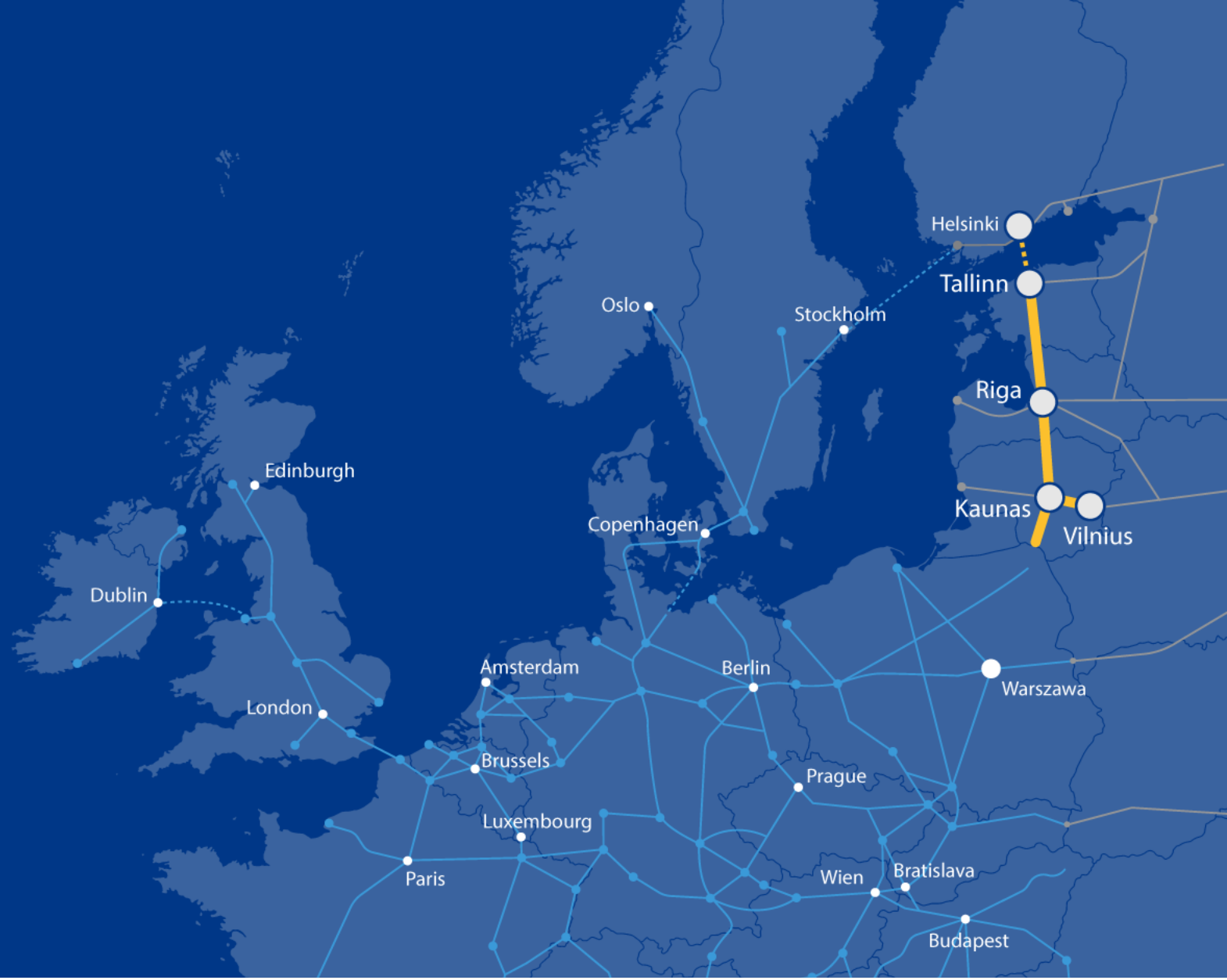
Rail Baltica

Digitalization of Rail Baltica Global Project



Raitis Bušmanis
Head of Virtual Design and Construction Department
RB Rail AS

Co-funded by the European Union

About me

Raitis Bušmanis

Head of Virtual Design and Consturction

- In RB Rail since January 2018
- Before that Trimble Solutions Oy
- In 'BIM field' since 2012

Tootsi Station

Kilksama Regional Stop

Rapla

Ainaži

Rail Baltica | OBERMEYER PLANEN + BERATEN GmbH | prointec

EE-DS3-DPS1

PÄRNU – ESTONIAN/LATVIAN BORDER

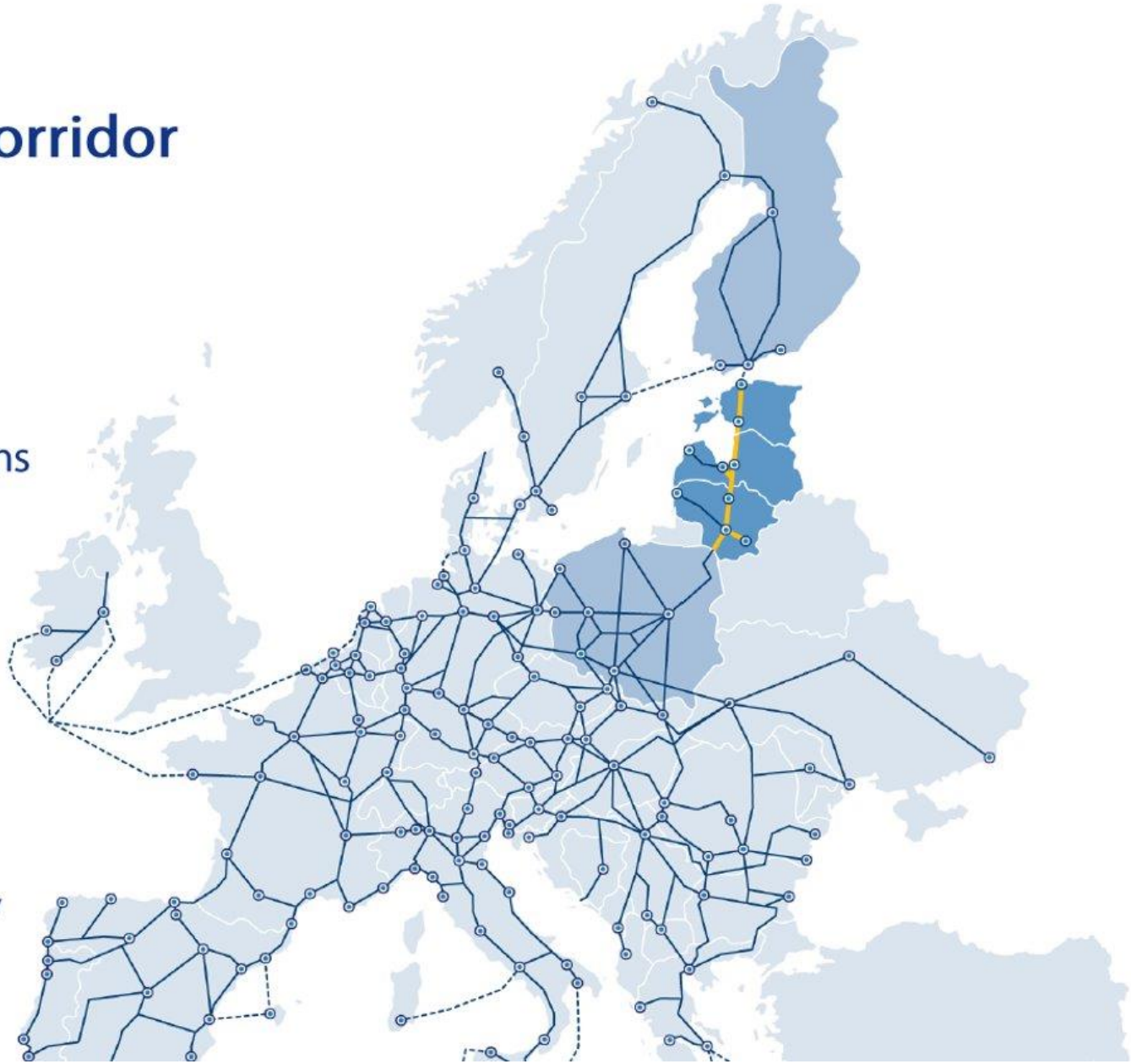
Rail Baltica – part of the North Sea-Baltic core network corridor

- Bridging a missing transport link
- New economic and security corridor
- 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

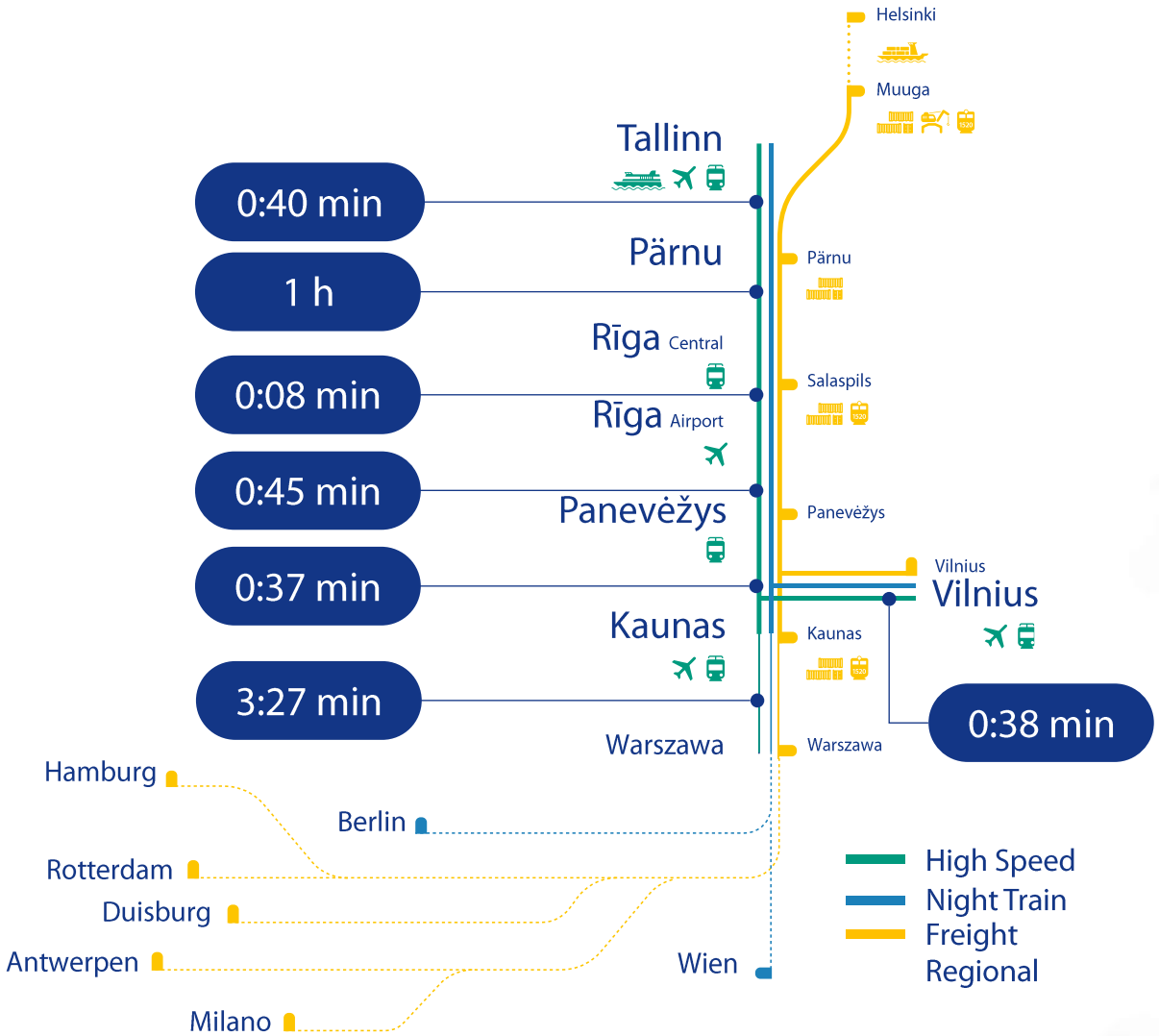
Multimodal connectivity and business opportunities. Catalyst for development



Rail Baltica
Linking nations, people, places

Co-funded by the European Union

Basis for new economic corridor and military mobility



Rail Baltica
Linking nations, people, places

Co-funded by the European Union

Rail Baltica project timeline

2023

- Mainline designs' completetion
- Delivery programme 2030
- Market readiness for material supply & logistics (incl. consolidated material procurements)
- New generation Cost-Benefit Analysis and Business Plan
- Decisions to ensure operational readiness (IGA on infra management and exploitation model, rolling stock etc.)

2024-2027

- **Construction!**

2028-2030

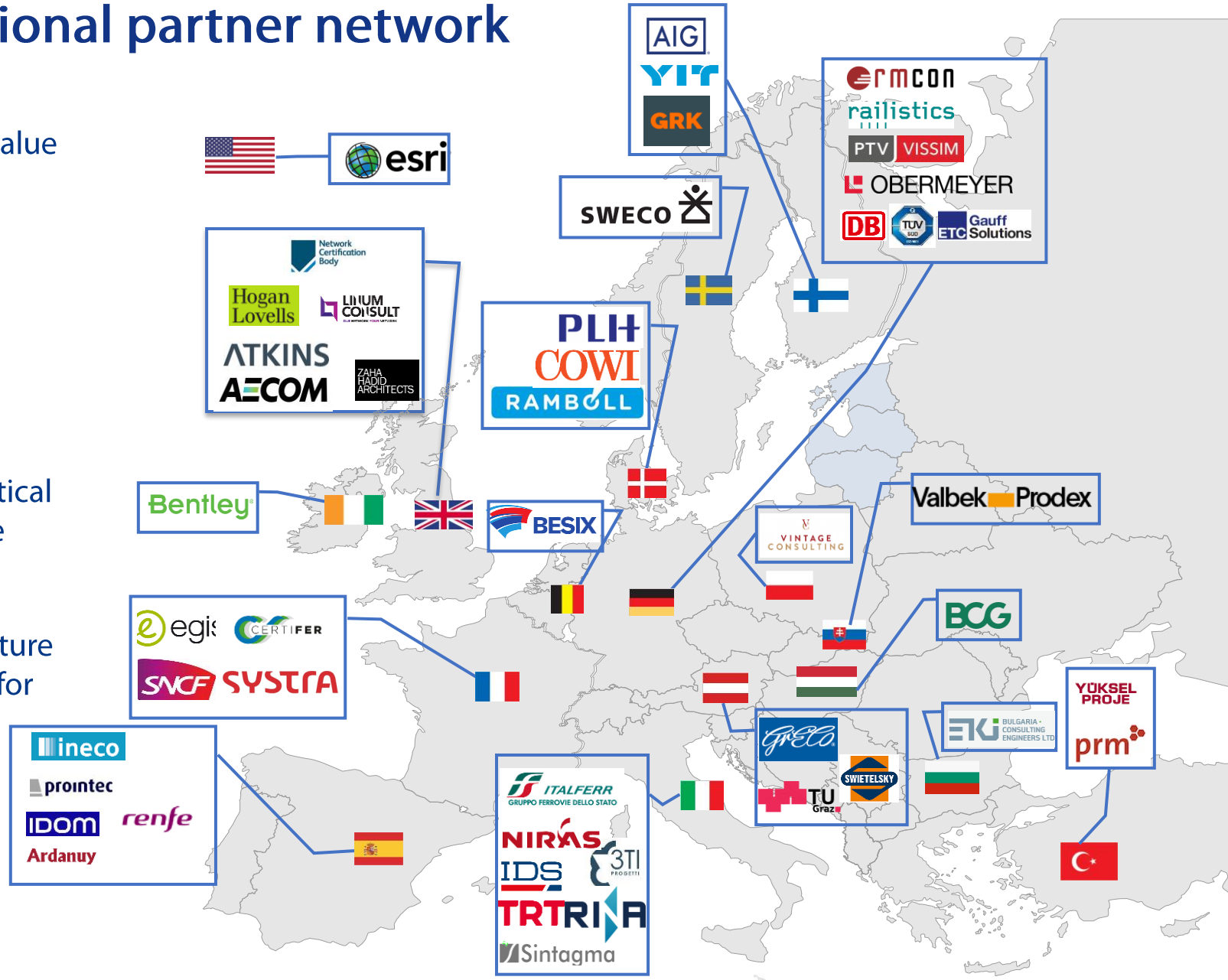
- Testing
- Validation
- Operations & full interoperability ensured
- New economic and security network corridor developed

Construction in progress

Gradual start of operations

Wide international and regional partner network

- ✓ More than 150 active contracts with total value above 1bn EUR. Over 50 international partnerships - European industry strongly represented
- ✓ Creating synergy with local companies – increasing local competencies and competitiveness on European level
- ✓ Proactively addressing the current geopolitical context in the existing contracts and future procurements
- ✓ Continuous mobilisation of existing and future suppliers, showcasing Baltics as safe place for doing business long-term
- ✓ Implementing international best ESG practices



Progress across all project disciplines

Design & Planning

- Design works advanced on more than 640km; alignment for Kaunas – Lithuanian / Polish border and Kaunas-Vilnius section
- Synchronizing schedule with Poland
- Work on operational readiness topics ongoing

Construction

- First phase works progressing in all three countries (stations, bridges, viaducts, animal passages, etc.)
- Main line construction procurements ongoing in Lithuania, Latvia and in Estonia
- Consolidated materials' procurements progressing

Railway subsystems development

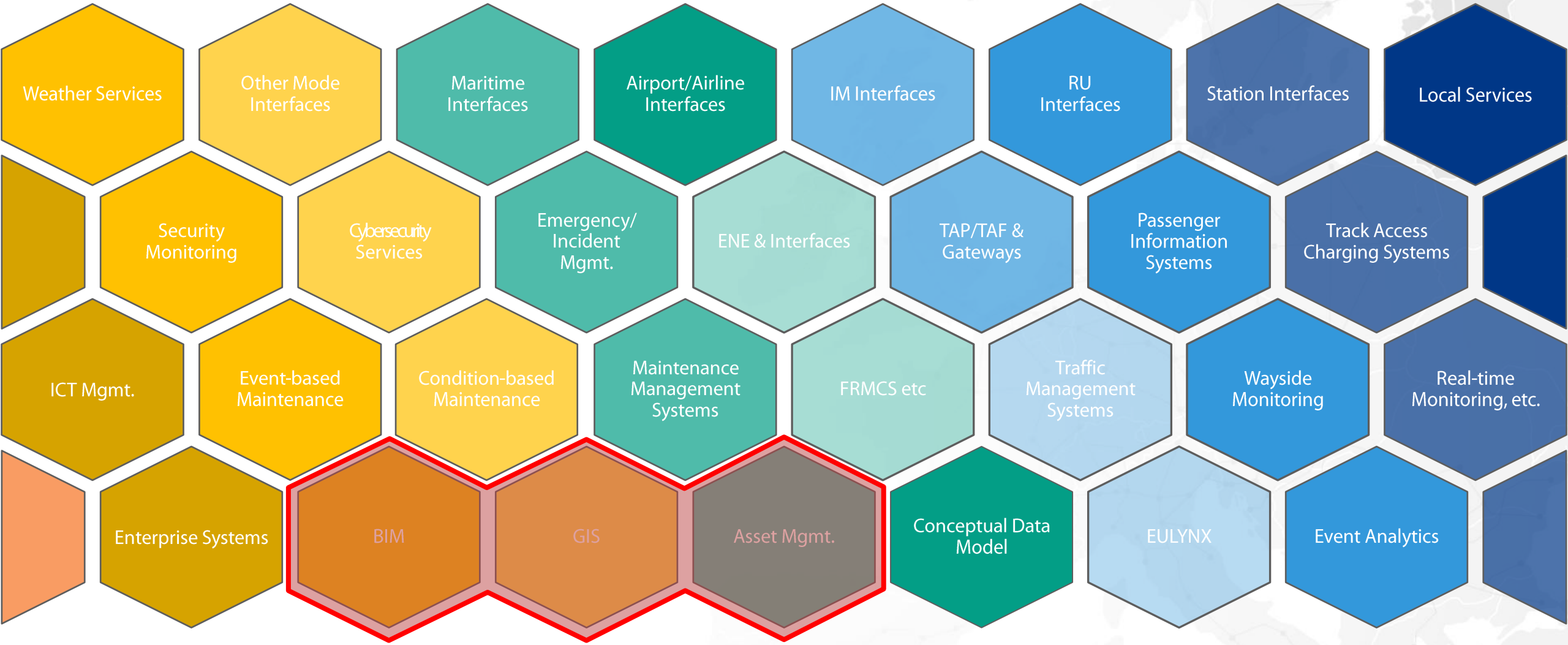
- Electrification & control-command and signalling subsystem 870km design & build procurement ongoing (2nd stage announced)

Delivery Programme 2030

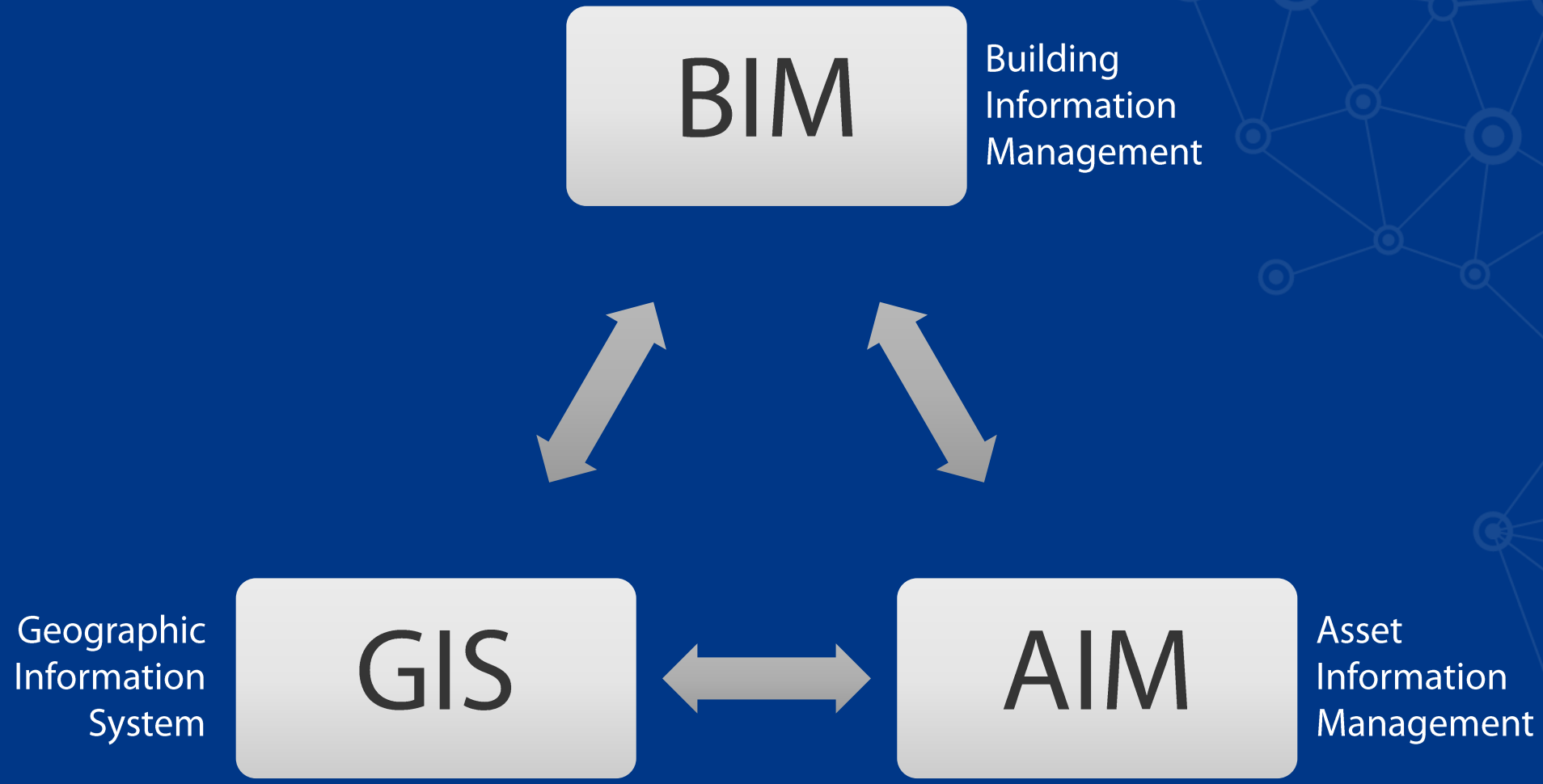
- 2030 target date confirmed by 3B Transport ministers in January 2023
- Focus on technically feasible scheduling of works in Baltics and with Poland
- Design schedule stabilisation as precondition to start of count-down
- Investment cost update ongoing, to be finalised with the updated Cost-Benefit Analysis and new-generation Business Plan in 2024
- Inter-institutional Project delivery set-up improvements


Digitalization and
Virtual design
Pärnu reisiterminali ideelahendus: AB PLUSS OÜ

Digitalization

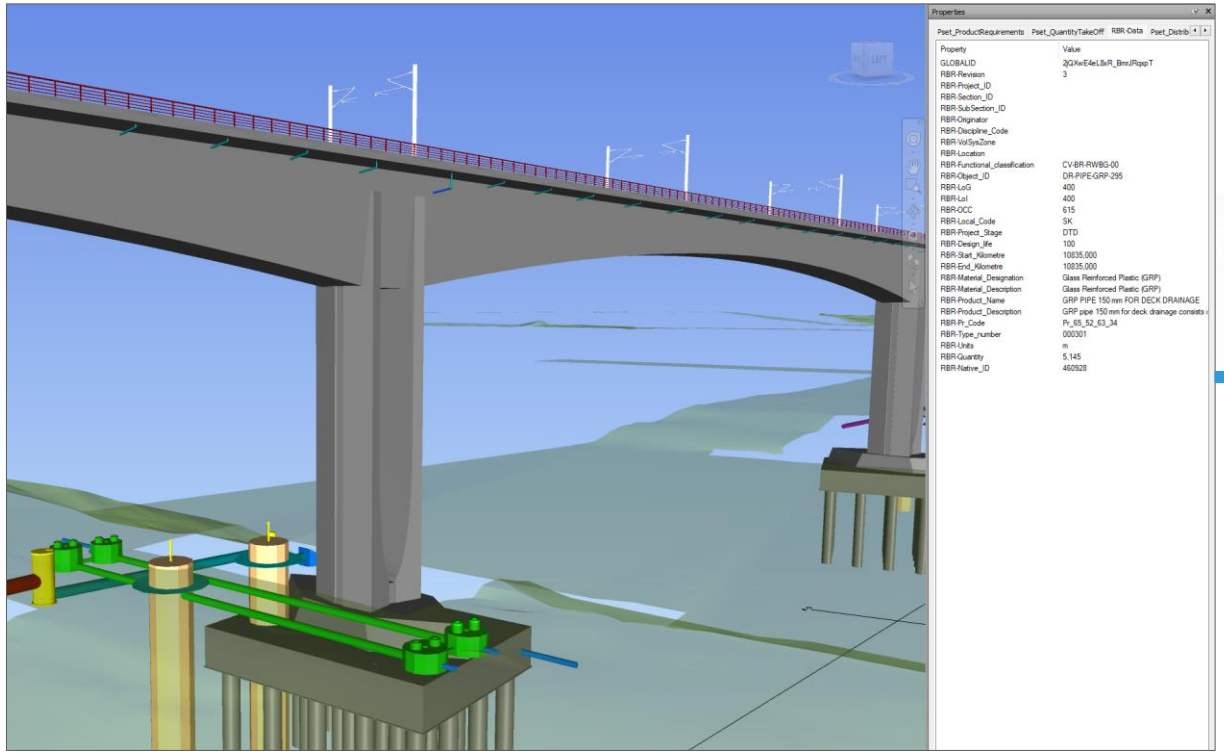


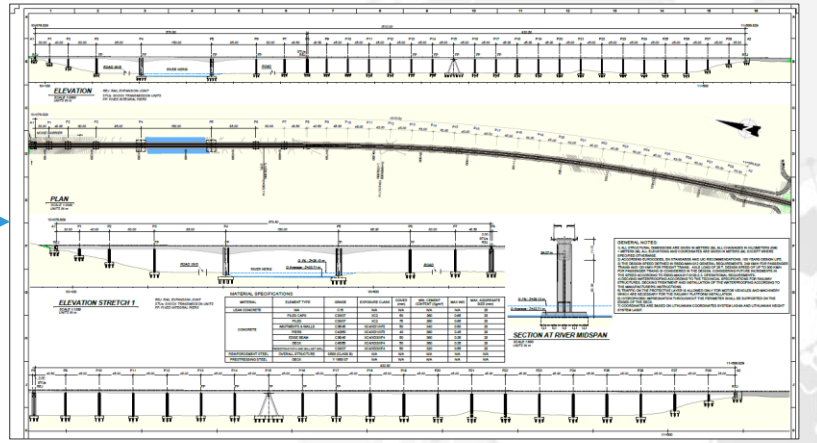
Rail Baltica
Linking nations, people, places
Co-funded by the European Union

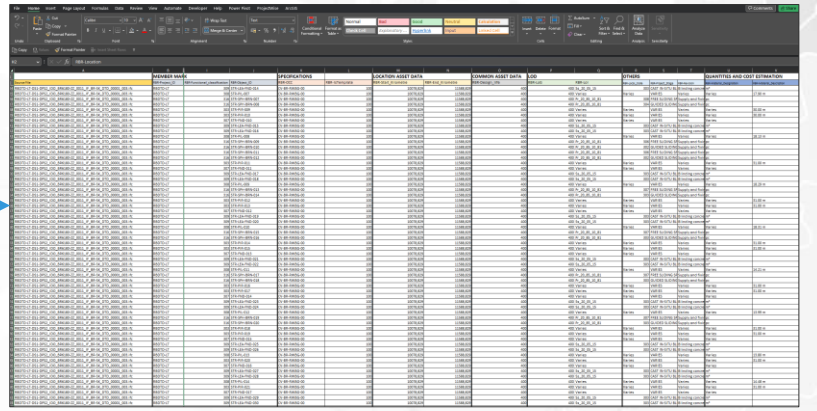

BIM
Building
Information
Management
Geographic
Information
System
GIS
AIM
Asset
Information
Management

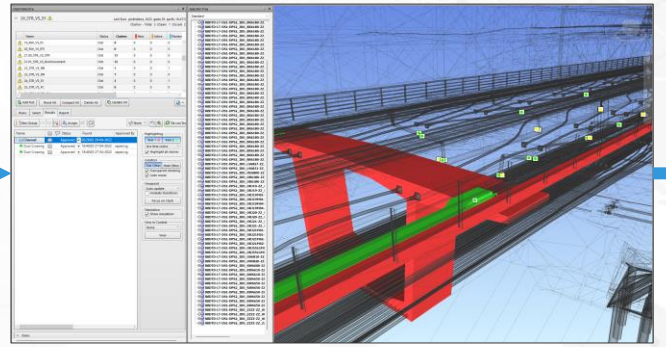
Zoom in on Rail Baltica

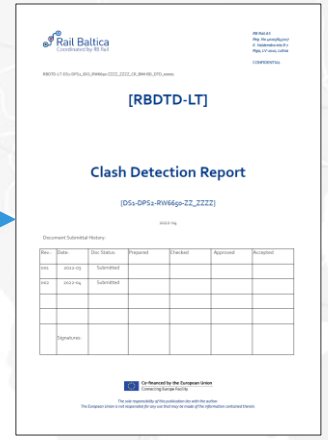
BIM process – models, drawings, reports, data drops…







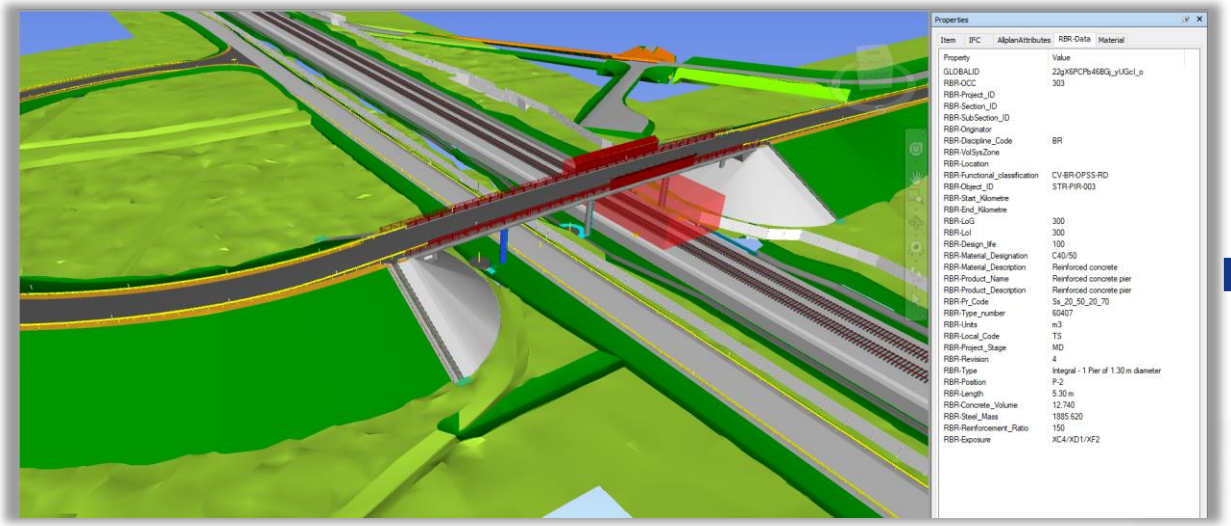




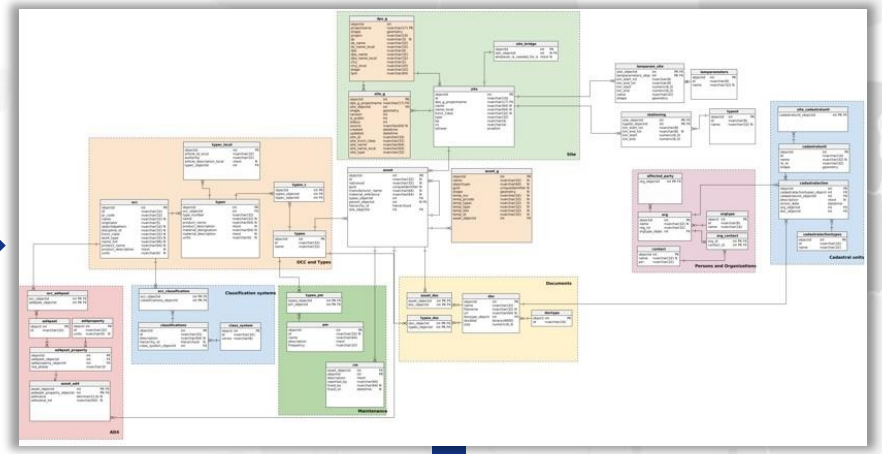
Rail Baltica
Linking nations, people, places

Co-funded by the European Union

BIM to GIS = Asset Register

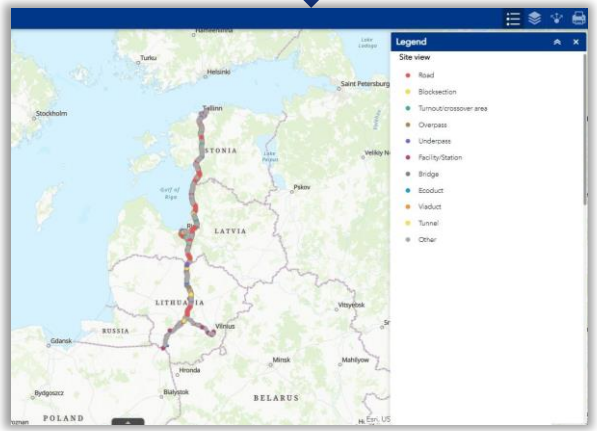


GIS Enterprise Geodatabase (SQL)

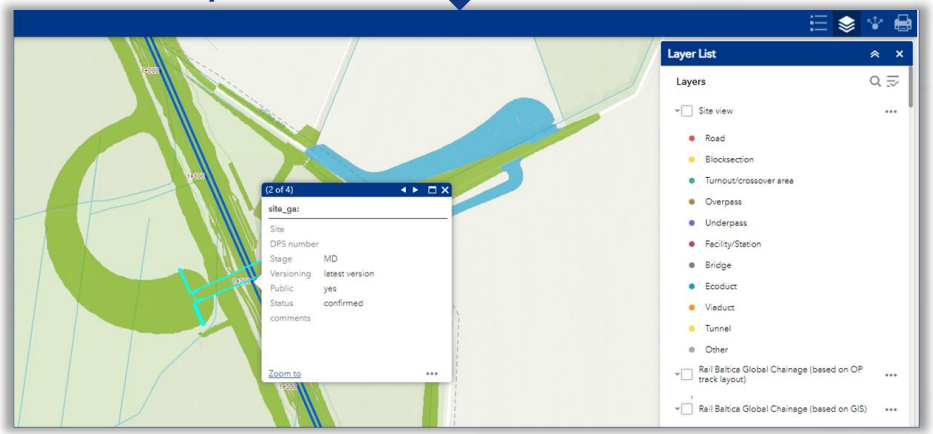


Web Interface

Sites



2D Footprint



3D Representation

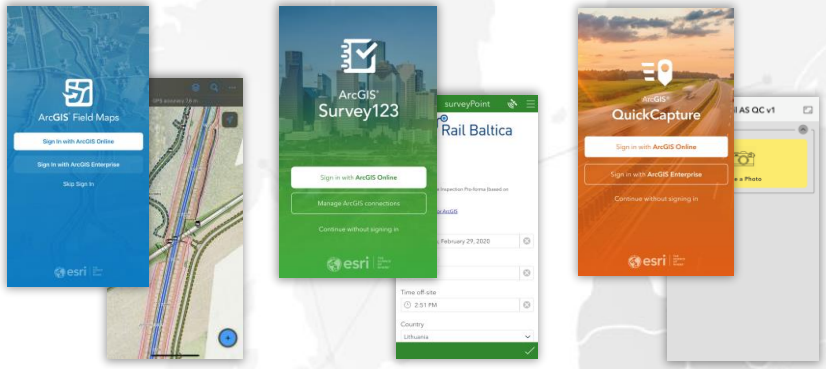
Rail Baltica
Linking nations, people, places

Co-funded by the European Union

GIS data

UAV's

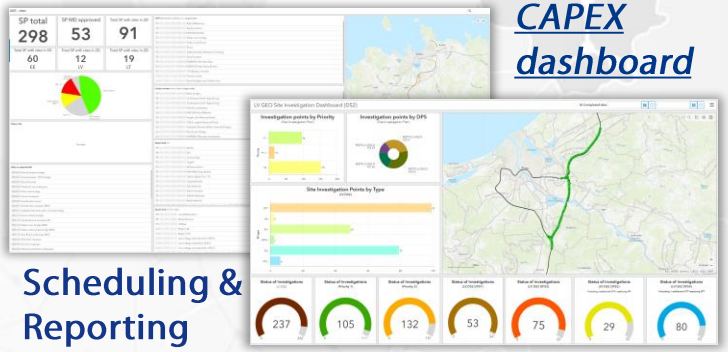
Field Apps



Detail Technical Design Data

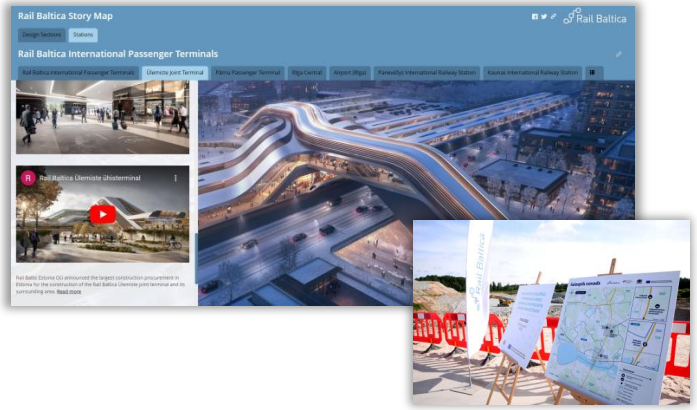
3D Data

CAPEX dashboard

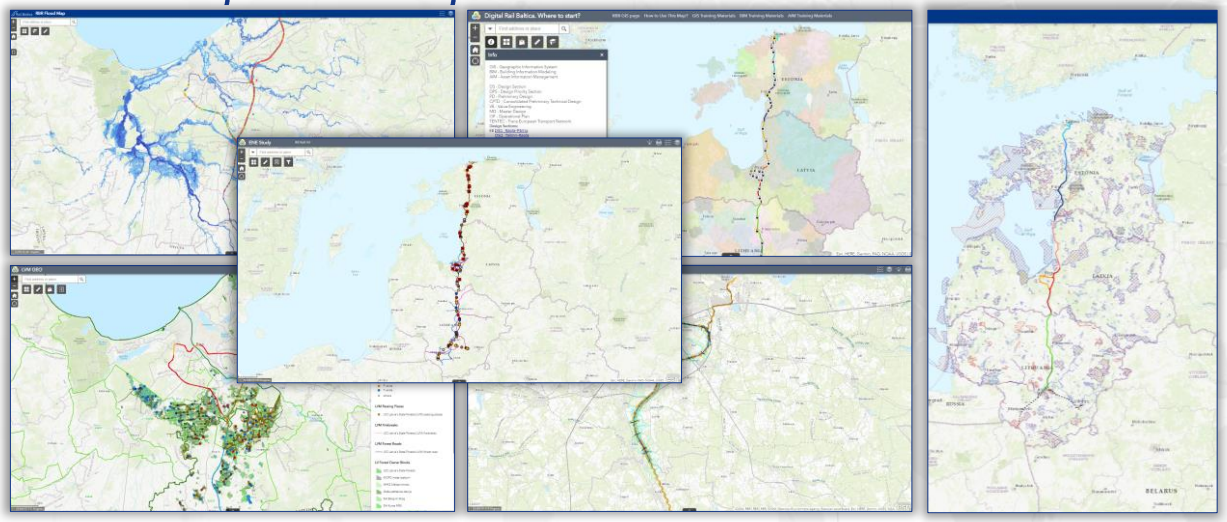


Scheduling & Reporting

Public Awareness



Universal & Specialized Maps



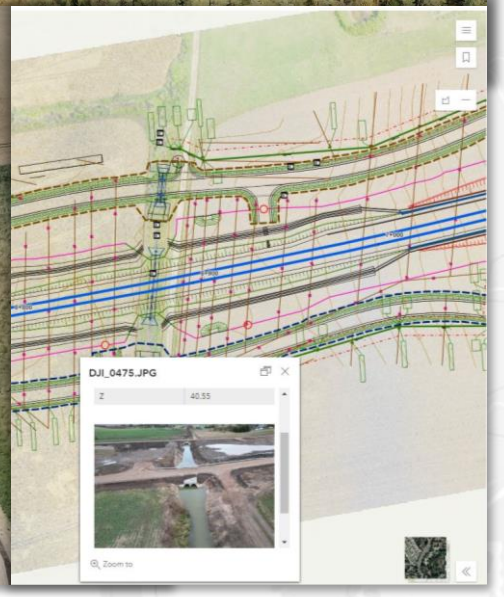
Rail Baltica
Linking nations, people, places

Co-funded by the European Union

Collection and Evaluation of Factual Data from Construction Sites

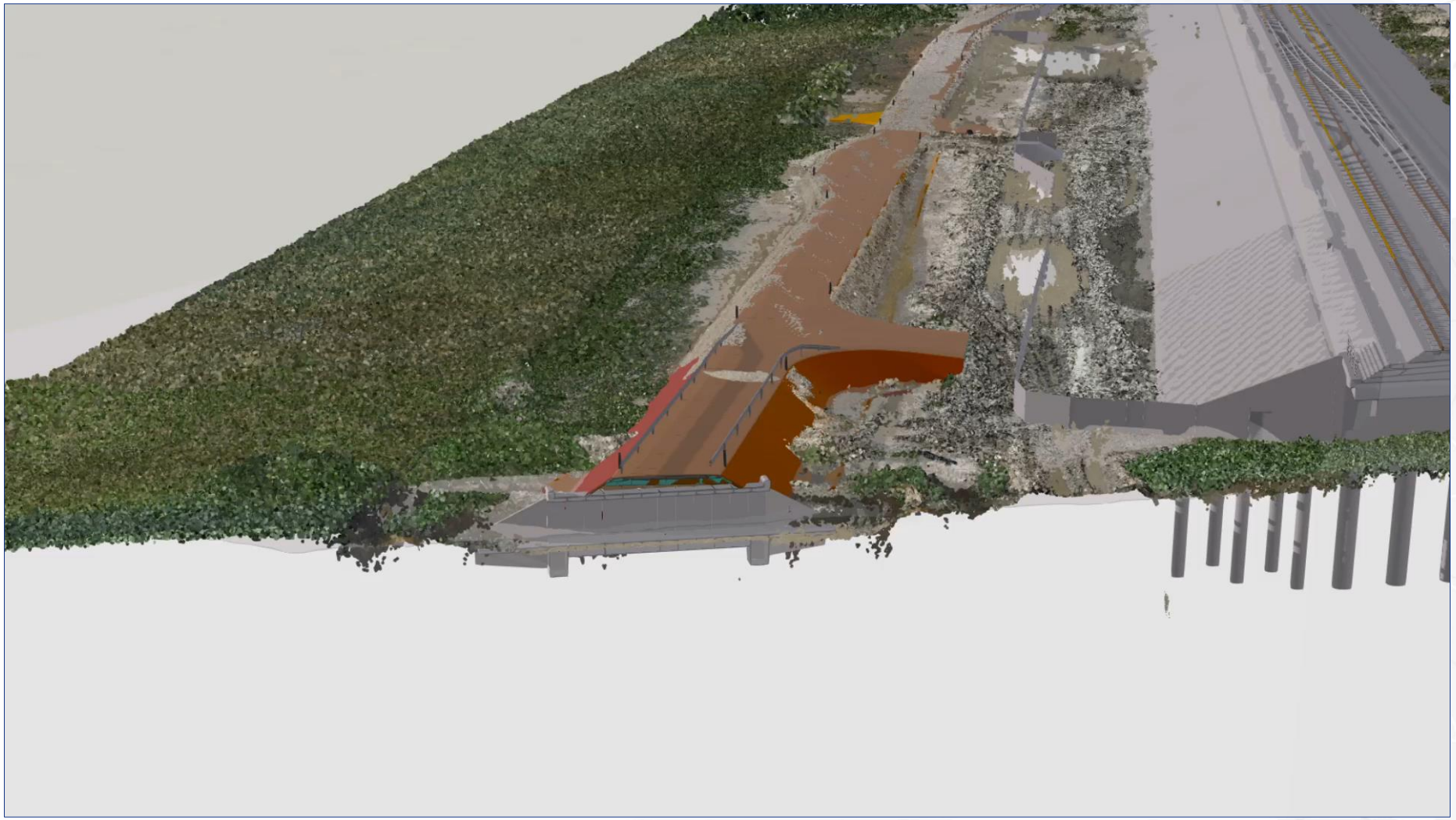
Field Applications. On-site Data Collection

Drones. Quick and Eficient Assessment of the Situation and Data Collection



Rail Baltica
Linking nations, people, places
Co-funded by the European Union

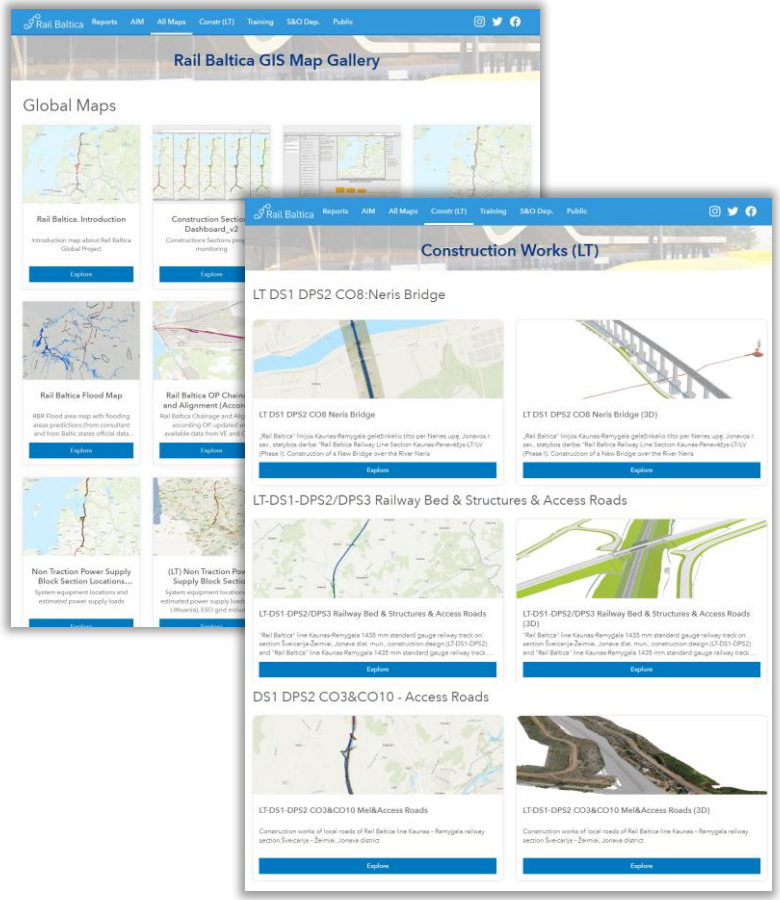
Monitoring and Reporting in GIS



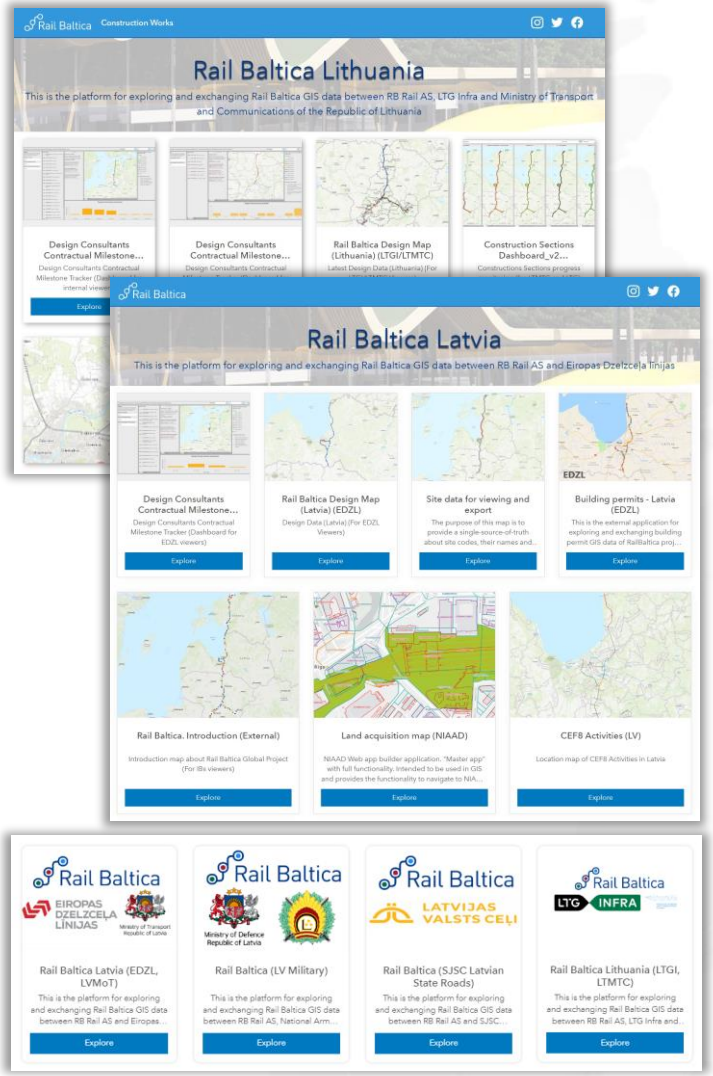
Communication & Data Sharing

Fast and efficient information sharing between all participants in the design and construction processes: implementing bodies, coordinators, contractors, public.

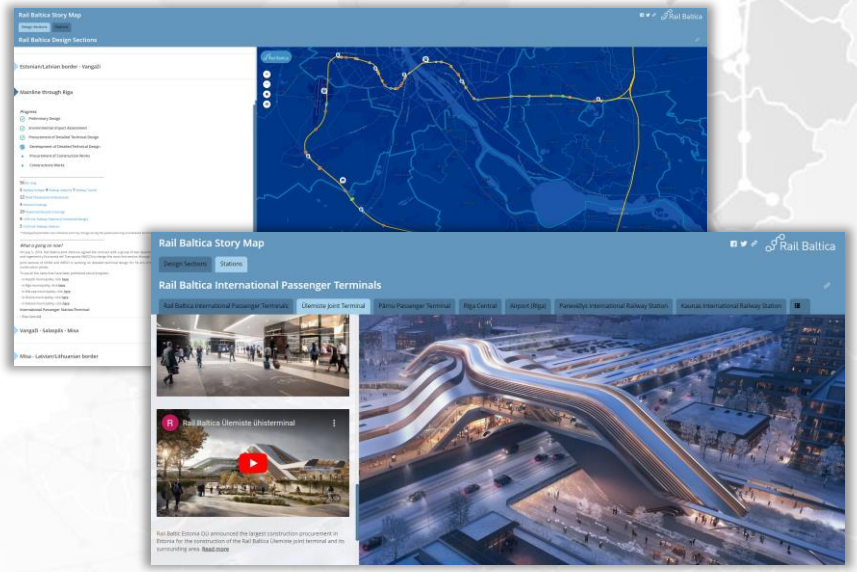
Internal Engagement



External Engagement (~50 companies)



Public Awareness



Public Events

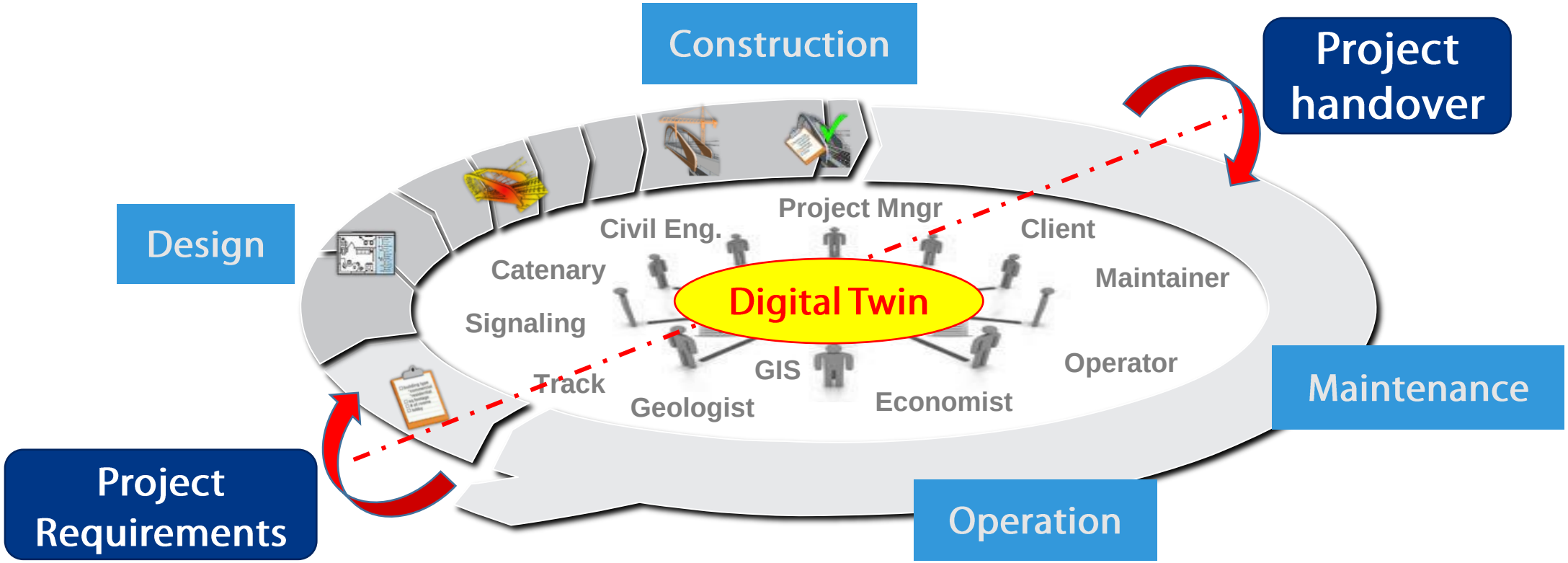
Rail Baltica
Linking nations, people, places

Co-funded by the European Union


With future Asset Management in mind
Pärnu reisiterminali ideelahendus: AB PLUSS OÜ

VISION: Design and Maintain a Digital Twin

A major improvement to efficiency, in both projects and maintenance activities, will come from our capacity to organize **collaboration** between contributors, and their solutions.



The Digital Twin requires standards for digital continuity

Rail Baltica

Digital Model / Shadow – what we can achieve now

1. Digital Model (BIM)

Design -> Construction

2. Digital Shadow (GIS)

As-built

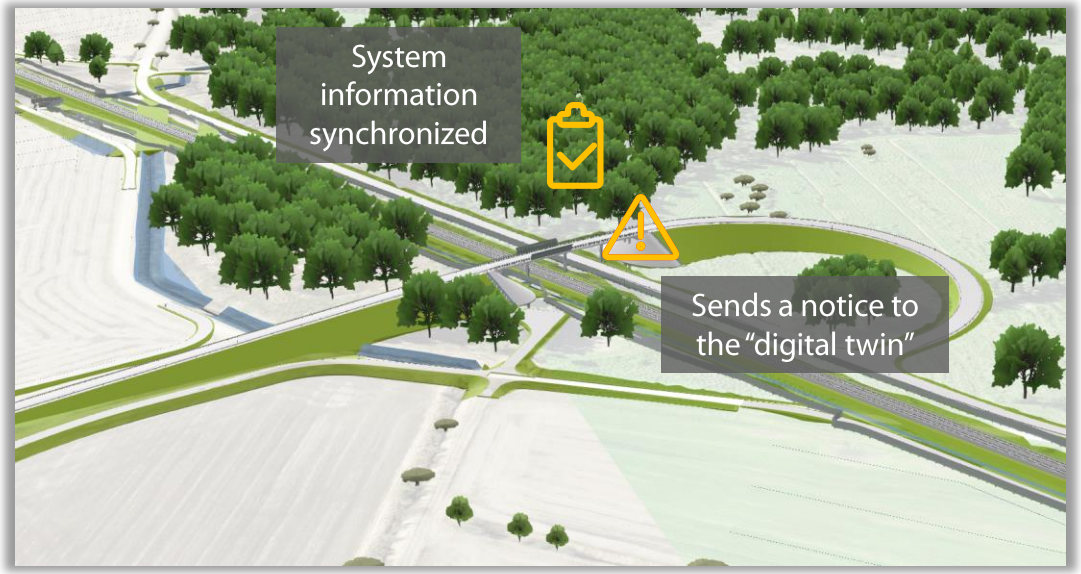
Digital Twin - target

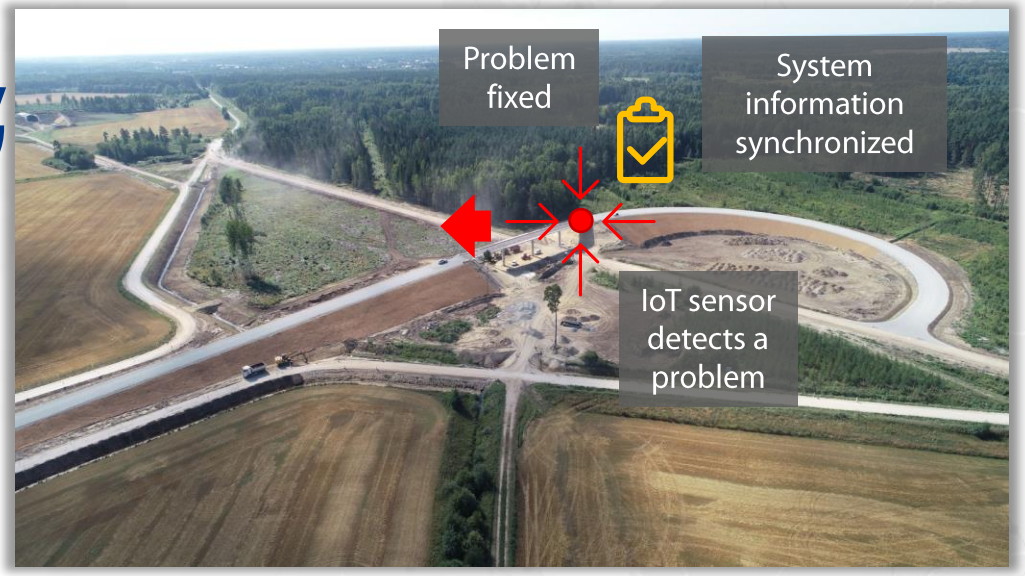
3. Digital twin –
ideal "what we want to achieve" solution

System information synchronized

Maintenance crew is dispatched

Work order is issued





Rail Baltica
Linking nations, people, places
Co-funded by the European Union

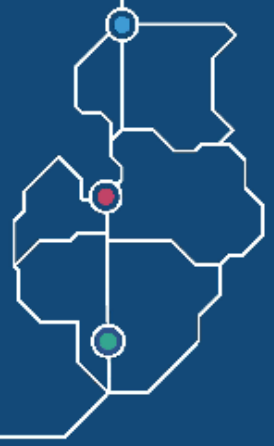

EIROPAS
DZELZCEĻA
LĪNIJAS
Acknowledgements so far
RIX Airport
Station

Rail Baltica

Acknowledgements

01	02	03	04	05
Set clear requirements	Follow the progress	BIM is not alone	Everybody must learn	Big picture
BEP and TIDP It must correspond to BIM EIR and it shall be agreed during the Inception phase, but must be updated frequently. VE, MD and DTD stages – must be renewed and followed.	**Client's task** Client must follow the progress. Client must be involved and must have/develop the knowledge. Client must understand what is being delivered. Dedicated team must be assigned (for now).	**AIM, GIS, etc.** Digitalization should be the priority. Modern asset management, digital tools and IT minded engineers.	**Client and Consultant** Teams on both sides must learn. Early stages of the project (VE) serves as «test ground» for Master and Detailed Technical Design stages. **Engineers «love» Excel.**	**Client must work with it in mind** Consultants come, do their work and go. Client must think about the goals to be achieved with Digitalization. BIM just to have BIM is not a goal.

Rail Baltica
Coordinated by RB Rail

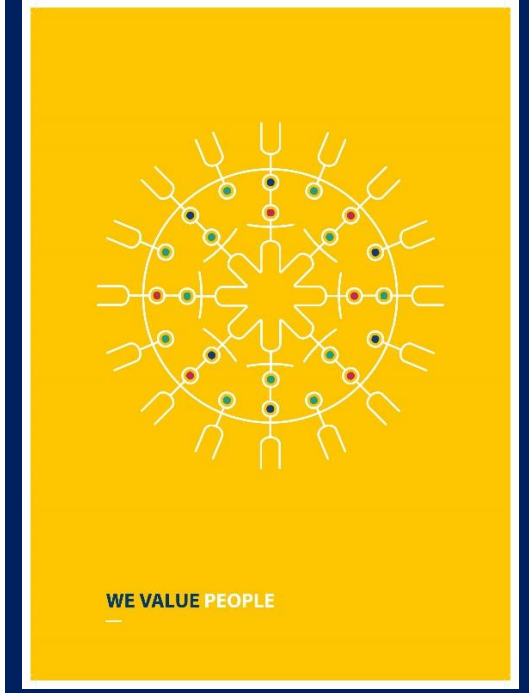


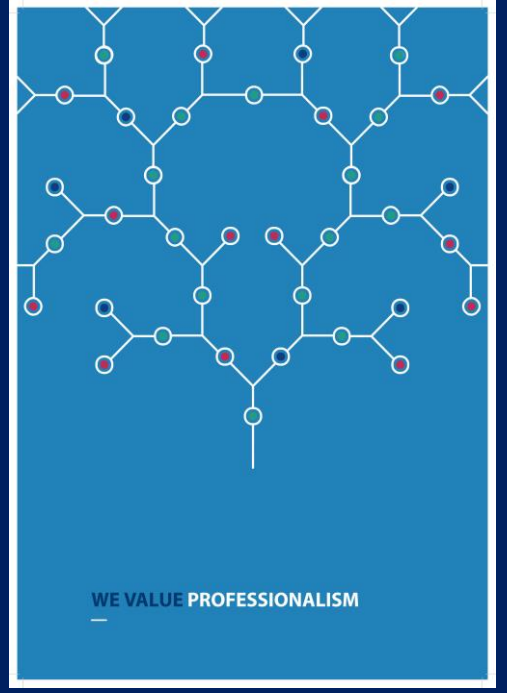
OUR VISION

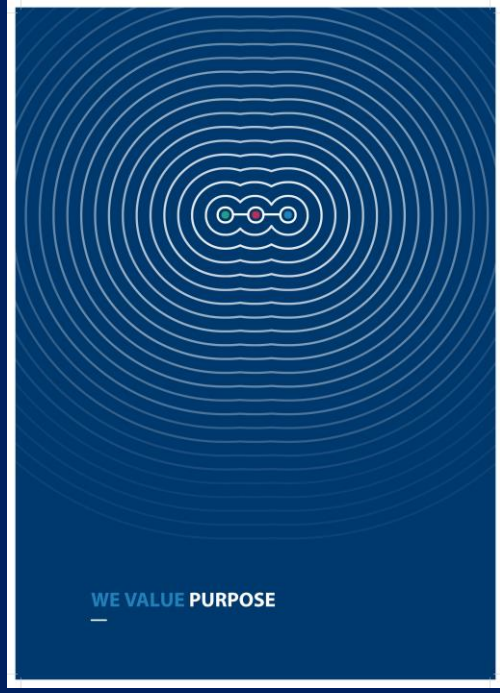
Connected Baltics in a connected Europe

OUR MISSION

We are delivering a seamless mobility for people, goods and services to accelerate social and economic development in the Baltics and beyond







Thank you!
ありがとう

Q&A?