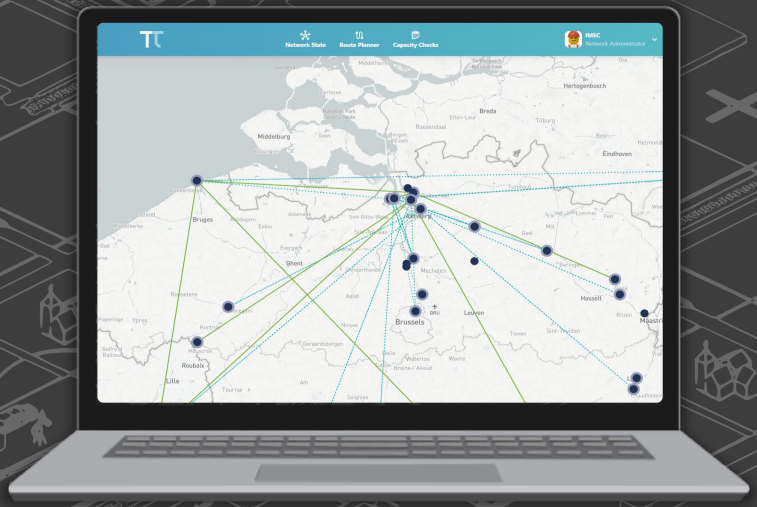
PILL

the

Physical Internet Living Lab



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NANOTECH & ENABLING TECH

5,500 TALENTED PEOPLE

INNOVATION PARTNER

HEALTH

MOBILITY

LOGISTICS

INDUSTRY

ENERGY

EDUCATION

AGROFOOD

URBAN ENV

Logistics Projects

PIONEERS

ReNEW

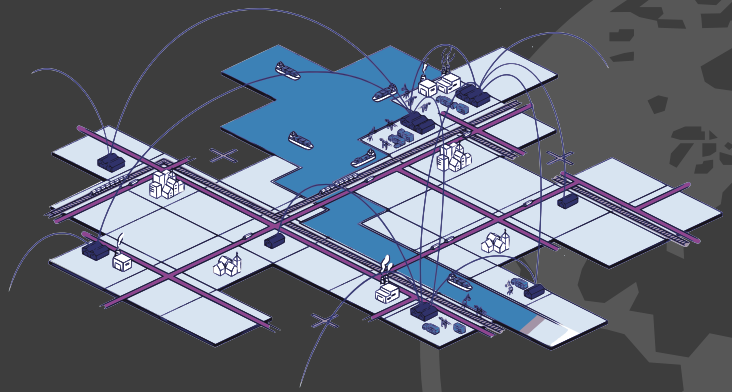
SYTaDeL

PILL

DISC

- Physical Internet
- Synchromodality
- Data Spaces
- Digital Twins
- AI / ML & Edge Computing
- Modal Shift
- Autonomous Vessels
- Process Sharing

WHAT IS THE PHYSICAL INTERNET?



Analogous to the way the Digital Internet transfers data, the Physical Internet aims to make the transfer of goods more efficient, resilient and sustainable using a decentral modular open architecture. In PILL, the foundation for a trustless decentral logistics network is created. This network is the foundation of the future Physical Internet.

AIR	ROAD	RAIL	WATER
700g GHG per tonne-km	**100**g GHG per tonne-km	**25**g GHG per tonne-km	**10**g GHG per tonne-km

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PILL Focus: discoverability & network modeling

discoverability

Make the network of logistics service providers and their capabilities visible

network modeling

Use a network model and agent-based algorithms to simulate logistics network dynamics

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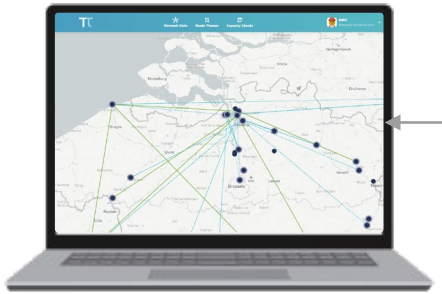
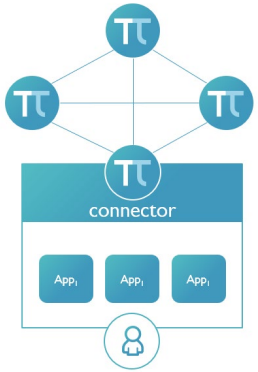
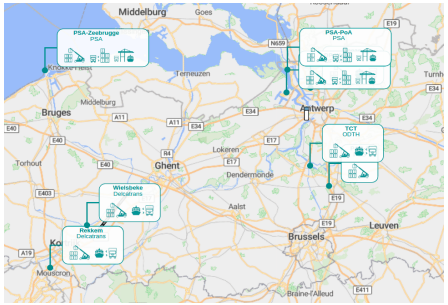
POC components







PI-application

ROUTE PLANNER

- Local hosting & storage of data
- Based on PILL data standards
- Holistic container planning
- Interoperable with all PI apps

→ *INTEROPERABILITY & AUTOMATION*

→ *PLANNING & RESILIENCE*

Backend connector

PI-CLIENT

- Forms decentralized network
- Enforces data model
- Orchestrates data sharing
- Manages PI-applications

→ *DECENTRALIZED NETWORK*

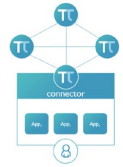
PI-application

SIMULATION MODEL

- Strategic stress testing
- Infrastructure optimization
- Access (historic) network data

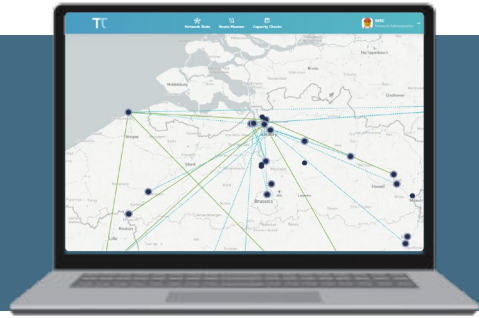
→ *AGENT-BASED SIMULATION*

validation plan



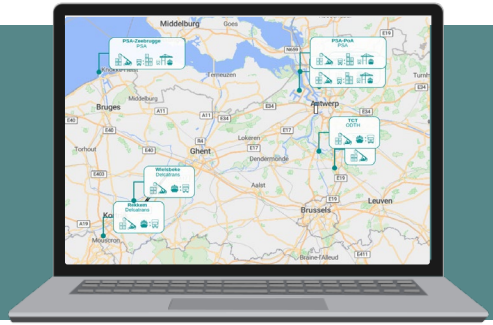
1 π-CLIENT LIVING LAB

- Field testing of software with stakeholders
- Validate Decentralization & Interoperability
- Realtime data & Real container



2 ABM SIMULATION TESTING

- Risk-free scenario testing in simulated environment
- Validate the routing algorithm, Scalability & predictive capacity
- Historic data & Fictional scenarios



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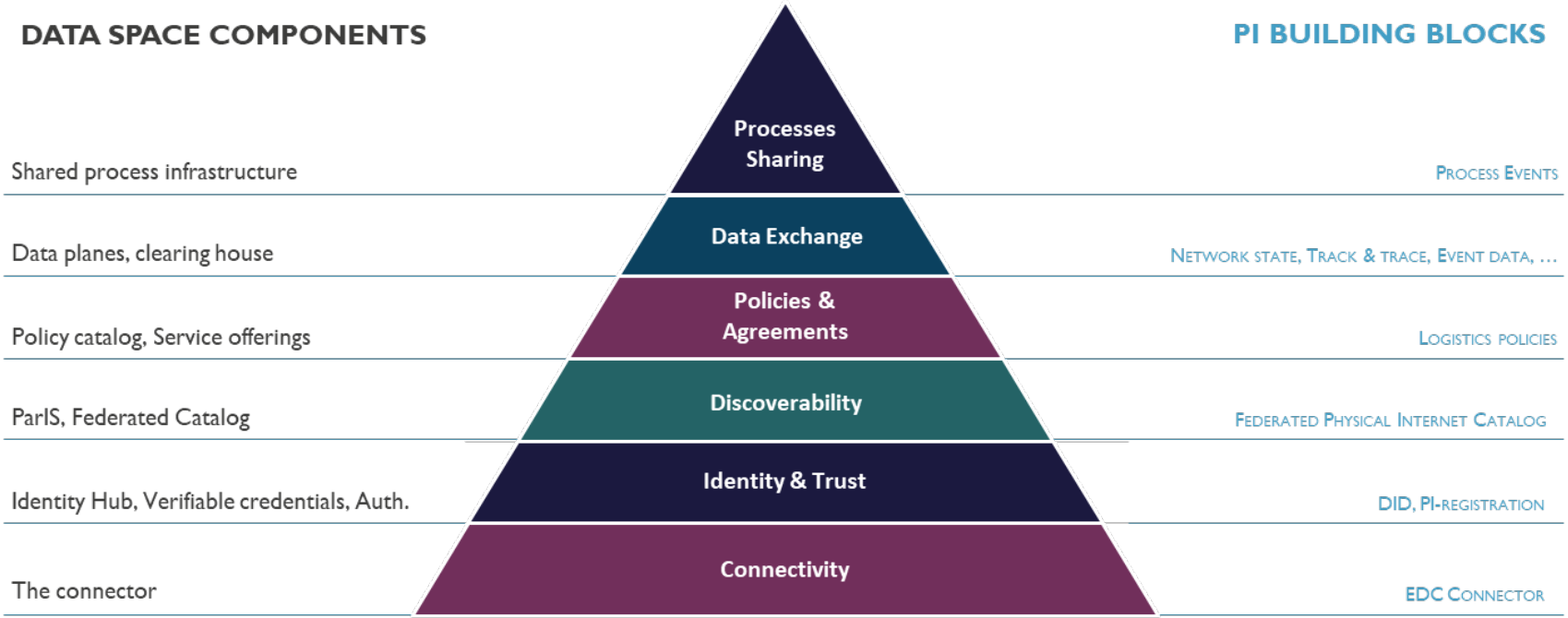
PI implementation stack

- PROCESSES
- AGREEMENTS
- DISCOVERABILITY
- IDENTITY & TRUST
- CONNECTIVITY

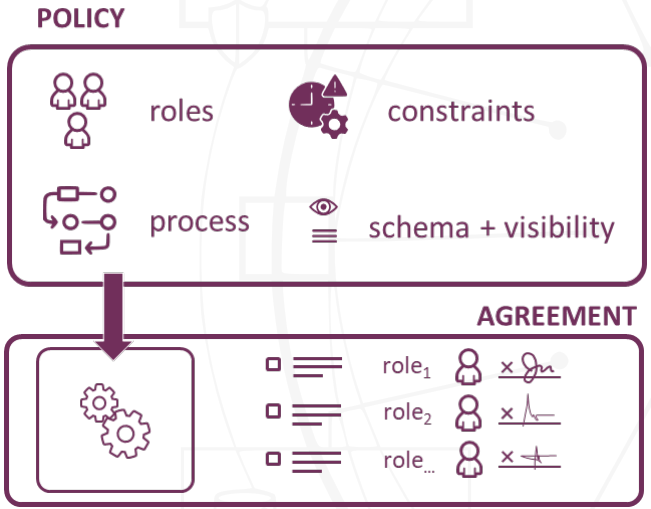
Separate concerns and focus on open standards and interoperability.

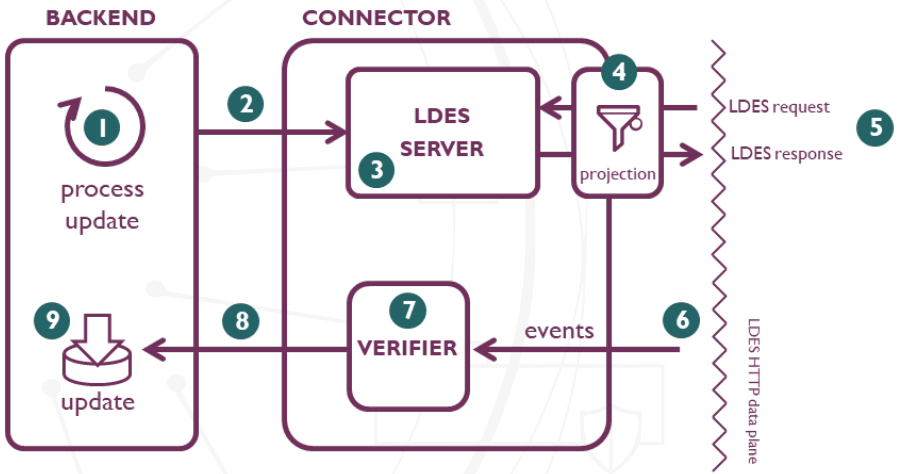
Data Spaces & PI: a match made in heaven?



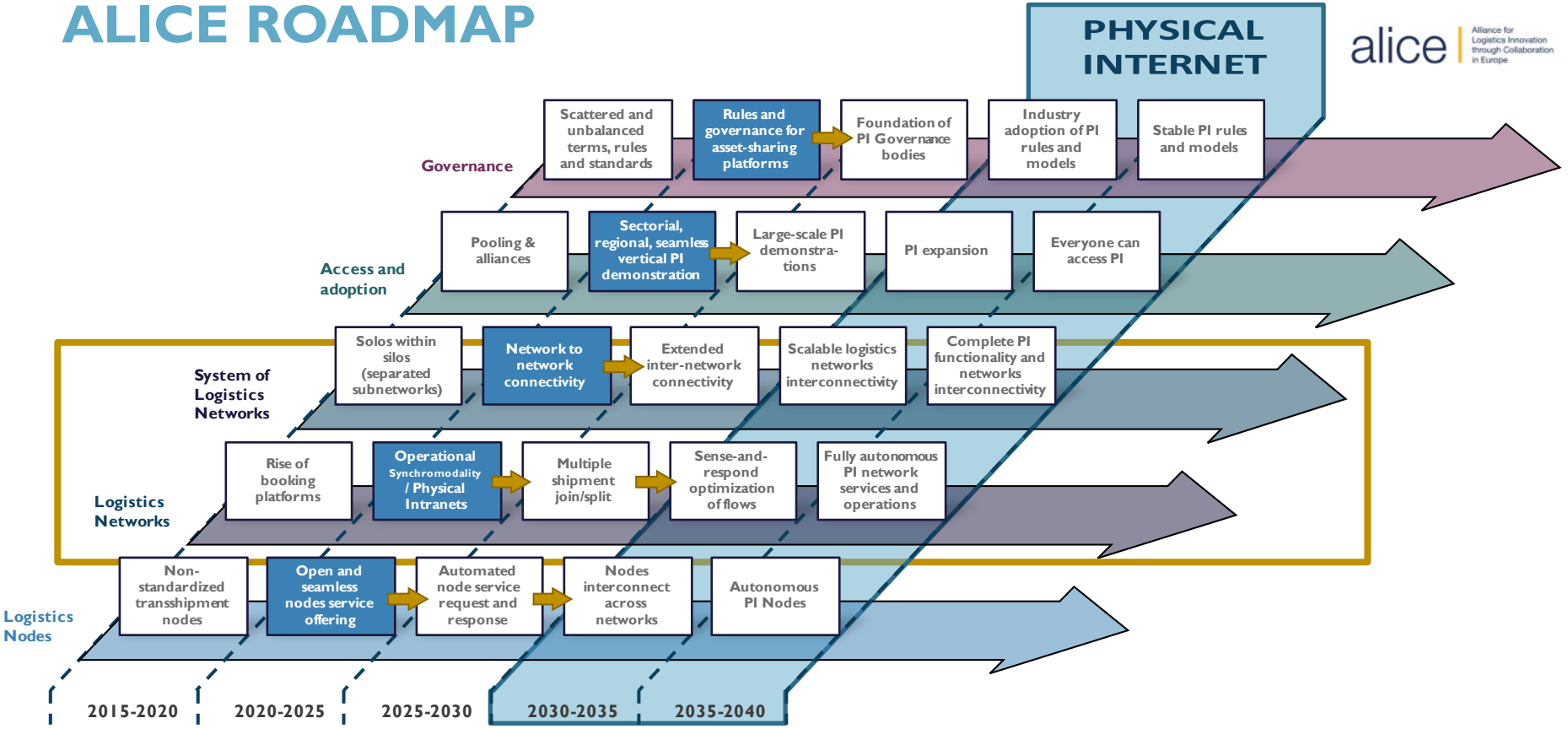
Process sharing

Reference Architecture





ALICE ROADMAP



THANK YOU

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