

# PanEuropean Logistics Platforms : Future Technologies & actors Synergies

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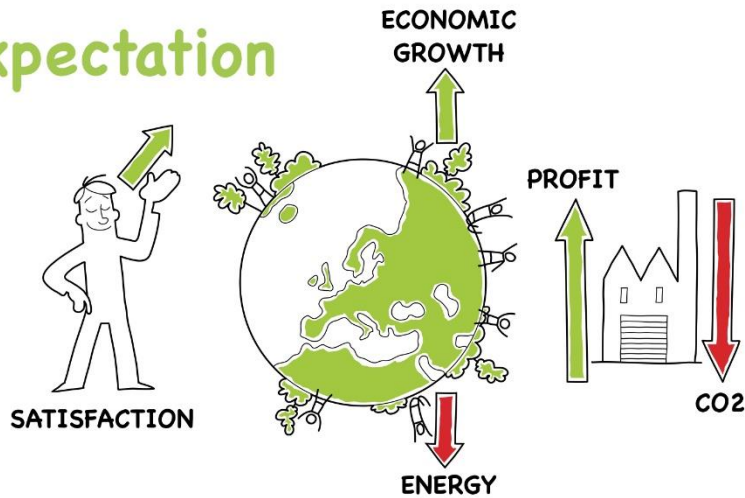
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# Future Technologies in Logistics

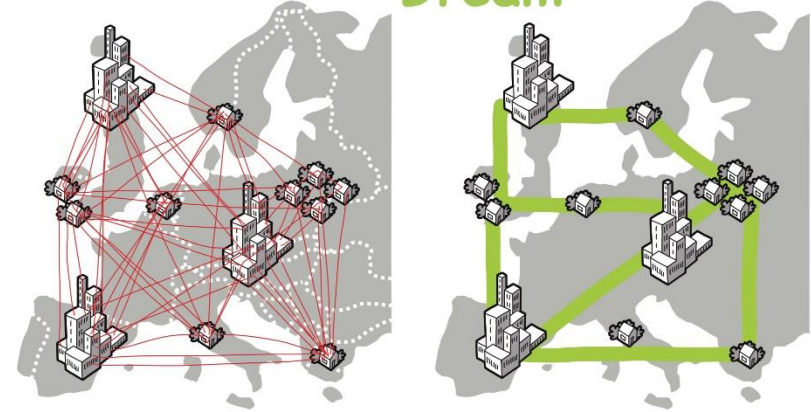


# The Future Technology in logistics: Physical Internet

## Expectation

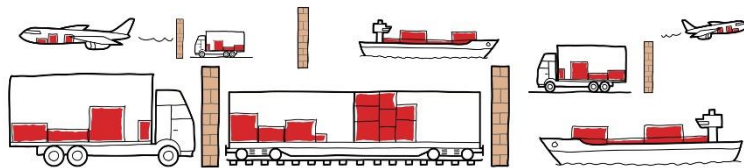


## Dream

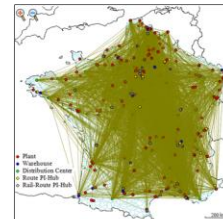
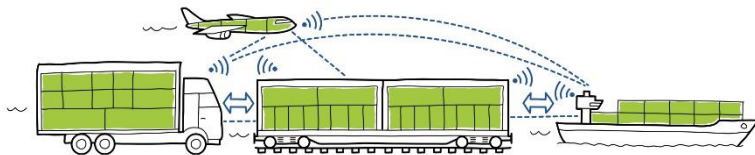


## Hyperconnected Transportation: Physical Internet

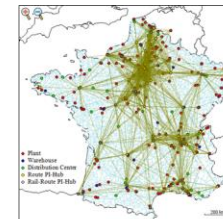
Results from a simulation experiment with top retailers Carrefour and Casino in France and their 100 top suppliers



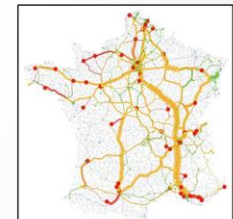
## Challenge



Current flows



Hyperconnected flows



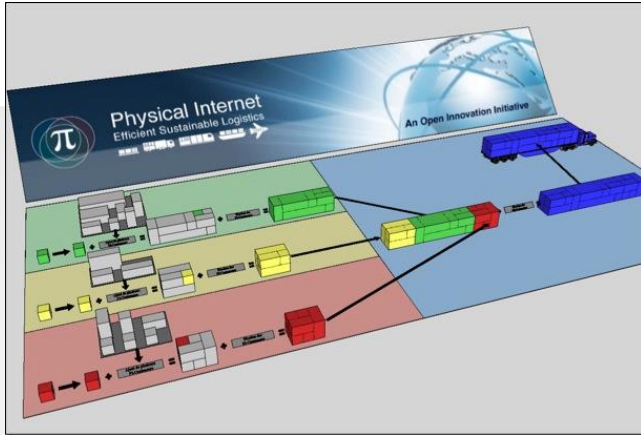
Current: Trucks  
Hyperconnected: Trucks & Rail

**Economical: Up to 32% overall cost saving**

**Environmental: About 60% reduction of greenhouse gas emissions**

**50% of volume shifted from road to rail**

# The Physical Internet in a Glance



Seamless modular container consolidation in the Physical Internet  
B. Montreuil & C. Thivierge, 2011

Benoit Montreuil (Georgia Tech) and Russ Meller (Fortna)

- ❑ Goods in standard **modular load units** for transport, handling and packaging purposes
- ❑ New generation of **handling, transportation and storage technologies** and facilities for seamless, fast flow & exchange of loads
- ❑ Seamless open **asset sharing & consolidation** across interconnected networks and modes
- ❑ **Open market** for goods transportation, storage, supply and usage
- ❑ **Standard interfaces & protocols**
- ❑ Service provider certification and **ratings-by-users** to drive performance
- ❑ Continuous **tracking & monitoring**

# Physical Internet (PI) Roadmap Structure

- Components
- Transition Management
- Impacts

\*Milestones

- Phase 1:**
  - Isolated local Business Cases
- Phase 2:**
  - Number of local Isolated Business
  - PI Networks at National Scale
- Phase 3:**
  - Extended Business Cases
  - PI Networks working at National/European Scale
  - Cross-sectorial utilization of PI

- Design:**
  - Network
  - Nodes

- Infrastructure:**
  - Transhipment
  - ICT

- Standardization:**
  - Modular Units
  - Protocols

- Management Systems:**
  - PI Network
  - PI Nodes

Integration with people Mobility

Skills and Education

Business Models

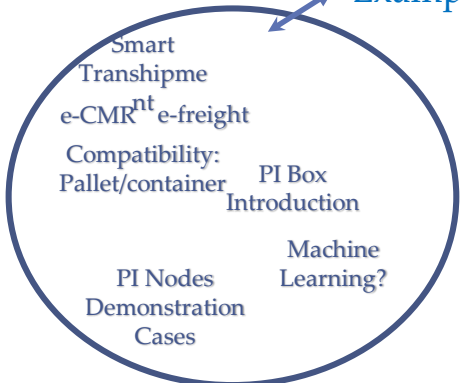
Governance

Regulations

- Energy
- Cost
- Emissions



Examples



1. Boxes, containers and physical handling
2. PI nodes *design* and operation
3. PI network *design* and operation
4. Information and Data sharing

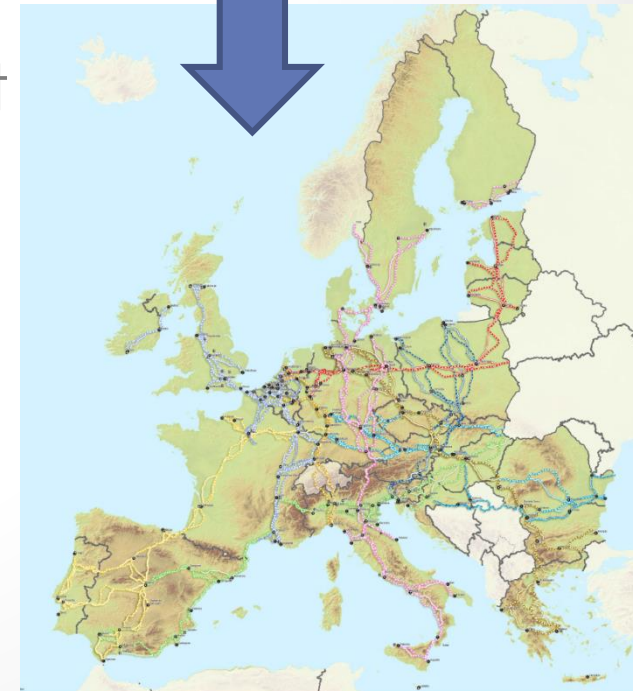
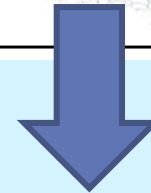
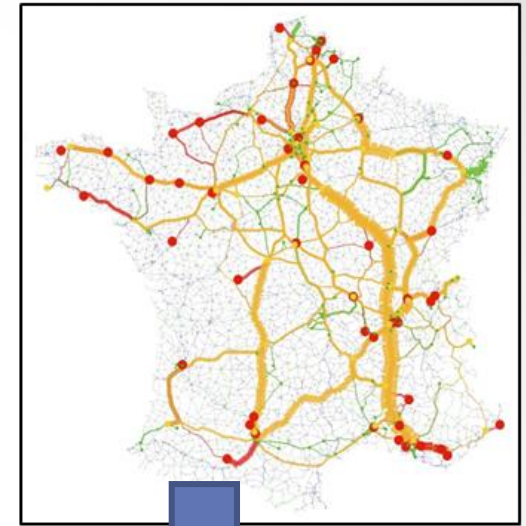


	2020	2030	2040	2050
Energy	-10 %	-20 %	-30 %	
Cost	-5 %	-10 %	-15 %	
Emissions	-10 %	-25 %	-40 %	



# Intelligent Hubs & Corridors

- Along physical corridors and hubs logistics actors cooperate for optimizing operations & use of resources
- TEN nodes & corridors will be the reference network for infrastructure & ICT connectivity
- Interrelate : data & physical transport movements & physical networks



# Digitalization challenges



# Digitalization in Logistics

Select 3 most practical methods forwarders can adopt to help combat yield dilution

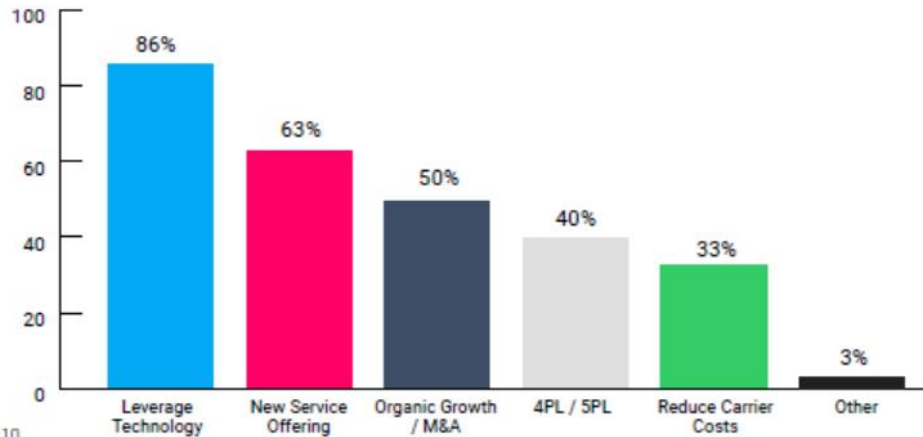


Figure 10

Technology is the most popular way to combat margin erosion



THE FUTURE OF  
FREIGHT  
2016 Global Survey of  
92 senior professionals  
from the world's top  
logistics companies

How important are the following IT capabilities to shippers?

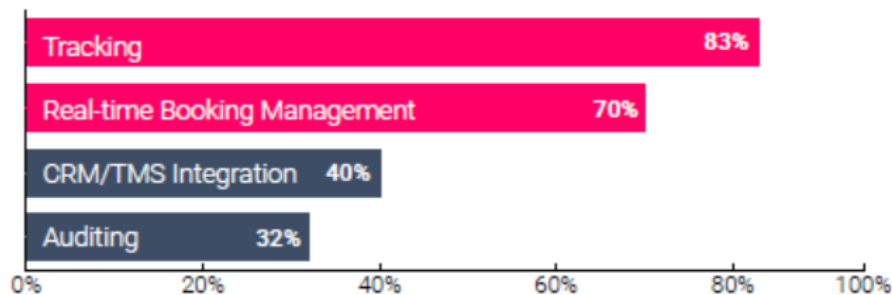


Figure 2

Shippers most expect forwarders to have real-time tracking and real-time booking IT capabilities



## THE SUPPLY CHAIN & LOGISTICS TECH MARKET MAP

### E-COMMERCE LOGISTICS



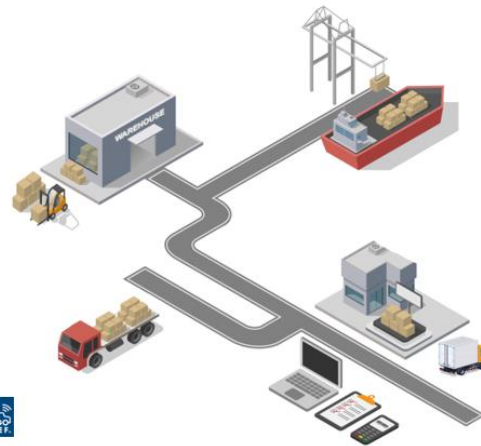
### INVENTORY MANAGEMENT



### FREIGHT & SUPPLY CHAIN VISIBILITY



### WAREHOUSING



### TRUCKING



### LAST-MILE DELIVERY



### ENTERPRISE RESOURCE PLANNING



### SENSORS / ASSET TAGGING



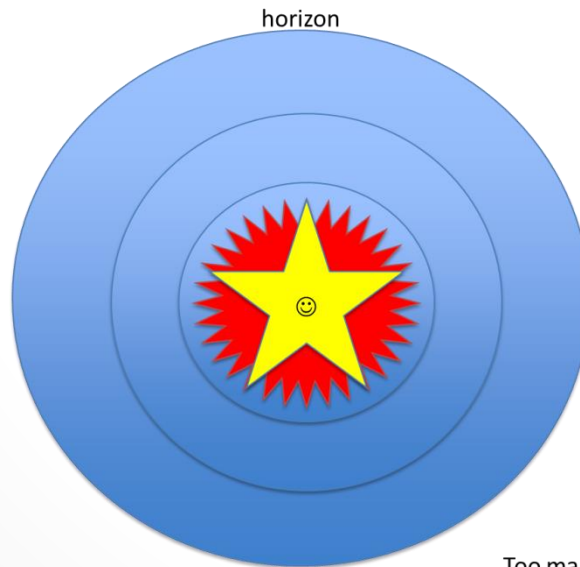
# Interfaces complexity for SMEs



Few interfaces.  
Life feels good.



Quite some interfaces.  
Life becomes hard.



**A platform open to a  
community of logistics  
actors**

Too many interfaces,  
we need to change something.  
Maybe use a platform...

# Pan European Logistics platforms : A powerful answer



# The EUs response

- **MG.6.3-2015. Common communication and navigation platforms for pan-European logistics applications**
- To develop architectures and open systems for information sharing and valorisation, connecting key stakeholders with information and expertise enabling exploitation on the basis of trusted business agreements and with the relevant authorities (transport authorities and customs being the most eloquent player, but there are also other authorities in relation to health, safety, etc.).
- These architectures and systems need to accommodate feedback loops that allow for deviation management and corrective and preventive action (CAPA).



## What AEOLIX promised

To **overcome the fragmentation and lack of connectivity** of ICT-based information systems for logistics decision making,

To **fill in the information gaps** between logistics actors,

To **enable various actors** (at different levels, of different sizes, with different systems and platforms **or even without own in-house systems, e.g. SMEs**) to **better manage, (re-)plan and/or synchronise facilities in the supply chain.**

To establish a **digital business ecosystem which** will **create visibility** across the supply chain, enabling more sustainable and efficient transport of goods across Europe.

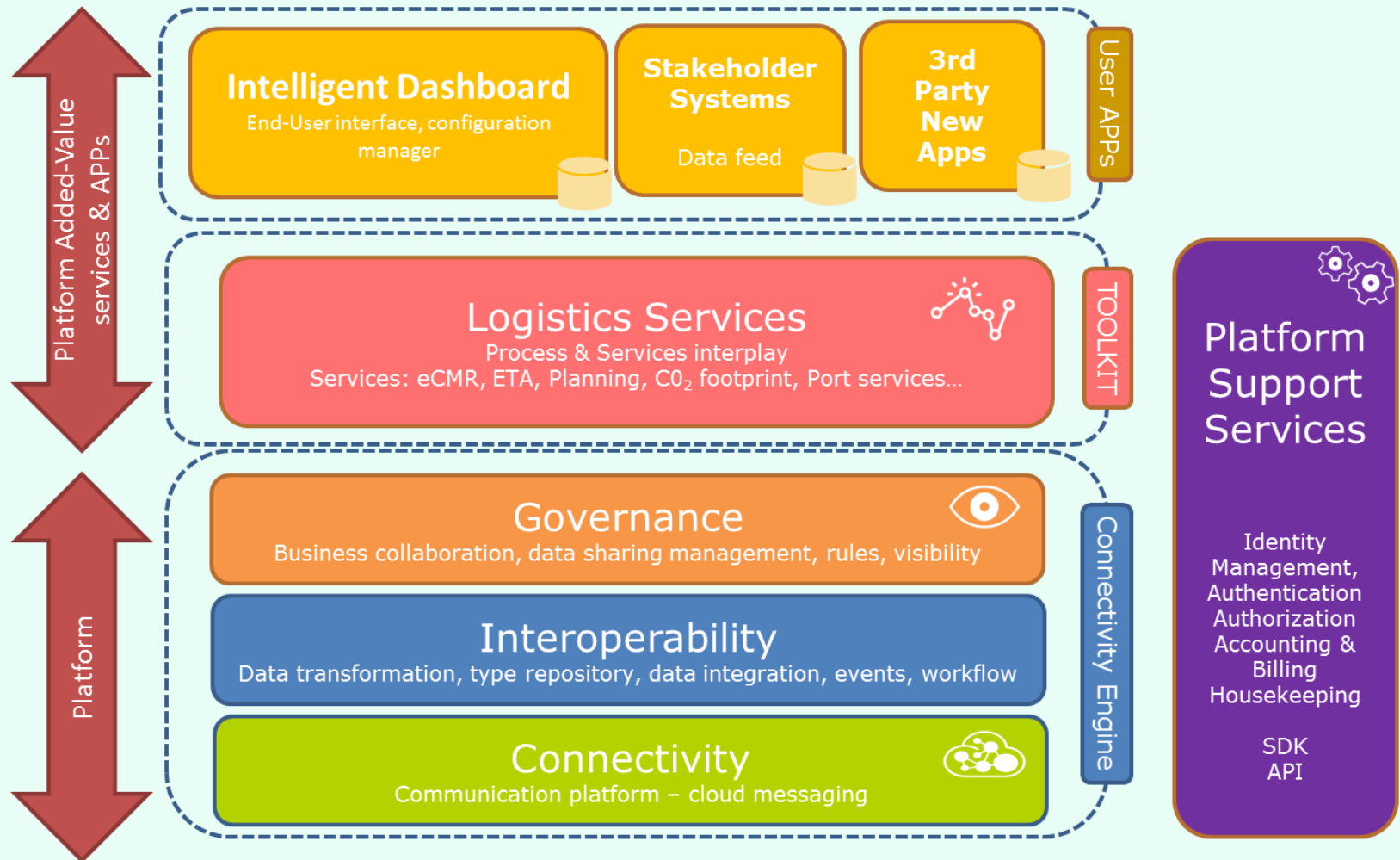
To ensure that, **for logistics actors, connecting to and using the ecosystem is undemanding and has a low level of complexity.**

AEOLIX will facilitate **information exchange in an easier and more efficient way (without investment)**, enable larger-scale implementation, increase the degree of system interoperability and **focus on flexible relationship management of logistics actors.**

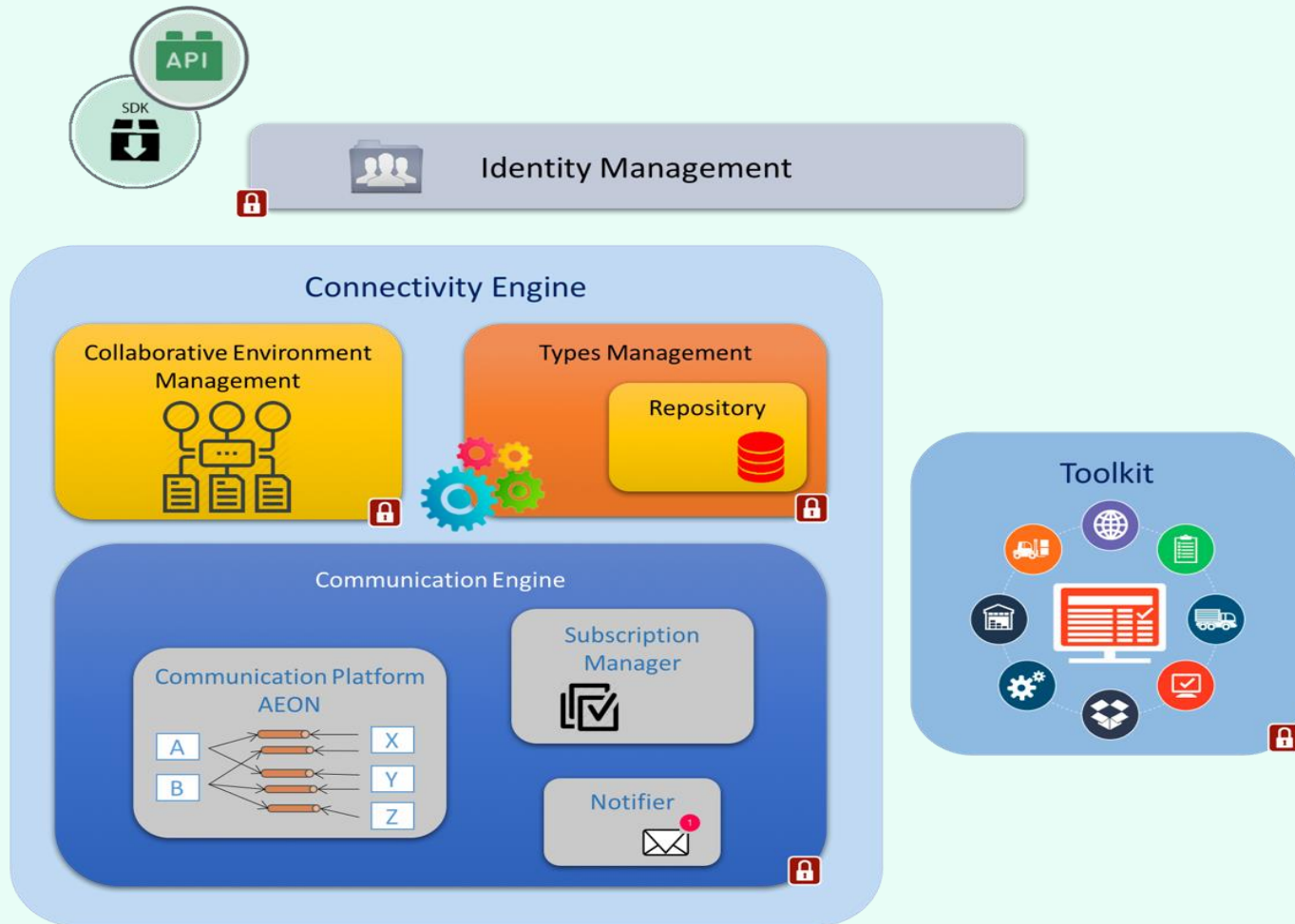




# AEOLIX high level architecture



## Connectivity Engine – base layer of the platform





# Thessaloniki Living Lab Ecosystem

- Hellenic Institute of Transport / Centre of Research & Technology Hellas
- Association of Exporters of Northern Greece
- Thessaloniki Chamber of Commerce & Industry
- Association of Road Transport operators
- TREDIT S.A





# Thessaloniki Intelligent Hub Virtual Freight Centre

## Issue:

- LSPs providing warehousing services cannot adapt to variable demand
- Warehousing over- and under-capacity co-exist leading to inefficiencies for LSPs & their clients

## Cause:

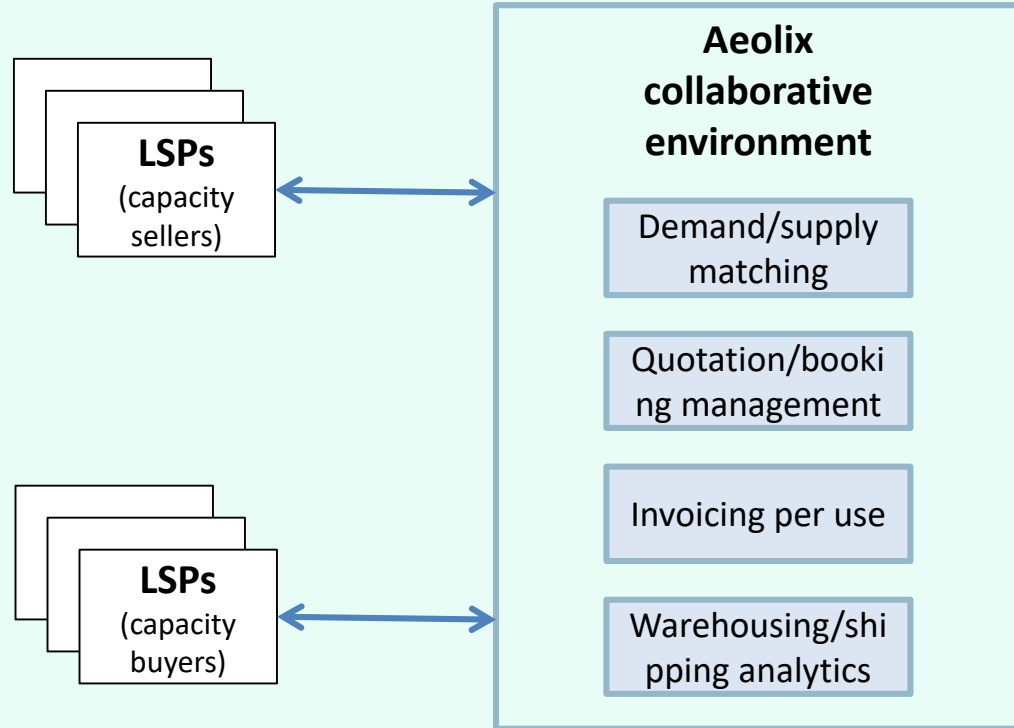
- Lack of collaboration among LSPs
- Fragmented view in matching warehousing services supply & demand
- Lack of on demand warehousing services (pay-per-use)

## Information to be shared:

- Demand for warehousing services
- Available warehousing capacity
- Warehousing cost inquiries
- Cargo compatibility
- Warehousing spot quotes
- Warehousing space/services booking
- Inventory management
- Warehousing & shipping analytics

## Information subscribers:

- LSPs





# Thessaloniki Intelligent Hub : Cargo bundling marketplace

## Issue:

- 1/5 of journeys in Europe are performed by empty trucks (1/3 in Greece)
- Non-empty trucks travel on average half-empty
- Unused capacity means lower efficiency for logistics services providers & users

## Cause:

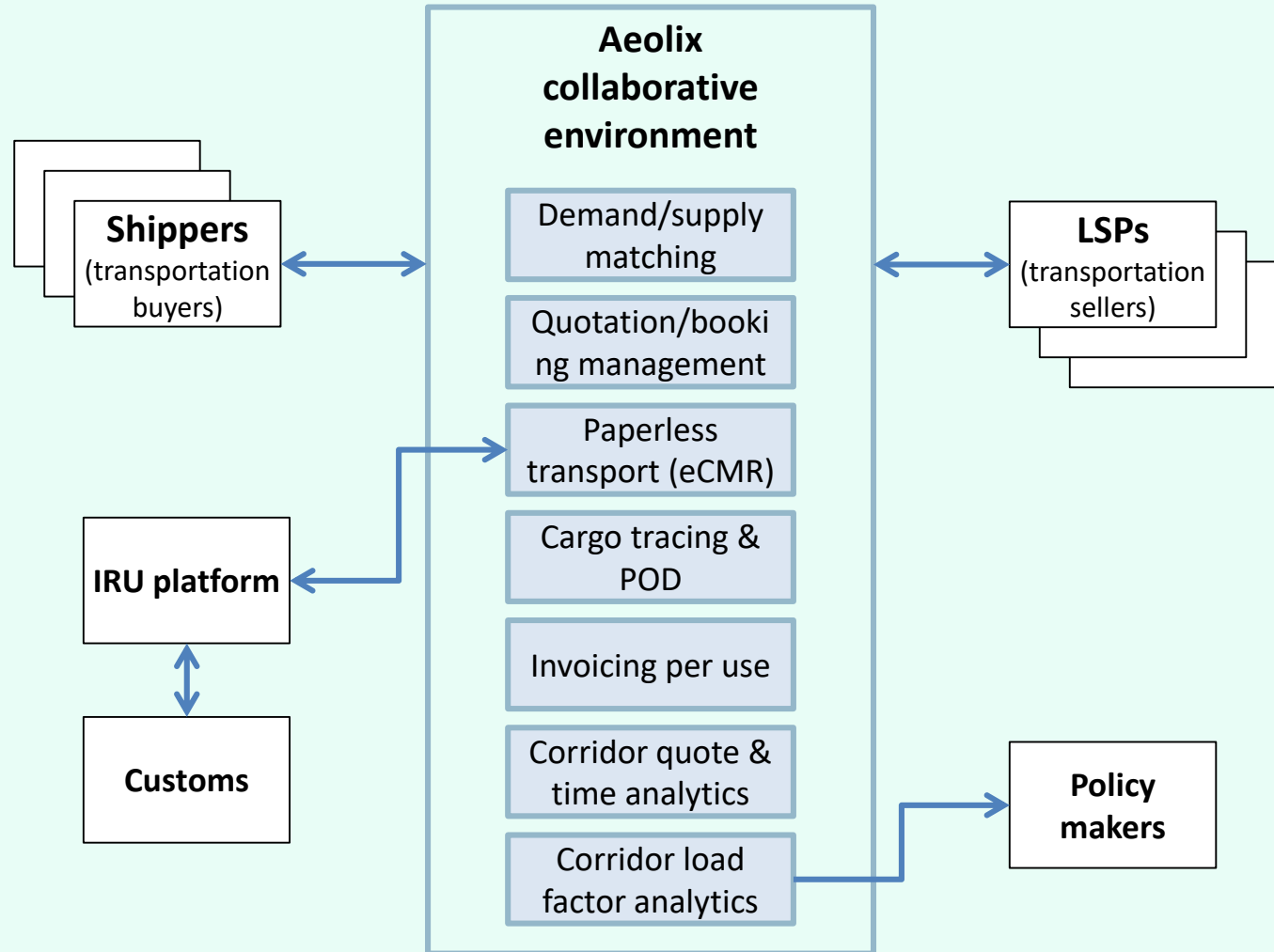
- Fragmented view in matching transportation services supply & demand
- Lack of horizontal collaboration

## Information to be shared:

- Available truck capacity
- Freight transport inquiries
- Cargo compatibility
- Freight spot quotes
- Cargo booking
- Cargo tracing & POD
- e-CMR
- Freight corridor analytics

## Information subscribers:

- Shippers
- LSPs
- Policy makers



# Conclusions on Opportunities





# Results of Digitalization in Logistics



*Enhanced supply chain visibility*



*More efficiency and better resilience*



*Fewer costs, less administrative burden*



*New business opportunities*



*Optimised choice of transport services*



*Better transport and event management*



*Increased load factors*



*Fewer CO2 emissions*

# The actors are convinced

Online platforms where forwarders can offer online pricing to shippers have started to emerge. How much of a threat do you see this?

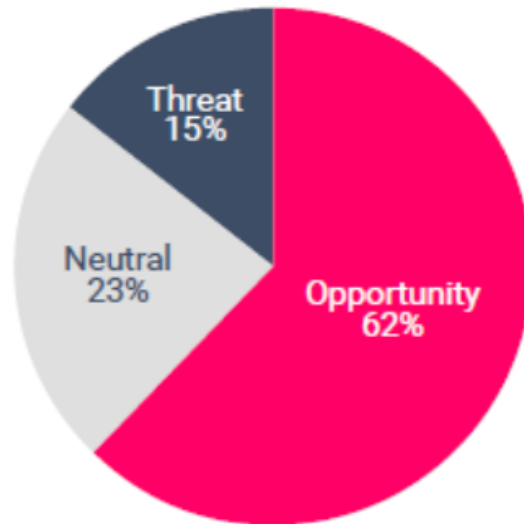


Figure 12

62% of forwarders see online freight sales platforms as an opportunity, while only 15% identify them as a threat

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# SMEs Connectivity

- Join established platforms offering standardized services & responding to real business needs
- Platforms are gateways for SMEs in entering digital logistics markets
- Geographically focused collaboration enable efficiency through data exchange and growth through collaborative business models .
- Create efficiency ecosystems locally by sharing data & capacities & synergies





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# THANK YOU

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