



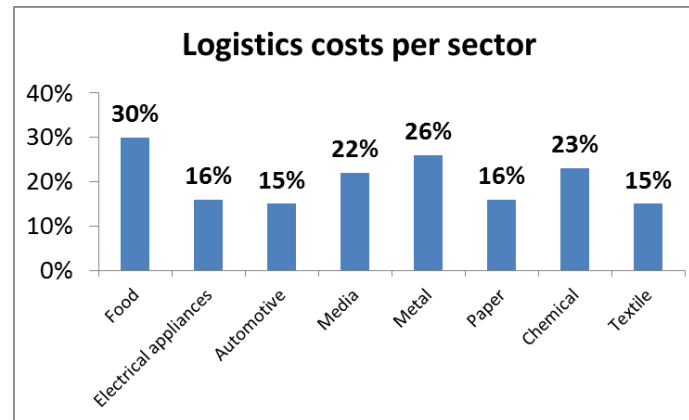
An insight into ALICE: The European Technology Platform for Logistics



Activities performed partially in the frame of WINN and SETRIS. The WINN/SETRIS project has received funding from the European Union's FP7 and Horizon 2020 research and innovation Programme under grant agreements No. 314743 and 653739

The importance of Logistics

- Logistics industry in Europe → 14% of GDP¹. Seven countries out of the global top-10 logistic performers are from the EU in 2014²
- Transportation is responsible for around a quarter of EU greenhouse gas emissions³
- On average, logistics costs account for 10-15% of the final cost of the finished product⁴.



High potential contribution to European competitiveness and sustainability targets (Cost, CO₂ and energy savings)


¹ COM(2007) 607 final. "Freight Transport Logistics Action Plan" European Commission, Brussels, 18.10.2007

² Worldbank.org "Connecting to Compete 2012" http://siteresources.worldbank.org/TRADE/Resources/239070-1336654966193/LPI_2012_final.pdf.

³ http://ec.europa.eu/clima/policies/transport/index_en.htm

⁴ European Logistics Association (2007)

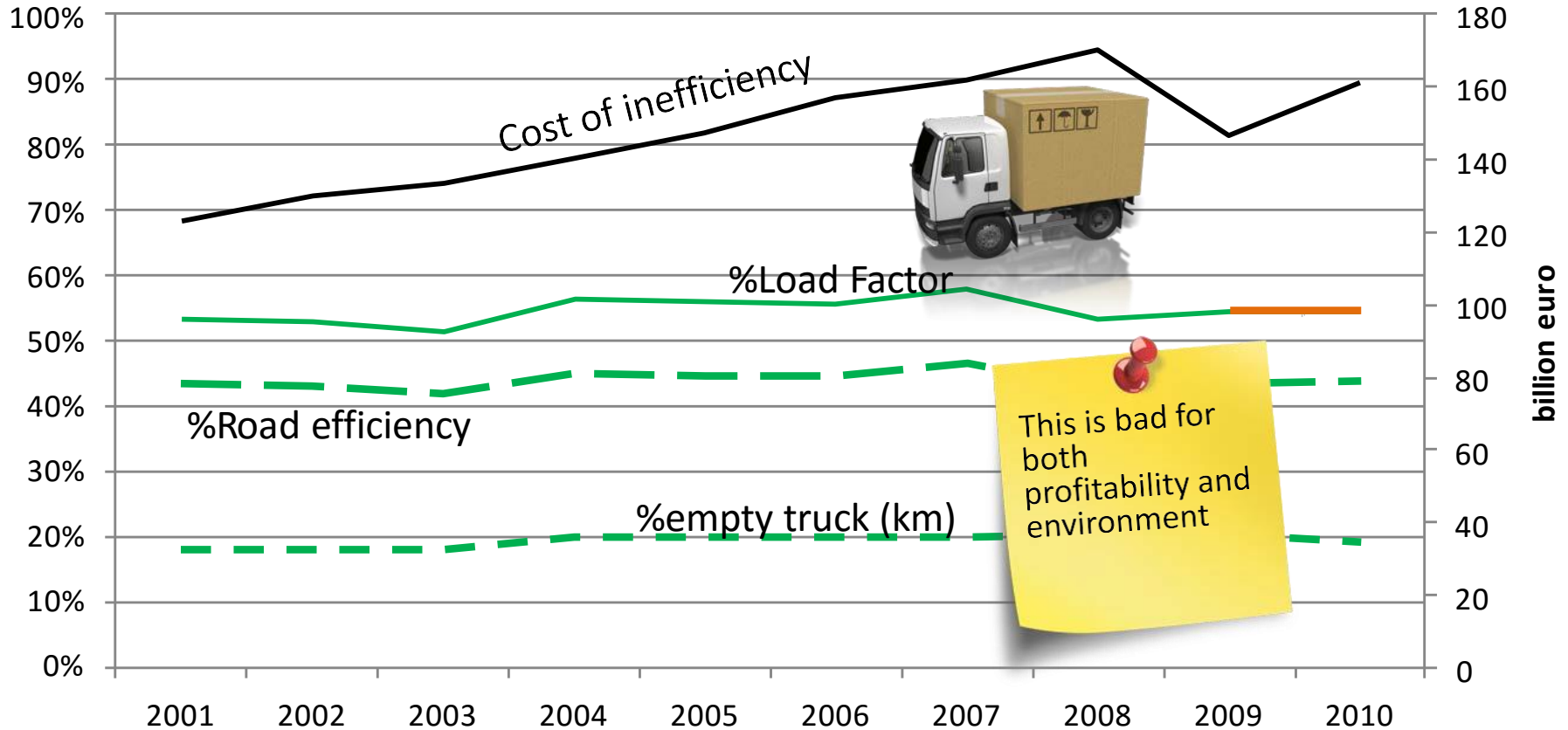
Market opportunity and vision

A 10% to 30%  efficiency in EU logistics sector
=
€ 100 – 300 billion cost relief for European industry

Make European industry resilient by a true “people, planet, profit” oriented logistics and supply chain sector.

A sector that is economically, environmental and socially sustainable contributing to both industry competitiveness and the EU policy targets

10 YEARS: ZERO IMPROVEMENT ON LOAD FACTORS



EUROPE GAINS to 70%: Eur 160 Billions

1.3% CO₂ footprint

○ Efficiency, trends and innovations

- Trends...
 - **Flow exponential growth**
 - **Shipments fragmentation**
 - Shipment median weight divided by 4,5 from 160 kg in 1988 to 30 kg in 2004
- Source IFSTTAR 2013

• A no cost illusion for the consumers

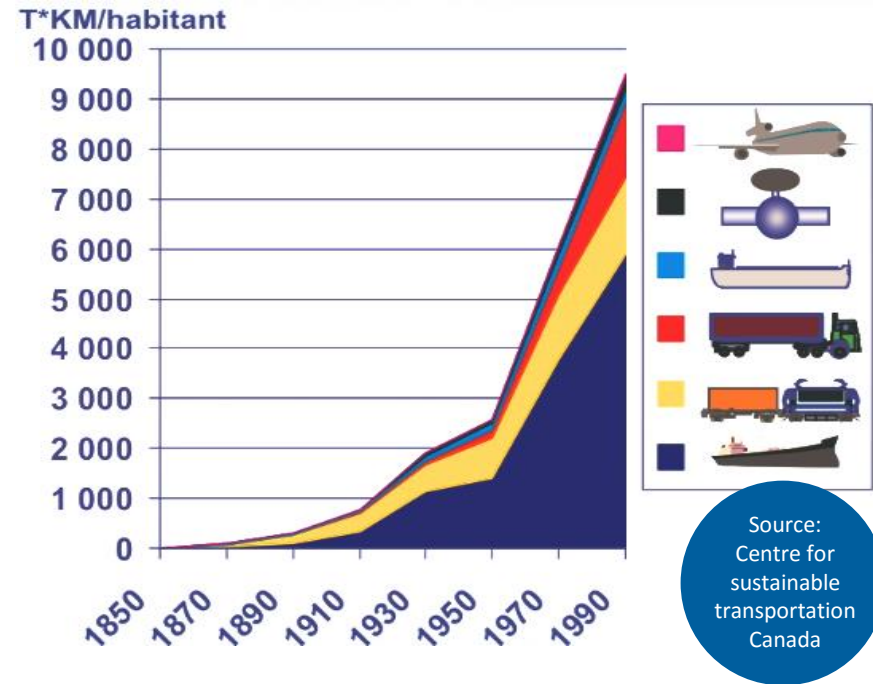


• Expectations: better services and economic support to growth

How to take advantage of economy of scale when shipments are getting smaller?

How to mitigate the environmental effects? Decoupling / economic activity?

How to cope with the demand and without a new physical infrastructure?



We cannot stay complacent to existing paradigms

- *Intermodal solutions slow down the Supply Chain and increase inventory*
- *Trucks load factors cannot be improved*
- *Inventory reduction as a pure financial target*
- *Horizontal collaboration is impossible*
- *.....*

Grand Challenge

To improve by an order of magnitude
the economical, environmental and societal
efficiency and sustainability
of the way physical objects are
moved, deployed, realized, supplied, designed and
used

Induced cost reduction

Price reduction

Business opportunity

Economic development opportunity

**Reduction of
Greenhouse gas emissions**

Energy consumption

Waste

Pollution

Traffic & Congestion

Improved

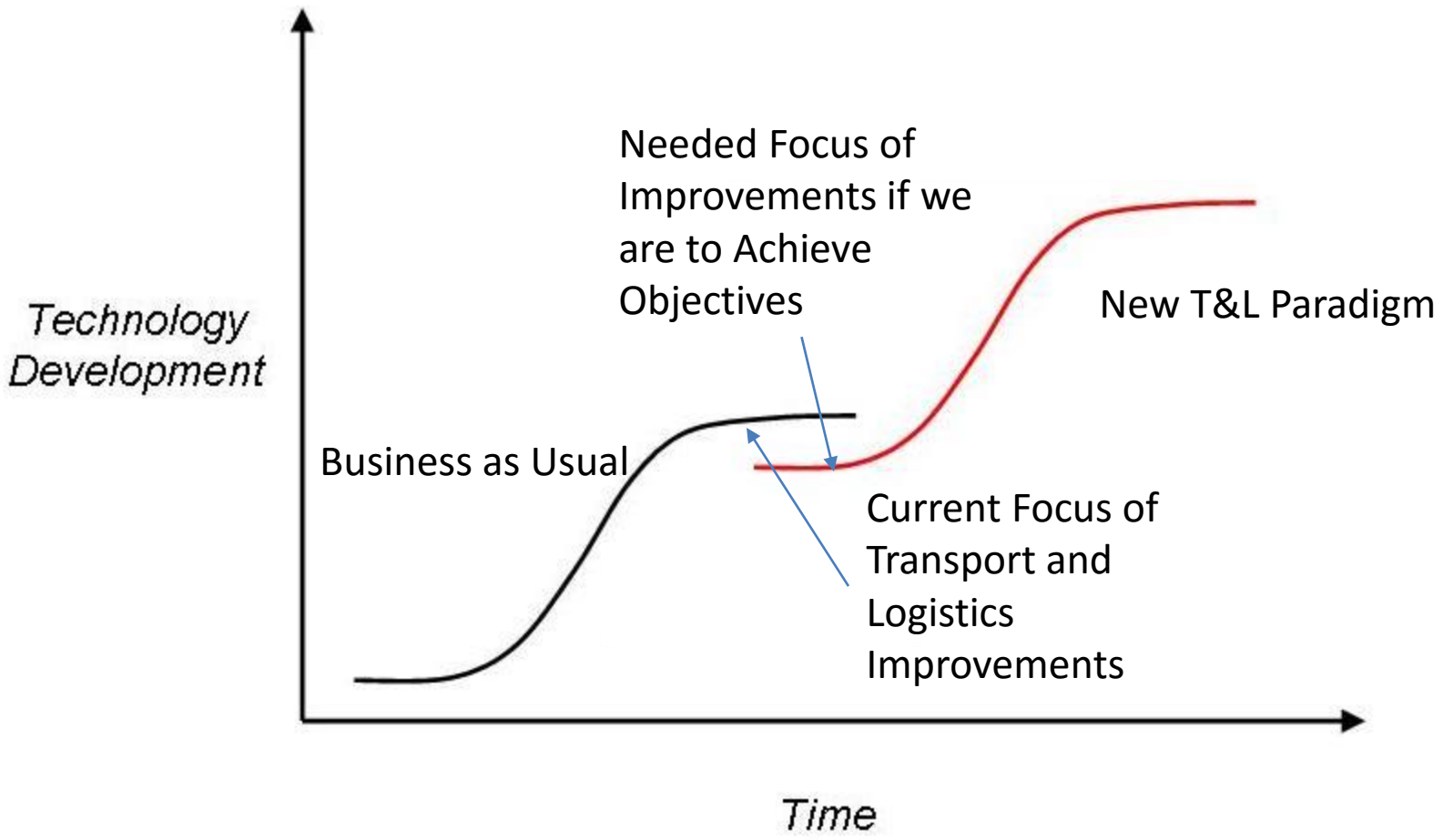
Quality of life

Goods accessibility

Mobility

Novel service capabilities

Unfortunately, current approaches focus on improving what we currently do



What's needed is a new paradigm

- Why are we all optimizing our small piece of the pie and not the pie itself?
- Why are we operating like technology is there to make what we do more efficient and not something that could change the industry?
- Why do we believe that in the future transport vehicles will be operated as they are today?
- Why do we ignore advances in smart infrastructures that result in dramatically different uses of the infrastructure?
- Why do we believe that our current logistics and transport models are appropriate for megacities?
- Why are we concerned about owning assets that become obsolete more rapidly than ever?
- Why are we seeking answers concerning the future by looking in the rear view mirror?

Mission

- **Development of new logistics and supply chain concepts and innovation** for a more competitive and sustainable industry.
- The ambition is to **contribute to a 30% improvement of end to end logistics performance by 2030.**
- The ETP on logistics aims to **accelerate** the **deployment** of more efficient, competitive and sustainable supply chains.

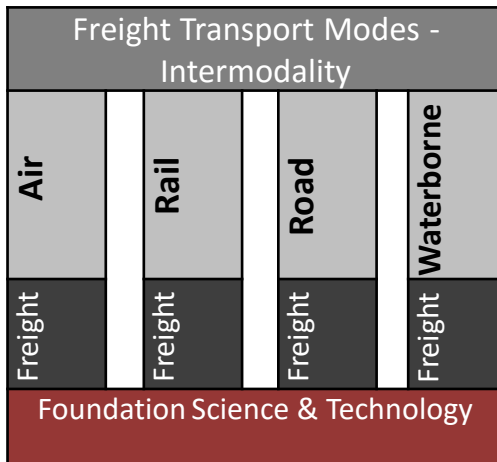
Way to achieve

- Bring together **primary stakeholders: shippers and logistics service providers**
- Other relevant stakeholders: **transport companies, terminal operators, support industry** and **research and education**
- **Collaboration with related ETPs:** ERTRAC, ERRAC (Shift2Rail), WATERBORNE AND MANUFUTURE (FoF)

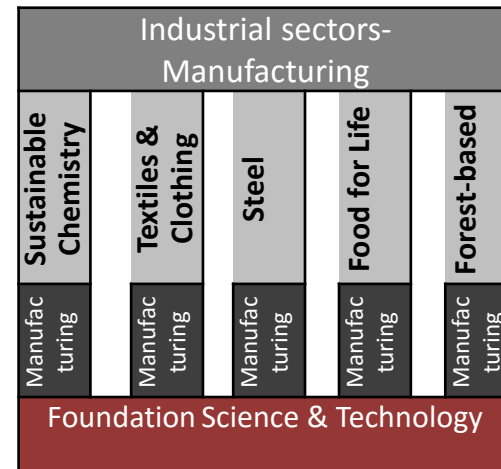
The connection between Modes and Industry for
Optimized Logistics and Supply Chain Management

Logistics + Supply Chain

How to Transport



What to Transport



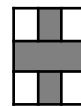
ALICE and related ETPs

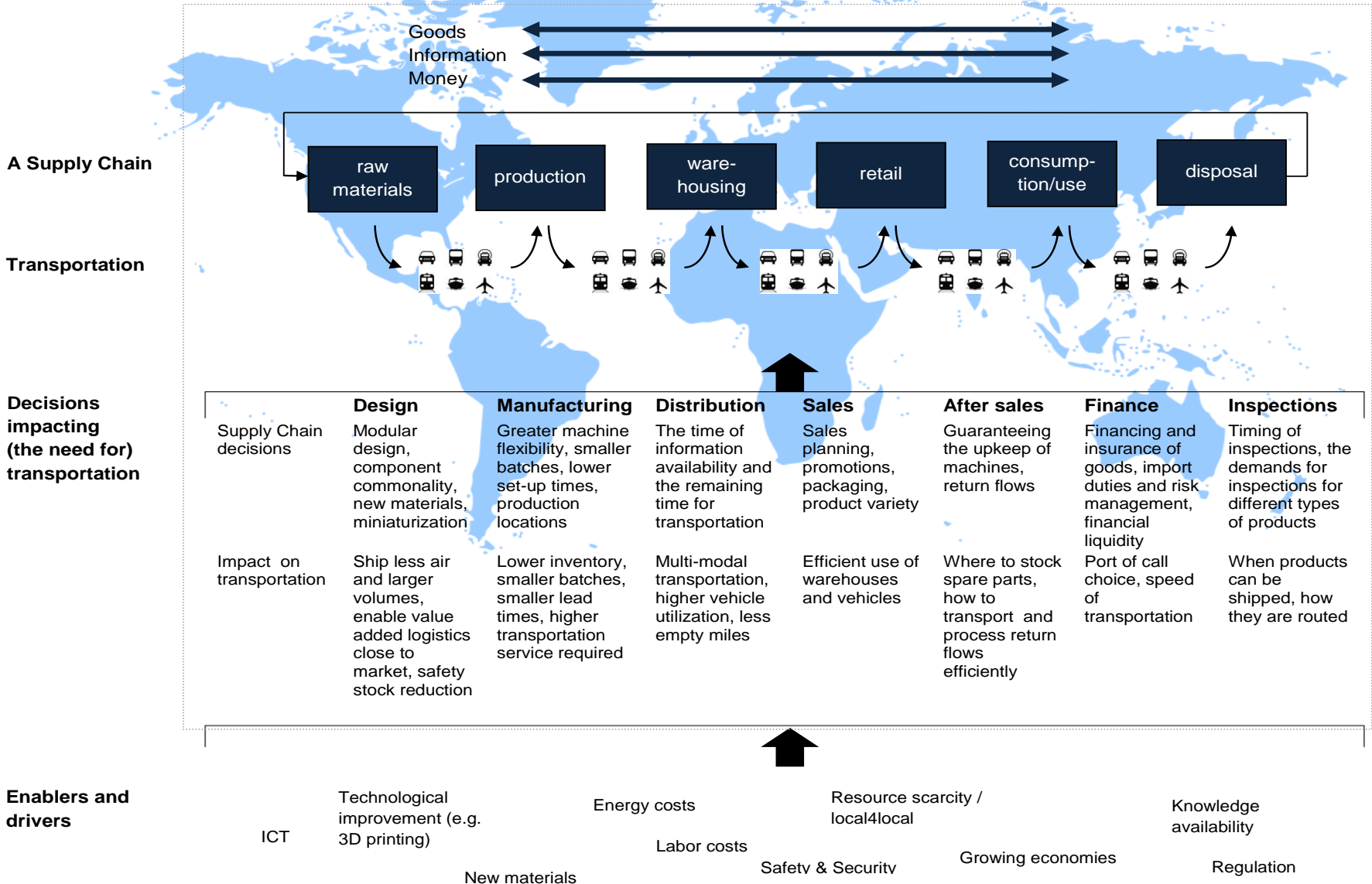
The connection between Modes and Industrial ETPs for
Optimized Logistics and Supply Chain Management

Logistics + Supply Chain

How to Transport

What to Transport





Shippers decisions influence logistics and transport

- Shipping of components instead of full products: postponement whenever possible
- Supply chain consolidation and coordination, both along and across supply chains
- Reconsidering production locations, considering both transport and sustainability issues
- Pressure on consolidation as well as reverse flows in urban logistics

**It is not only a matter of how to transport but also
what to transport!!!!**

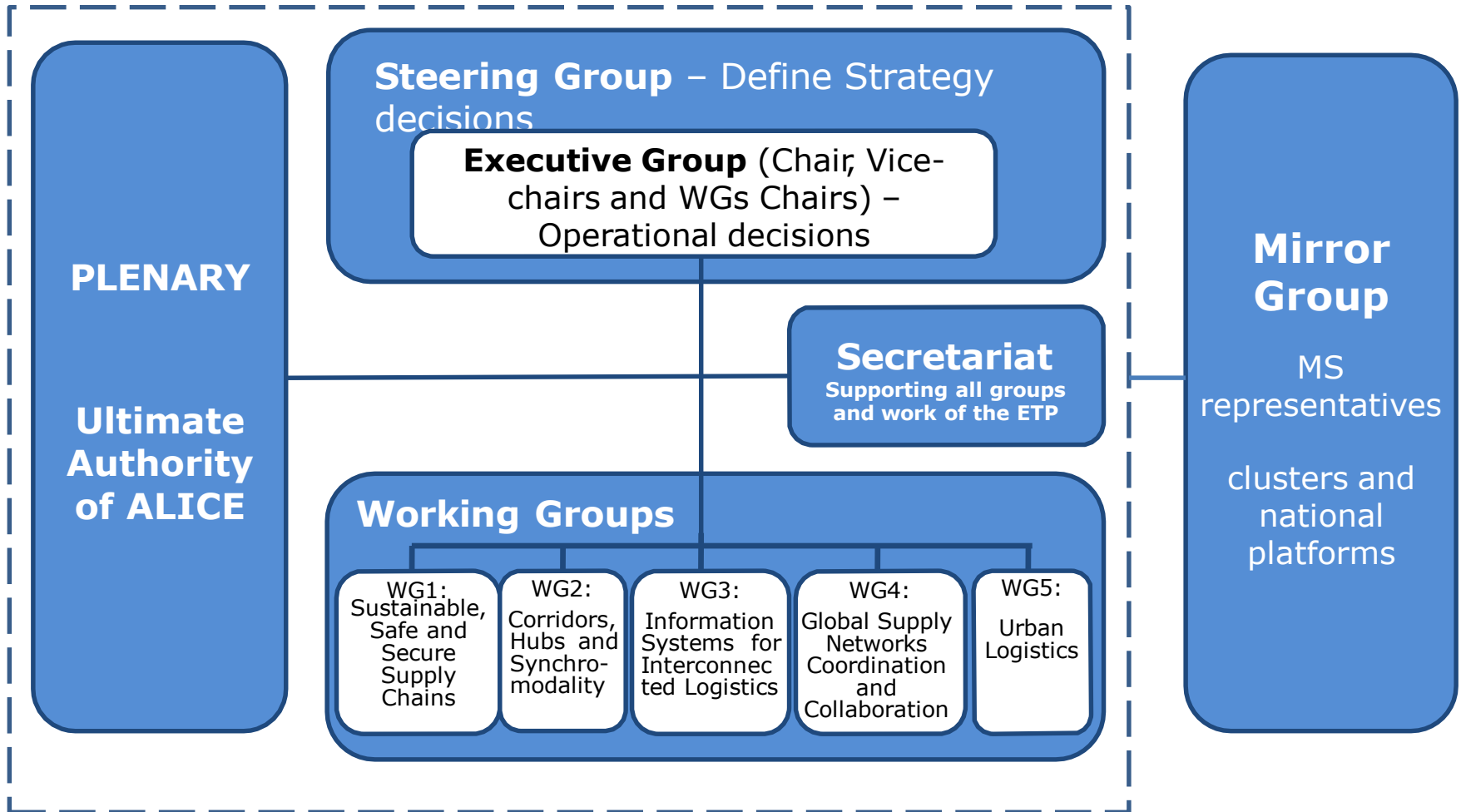
Activities/Output:

- **Define research and innovation** strategies, roadmaps and priorities agreed by all stakeholders to achieve the ETP on Logistics vision. These items will assist the European Commission in the definition of Research and Innovation Programs, i.e. HORIZON 2020
- **Foster innovation in logistics and supply chains**, stimulating and accelerating innovation adoption in order to make possible the growth of the European economy through competitive and sustainable logistics.
- **Raise the profile and understanding of new logistics technologies** and business processes, **monitoring progress and adjusting** research and innovation roadmaps accordingly.
- Contribute to a **better alignment and coordination of European, national, regional innovation programs in logistics**.
- **Provide a network for interdisciplinary collaborative research** involving industry, academia and public institutions.

ETP on Logistics will not...

- Will not focus on general logistics policy applications
- Will not include building of transportation infrastructure or vehicle manufacturing and optimization for unimodal transport → This is addressed by modal ETPs: Rail, Road, Waterborne, Air and ETP on infrastructure: Construction
- Will not include manufacturing and specifics on industry sectors → This is addressed by ETPs on: food, textile, chemical, forest, steel and manufacturing

ALICE structure



Why become a member?

- Contribute needs and challenges to industry research and innovation in logistics and supply chain management.
- Support the European Commission to define EU co-funded programs, starting with HORIZON 2020, and to implement the outcomes of these programs in support of competitiveness and sustainability targets.
- Access a network for interdisciplinary collaborative research involving industry, academia and public institutions.
- Be at the forefront of industry innovation, development and implementation
- Have a role in developing regulatory requirements needed for innovation implementation
- Have the right to participate in the WGs and plenary for decision making as well as the option to be part of the Steering Group and recommend experts to participate in the different WGs.

Membership evolution:

2013	2014	2015	2016
32	62	84	101

ALICE Steering Group composition (35/44 org) Alliance for Logistics Innovation through Collaboration in Europe



Related member associations and ETPs/PPPs :



Additional Plenary Members (57)

alice | Alliance for Logistics Innovation through Collaboration in Europe



ALICE Executive Group



Ralph Keck – Chair Alice

Director. Product Supply – Global
Logistics, Procter & Gamble



**Prof. Dr. J. Rod Franklin, P.E –
Vice Chair Alice and Chair of WG
3 on Information systems for
interconnected logistics**

Academic Director Executive
Education, Kuehne Logistics
University



**Prof. dr. W.H.M. (Henk) Zijm –
Vice Chair ALice**



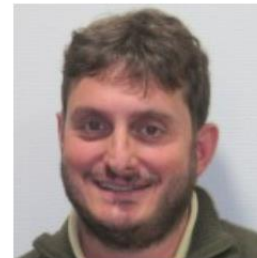
**Karine Boucheri – Chair of WG1
on Sustainable, safe and secure
supply chains**

Innovation Director, FM Logistic



**Angelo Aulicino – Chair of WG2
on Corridors, Hubs and
Synchromodality Chair**

Head of R&D, Interporto Bologna



**Sergio Barbarino – Chair of WG4
on Global Supply Network
Coordination and Collaboration**

Research Fellow, Procter &
Gamble



**Dario Biggi – Chair of WG5 on
Urban Logistics**

Senior Manager Technological
innovation, Posteitaliane

Logistics + Supply Chain

Sustainable, Safe and Secure Supply Chains

Corridors, hubs and synchro-modality

Information systems for interconnected logistics

Supply Chain Coordination and Collaboration

Urban Logistics

Prof. Dr. Albert Venstra	Karine Bouchery	Dr. Luca Urcioli	Marcin Hajdul	Angelo Aulicino	Lóri Tavasszy	Andreas Nettsträter	Rod Franklin	Stefano Persi	Dirk 't Hooft	Sergio Barbarino	Paolo Paganelli	Paola Cossu	Mr. Dario Biggi	Emilio Gonzalez

ERRAC
The European Rail Research Advisory Council

ERTRAC
European Road Transport Research Advisory Council

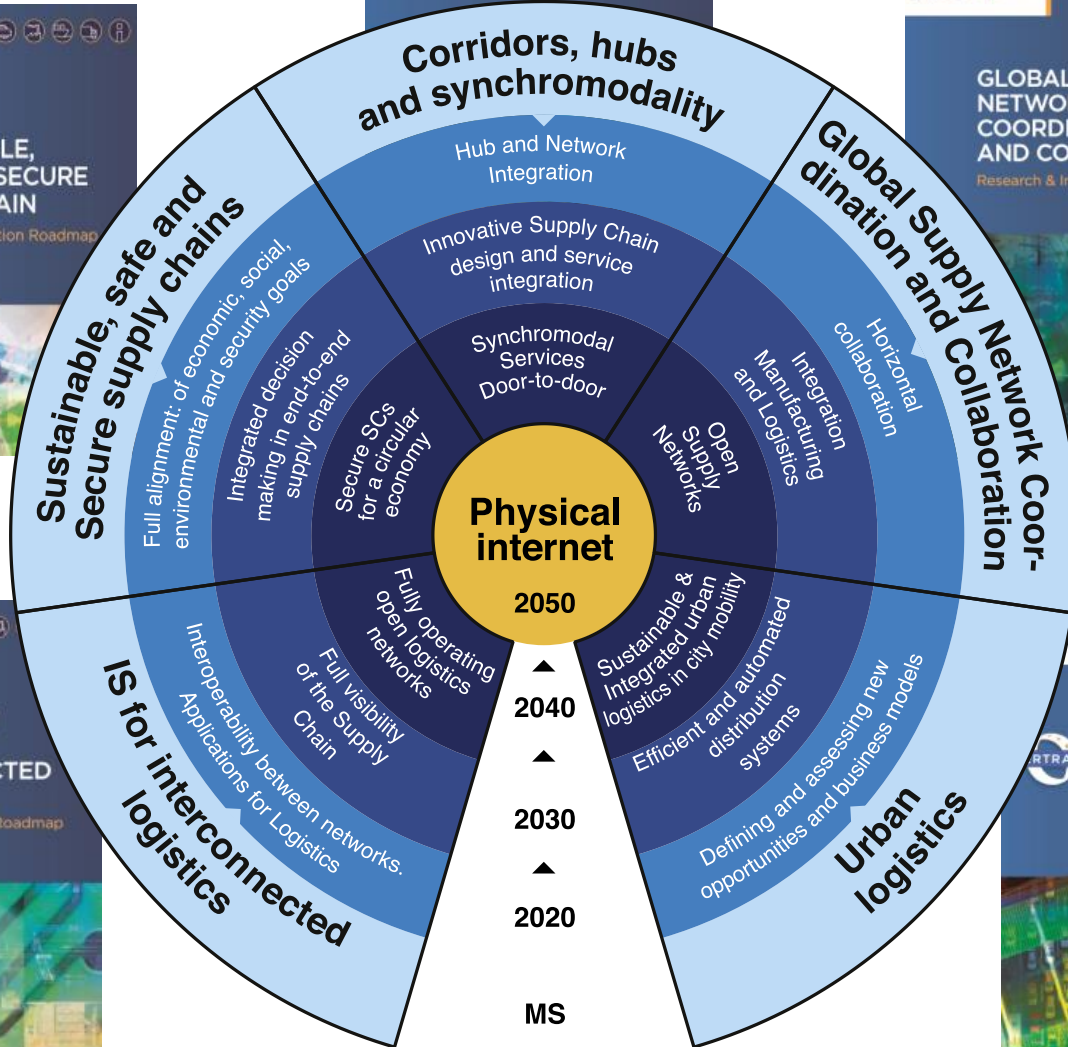
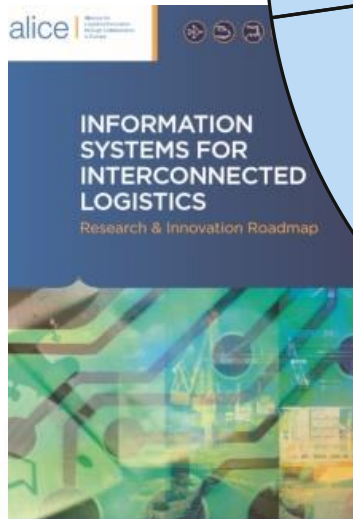
WATERBORNE^{TP}

ERTRAC
European Road Transport Research Advisory Council



Activities performed partially in the frame of WINN and SETRIS. The WINN/SETRIS project has received funding from the European Union's FP7 and Horizon 2020 research and innovation Programme under grant agreements No. 314743 and 653739

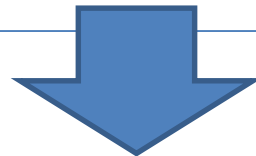
ALICE Roadmaps



Expected Impacts

	Primary Impacts	Secondary impacts
People	<ul style="list-style-type: none"> + Increase customer satisfaction + Products availability + Secure societies 	<ul style="list-style-type: none"> + Load factors: weight and cube fill of vehicles + Volume flexibility (Time to +/- capacity) + % Synchromodal + Asset utilization + Supply Chain Visibility + Reliability of transport schedules + Perfect order fulfilment + Transport routes optimization (reducing Kms) + Transport actors using automatic data exchange + Cargo and logistics units integrated in the automatic data exchange + Upside / Downside Supply Chain Adaptability and Flexibility + Decoupling logistics intensity from GDP - Empty Kilometres - Waiting time in terminals - Risk factor reduction - end-to-end transportation time - Travel distance to reach the market - Lead times
Planet	<ul style="list-style-type: none"> - Energy consumption (kWh Logistics/GDP) + Renewable energy sources share - CO₂ Emissions (kg CO₂/tKm) 	
Profit	<ul style="list-style-type: none"> + Return on assets and working capital - Total supply chain costs - Cargo lost to theft or damage 	

*Future logistics will be based on an **open global logistics system: (connecting logistics networks)**, founded on physical, digital, and operational interconnectivity (access to resources), enabled through modularization, standard interfaces and protocols, with the aim to move, store, produce, supply and use physical objects throughout the world in a manner that is economically, environmentally and socially efficient and sustainable*



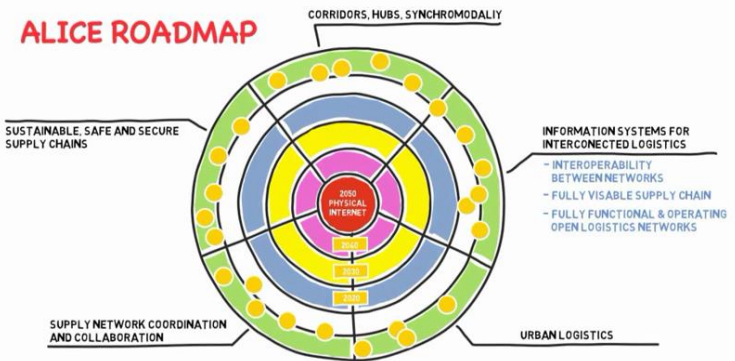
*We call this the **Physical Internet***

Alice Videos



PHYSICAL INTERNET

www.youtube.com/watch?v=PJyzFaKOXnY



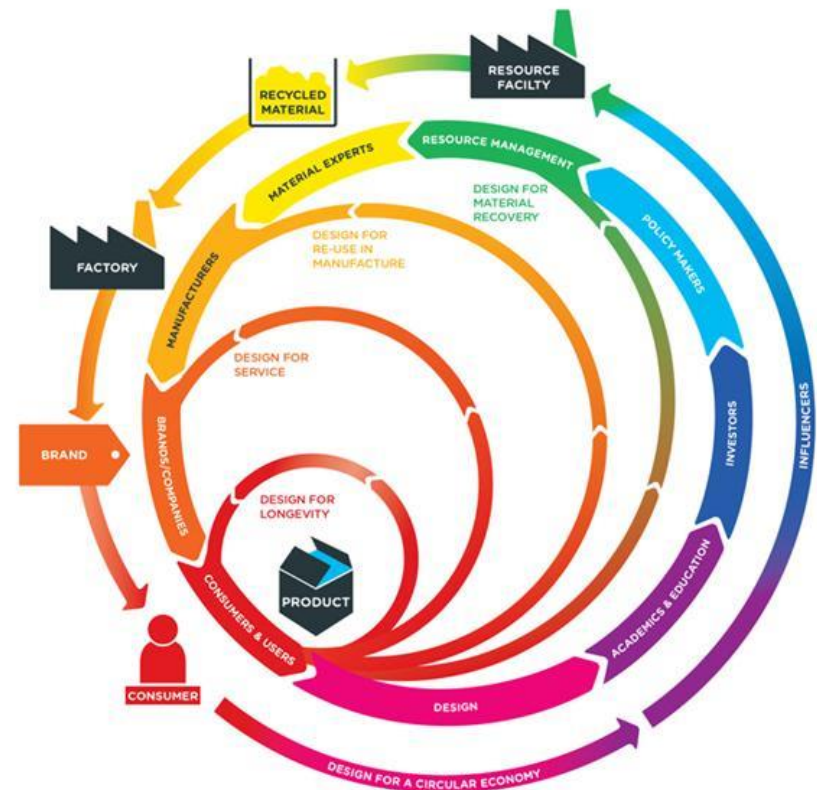
www.youtube.com/watch?v=4vc7XoEYUs8

Sustainable, Safe and Secure Supply Chain Research Roadmap

Vision & Mission

Sustainable, safe and secure logistics systems and supply chains provide an answer to the **growing concern on environmental and social problems related to logistics and security while maintaining or enhancing profitability.**

This requires fully integrated **close loop** supply networks, in which logistic service providers, shippers and authorities closely cooperate. In particular shippers, as the owners of the goods in transit, play a key role; their decisions on **product configuration** after all determine what to transport.



Sustainable, Safe and Secure Supply Chain Research Roadmap: Milestones

2020

- Full alignment of economics, environmental, social and security goals

2030

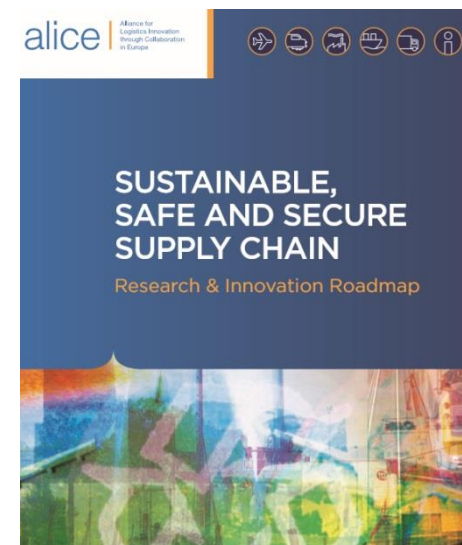
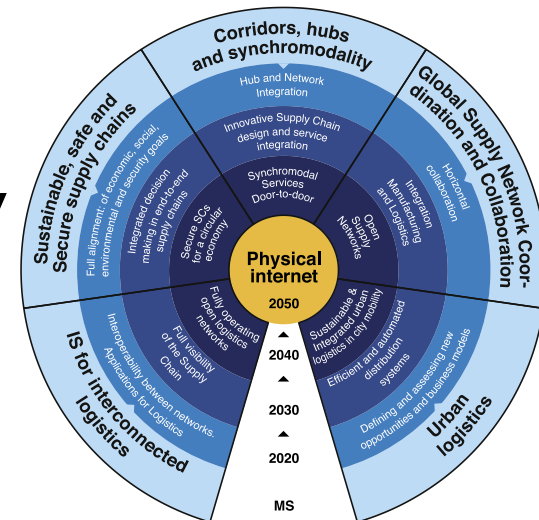
- Integrated decision making in end-to-end supply chain

2040

- Safe and secure supply chains for circular economy

2050

- Physical Internet



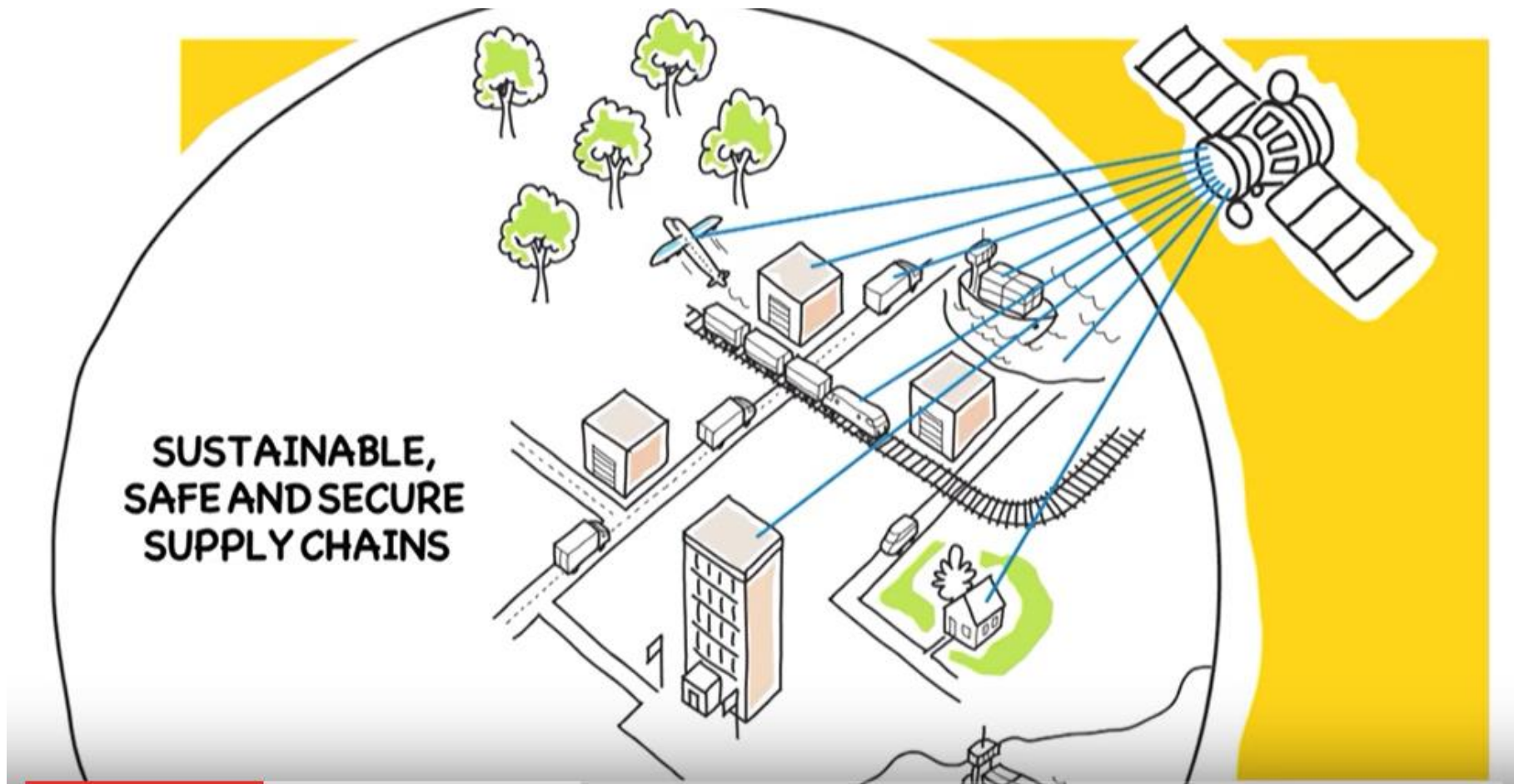
Sustainable, Safe and Secure Supply Chain Research Roadmap: Contents

What are the key issues?

- Logistics as a key factor enabling circular economy → Reducing waste
- Measuring and minimizing emissions and energy consumption but also logistics costs.
- Improving Load units Standardization and modularization facilitating consolidation, bundling and collaboration.
- Facilitating trade while keeping or improving security in EU borders.

Not only how to transport but also what to transport!

Sustainable, Safe and Secure Supply Chain Research Roadmap: Video



Vision

EU wide **synchronomodal services** for a smart and seamless network, based on corridors and hubs facilitating efficient operations and resilient, customized, responsive supply chains.

Mission

Identify and define research and innovation challenges to establish an European core freight network of hubs and corridors bearing the novel needs of the transport industries for a sustainable supply-chain.

Main Scope

In addition to the current focus on strategic investments and policies, the new focus of innovations includes:

- **Integration of networks** – interconnected & interoperable EU freight network
- **Service Integration** – achieving integration by aligned operations
- **Supply chain perspective** – synergetic supply chains & transport improvement

We are
still not
there!

New
Focus!

New
Direction!

Corridors, Hubs and Sychromodality: Milestones

2020

- Hub and network integration

2030

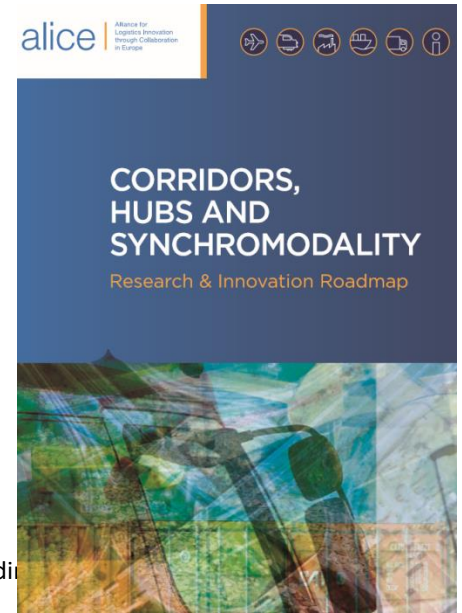
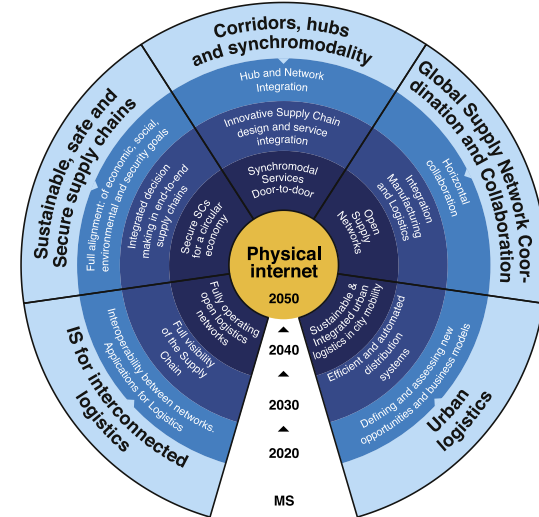
- Innovative supply chain design and synchronomodal service integration

2040

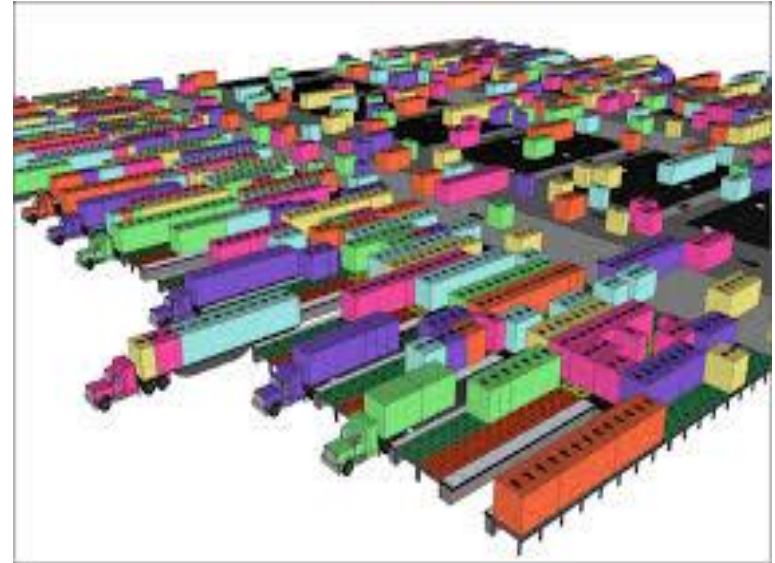
- Synchronomodal services door to door

2050

- Physical Internet



*Optimally, **flexible and sustainable deployment of different modes of transport and hubs** in a system operated by a logistics service provider (PI provider), so that the user or customer (shipper or forwarder) is offered or can directly access to an **integrated and sustainable solution for their (inland) transport needs.***



***Coordination of logistics chains and networks** (different customers), transport chains and infrastructure, is made in such a way that, given **aggregated transport demand** from different owners, the right mode is used at every point in time fulfilling user service requirements.*

* See ALICE roadmap on Corridors Hubs and Synchro-modality

Activities performed partially in the frame of WINN and SETRIS. The WINN

received funding from the European Union's FP7 and

Horizon 2020 research and innovation Programme under grant agreements No. 314743 and 653739

Corridors, Hubs and Synchromodality: Video

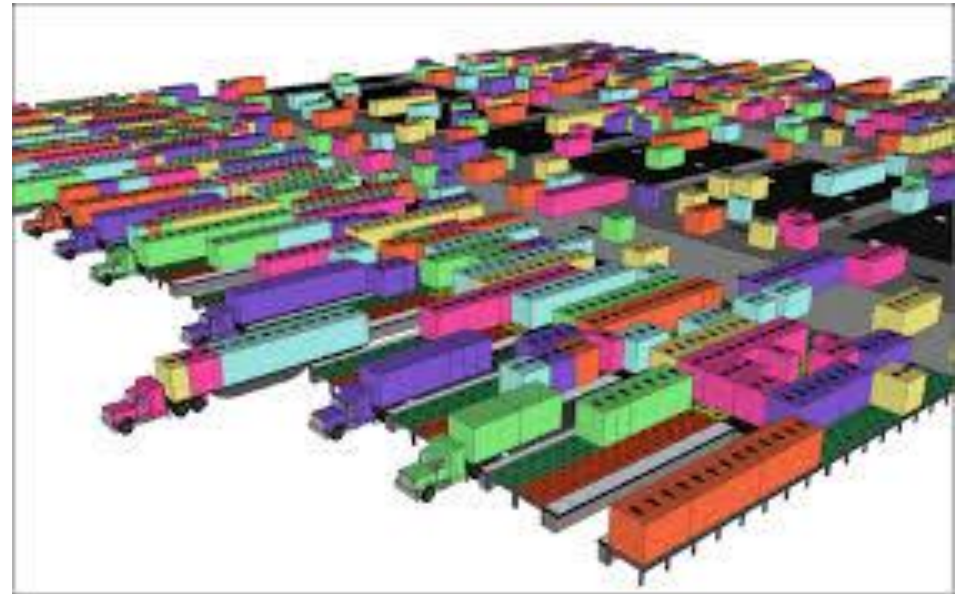


Vision

Real-time (re)configurable supply chains in (global) **supply chain networks** with **available and affordable ICT solutions** for all types of companies and participants, whether large or small.

Mission

Identify and define research and innovation **challenges** including the development of **technologies and tools** that facilitate the closure of existing **gaps in current ICT systems and data sharing capabilities in supply chains** for optimal performance in the execution of supply chain activities.



Information Systems for Interconnected Logistics Roadmap: Milestones

2020

- Interoperability between networks and IT applications for logistics

2030

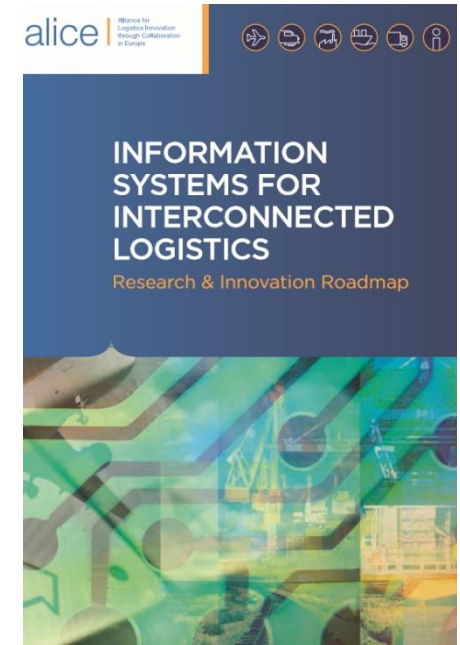
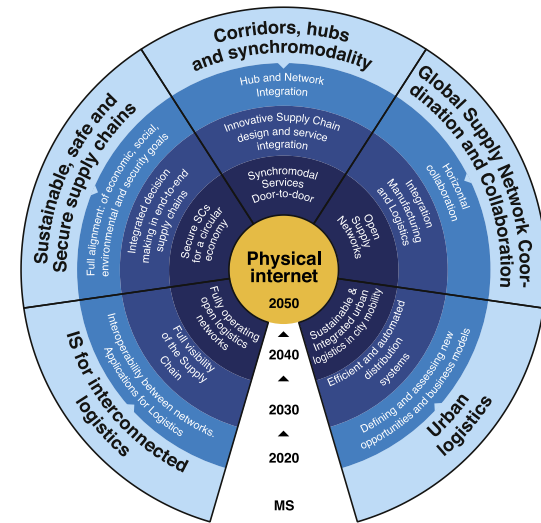
- Full visibility throughout the supply chain

2040

- Fully functional and operating open logistics networks

2050

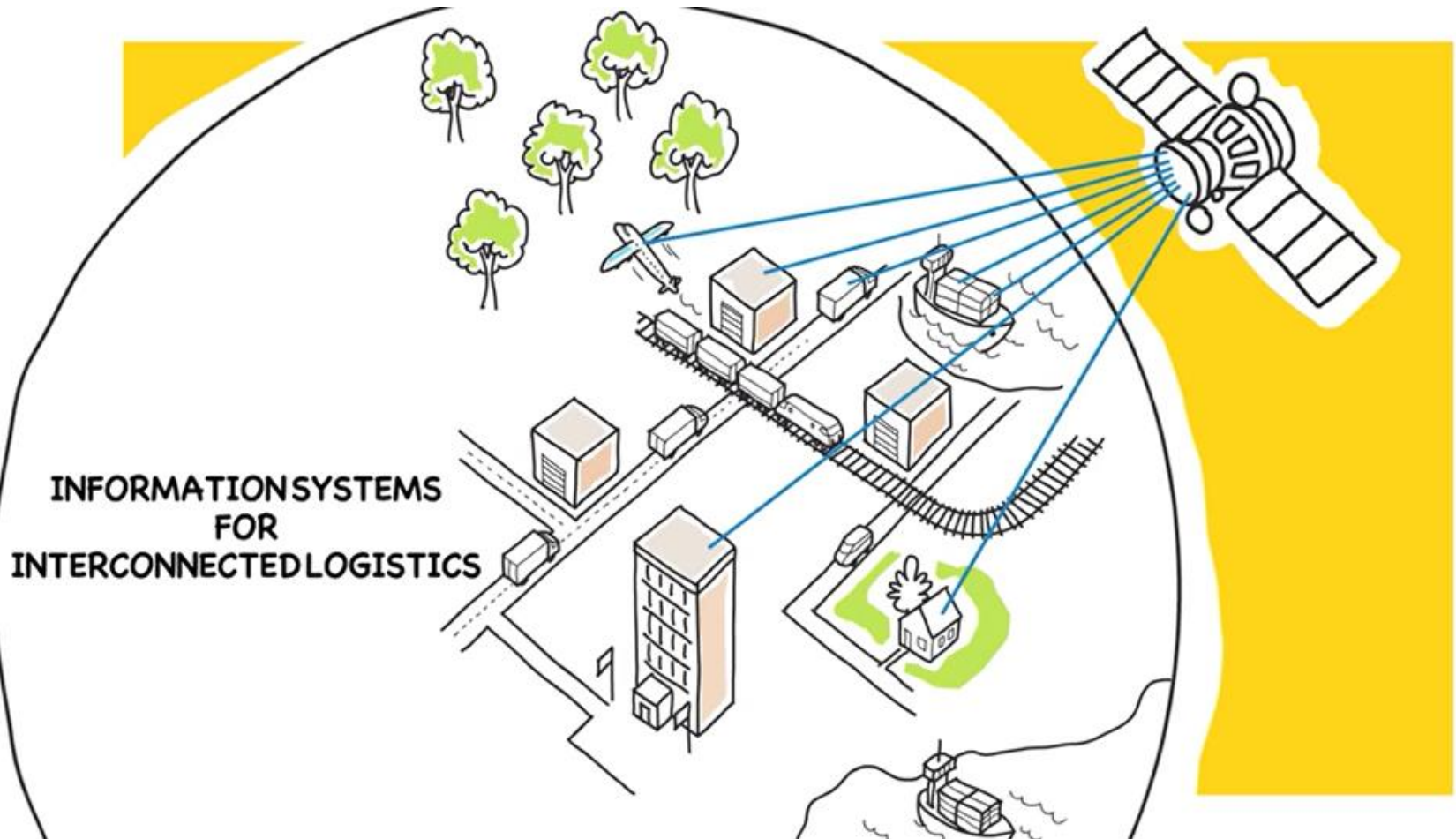
- Physical Internet



Information Systems for Interconnected Logistics Roadmap: Challenges

- The ability to rapidly connect to, and disconnect from, supply networks at two levels; the business level and the technical ICT level.
- The simplification of ICT systems, information interfaces and business models so that domain users are shielded from having to become technology experts and can focus instead on the efficient execution of transport and logistics operations;
- The simplification and standardization of device interconnections so that the rapid connection and disconnection of sensor enabled items is facilitated;
- Open cloud based collaboration platforms to facilitate the dynamic and cost effective formation and management of complex supply networks;
- Secure and reliable data management approaches that facilitate the collection and analysis of authorized data so that operational efficiency can be improved while assuring the public that privacy is maintained;
- The development of appropriate standards and data collection systems for reporting commercially and socially important information (e.g., emissions, load factors, congestion levels, etc.) so that proper comparisons can be obtained and informed decisions made;
- The ability to properly manage goods flows so that infrastructures, transport assets, modal nodes and other supply network assets are optimally utilized; and
- The adoption, integration and use of smart infrastructures, Intelligent Transport Systems (ITSs), IoT devices and other intelligent edge based technologies in supply chains to increase the efficiency, effectiveness and control of supply networks.

Information Systems for Interconnected Logistics Roadmap: Video



Activities performed partially in the frame of WINN and SETRIS. The WINN/SETRIS project has received funding from the European Union's FP7 and Horizon 2020 research and innovation Programme under grant agreements No. 314743 and 653739

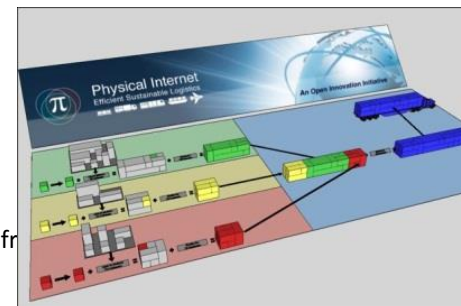
Global Supply Network Coordination and Collaboration Research Roadmap

Vision

Supply networks that are operated as a whole, meaning full vertical and horizontal integration and coordination.

Mission

- **Removing barriers** through new concepts and approaches, for **closer Vertical and Horizontal Collaboration** among different Network owners in Europe.
- To favour a smooth transition **from independent Supply Chains to open global Supply Networks**.
- To make the most efficient **use of available resources and modes, they will be compatible, accessible and easily interconnected**



Global Supply Network Coordination and Collaboration: Milestones

2020

- Horizontal Collaboration

2030

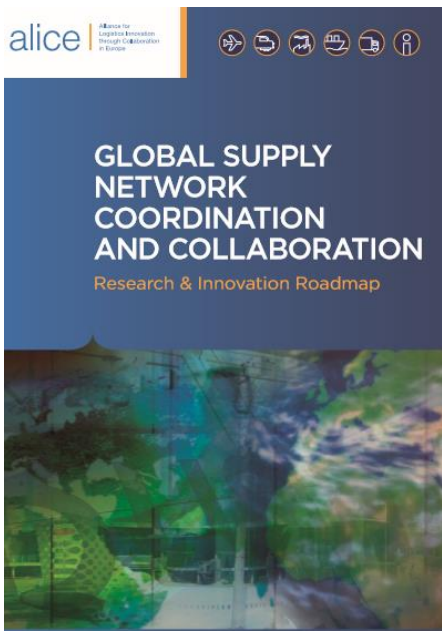
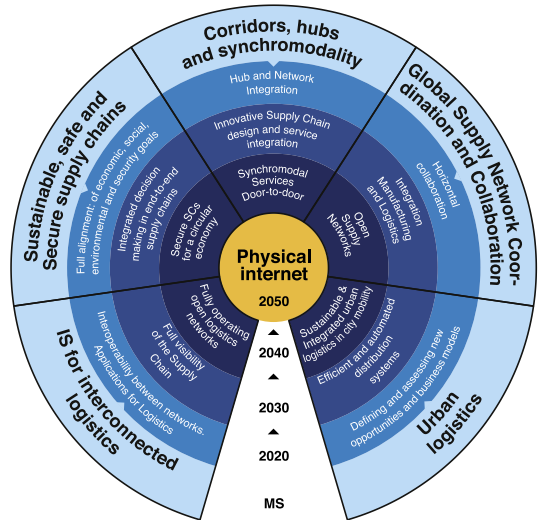
- Integration Manufacturing Logistics

2040

- Open Supply networks

2050

- Physical Internet



Challenges and themes (1)

1. Collaborative supply network design and operation

- Strategic collaborative logistics network design
- Tactical planning and execution of collaborative networks
- Resilience capabilities and risk management of collaborative networks
- Business models and change management for collaborative services

2. Supply network coordination

- Coordinated planning of supply chain and logistic services
- Synchronization and dynamic update of logistics operations in open networks
- Overcoming data-sharing barriers in collaborative networks

Challenges and themes (2)

3. Manufacturing and logistics integration

Holistic Supply Chain view

Manufacturing villages for collaboration and sharing of non-unique resources (e.g. Pharma industry)

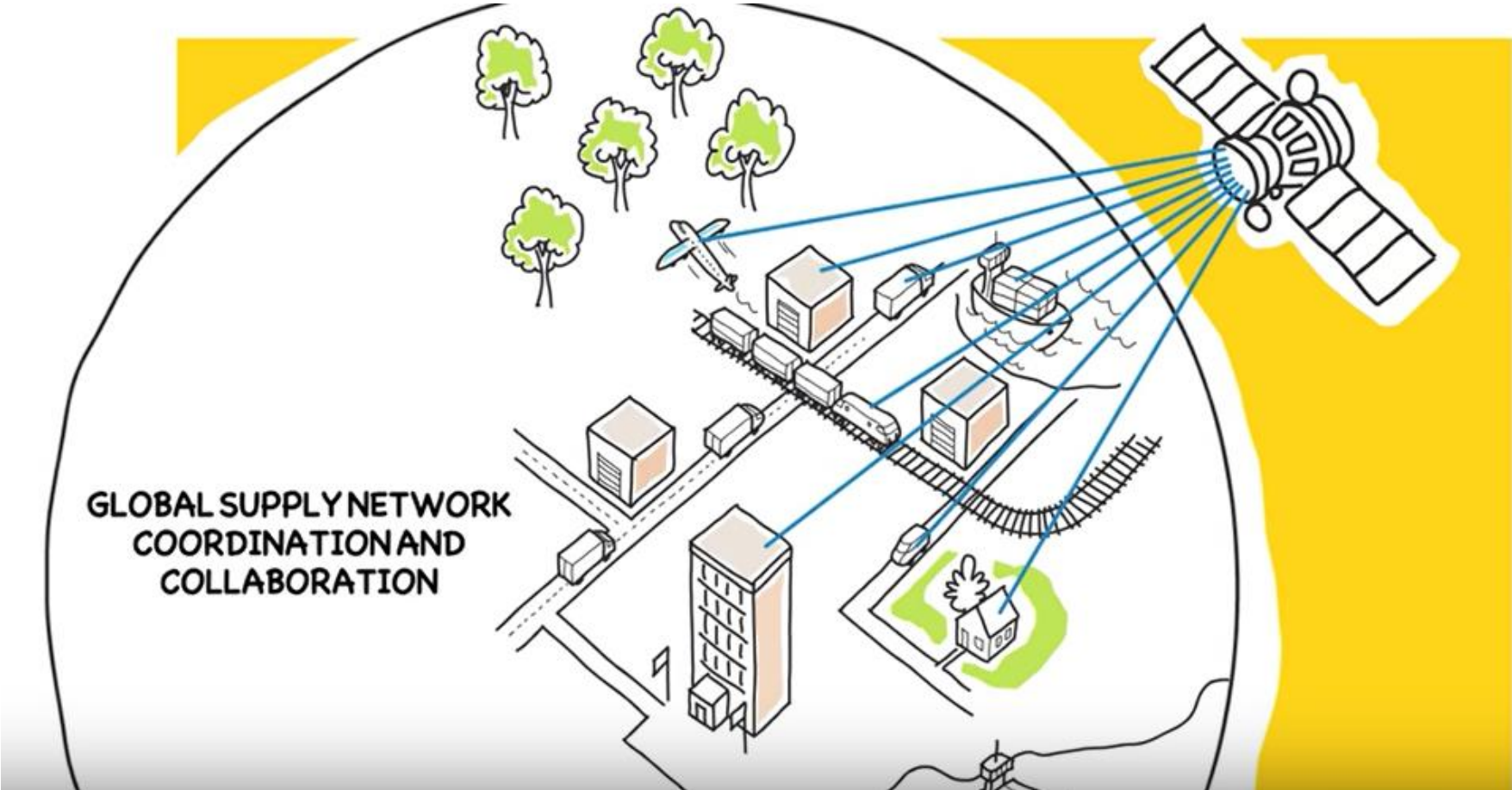
Agile, modular and distributed manufacturing: requirements, implications and opportunities for logistics.

4. Enablers for collaboration and coordination

Favouring the transition to the new collaborative environment

Understanding the impact of collaborative logistics

Global Supply Network Coordination and Collaboration: Video



Vision

Full integration of freight flows in cities operations and activities that allow citizens to access the goods and the goods to access the citizens they require and at the same time supporting sustainable development in cities

Mission

Identify and define research and innovation challenges to optimize flows of goods within, into and from urban conglomerates by leveraging existing infrastructure

Urban Logistics: Milestones

2020

- Defining and assessing new opportunities and Business Models

2030

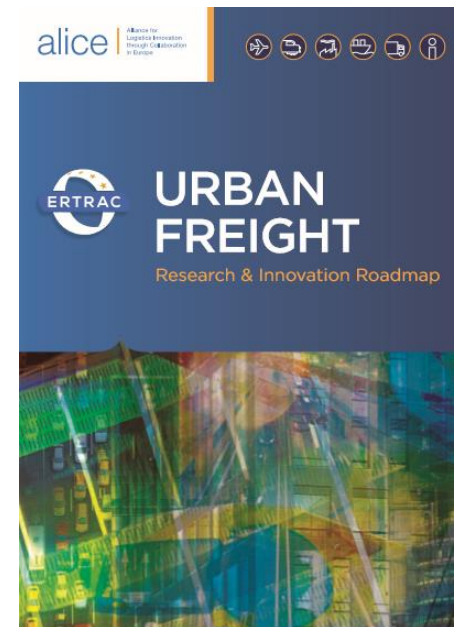
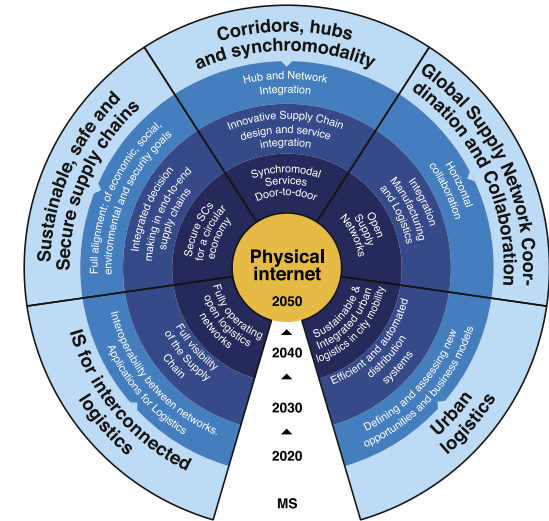
- Efficient and automated distribution systems

2040

- Sustainable and integrated urban logistics in the city mobility system

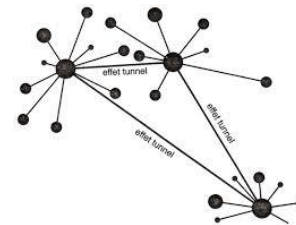
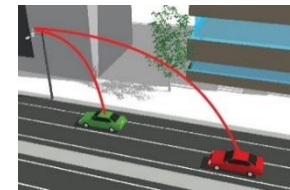
2050

- Physical Internet



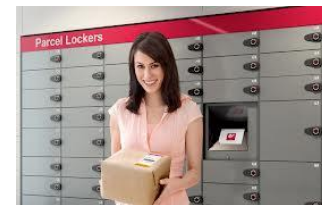
The roadmap identifies **data collection and knowledge building** on urban logistics as the first step for a relevant urban logistics research agenda.

- **Identifying and assessing opportunities** in urban freight (measuring freight component, load factors, demand B2B, B2C, set KPIs)
- **Efficient integration** of urban freight in city:
 - Understand the **impact of land use** on urban logistics activities (parking spaces, lanes, availability mgmt.)
 - **Mobility Plans** taking urban freight into consideration
 - Improving the **interaction between long distance** freight transport and urban freight (e.g. freight corridors, locations of DC and consolidation centers)
 - Better **adapting the vehicles** to innovative urban freight delivery systems (sizes, modularity, intermodality, tech. for load consolidation)



- Business Models** and Innovative Services

- Value creation **logistics services** and more efficient operations: Consolidation schemes, night deliveries, out of office hours)
- Collaboration and concerted actions/regulations** between local authorities, shippers, retailers and LSPs
- New **Governance models**: Financing/Business models, roles
- E-commerce implications**: Direct to consumer deliveries and functional logistics services, decoupling delivery/reception
- Reverse logistics**: e.g. direct/reverse integration
- Designing and operating urban **freight infrastructures**

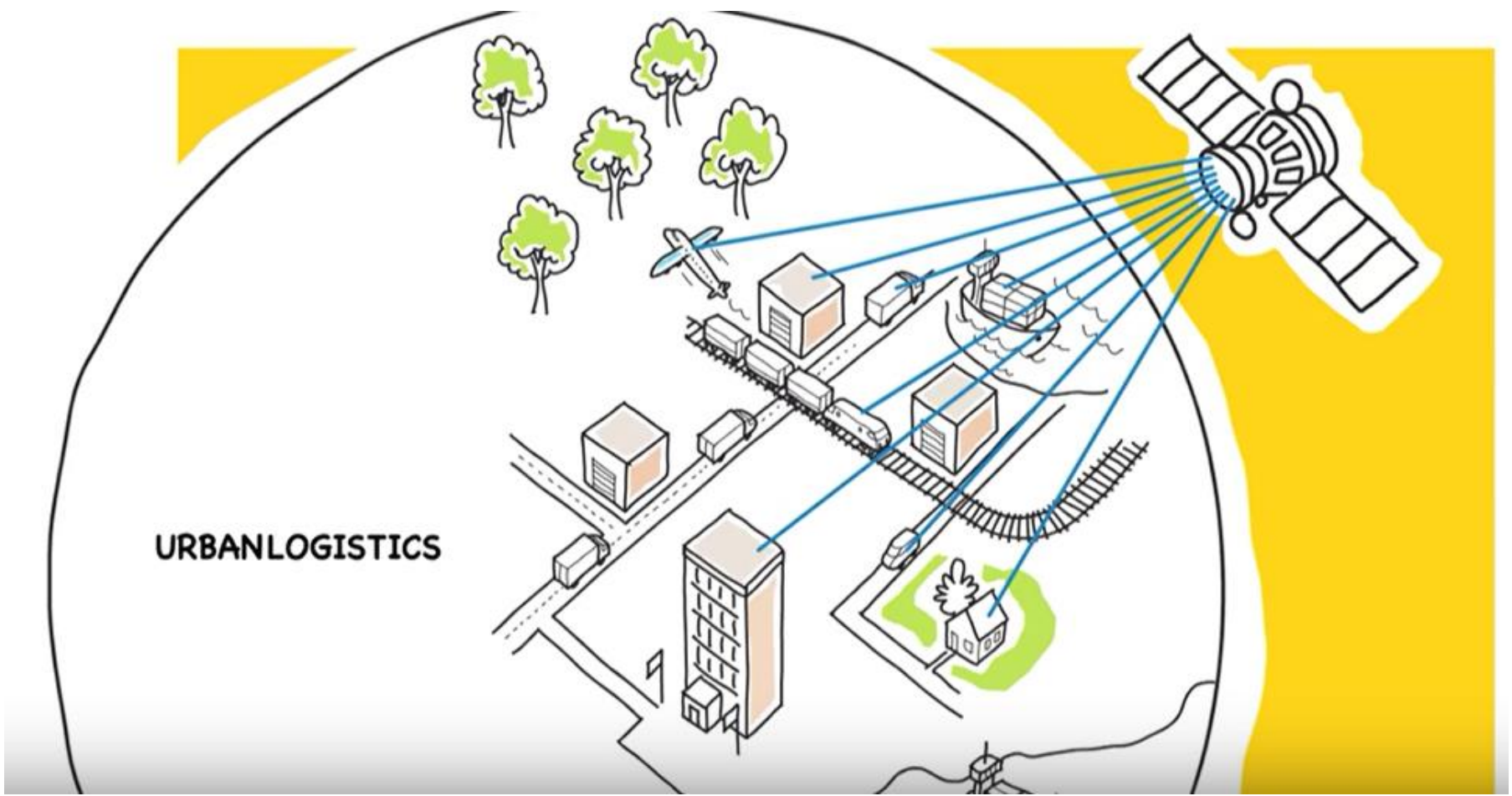


- Safety and security** in urban freight

- Cleaner and more efficient vehicles**



Urban Logistics: Video



Activities performed partially in the frame of WINN and SETRIS. The WINN/SETRIS project has received funding from the European Union's FP7 and Horizon 2020 research and innovation Programme under grant agreements No. 314743 and 653739

Additional Information

The following documents can be found on ALICE Web (www.etp-alice.eu):

- ALICE Executive Summary and Mission Statement ([link](#))
- ALICE Terms of Reference ([link](#))
- Who is who in ALICE, Steering Group Membership ([link](#))
- ALICE input for HORIZON 2020 2014-2015 calls ([link](#))
- ALICE input for HORIZON 2020 2016-2017 calls ([link](#))
- ALICE Research & innovation Roadmaps ([link](#))

What are the European Technology Platforms, ETPs?

*"European Technology Platforms (ETPs) are industry-led stakeholder fora that develop short to long-term research and innovation agendas and roadmaps for action at EU and national level to be supported by both private and public funding"**

www.ec.europa.eu/etp

What are the European Technology Platforms, ETPs?

- There are 38 ETPs, covering the most important technological areas
- They connect thousands of European companies, knowledge institutes and policy makers and have facilitated the development of a common vision and research agenda for each of the 38 technology fields they represent
- **The ETP research agendas have helped the European Commission to take industry's needs into account when shaping the Framework/HORIZON 2020 Programme (52 Billion € 2007-2013/ 70 Billion € 2014-2020)**

Current individual (38) European Technology Platforms, ETPs

ALICE: recognized in July 2013 as an Official ETP

www.ec.europa.eu/etp

Bio-based economy	Energy	Environment	ICT	Production and processes	Transport
EATIP	Biofuels	WssTP	ARTEMIS	ECTP	ACARE
ETPGAH	EU PV TP		ENIAC	ESTEP	ALICE
FABRE TP	TP OCEAN		EPoSS	EuMaT	ERRAC
Food for Life	RHC		ETP4HPC	FTC	ERTRAC
Forest-based	SmartGrids		euRobotics	Manufuture	Waterborne
Plants	SNETP		NEM	Nanomedicine	
TP Organics	TPWind		NESSI	SMR	
	ZEP		Networld 2020	SusChem	Cross-cutting ETP Initiatives
			Photonics 21		Nanofutures
					Industrial Safety
					PROSUMER.net

*Logistics innovation for a more
competitive and sustainable industry*