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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

Why ALICE?

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Focus on Medium-Long term vision for logistics:

Trends, New Business models… → New Challenges and Opportunities

Define a Research & Innovation Strategy/agenda linked to Industry interest

→ Formal mandate of the European Commission in defining R&I Programs H2020 as *European Technology Platform**

Mapping and analysis progress: R&I projects, Industry initiatives, Start-ups → Facilitate access to knowledge generated

Create an open Network for Collaborative Logistics Innovation in Europe → Building knowledge and supporting innovation

* *What are the European Technology Platforms, what do they do and what is the European Commission Role*

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

European Commission

ALICE development

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	2013	2014	2015	2016	2017
Nr. Members	32	62	84	101	107

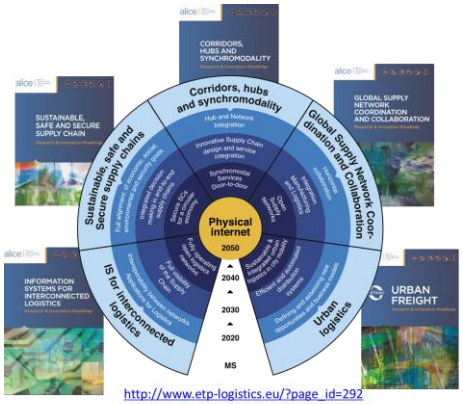
Jun 2013

Creation and recognition as ETP by EC

Recommendations H2020 First Calls

2014

ALICE R&I Roadmaps



http://www.etp-logistics.eu/?page_id=292

Recommendations H2020 2016-2017

2015

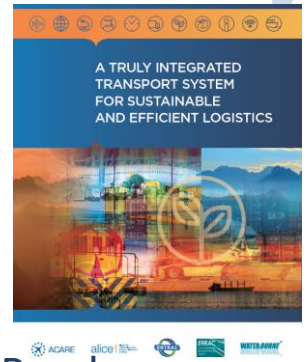
IPIC Paris (250+ attendees)

Alice established as Legal Entity

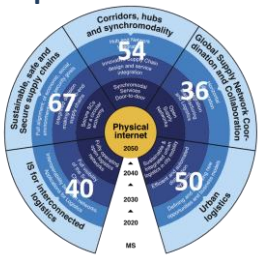
SETRIS Project Start

2016-2017

Truly Integrated Transport System



Roadmaps Implementation Status



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ALICE membership per type of Organization

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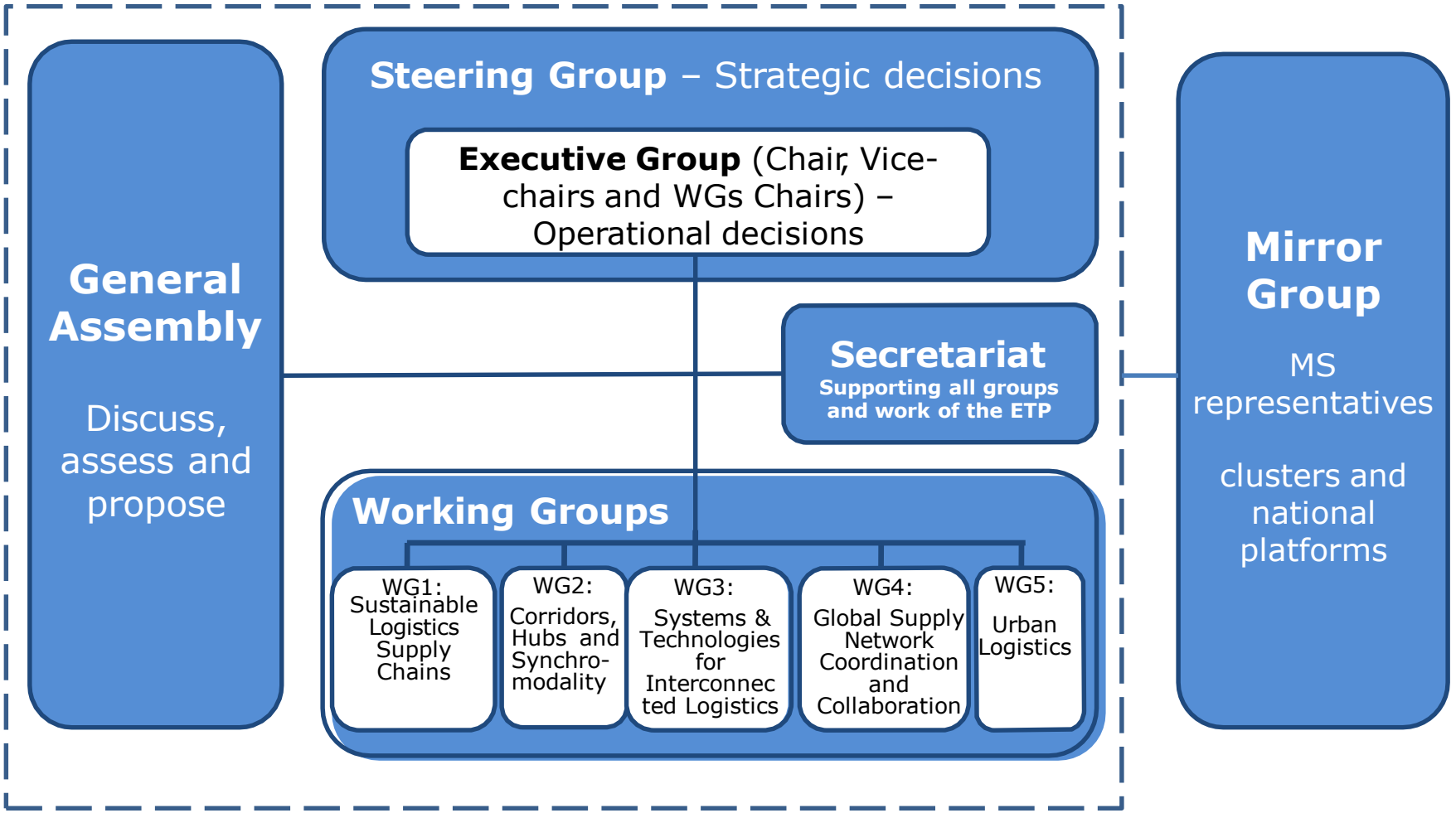
Type of Organization	Members	EU/International Associations
Shippers & Retail	P&G, SOLVAY, Ford, Mondelēz International, Groupe Casino, HOFER, BAYER	ESC, cefic, ELUPEG, GS1
Logistics Service Providers, Courier and Postal operators & Freight Forwarders	Gebrüder Weiss, KUEHNE+NAGEL, FM LOGISTIC, Posteitaliane, LINEAS, GEODIS, BORUSAN LOJİSTİK, CHEP	CLECAT, IRU, EALTH
Ports, Hubs, Intermodal terminals & Transport Infrastructure	Port of Rotterdam, Rijkswaterstaat, ECO SLC, HUTCHISONPORTS ECT ROTTERDAM, TRAFIKVERKET, JLL, INTERPORTO BOLOGNA, duisport, valenciaport	FERPORT, INE, FEPORT
Vehicle Manufacturers & Logistics operations, handling (modular units)	VOLVO, MAN, DAIMLER, LOGIFRUIT	eucar
Information and Communication Technologies & Consultancy	AJA, ADVANTECH, argus, MARLO, LOGIT ONE, UIRNet, PNO, SILENT SENSORS, TRAXENS, everis, log sea, Moving Innovation, BIMAR, nallian, inlecomsystems, GEA, bluegreen, enide, mosaicfactor, interlogistics, HaCon, PTV GROUP	ERTICO, LEAN & GREEN
Regional & Member States Logistics Clusters	VNL, Euralogistic, CLOSER, LUTB, LIMOWA, EffizienzCluster LogistikRuhr, nov@log, VIL	
Research and technology Centers	Fraunhofer IML, Fraunhofer IFF, KLU, ZLC, Newcastle University, CHALMERS, LOGISTIKUM, MINES ParisTech, RISE, SMART FREIGHT CENTRE, CNC-LOGISTICA, iTENE, CATAPULT, BIBA, UNIVERSITÀ DELLA CALABRIA, ITAINNOVA, TUDelft, TNO innovation for life, rijksuniversiteit groningen, TU/e	ECTRI, ELA, European Logistics Association
European Technology Platforms /PPPs	WATERBORNE, ERRAC, ERTRAC, EFFRA a MANUFUTURE initiative, MANUFUTURE-EU	
Member States and innovation Funding*	Department for Transport, TÜBİTAK, Ministry of Infrastructure and the Environment, DINALOG, CDTI, ΥΠΟΥΡΓΕΙΟ ΥΠΟΔΟΜΩΝ ΚΑΙ ΜΕΤΑΦΟΡΩΝ, Vlaanderen, THE GOVERNMENT OF THE GRAND DUCHY OF LUXEMBOURG, bmvit, VINNOVA, Ministero dell'Istruzione Università e Ricerca	

** Involved in ALICE Mirror Group*

European Commission

ALICE structure



ALICE Tead team

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Alice Executive Group

Rod Franklin

ALICE Vice-Chair

Kühne Logistics University
Managing Director &
Academic Director, Executive Education

Sergio Barbarino

ALICE Chair

Procter & Gamble
Research Fellow

Pablo Gómez

ALICE Vice-Chair

FM LOGISTIC
Innovation Director

Secretariat

Fernando Liesa
secretary general

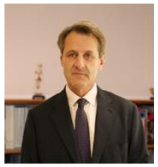
Dirk 't Hooft
director
communications

Indrek Ilves
member of the
secretariat

Sophie Punte

WG1. Sustainable Logistics Supply Chains

Smart Freight Center
Executive Director



Vicente Del Río

WG2. Corridors, Hubs and Synchromodality

Valenciaport Foundation
General Manager

Nik Delmeire

WG3. Systems and Technologies for Interconnected Logistics

European Shippers Council
Secretary General

Dirk 't Hooft

WG4. Global Supply Networks Coordination and Collaboration

ArgusI
Senior Advisor Log Coll.

Karine Boucheri

WG5. Urban Logistics

FM Logistic
Innovation Manager

European Commission

ALICE Working Groups

Chairs & Vice-Chairs

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Sustainable Logistic Supply Chains

Sophie Punte

Alain Baeyens

Lóri Tavasszy

Corridors, hubs and synchro-modality

Vicente del Río

Malgorzata Kirchner

Angelo Aulicino

Kris Neyens

Systems and Technologies for Interconnected Logistics

Nik Delmeire

Andreas Nettsträter

Stefano Persi

Wout Hofman

Lina K.

Global Supply Network Coordination & Collaboration

Dirk 't Hooft

Bas van Bree

Eric Ballot

Paolo Paganelli

Urban Logistics

Karine Bouchery

Paola Cossu

Emilio Gonzalez

Part of Urban Mobility WG

ERTRAC European Road Transport Research Advisory Council

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ERRAC The European Rail Research Advisory Council

European Commission

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
- Together with other relevant stakeholders: transport companies, terminals and terminals operators, support industry (IT, Consultancy, transport & logistics equipment) and research and education
- Collaboration with related ETPs: ERTRAC, ERRAC (Shift2Rail), WATERBORNE, MANUFUTURE/EFFRA (FoF), Big Data (BDVA)

Activities/Output:

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- **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.

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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 activities in a Nutshell

Collaborative Innovation Days 2017

European Commission | alice

Decarbonization | Digitalization | City Logistics

IPIC 2018 TRA VIENNA 2018

A digital era for transport

Networking & Collaboration

- 2 Plenaries + networking dinners, 1-2 major conference, 3-4 CIDs + 1 Brokerage Event

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INFO-DAY & BROKERAGE EVENT

Logistics topics in H2020

- Supporting members participation in Collaborative R&I: i.e. H2020, others,
- Training & Courses on H2020

Working Groups:

- Roadmaps definition & preparation
- Position papers
- Monitoring Progress of Research & Innovation
- Preparing Recommendations for H2020 WP

Knowledge Platform:

Trends, challenges, opportunities, members profiles, R&I projects, Start-ups Funding Programs

Start-ups and Ventures Day

Meeting selected start-ups, get to know their pitch innovations and value proposition.

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Overview of Meetings and Calendar 2018

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8-9 March	Workshop on *"Zero Emissions Logistics"*	Brussels
16-19 April	TRA VIENNA 2018 — A digital era for transport — solutions for society, economy and environment — 16 – 19 April 2018	Vienna
May	*Blockchain applic. and cases for logistics*	Barcelona
19-21 June	IPIC 2018	Groningen
22 June	ALICE Plenary (linked to IPIC)	Amsterdam
9-10 Oct	Workshop "Towards Physical Internet"	Munich
December	Start-ups Brokering with ALICE members + Plenary	

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Why become a member?

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- 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 assembly** as well as the option to **be part of the Steering Group** and recommend experts to participate in the different WGs.

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Current trends and paradigms: For how long?

Facts and need for action

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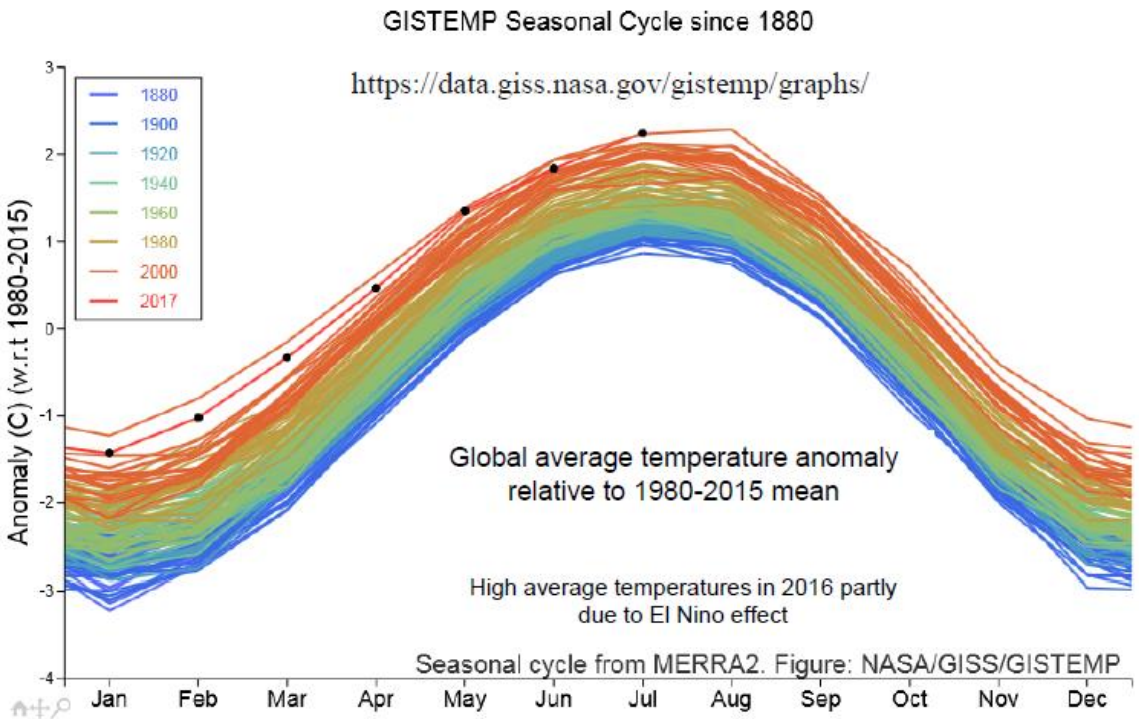
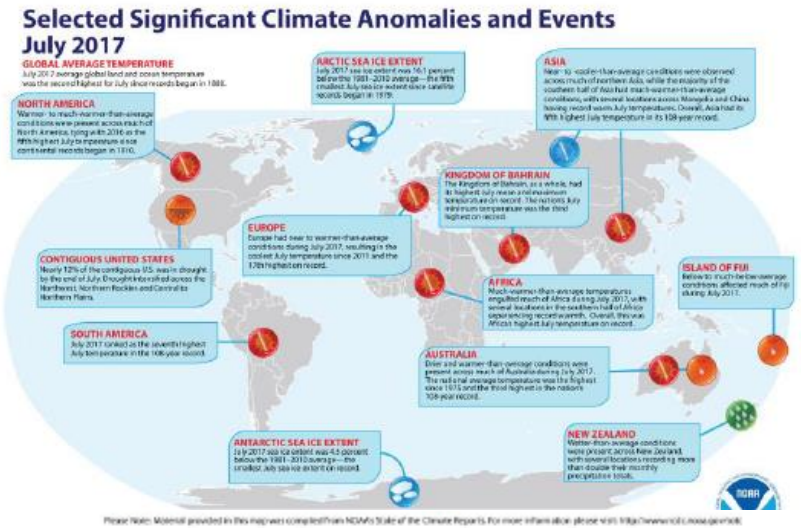
Increase in average global temperature by month: 1880 - 2017



"Even without a strong El Niño in 2017, we are seeing other remarkable changes across the planet that are challenging the limits of our understanding of the climate system. We are now in truly uncharted territory,"

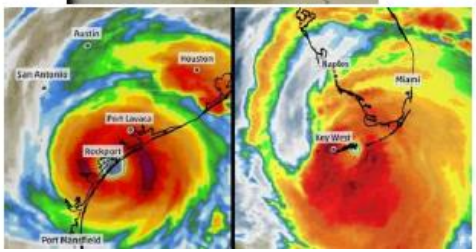
David Carlson Director of WMO World Climate Research Programme.

Increased frequency and intensity of extreme weather



https://www.ncdc.noaa.gov/sotc/global/201707

Bangladesh, Nepal, India monsoon floods 2017



1st time 2 category 4 hurricanes hit US mainland in one year

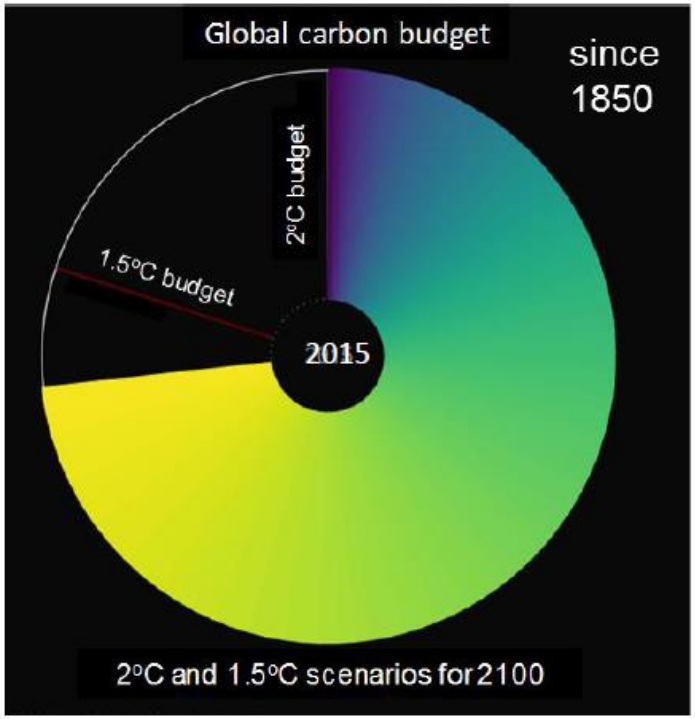
Harvey and Irma

Source: Alan McKinnon, EC & ALICE Final Logistics Cloud Event: http://collaborativeinnovationdays.eu/

UNFCC COP 21 Conference on Climate Change
December 2015

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

International agreement to keep average global temperature '*well below*' 2°C above pre-industrial times and '*endeavor to limit*' them to 1.5°C

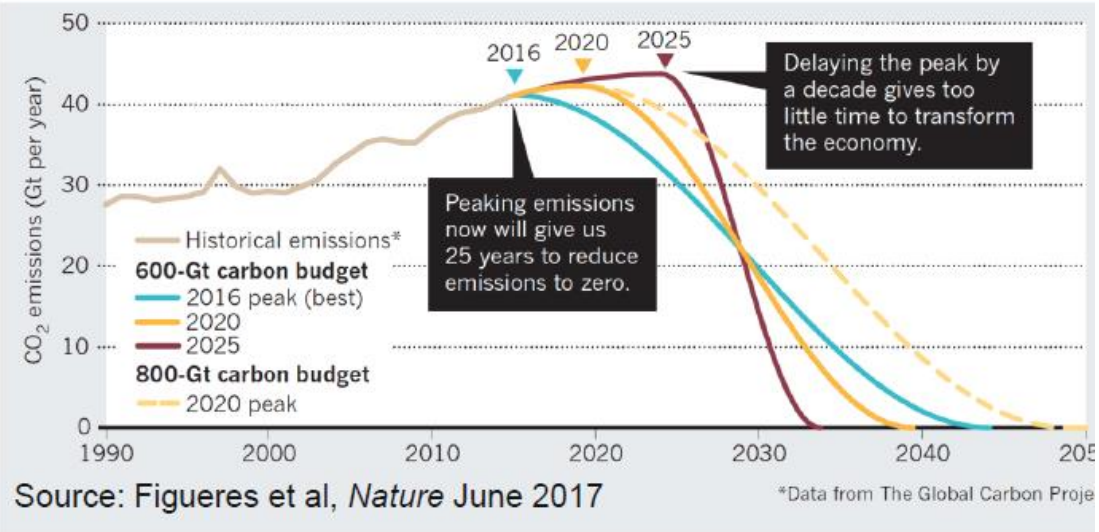


Source: Ed Hawkins
http://www.climatechangenews.com/2016/07/27/spiral-tastic-climate-change-in-three-animations

At present rate of greenhouse gas emissions:
(*to have 66% chance of staying within limit)*

9 years to stay with 1.5°C limit
19 years to stay with 2.0°C limit

Source:
Anderson (2015)



Source: Figueres et al, *Nature* June 2017

Source: Alan McKinnon, EC & ALICE Final Logistics Cloud Event: http://collaborativeinnovationdays.eu/

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Freight Transport Contribution to GHG Emissions

IDDRI (2014)
Freight share of total GHG emissions:
2010: 7%
2050: 16% (business as usual projection)
One of the '*most challenging sectors*' in which to achieve '*deep emission reductions*'

OECD / ITF Transport Outlook (2017)

- 3x increase in freight tonne-km between 2015 and 2050
- heavy dependence on fossil fuels

Freight transport alone would be 30% of allowable emissions by 2050

To meet EU target of 60% reduction in total CO_2 emissions from freight transport between 1990 and 2050 current carbon intensity of freight transport must fall 80-85%

'factor 5 or 6 reduction'

Source: Alan McKinnon, EC & ALICE Final Logistics Cloud Event: http://collaborativeinnovationdays.eu/

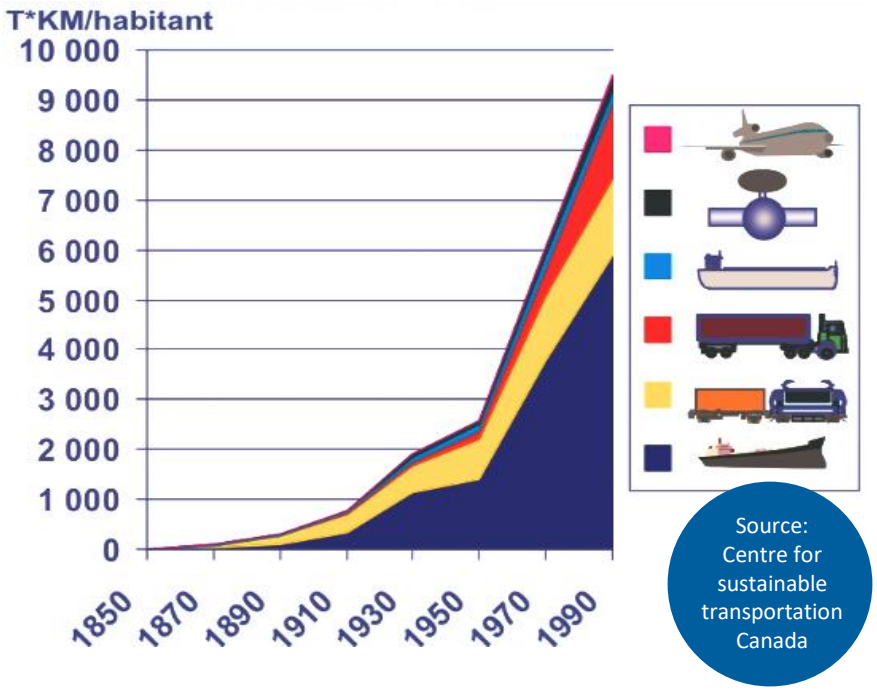
Efficiency, trends and innovations

- 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?

10 YEARS: ZERO IMPROVEMENT ON LOAD FACTORS

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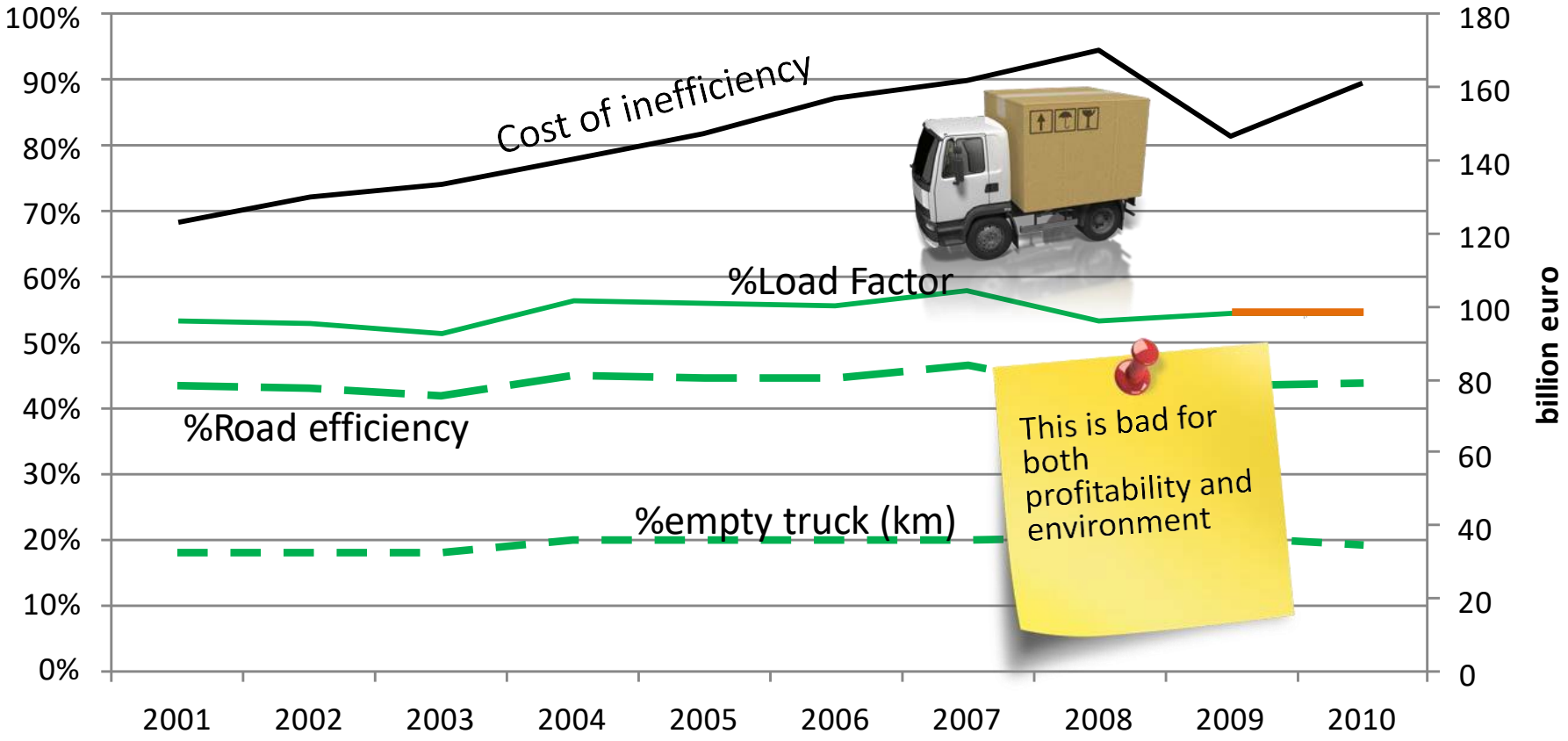

EUROPE GAINS to 70%: Eur 160 Billions

1.3% CO_2 footprint

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We need the end-to-end view

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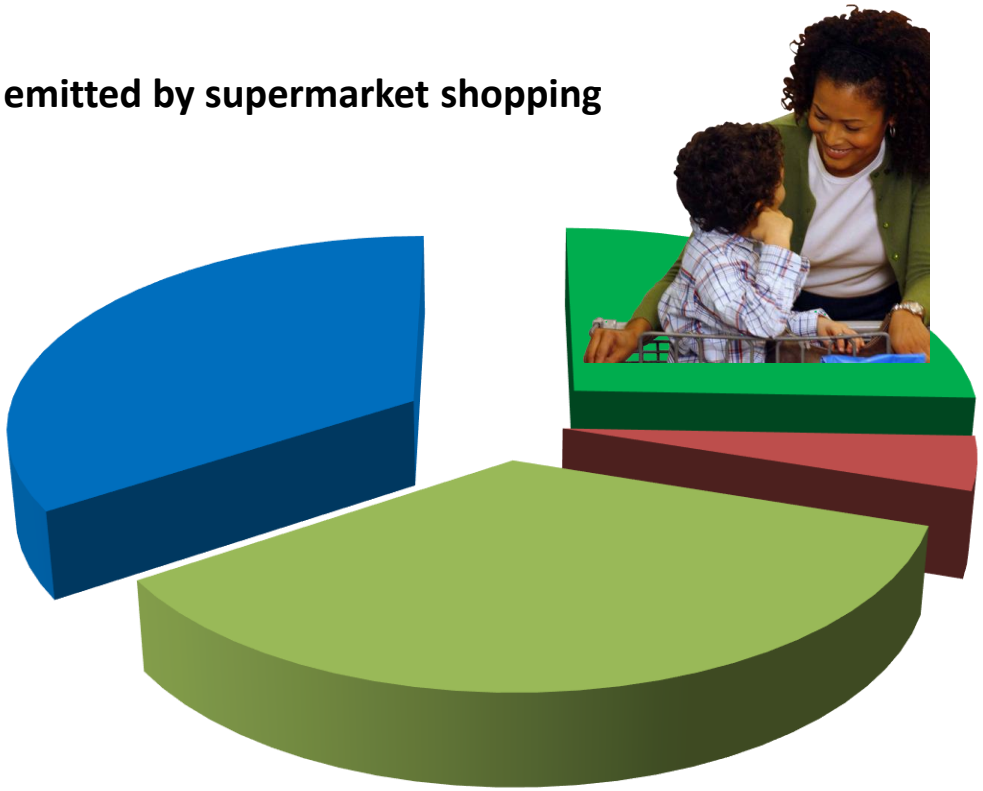
CO_2 emitted by supermarket shopping



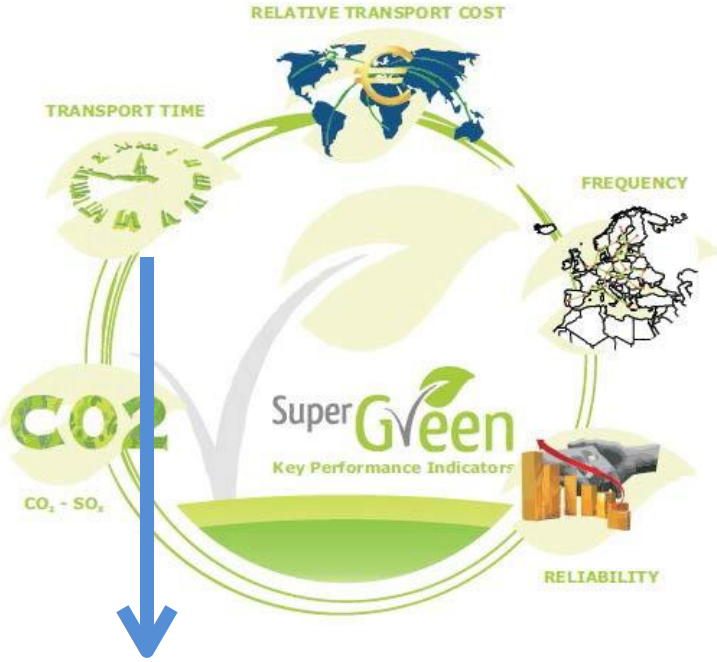
- **Consumer trip (transport between home & store)**
- **Packaging (store - shopping bag)**
- **Retailer operations (store/ DC /transport)**
- **Manufacturer operations (DC/ transport)**

Source: LCA study, P. van Loon, J. Dewaele, L. Deketele - Heriot-Watt University / P&G
30 items/shopping basket - UK B&M supermarket - typical (average) travel behavior (distance, transport mode)

European Commission

FACT

- Goods average travelling speed is slow…
- no matter how fast the means of transport…they spend most of the time just waiting ☹



Corridor name	Mode of transport	CO2 *(g/tkm)*	SOx *(g/tkm)*	Cost *(€/tkm)*	Average speed *(km/h)*	Reliability *%*	Frequency *x times/year*
Brenner	*Intermodal*	10.62-42.11	0.020-0.140	0.03-0.09	9-41	95-99	26-624
	Road	46.51-71.86	0.050-0.080	0.05-0.06	19-40	25-99	52-2600
	Rail	9.49-17.61	0.040-0.090	0.05-0.80	44-98	60-95	208-572
	SSS	16.99	0.050-0.120	0.04-0.05	23	100	52-520
Cloverleaf	*Road*	68.81	0.091	0.06	40-60	80-90	4680
	Rail	13.14-18.46	0.014-0.021	0.05-0.09	45-65	90-98	156-364
Nureyev	*Intermodal*	13.43-33.36	0.030-0.150	0.10-0.18	13-42	80-90	156-360
	SSS	5.65-15.60	0.070-0.140	0.05-0.06	15-28	90-99	52-360
Strauss	*IWT*	9.86-22.80	0.013-0.031	0.02-0.44	-	-	-
Mare Nostrum	*SSS*	6.44-27.26	0.092-0.400	0.003-0.200	17	90-95	52-416
	DSS	15.22	0.22	-	-	-	-
Silk Way	*Rail*	41.00	-	0.05	26	-	-
	DSS	12.50	-	0.004	20-23	-	-

WHY DO WE NEED A CHANGE IN THE INTERMODALITY APPROACH?

RAIL INFRASTRUCTURE IS UNDERUTILIZED

	EU 27 - FREIGHT TRANSPORT STATISTICS					
	ROAD			RAIL		
	NETWORK (1)	VOLUME (2)	INTENSITY (4)	NETWORK (3)	VOLUME (2)	INTENSITY (4)
1995	47970	1289	26.9	227139	386	1.7
2000	54719	1519	27.8	217857	404	1.9
2005	62218	1794	28.8	212384	413	1.9
2009	66814	1690	25.3	212693	361	1.7
% CHANGE	+ 39%	+31%	-6%	-6%	-6%	0%

(1) Length of EU-27 Motorway Network in Kilometer
(2) Freight volume shipped in EU-27 in Ton-Kilometer
(3) Length of EU-27 Railway Network in use in Kilometer
(4) Million Ton-Kilometer per Network Kilometer

Source : EU Commision - Transportation Booklet

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WE NEED A CHANGE IN THE INTERMODALITY APPROACH?

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CARGO STREAM

WE ARE NOT ABLE TO SET UP AND SUSTAIN INTERMODAL CONNECTIONS

NOT ENOUGH CONNECTIVITY

NOT ENOUGH VOLUME

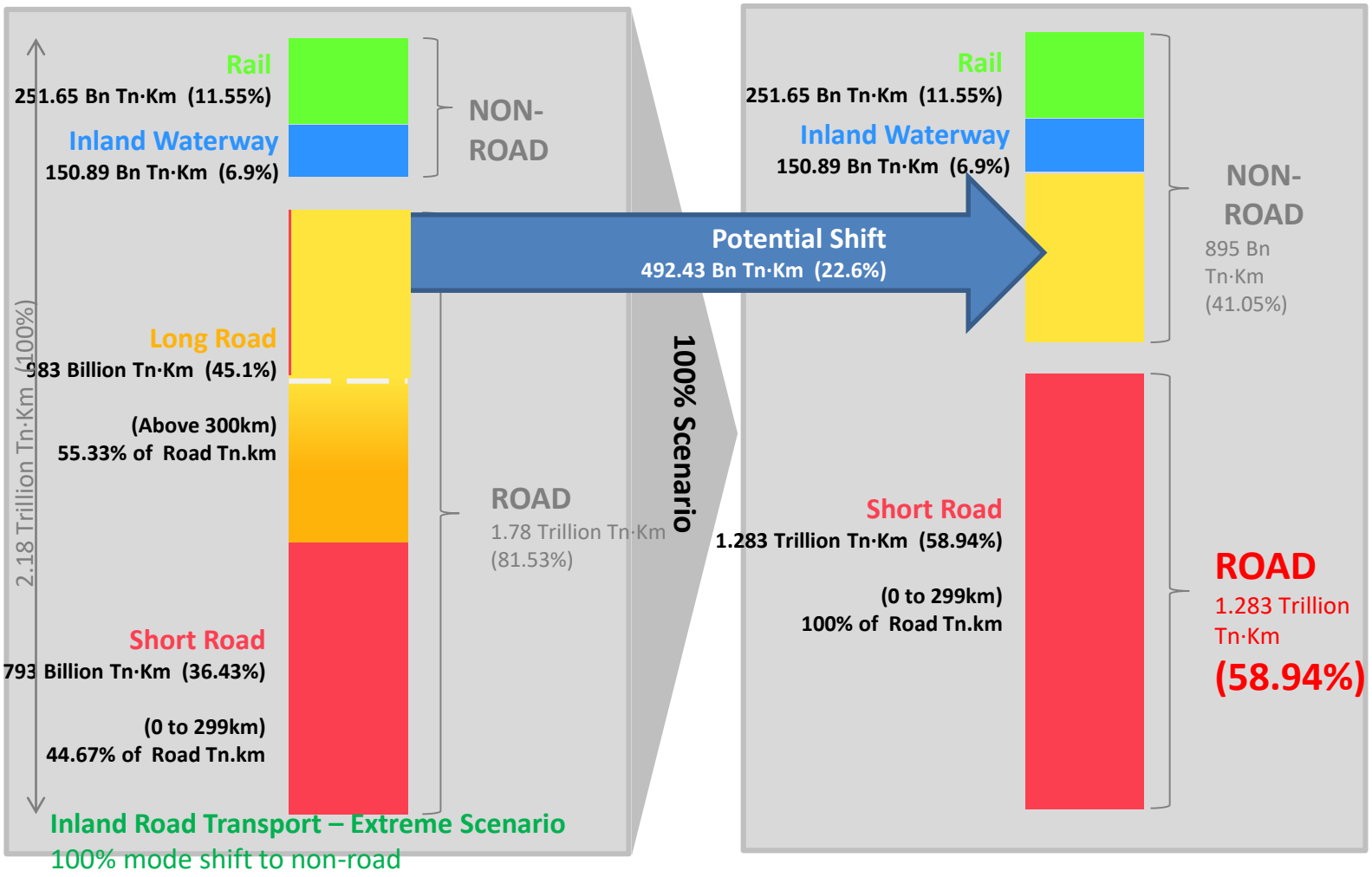
NOT ENOUGH FREQUENCY

HIGH COSTS

LONG LEAD TIMES

European Commission

Modal shift : 40% maximum



SOURCE: Eurostat (rail_go_typeall) , (iww_go_atygo) and (road_go_ca_c) – 2014 EU-28 Data.. For (road_go_ta_dctg) - Averaged Data from the year 2008 to 2014 and SNIC calculations

Assumption: Modal shift does not cause increase in the total Tn-km of a journey

The pace of Technological Change is Accelerating

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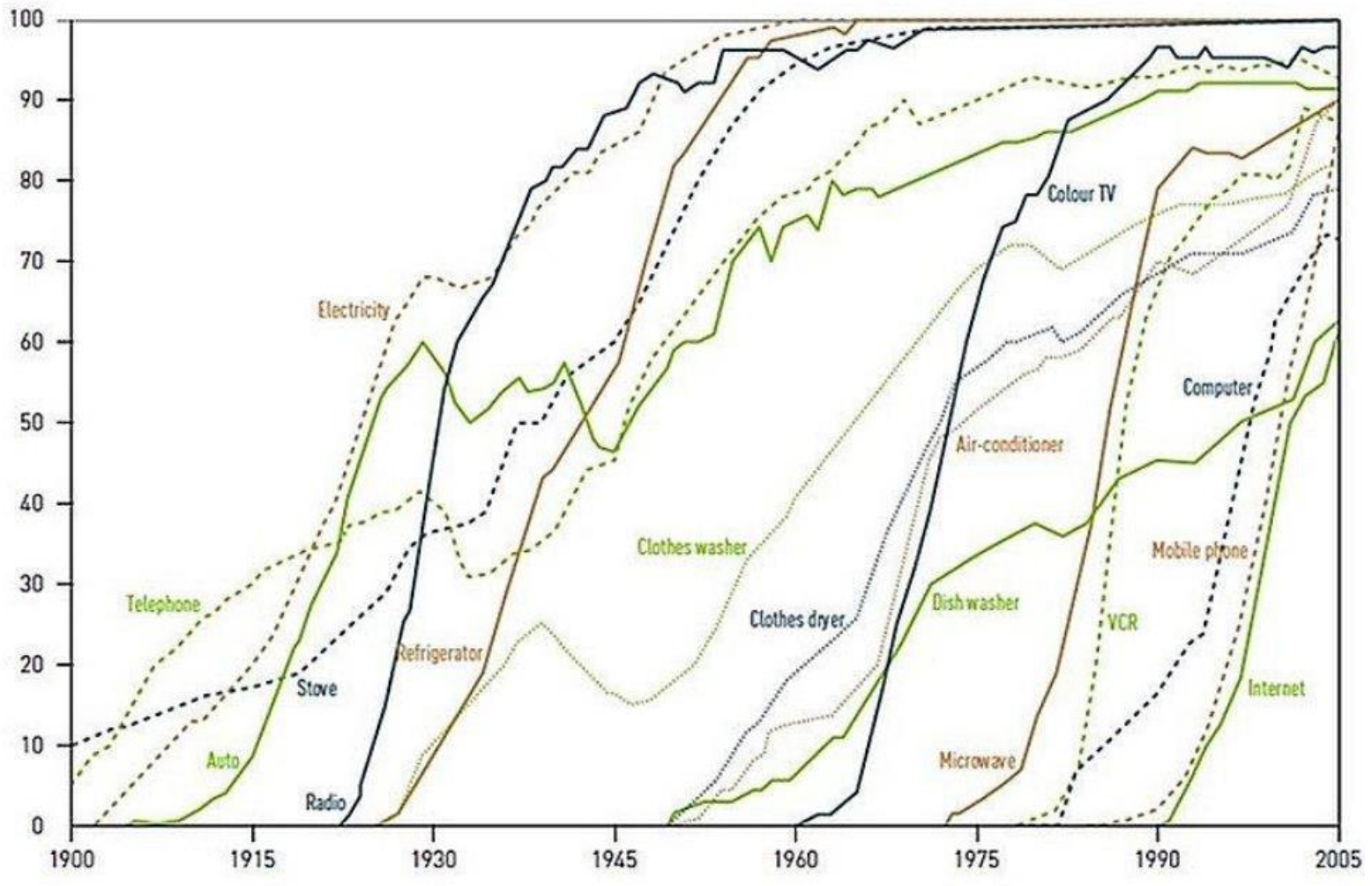

Technology adoption curves for a range of modern innovations. Victorian Government

Source: Rod Franklin, EC & ALICE Final Logistics Cloud Event: http://collaborativeinnovationdays.eu/

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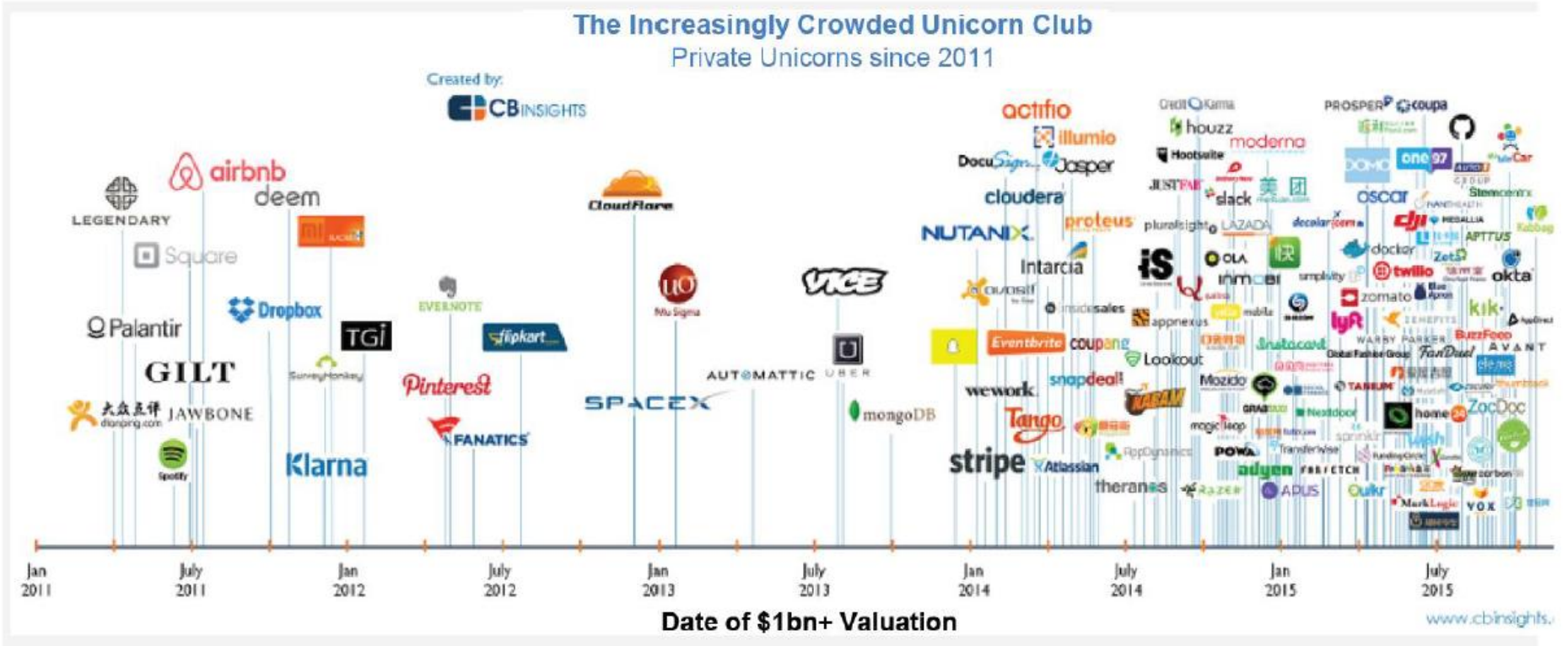
This can be seen in the explosion of ***"Unicorn"*** **startups** focussed on digital technologies



Source: Rod Franklin, EC & ALICE Final Logistics Cloud Event: http://collaborativeinnovationdays.eu/

Startups in the field of logistics

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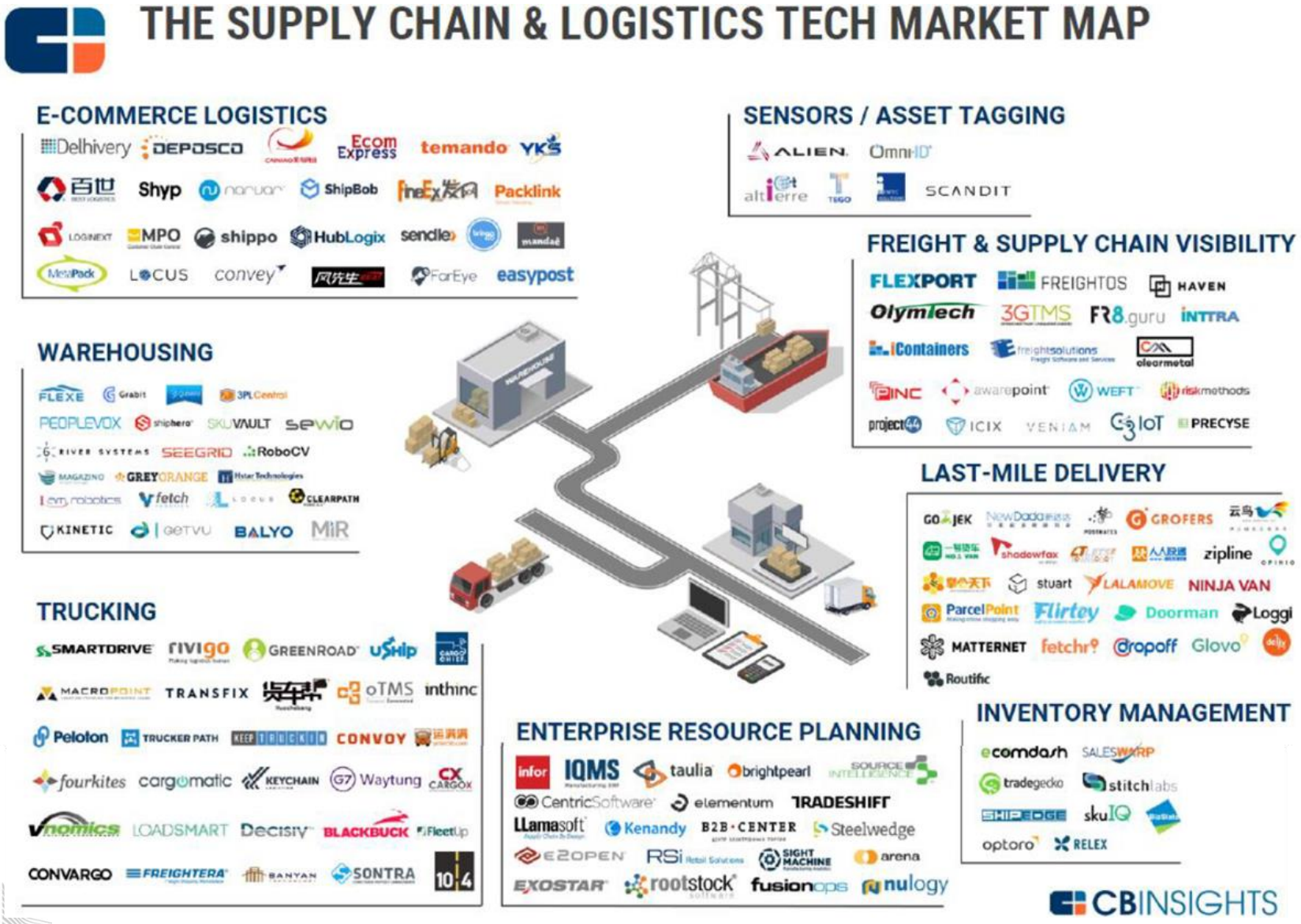

Source: Rod Franklin, EC & ALICE Final Logistics Cloud Event: http://collaborativeinnovationdays.eu/

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Digitalization:
Opportunity and/or Disruption?

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$1.5 trillion[1] of value at stake for logistics players and a further **$2.4 trillion worth of societal benefits** as a result of digital transformation of the industry up until 2025.

The chances of **digital disruption** engulfing the logistics industry increases

Digital platforms will become increasingly important in the logistics industry, allowing **small companies to have a global reach** and compete with the sector's established giants.

Digital transformation can also bring important social and environmental benefits, by increasing efficiency and cutting down energy consumption and emissions.

[1]These calculations are subject to change. Impacts are based on estimates and would vary in range given a change in adoption rates or disruption in any of the initiatives

European Commission

Market opportunity and vision

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A 10% to 30% ⬆ efficiency in EU logistics sector

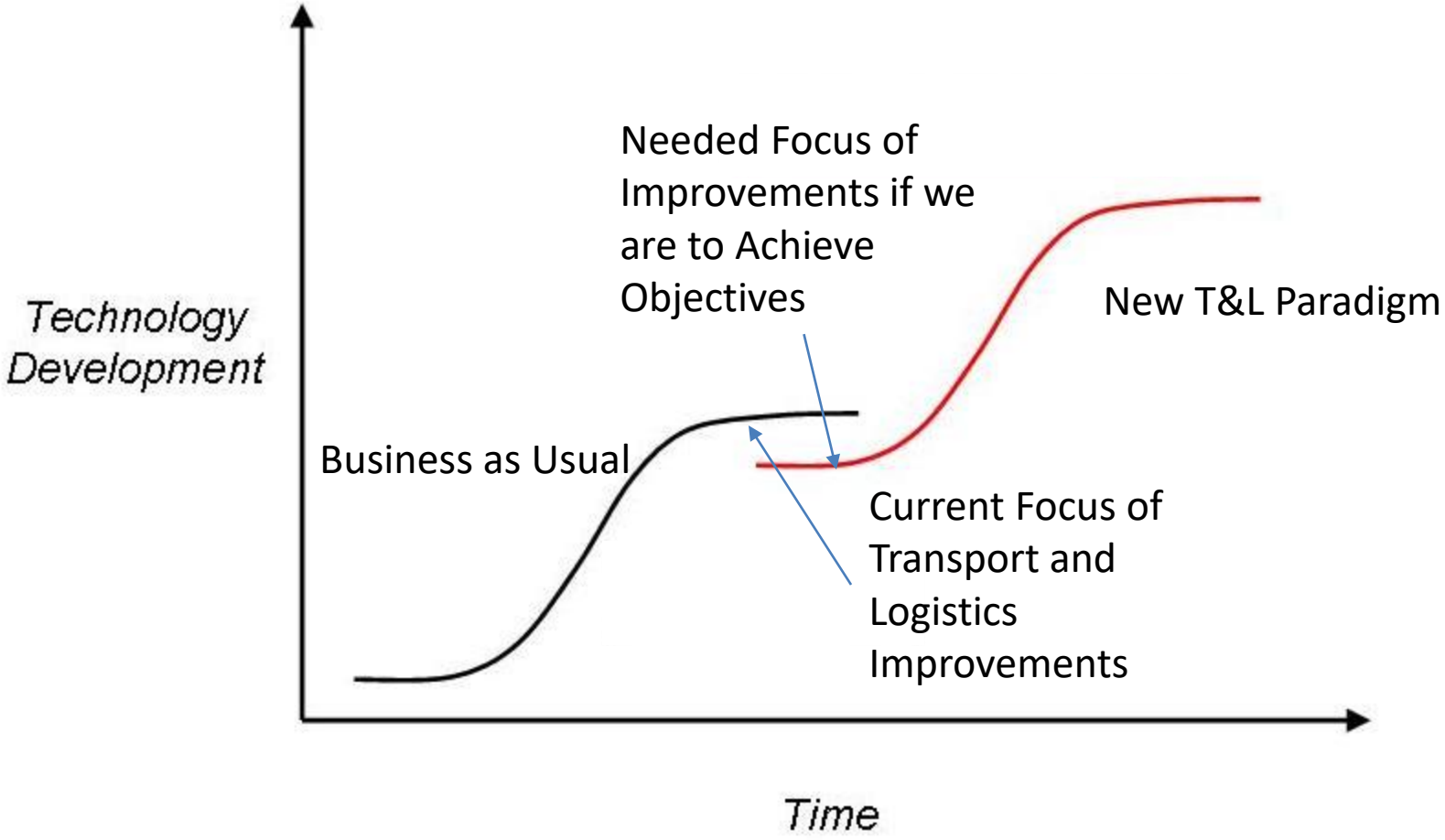
=

€ 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

Unfortunately, current approaches focus on improving what we currently do



What's needed is a new paradigm

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- 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?

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Towards a truly integrated transport system for sustainable and efficient logistics

European Commission

We envision a System of Systems

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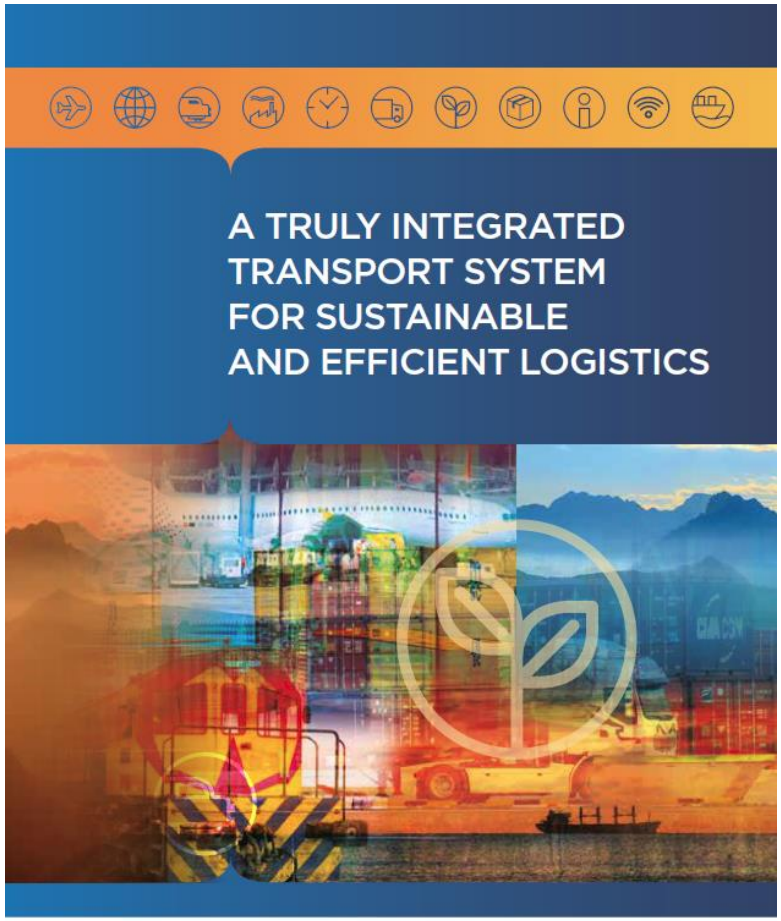
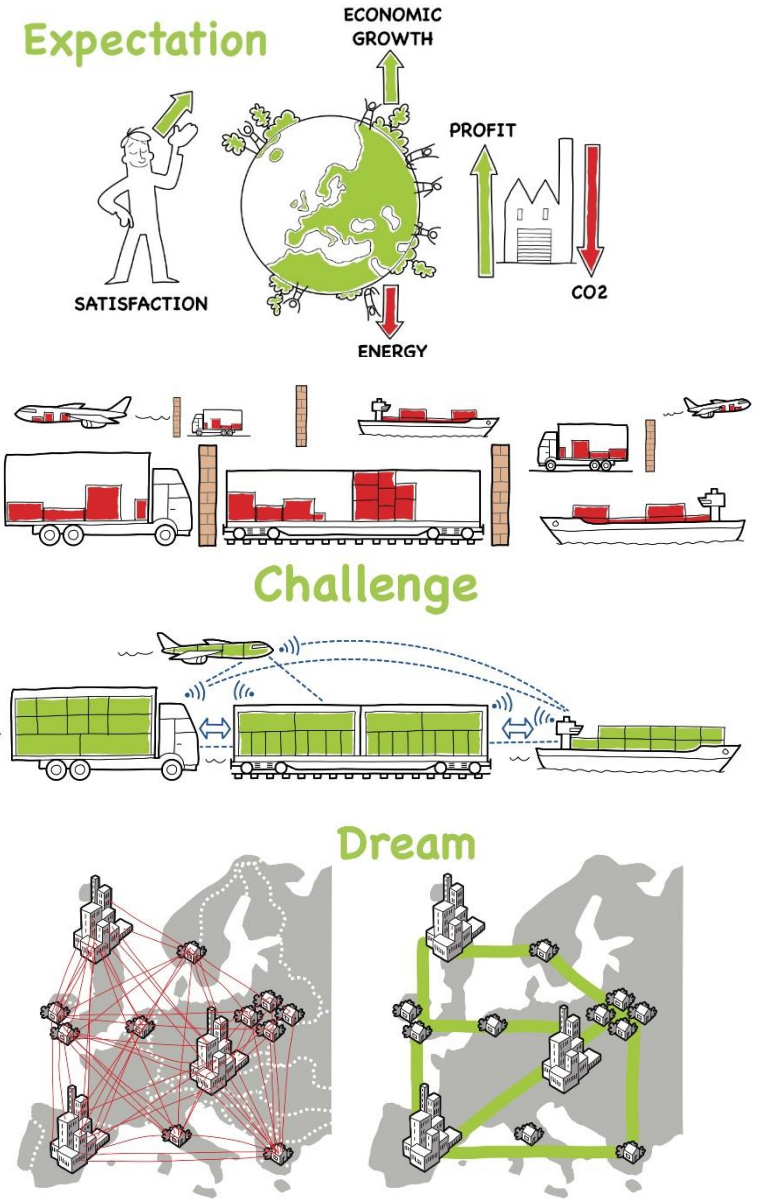


ACARE alice ERTRAC ERRAC WATERBORNE



[Report: http://www.etp-logistics.eu/?p=1298](http://www.etp-logistics.eu/?p=1298)

European Commission

The Truly Integrated Transport System in the Long distance context

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EU wide **co-modal transport services** within a well **synchronized, smart and seamless network**, supported by **corridors and hubs**, providing optimal support to **global supply chains door-to-door**

Resilient transport and logistics networks

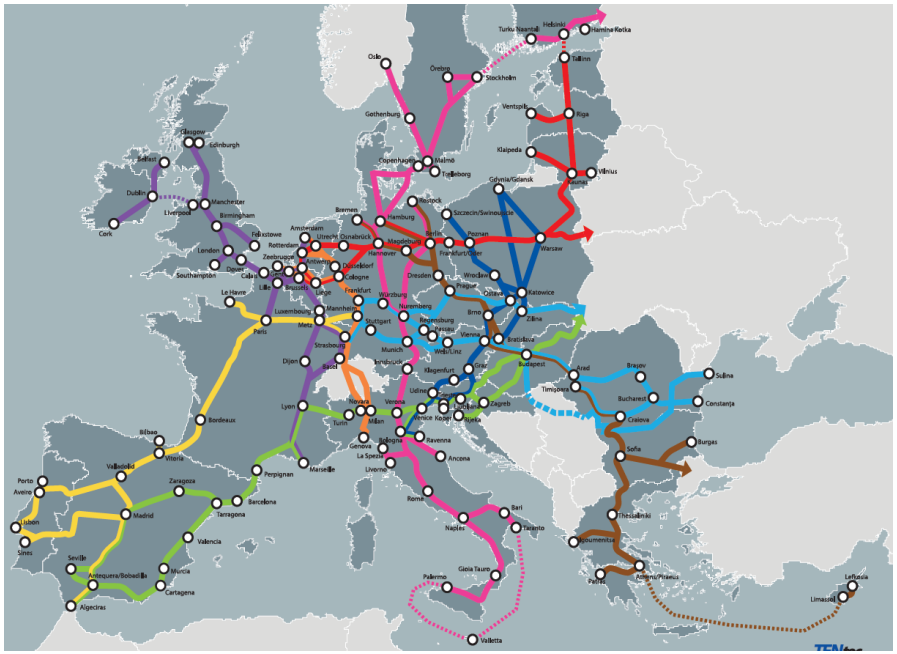
Seamless and secure cross borders transport operations

Develop **seamless transhipment** (automation)

"Smart" hubs serving the transport industries according to supply chains and manufacturing networks needs.

Fully available & visible intermodal transport **services → Synchromodal Logistics Solutions**

Seamless **information exchange** end-to-end



European Commission

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

The Truly Integrated Transport System in the Urban context

Adaptability to new freight transport technologies and concepts like automated land- or air vehicles, drones and AGVs.

Optimal integration of freight transport with people mobility. Freight and people are moving sharing infrastructure and resources in a smart combination leveraging infrastructure utilization.

Further Modularization of Load and Transport Units

Develop **seamless transhipment** (automation)

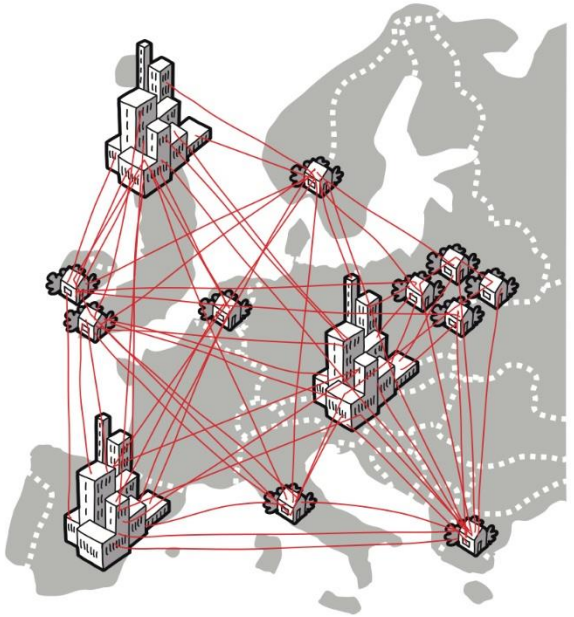
Mercedes-Benz: Hitching a ride through the physical internet

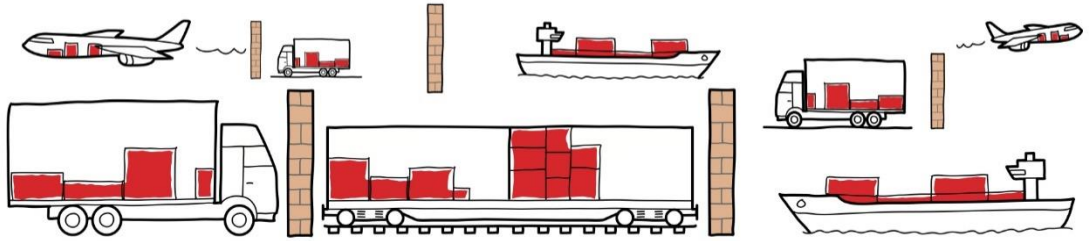
SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

Barriers

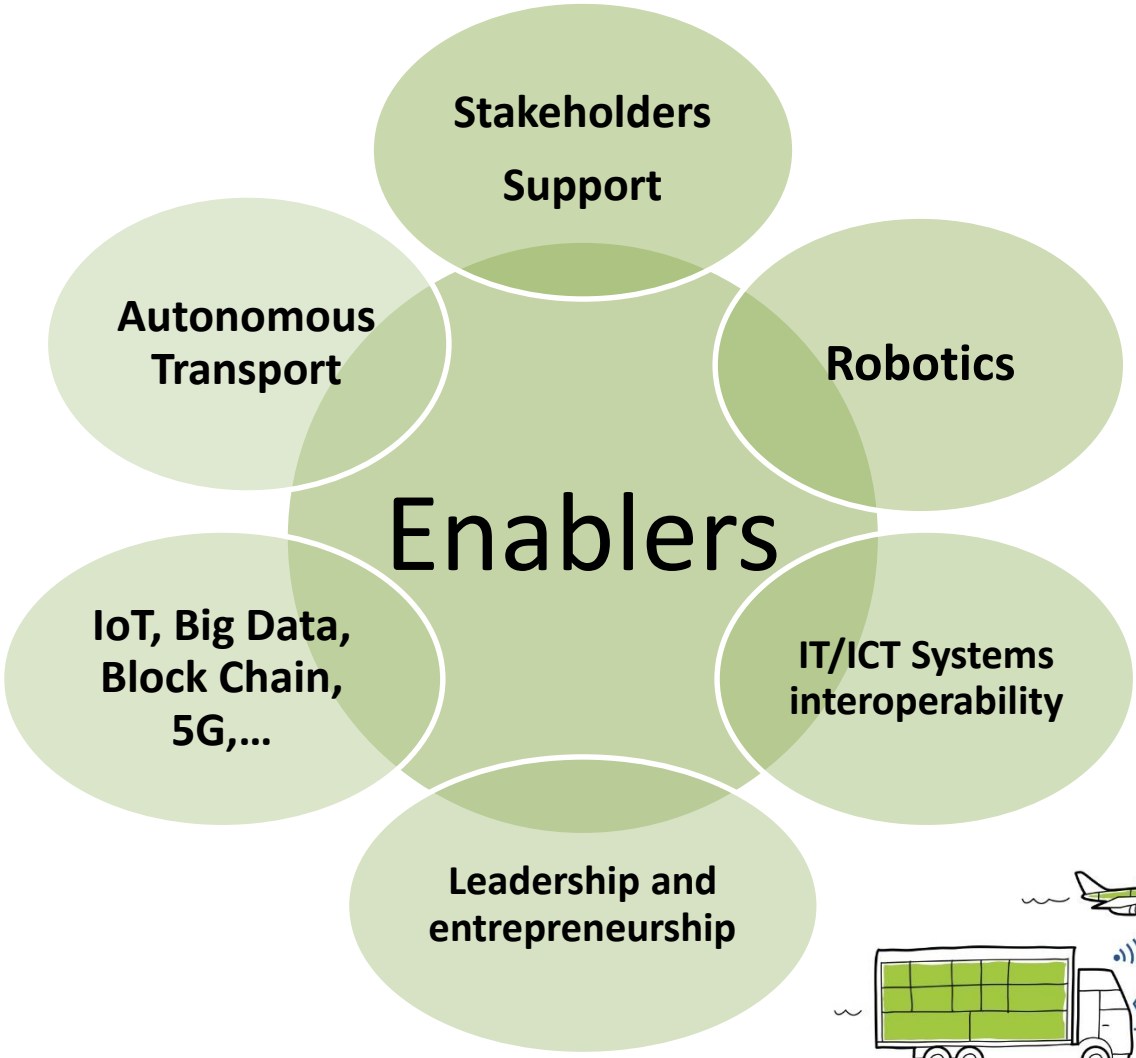
- Market dynamics
- Ill defined regulatory framework
- Lack of transhipment and modularization technology
- Lack of trust on sharing information
- Lack of IT/ICT Systems interoperability
- Lack of industry well recognized business and operational models

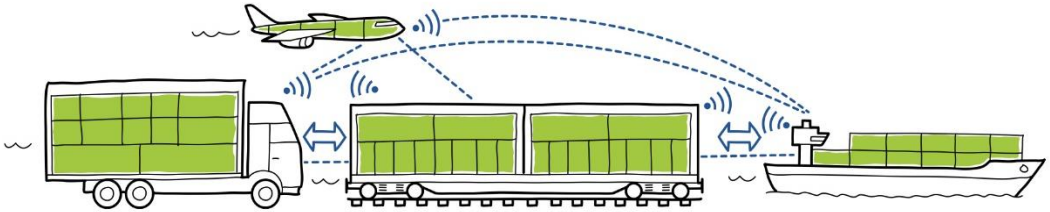




SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

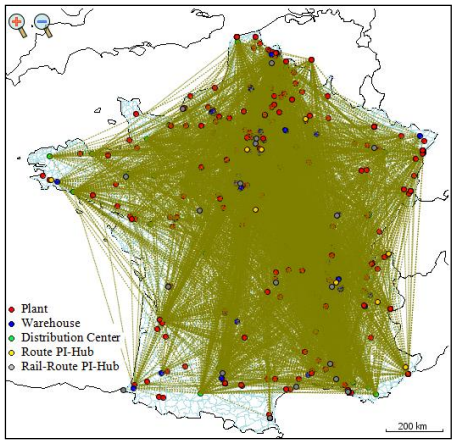




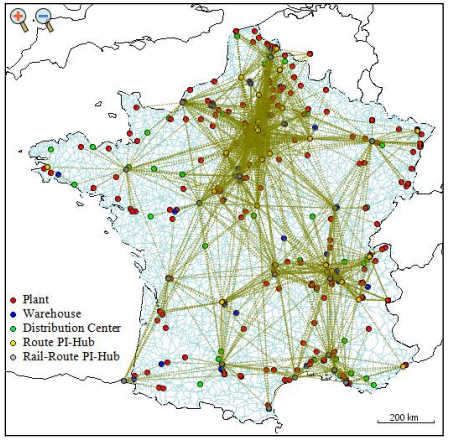
SETRIS Project coordinated by:

For example…

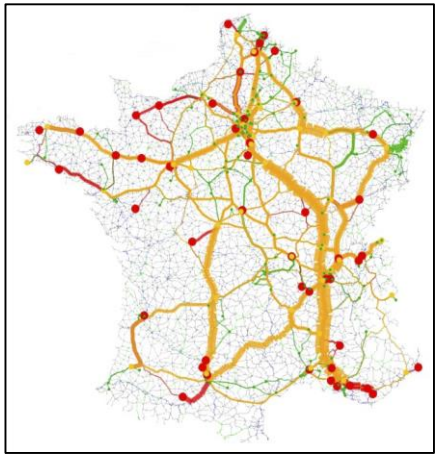
Results from a simulation experiment with top retailers Carrefour and Casino in France and their 100 top suppliers



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

Ballot É., B. Montreuil, R. Meller (2015), The Physical Internet: The Network of Logistics Networks, Documentation Française.

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

European Commission

A Physical Internet Vision is possible!

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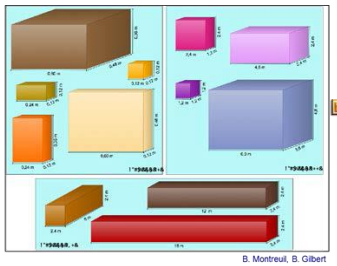
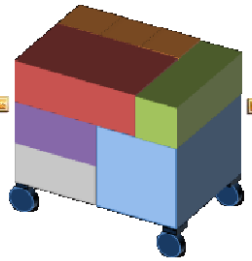
– create a more efficient, sustainable supply chain by using new modular load units & smoother supply chain interfaces

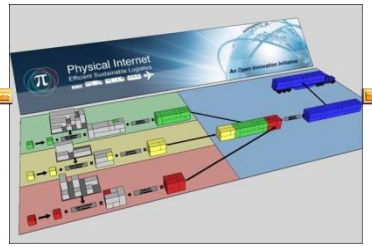
New modular load unit concept

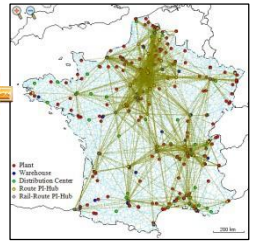
Smoother interfaces along the supply chain

Vision









Modular dimensions from cargo container size to tiny

Modular box system

Optimised space

Open networks & pooled resources

Less network complexity

Potential efficiencies: Less Freight Km, Less CO_2, Better Load Factors, Higher assets/Infrastructure utilization

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Activities perfo
Horizon 2020 re

Some relevant initiatives:

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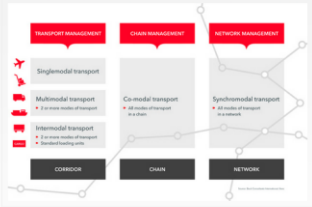
synchro-NET

SYNCHRO-NET will demonstrate how a powerful and innovative synchromodal supply chain eco-NET can catalyse the uptake of the slow steaming concept and synchro-modality, guaranteeing cost-effective robust solutions that de-stress the supply chain to reduce emissions and costs for logistics operations while simultaneously increasing reliability and service levels for logistics users.

EUROPEAN GATEWAY SERVICES

New to transport logistics: Synchromodal trip planning

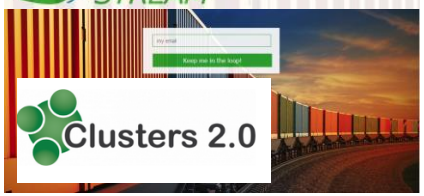
PTV GROUP



The characteristics of synchromodality

Synchromodality becomes reality. This means that logistics processes are optimised not only over different transport modalities or along the individual supply chain, but across an entire transport network. In the case of synchromodal trip planning, the right transport modality is chosen automatically at the right time, unlocking new potential savings. The software provider PTV and Ixolution introduce the first automatic intermodal trip planner at the transport logistic exhibition Munich in June as a trade fair premiere.

CARGO STREAM



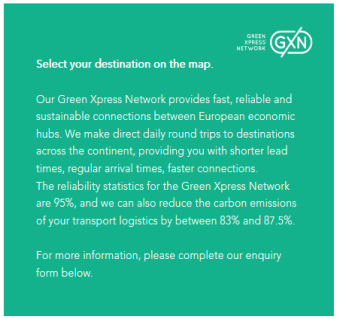
Who's participating?

PEPSICO · P&G · SONOCO ALCORE · UNILIN · Wienerberger · Samsonite · KNAUF · General Mills · Beaulieu International Group · DANONE waters · DURACELL · AICL Where needs take us · AB InBev · etex inspiring ways of living · Tupperware

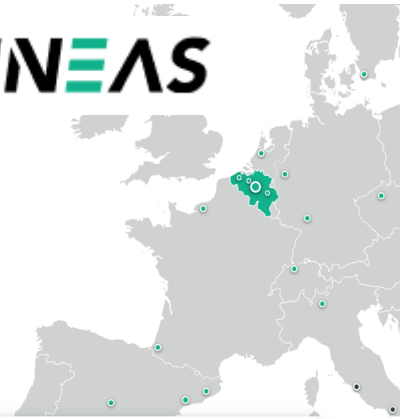
What is CargoStream?

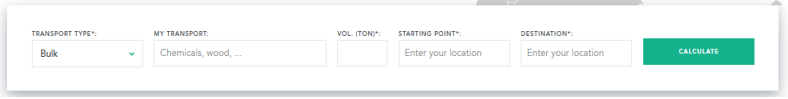
CargoStream is an independent Pan-European platform that helps participating shippers to reduce their truck transportation kilometers by bundling their regular transportation needs with other shippers, so that vehicle fill rates can be improved, distribution routes can be optimised and use of multi-modal transportation can be improved.

Our Green Xpress Network



LINEAS





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Horizon 2020 research and innovation Programme under grant agreement

Modular trailer initiative

TRANSFORMERS

VOLVO

DAF
A PACCAR COMPANY

Truck Manufacturers

SCHMITZ CARGOBULL
The TrailerCompany.

ECK

Trailer Manufacturers

P&G

IRU International Road Transport Union

End Users

BOSCH

Suppliers

Fraunhofer

virtual vehicle

TNO innovation for life

IFSTTAR

FEHRL

Research Institutes

UNIRESEARCH

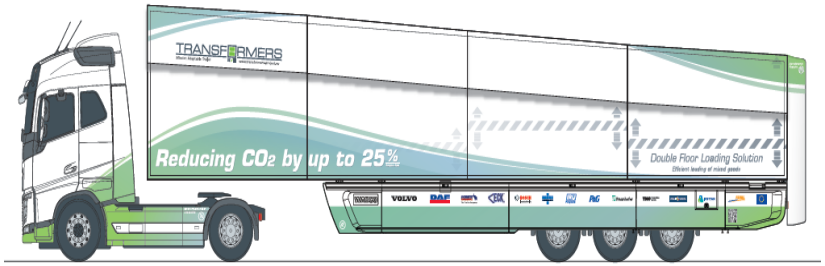
Service Supplier

TRANSFORMERS Innovation Areas

Whole Vehicle Combination Aerodynamics

Trailer Mounted Electric Driveline

“Hybrid on Demand”



Load Capacity Optimisation

ALICE Roadmaps and renewed strategy

ALICE Roadmaps

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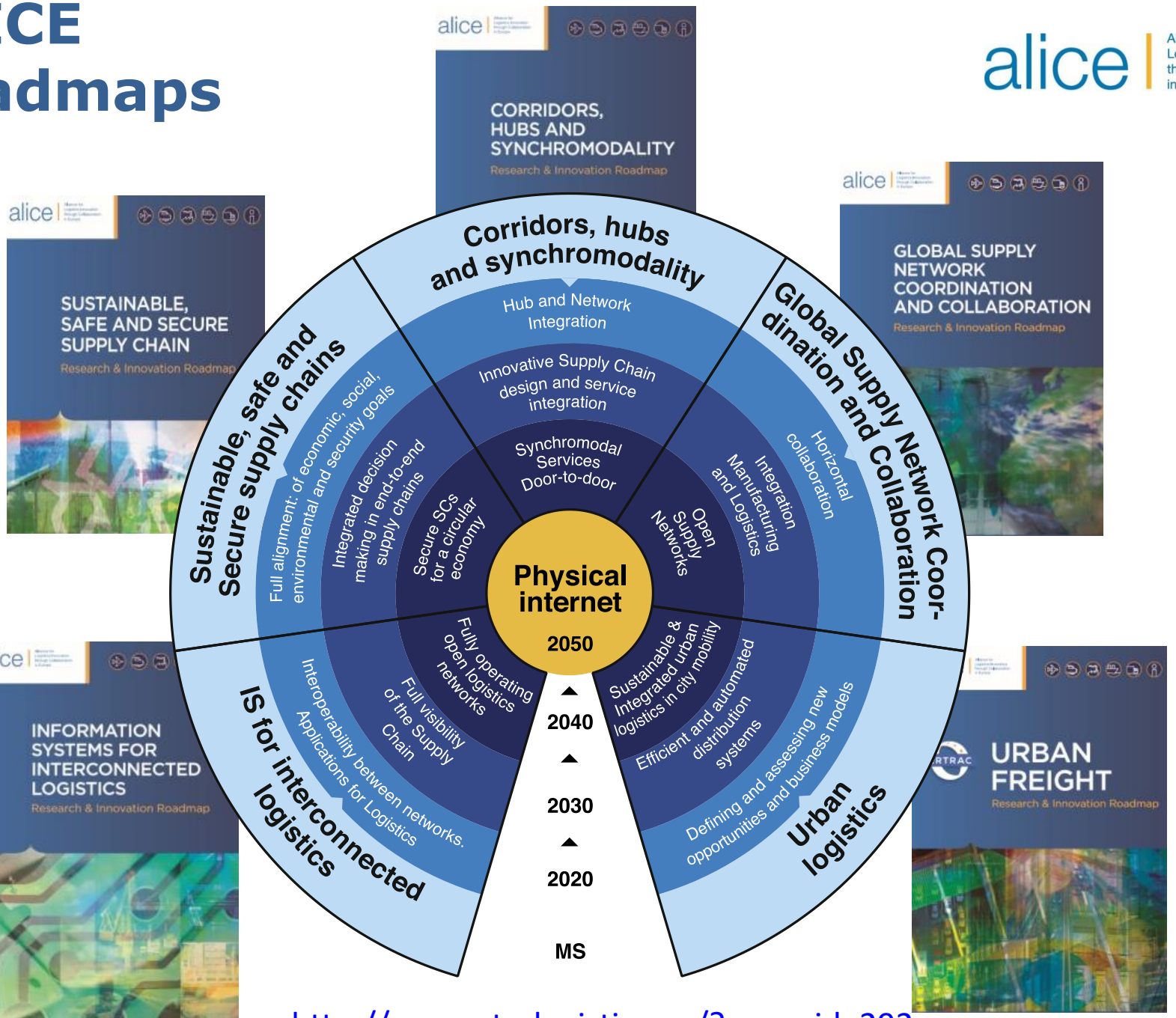

http://www.etp-logistics.eu/?page_id=292

European Commission

ALICE Roadmap Renewal

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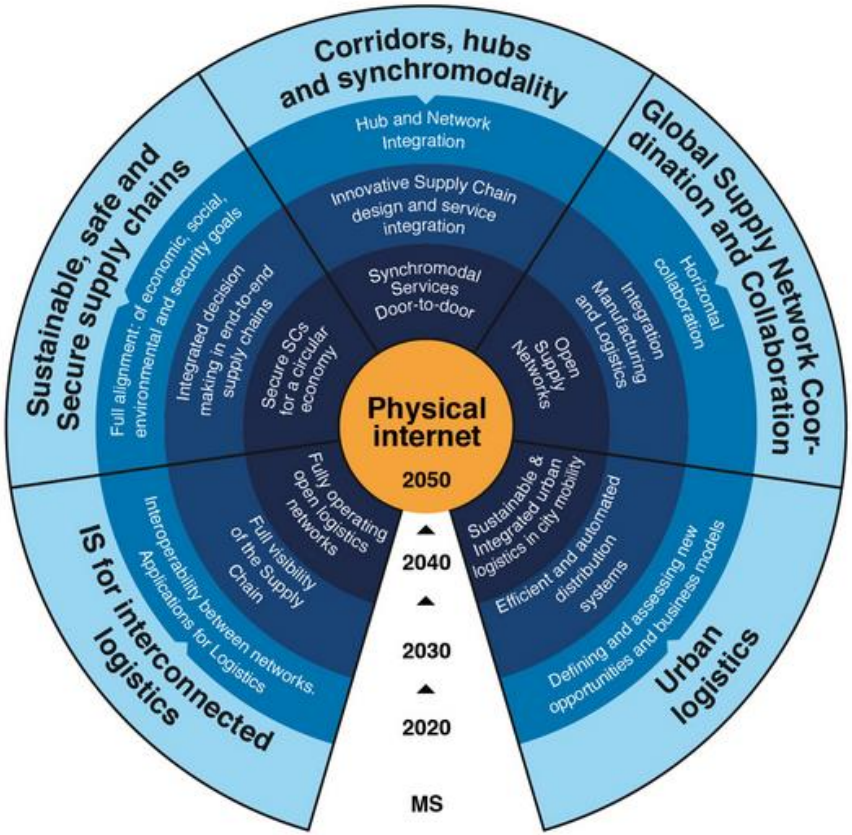
Physical Internet targeting 2030 instead of 2050



Why we need Physical Internet?
→ THE way for enhanced efficiency

Maximise infrastructure utilisation & reduce congestion → Reduce required investments to accommodate growing demand

Support Circular Economy…

Do more with less… bringing economical, environmental and societal benefits

Keeping EU leadership in Logistics supporting ALL manufacturing industries

European Commission

ALICE Roadmap Renewal

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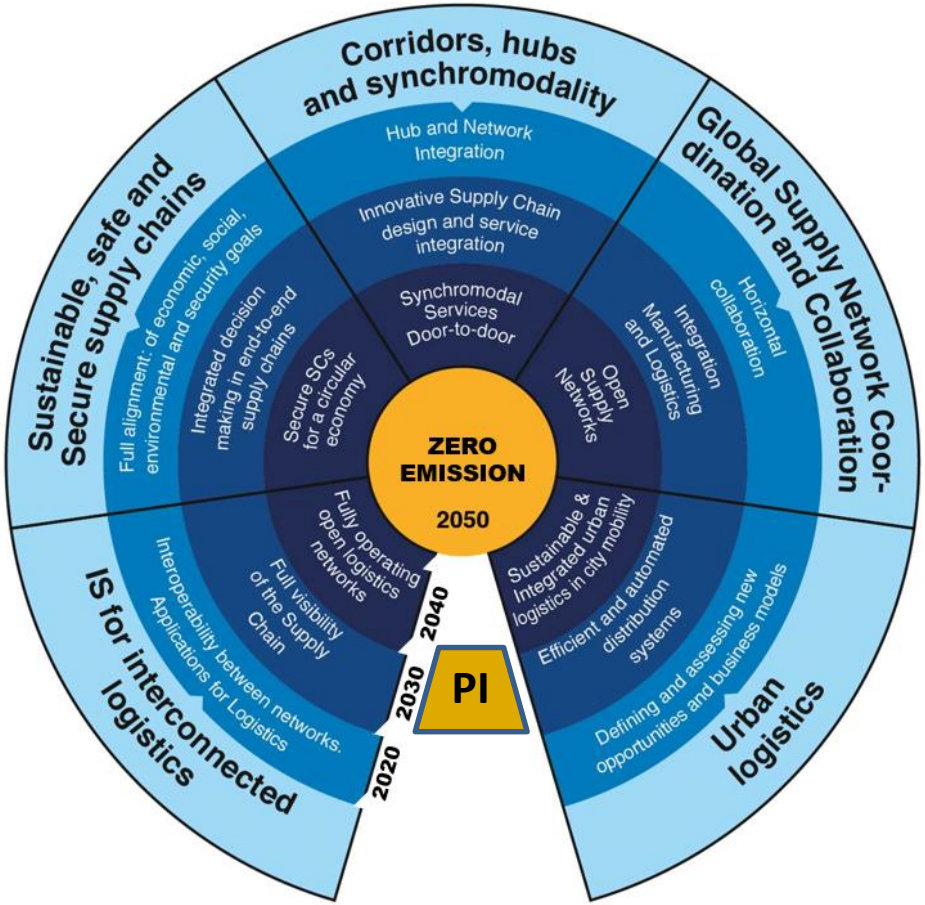

Physical Internet will bring efficiency and sustainability to Logistics but will **not be enough to meet Environmental Challenges**:

- Decarbonization.
- Emissions.

We need clear focus on Zero Emissions as a result of the discussions in Collaborative Innovation Days 2017

European Commission

ALICE Roadmap Renewal

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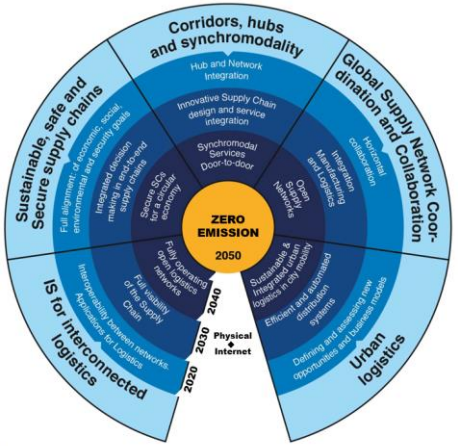
Next Steps:

Combining Physical Internet (2030)

and Zero Logistics Emissions (2050)



Roadmaps

- Prepare a roadmap *"Towards Zero Emissions Logistics"*

→ *Reformulated ALICE WG1*

- Prepare a detailed roadmap *"Towards the Physical Internet"*

→ *Through SENSE Project*

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Monitoring Research and Innovation Investments and Progress

EU Investment in Research and Innovation on logistics

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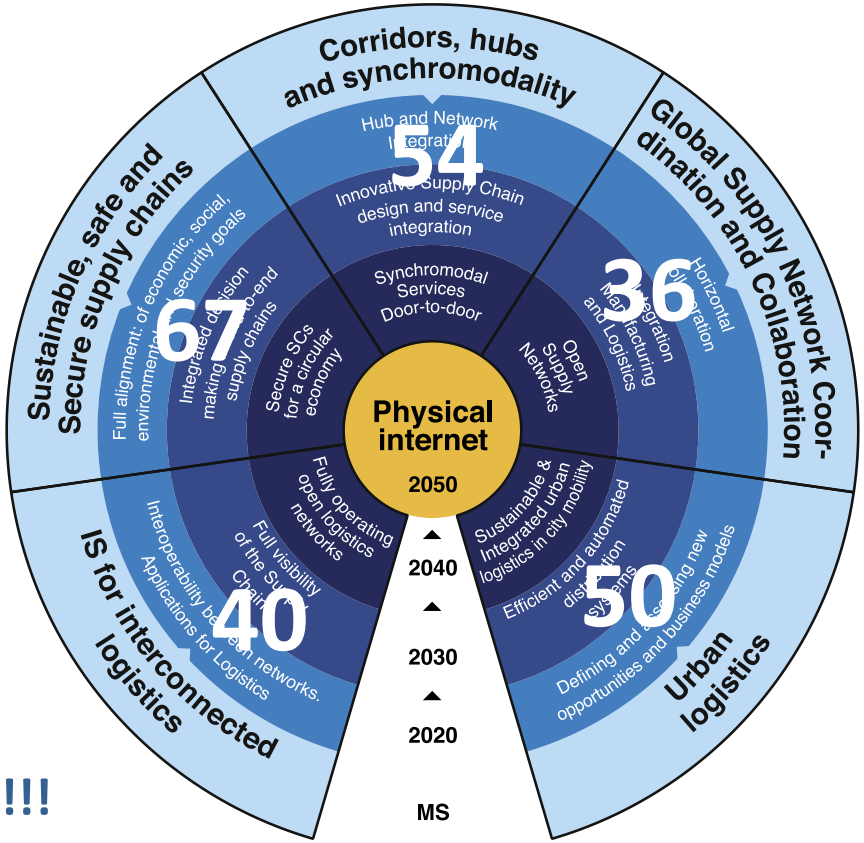
158 projects and initiatives (*Mainly EU research*) have been identified as potentially contributing to ALICE Research and Innovation Roadmaps implementation.

The **investment** in these initiatives altogether has been **729 Million €** with a public funding of **531 Million €** in the period **2010-2015.**



Impact will be higher if funded projects will respond to an overall strategy!!!

We need a strategy ahead of (more) Money!!!

Report: http://intranet.etp-logistics.eu/mod/folder/view.php?id=529

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 Cycle

New activities 2018

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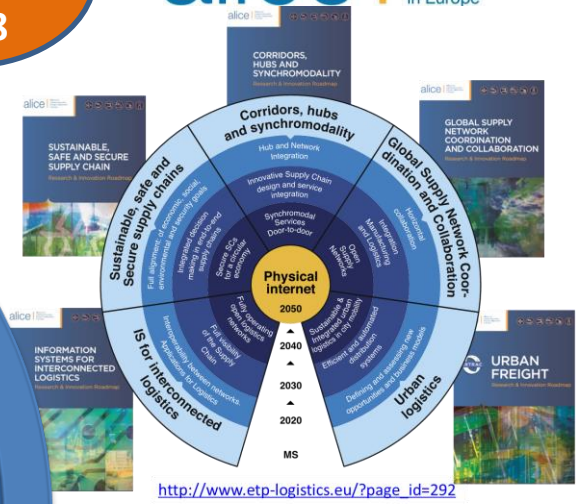
Liaison Program with R&I projects

Star-ups & Industry

ATROPINE, AEOLIX, CAPITAL, CO-GISTICS, Clusters 2.0, CORE, LEARN, LogiCon, logiMATIC, MOBILITY 4 EU, novelog, SAFE, SELIS, E-PARCEL, FALCON, SMART RAIL, synchro-NET, Dynohubs, TURN, NEW MODEL FOR URBAN FOOD TRANSPORTATION

Roadmaps Implementation Status

Roadmaps: Gaps identification and Recommendations



http://www.etp-logistics.eu/?page_id=292

ALICE Research and Innovation Roadmaps implementation Plan

Version: Draft 28.11.2016

* *Note: This is a draft version of ALICE Research and Innovation Roadmap Implementation Plan. It includes the topics worked out in the last few months.*

158 projects followed FP7/H2020

Funding Opportunities

H2020 & Member States Funding Programs

MG-6.3-2015 - **Common communication and navigation platforms for pan-European logistics applications**

MG-5.1-2016 - **Networked and efficient logistics clusters**

.....

SELIS, AEOLIX, Clusters 2.0

Commission

Strengthen and promote ALICE liaison with projects & industry initiatives and disseminate the program.

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Sign up for your projects! *Consult www.etp-alice.eu or send us an e-mail to info@etp-alice.eu*

ATROPINE Fast Track to the Physical Internet

AEOLIX

CAPITAL

Clusters 2.0

CO-GISTICS Deploying Cooperative Logistics

CORE

Dynohubs

LEARN

LogiCon

logiMATIC

MOBILITY 4 EU

nextnet

novelog

safer Green logistics

SELIS

SMART RAIL

synchro-NET

TURN NEW MODEL FOR URBAN FOOD TRANSPORTATION

and VITALNODES E-PARCEL, FALCON

European Commission

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

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Decarbonization

Digitalization

City Logistics

Final Conference

September 2017, Brussels

[Download Report here]

http://collaborativeinnovationdays.eu/Final/

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Freight Transport Decarbonization

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Collaborative Innovation Clouds conclusions:

1. *Achieve a **zero (or neutral) freight logistic emissions by 2050** is a sound objective.*
2. *The development of **consistent carbon footprint measurement and reporting** in freight transport and logistics is a must to drive decarbonisation.*
3. *Clear **Carbon footprint reduction paths** are needed and supported by smart (de) regulations.*
4. *Supply Network **Coordination and Collaboration**, **Synchromodality** (including smart steaming) and **vehicles improvement** and adaptation to logistics contributing to decarbonisation.*
5. ***Short and medium term financial targets are crowding out industry attention** instead of focusing on the **urgency to act NOW to achieve the CO_2 reduction targets***
6. *EU **TEN-T Corridors Coordinators** need to move beyond infrastructure planning and starting to look at **corridor operability and service continuity managing impacts of Infrastructure disruption. → looking beyond transport***

Download Report here

http://collaborativeinnovationdays.eu/Final/

Freight Transport Digitalization

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Collaborative Innovation Clouds conclusions:

1. ***Digitalisation is an enabler to connect existing closed platforms*** *of larger industry players or to foster new business models:*
   - *Building* ***standards and/or interoperability for cross modal transport*** *activities is in urgent need.*
   - *Opportunity for more* ***efficient, effective and responsive operations.***

2. ***Building trust on data sharing platforms*** *is a pre-requisites to ensure digital transformation.*
   - *Active Governance*
   - *Data sovereignty and privacy*

Download Report here

3. ***Societal and environmental impact*** *of new services enabled by digitalisation needs to be better assessed and understood.*
   - *Deep* ***impact on the social dimension, skills and employment***

http://collaborativeinnovationdays.eu/Final/

City Logistics

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Collaborative Innovation Clouds conclusions:

1. ***More attention to city logistics planning and development is needed from city authorities in SUMP.***

2. ***Increased Public-Private Collaboration is needed in the City Logistics domain.***

3. ***City Logistics is currently in a paradigm change that needs to be better understood to realize societal and environmental opportunities (in particular with the growth of e-commerce).*** *Cities need to define their urban logistic models considering two main factors: density of deliveries and logistics infrastructure available (i.e. ports, highways, logistics hubs, rails, metros, etc.).*

Download Report here

http://collaborativeinnovationdays.eu/Final/

Alice Videos

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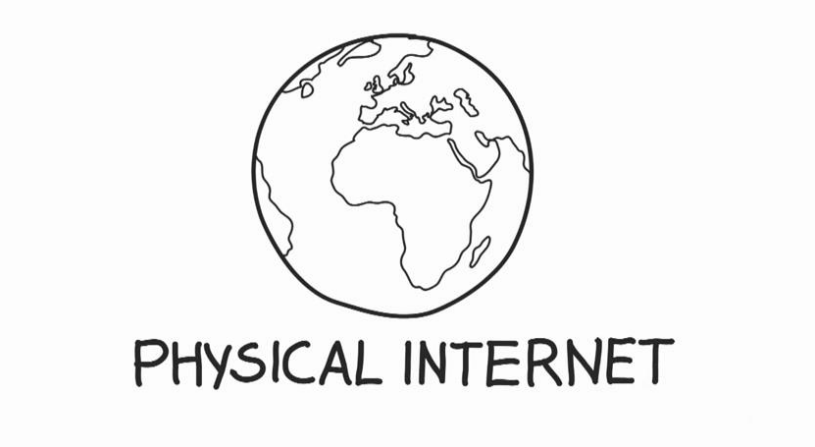
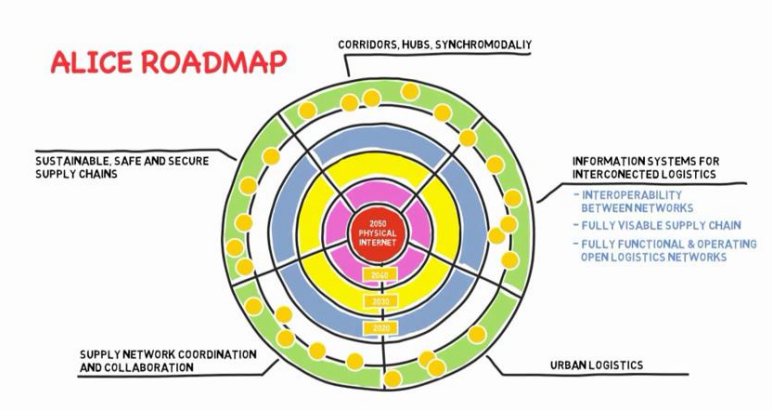


www.youtube.com/watch?v=PJyzFaKOXnY



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

European Commission

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

Roadmaps in a nutshell

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

Sustainable, Safe and Secure Supply Chain Research Roadmap

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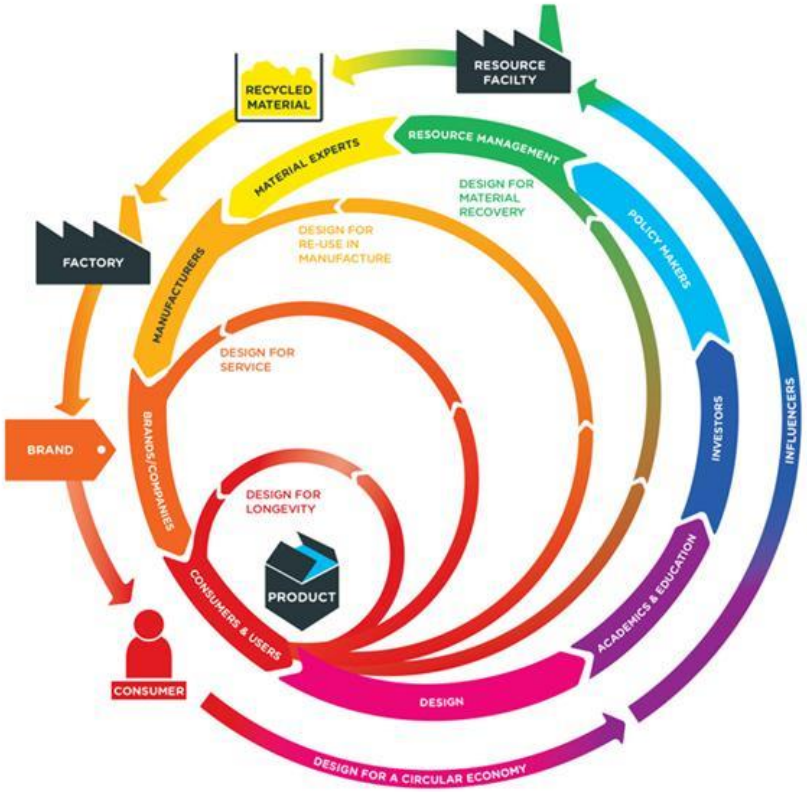
Vision & Mision

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.



Activities performed partially in the frame of WINN and SETRIS. The WINN
Horizon 2020 research and innovation Programme under grant agreemen

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Sustainable, Safe and Secure Supply Chain Research Roadmap: Milestones

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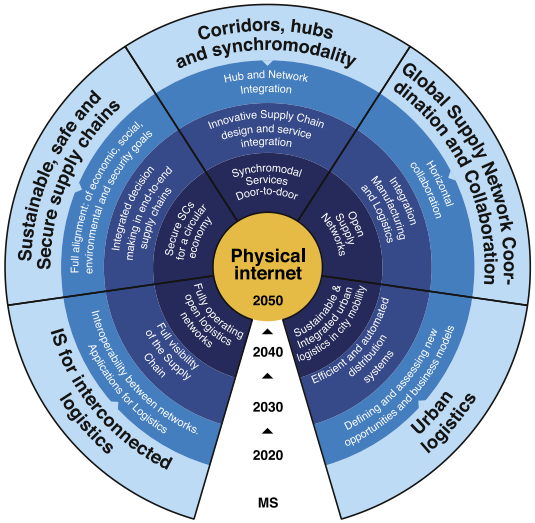
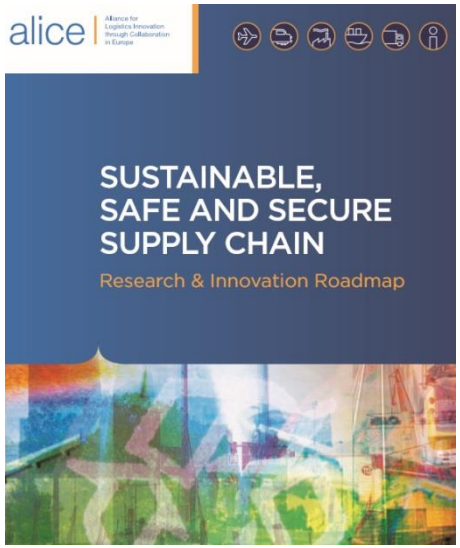
2020
- Full alignment of economics, environmental, social and security goals

2030
- Integrated decision making in end-to-end supply chain

2040
- Safe and secure supply chains for circular economy

2050
- Physical Internet





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Sustainable, Safe and Secure Supply Chain Research Roadmap: Contents

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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!

European Commission

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Sustainable, Safe and Secure Supply Chain Research Roadmap: Video

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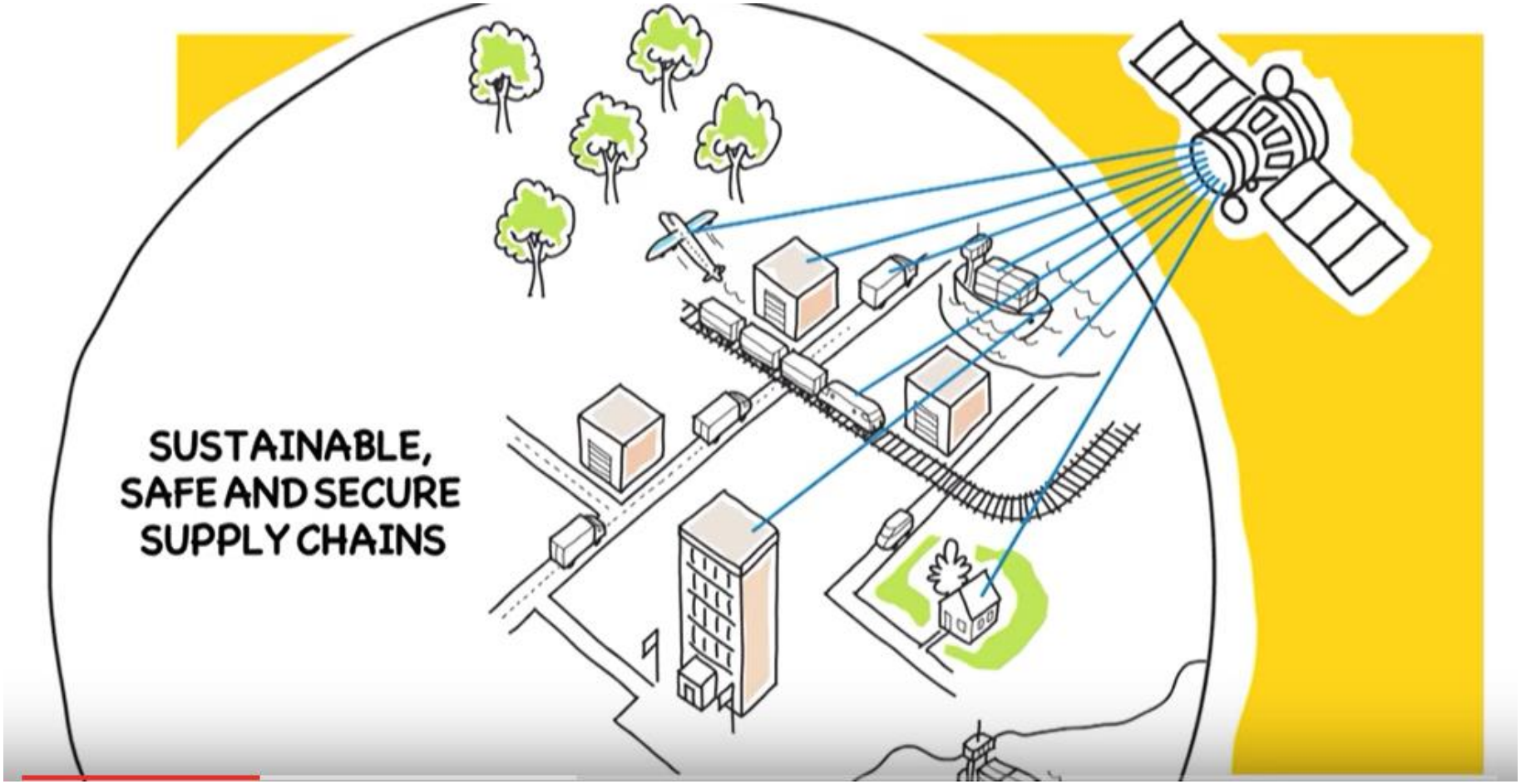

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Corridors, Hubs and Synchromodality

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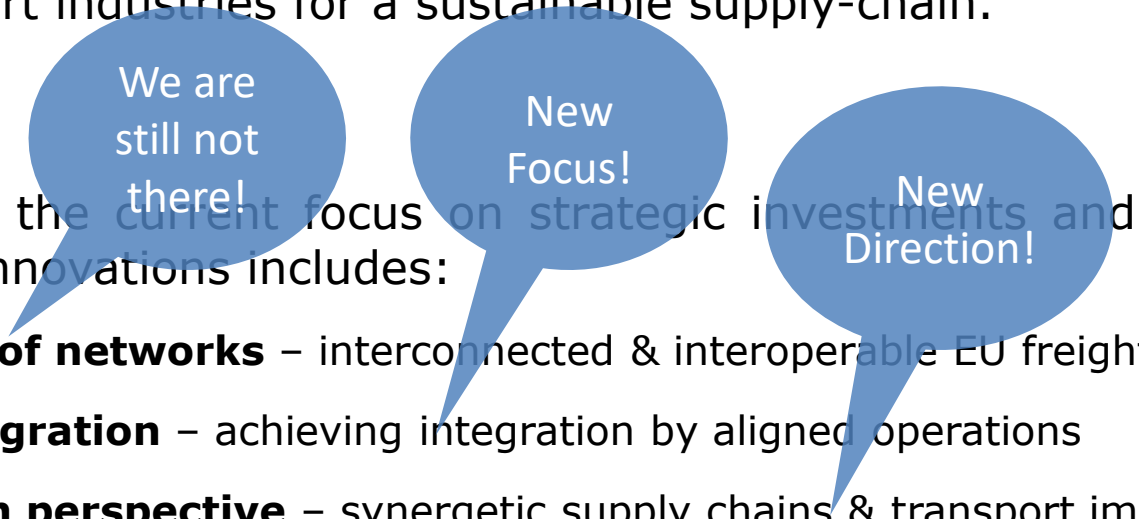
Vision

EU wide **synchromodal 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

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Corridors, Hubs and Synchromodality: Milestones

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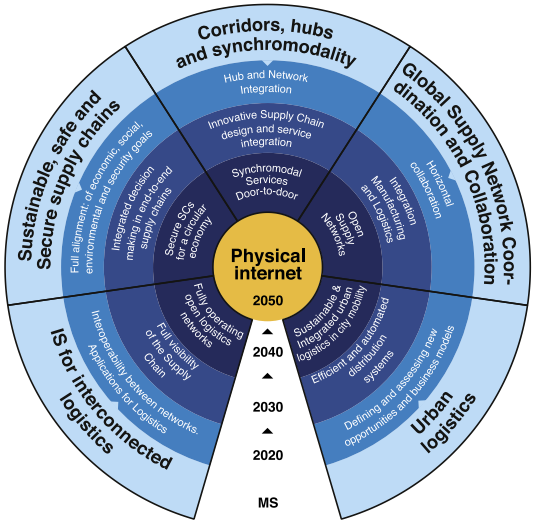
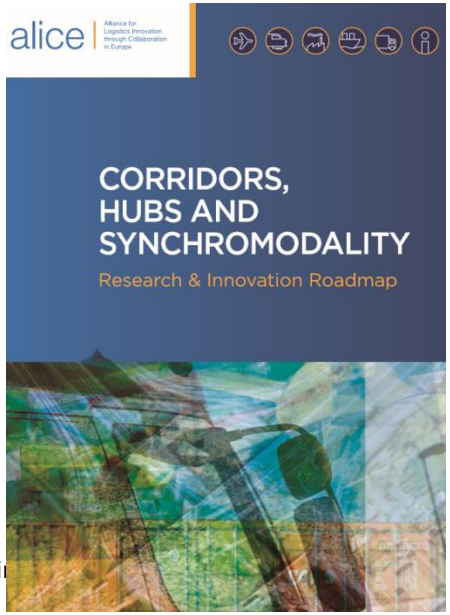
2020
- Hub and network integration

2030
- Innovative supply chain design and synchromodal service integration

2040
- Synchromodal services door to door

2050
- Physical Internet





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Synchromodal Transport

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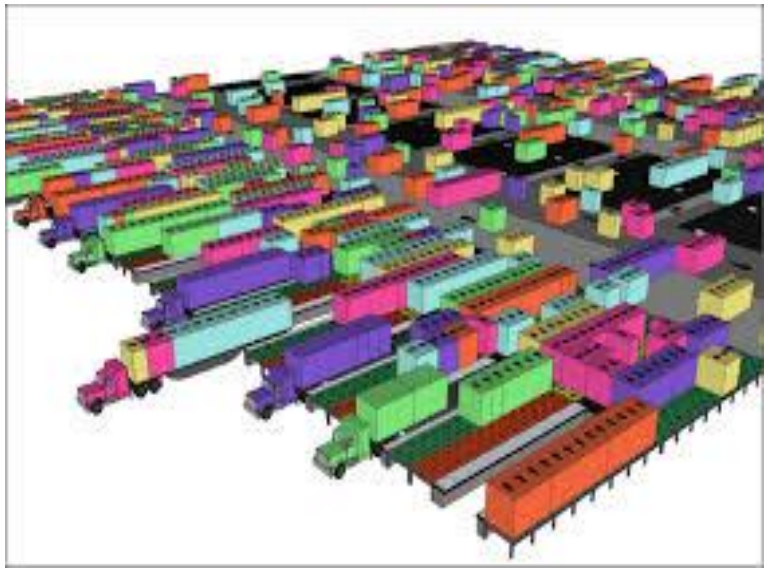
Optimally, ***flexible and sustainable deployment of different modes of transport and hubs*** *in a system operated by a logistics service provider (PI provider), so that the user or customer (shipper or forwarder) is offered or can directly access to an* ***integrated and sustainable solution for their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

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Corridors, Hubs and Synchromodality: Video

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Information Systems for Interconnected Logistics Roadmap

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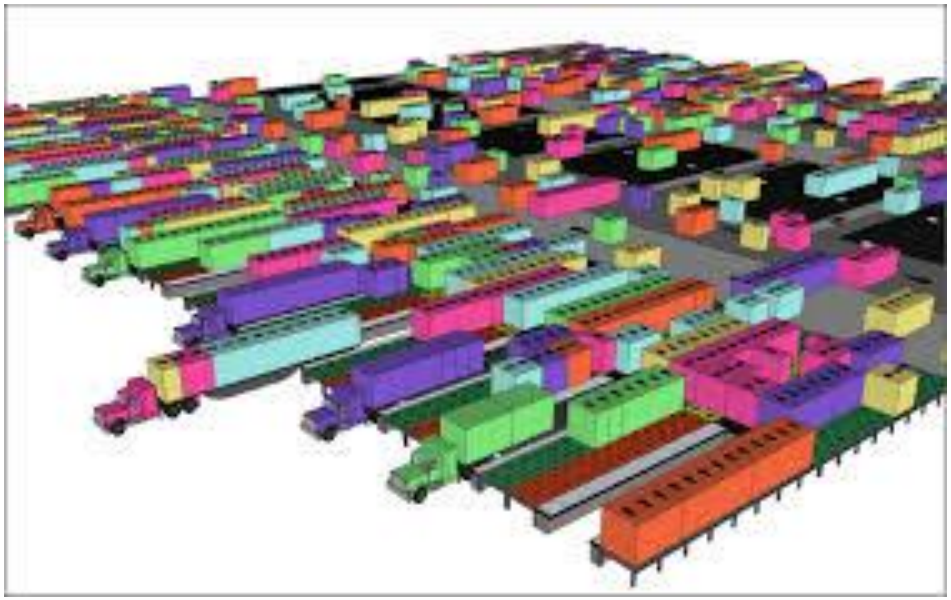
Vision

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.



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Information Systems for Interconnected Logistics Roadmap: Milestones

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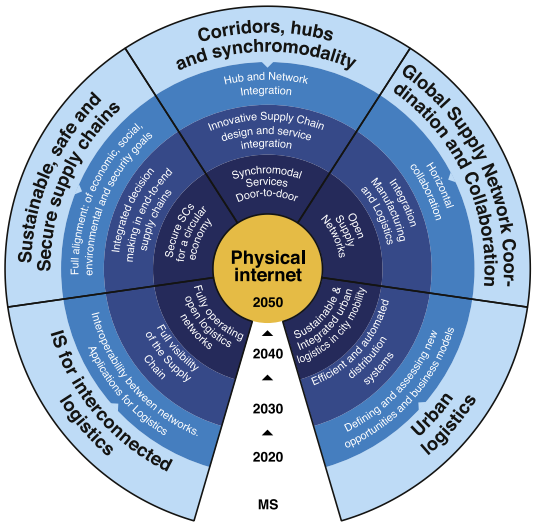
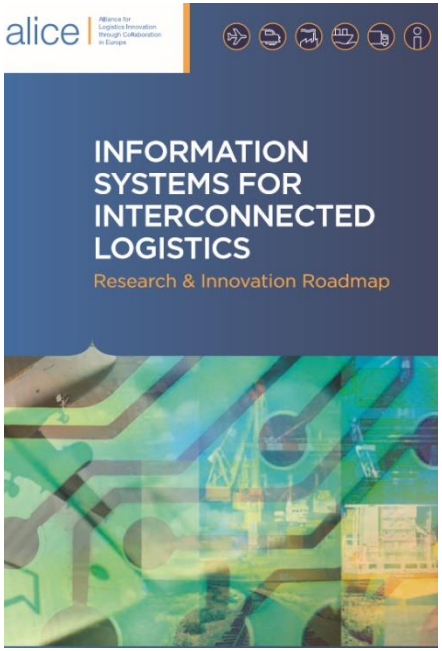
2020
- Interoperability between networks and IT applications for logistics

2030
- Full visibility throughout the supply chain

2040
- Fully functional and operating open logistics networks

2050
- Physical Internet





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Information Systems for Interconnected Logistics Roadmap: Challenges

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- 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.

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Information Systems for Interconnected Logistics Roadmap: Video

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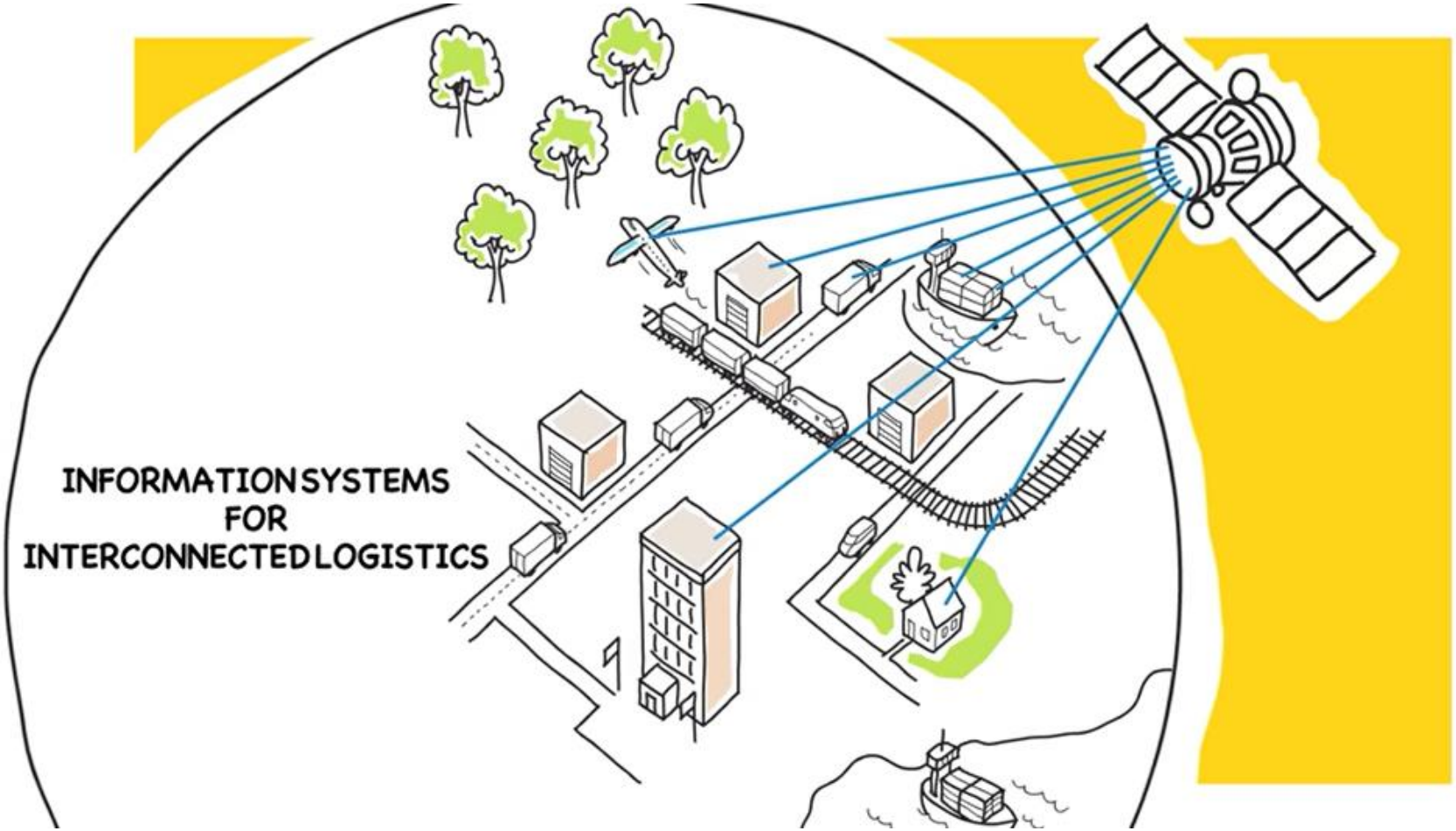

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Global Supply Network Coordination and Collaboration Research Roadmap

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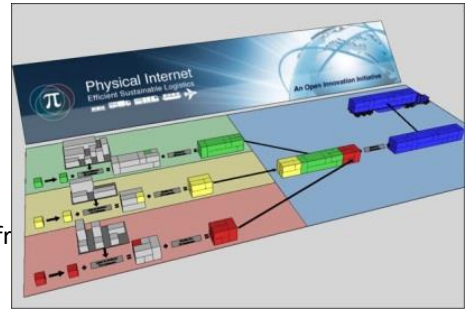
Vision

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**



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Global Supply Network Coordination and Collaboration: Milestones

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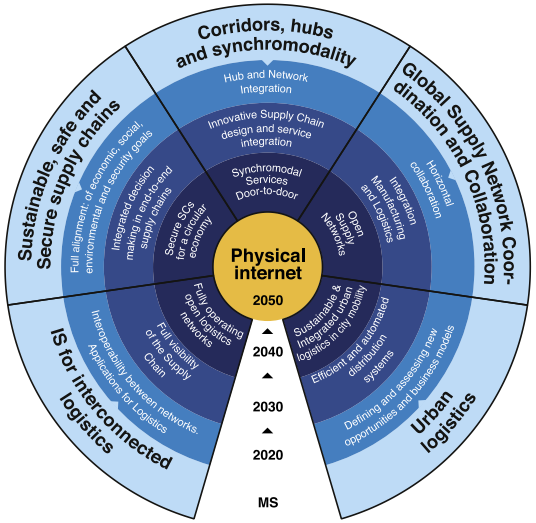
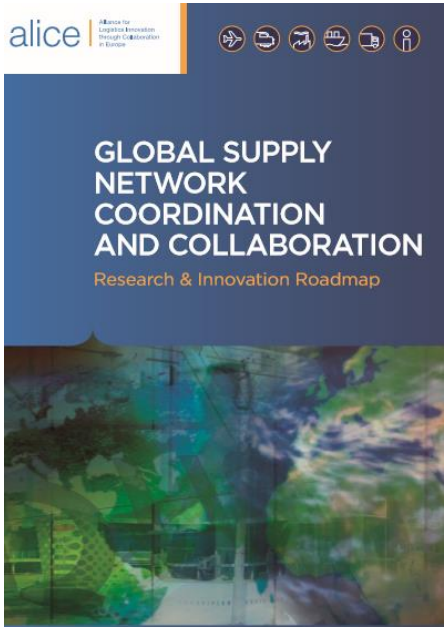
2020
- Horizontal Collaboration

2030
- Integration Manufacturing Logistics

2040
- Open Supply networks

2050
- Physical Internet





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Challenges and themes (1)

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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

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Challenges and themes (2)

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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

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Global Supply Network Coordination and Collaboration: Video

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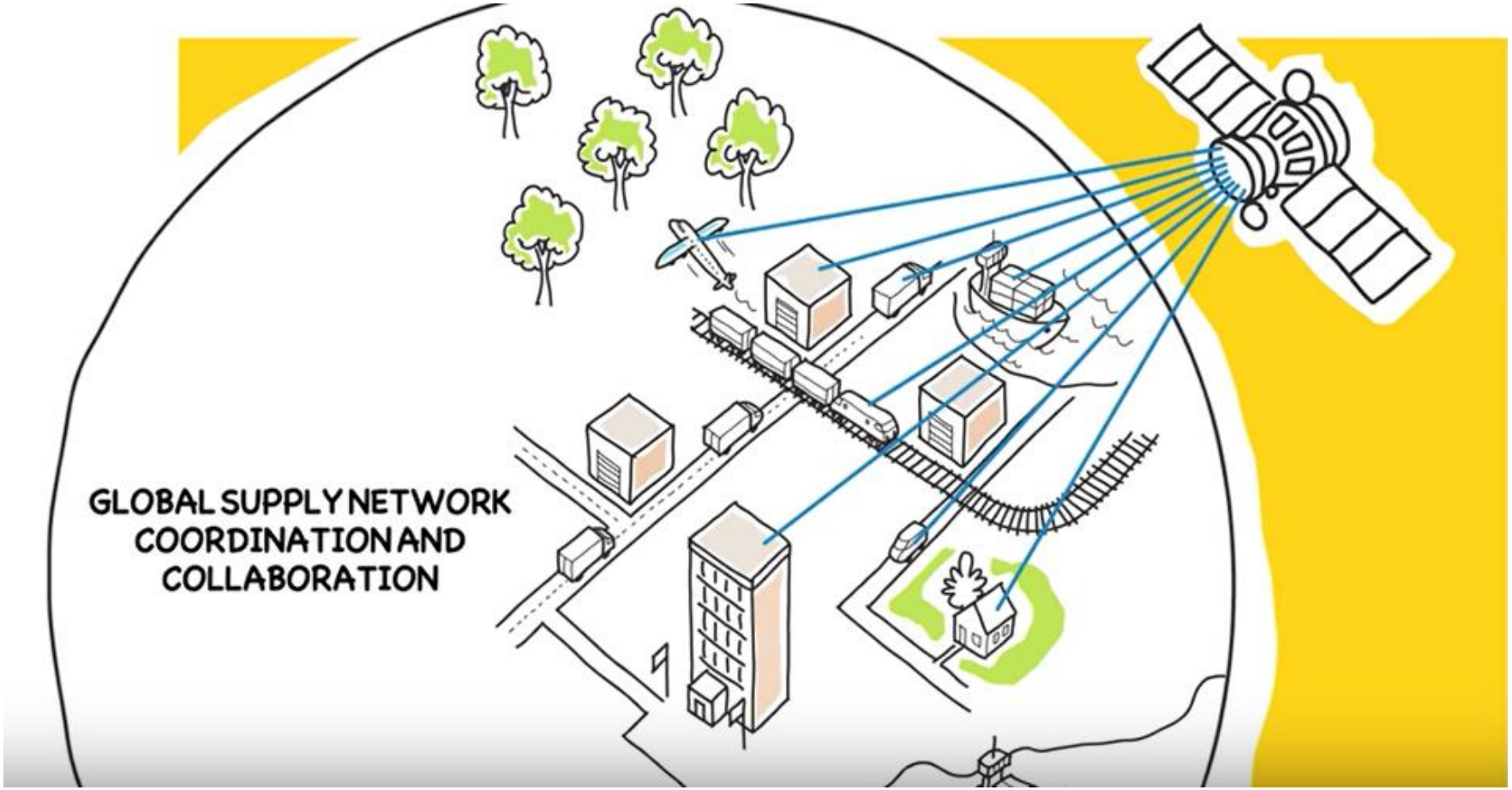

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Vision

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

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Urban Logistics: Milestones

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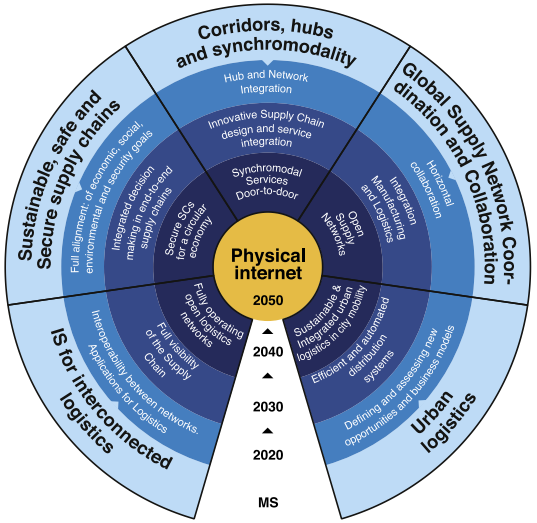
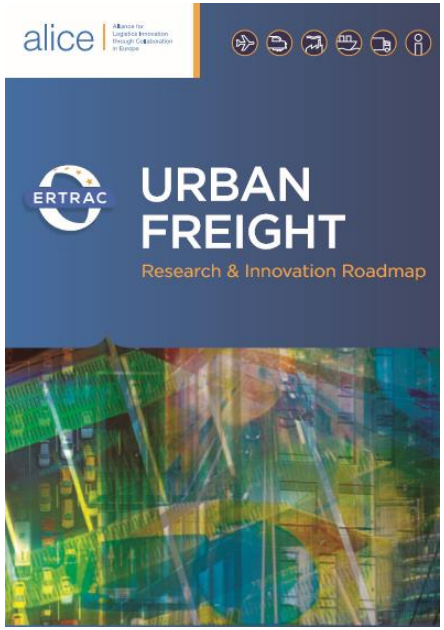
2020
- Defining and assessing new opportunities and Business Models

2030
- Efficient and automated distribution systems

2040
- Sustainable and integrated urban logistics in the city mobility system

2050
- Physical Internet





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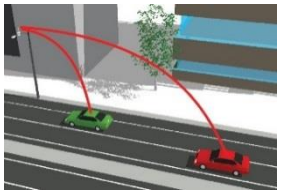
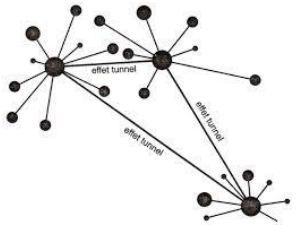
Challenges and themes

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)





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Challenges and themes

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- **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**

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Urban Logistics: Video

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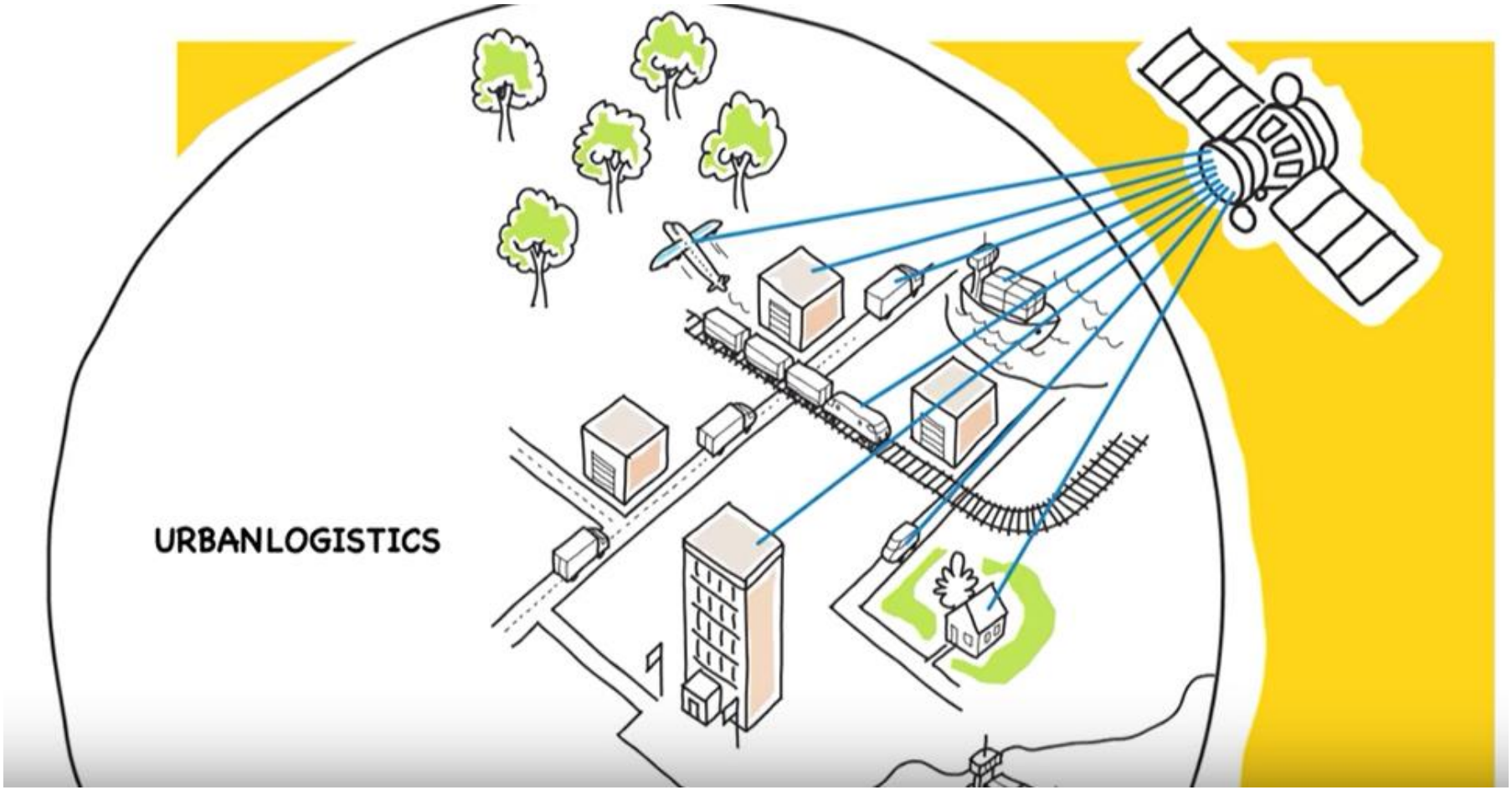

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Additional Information

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

- ALICE Executive Summary and Mission Statement (link)
- ALICE Research & innovation Roadmaps (link)
- ALICE Statutes (link) and Terms of Reference (link)
- ALICE input for HORIZON 2020 2014-2015 calls (link)
- ALICE input for HORIZON 2020 2016-2017 calls (link)
- ALICE input for HORIZON 2020 2018-2020 calls (link)

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Logistics innovation for a more competitive and sustainable industry

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