Roadmap Towards Zero Emissions Logistics in 2050

ERRIN Transport WG, Brussels 20th of February 2019

Fernando Liesa

Secretary General, ALICE

Activities performed partially in the frame of WINN, SETRIS & SENSE Projects. WINN, SETRIS & SENSE projects have received funding from the European Union´s FP7 and Horizon 2020 research and innovation Programme under grant agreements No. 314743, No. 653739 and No. 769967

We are facing tremendous challenges…

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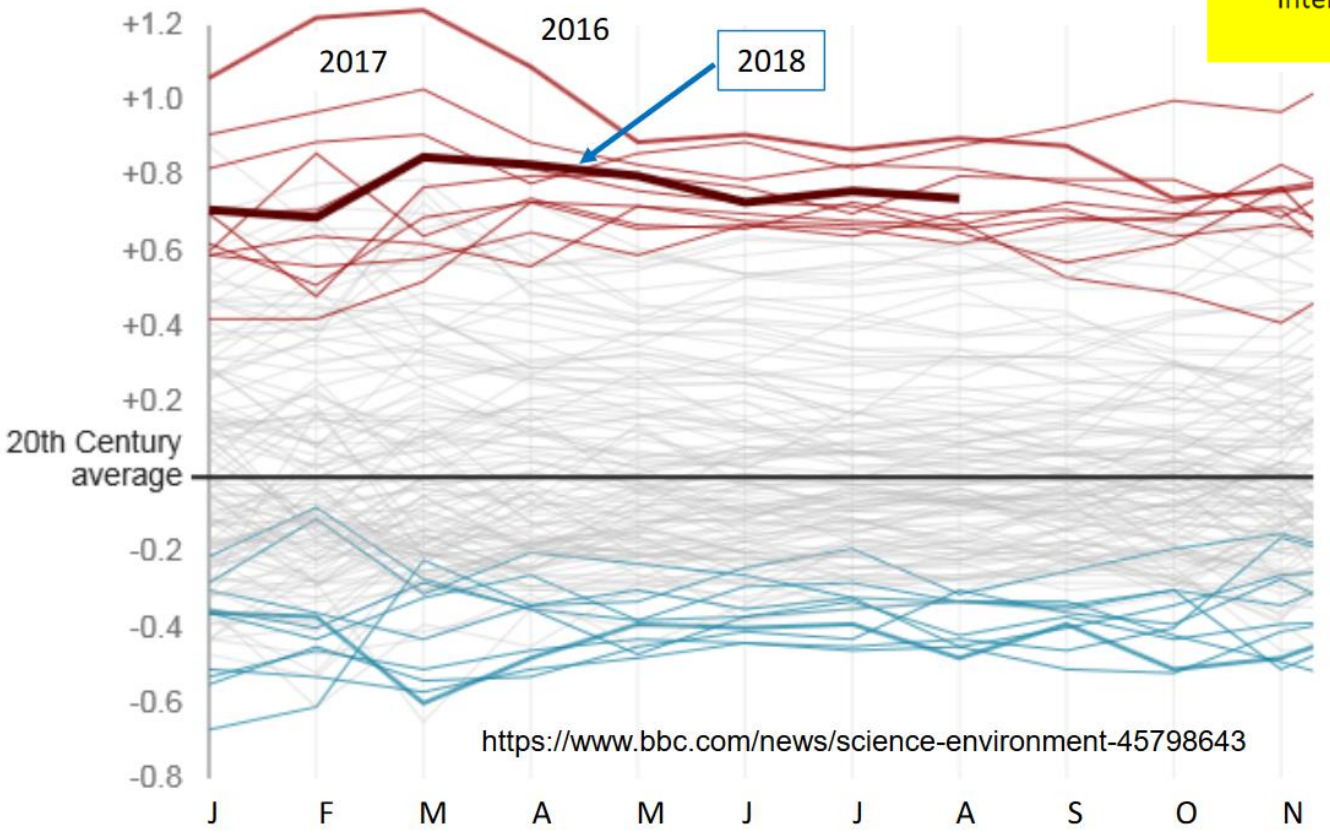
UNFCC COP 21 Conference on Climate Change
December 2015

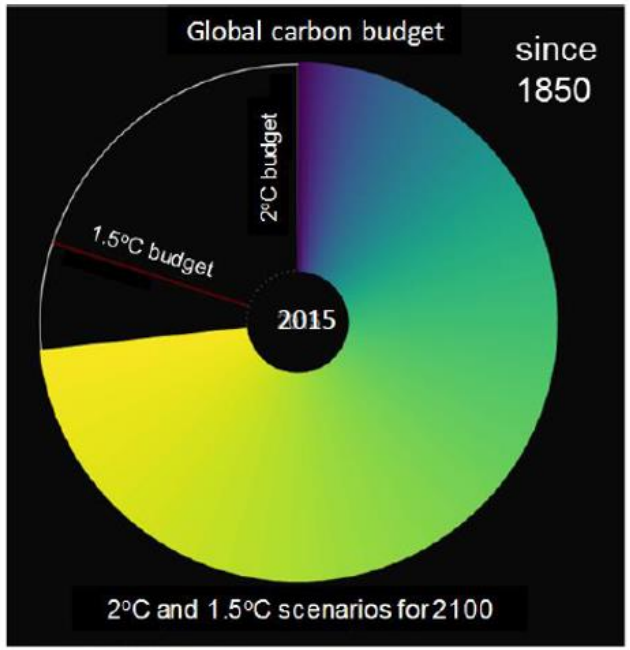
PARIS2015 UN CLIMATE CHANGE CONFERENCE COP21·CMP11

Global Warming and CO_2 Emission Trends

Average Global Temperature: *1880 to 2018*



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: NOA

https://www.climatechangenews.com/2016/07/27/spiral-tastic-climate-change-in-three-animations/

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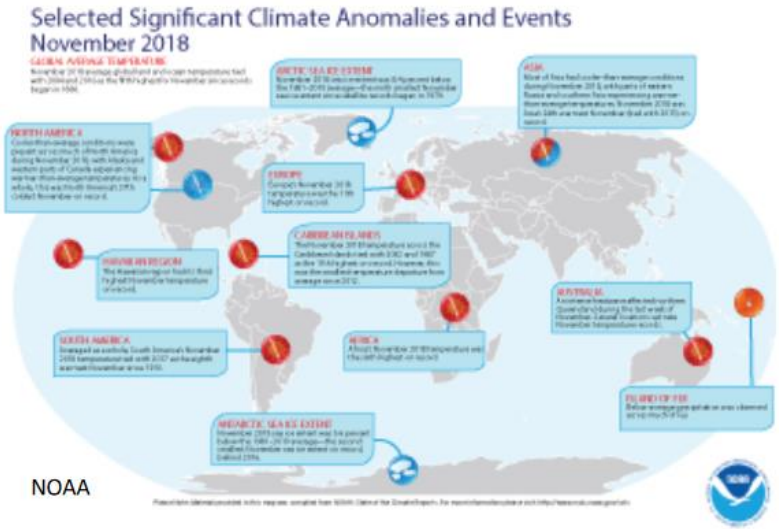
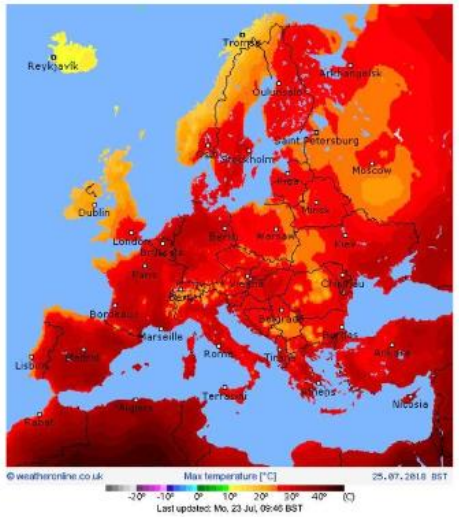
Climatic Anomalies Multiply

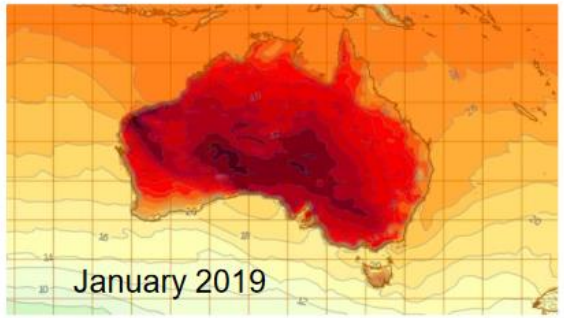


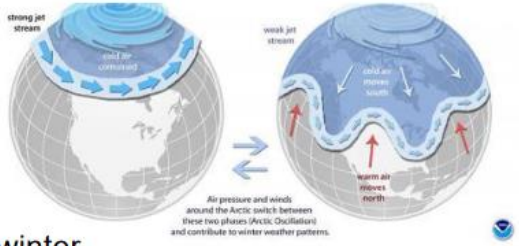
NOAA

devastation of Paradise in California fires

2018 heatwave







https://www.newsweek.com/winter-2018-polar-vortex-snow-1263854

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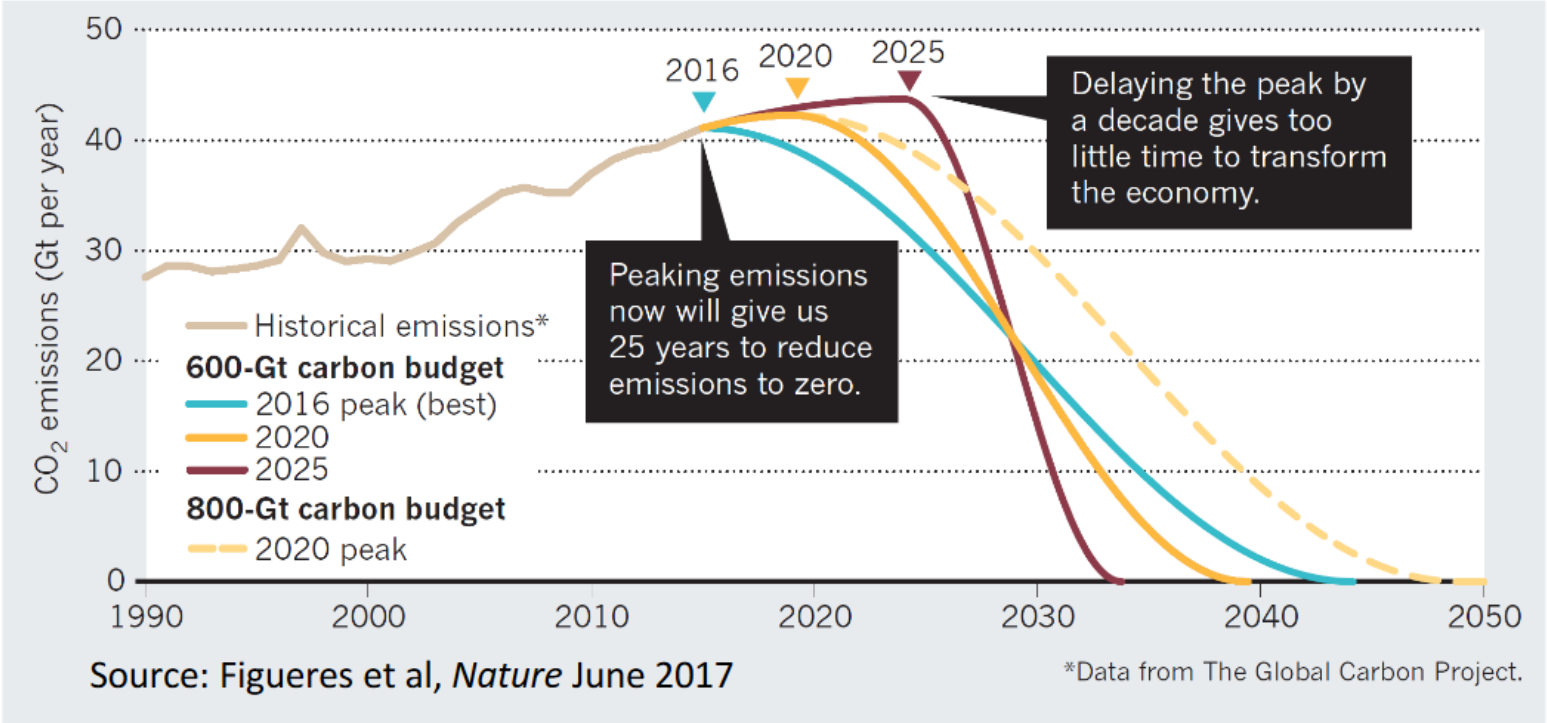
Carbon Budgeting

Need to stay within tight carbon budgets to limit temperature rise to 1.5-2.0°C



https://bit.ly/2WGTINT

Need to embed concept of carbon budgeting into logistics decarbonisation strategies

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ALICE Roadmap Renewal

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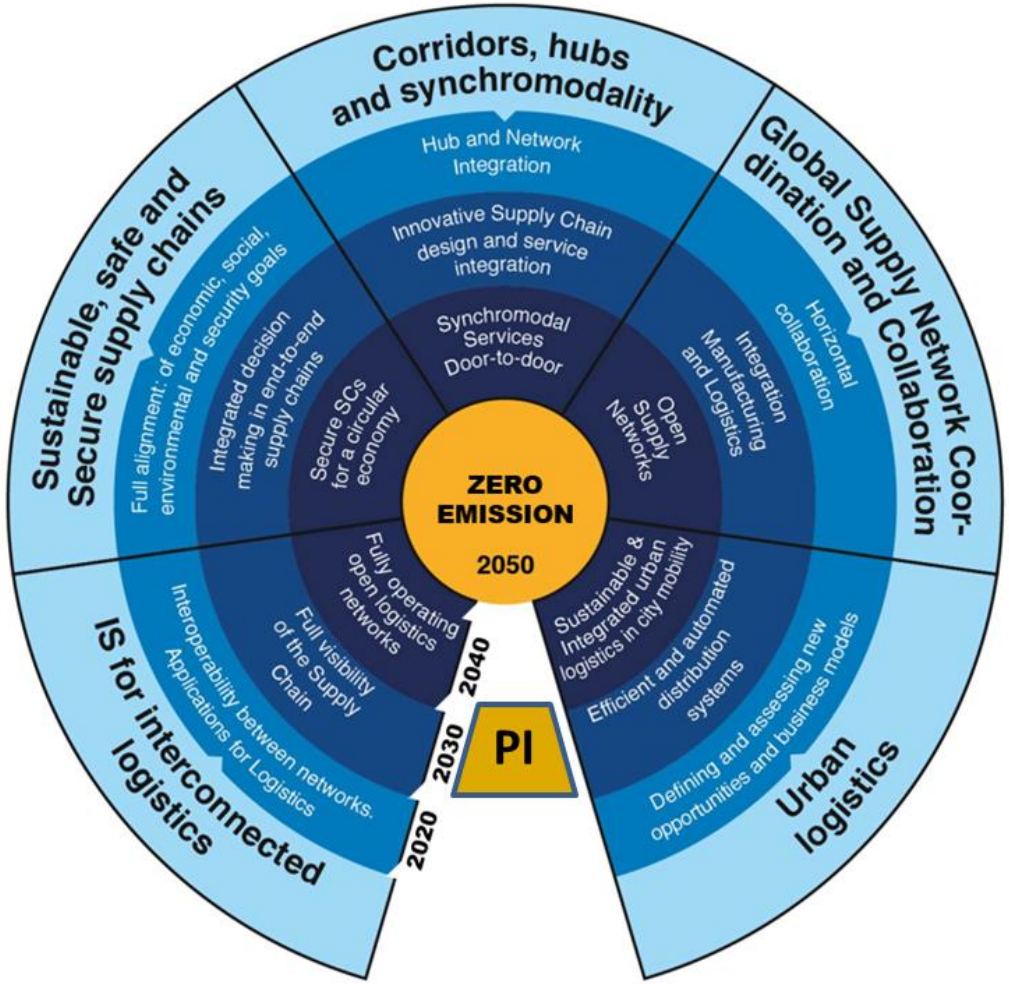

ALICE VISION is to realize PI by 2030 to pave the way to Zero Emissions by 2050

Physical Internet will bring efficiency and sustainability to Logistics. It cannot fully solve **the Decarbonization Challenge**, but it will make it less onerous **to meet**.

And can deliver results in the critical next 10 years

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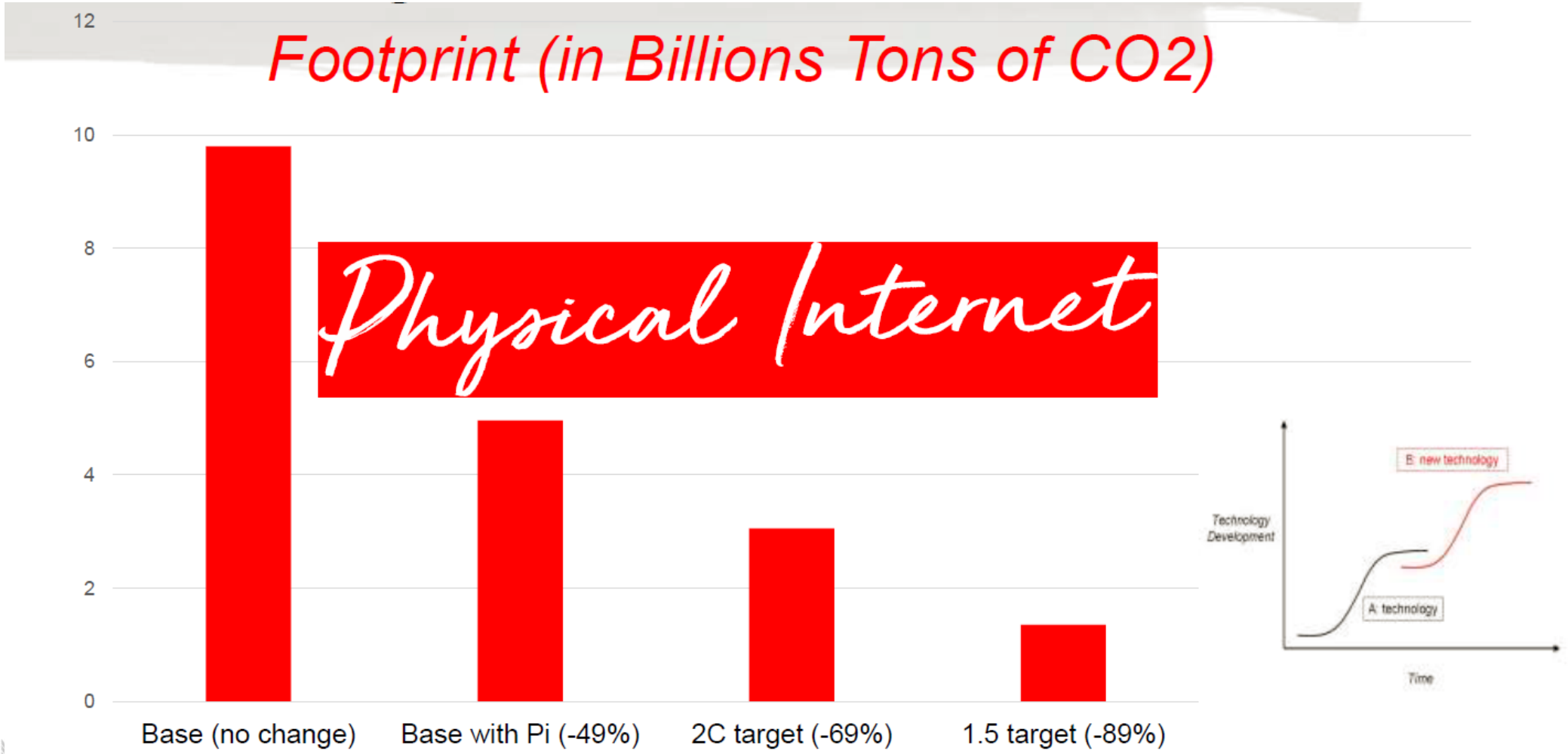
Scenarios for 2050: Freight Transport Emissions



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Finding and working on realizing opportunities

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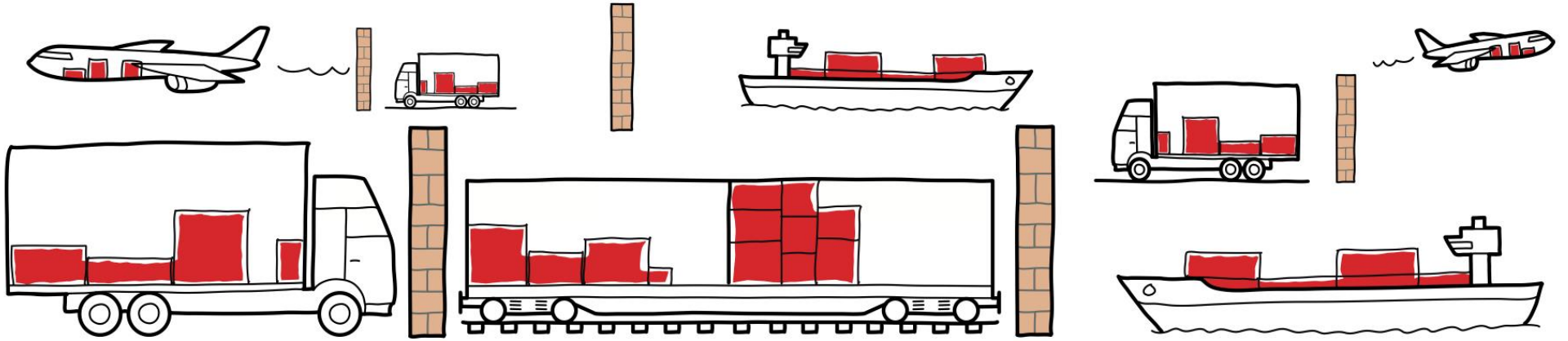
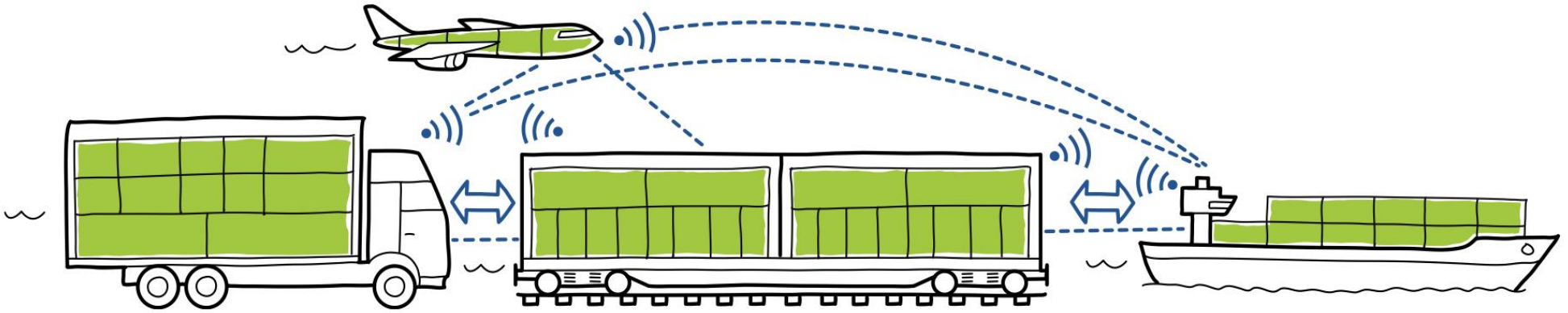


Challenge



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Leadership team for the Roadmap

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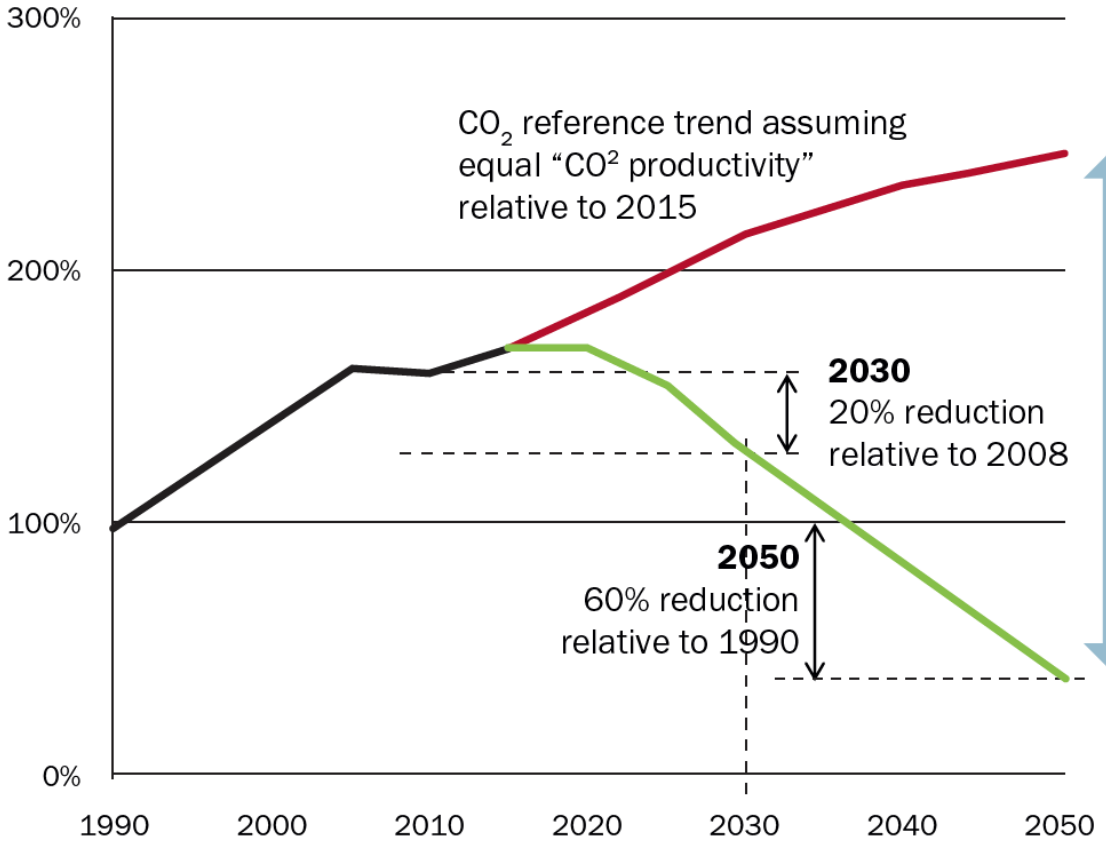
Existing Roadmaps

ITF, 2017	ITF Transport Outlook 2017. Scenarios for future transport demand and related CO2 emissions from all sectors and modes of transport
WEF, 2009	Supply Chain Decarbonization - The role of Logistics and Transport in reducing Supply Chain Emissions
Alan McKinnon, 2018	Decarbonizing Logistics – Distributing goods in a low carbon world
EC – DC R&I, 2018	Final Report of the High-Level Panel of the European Decarbonisation Pathways Initiative
IMO, 2018	Initial IMO strategy on the reduction of GHG emissions from ships
ITF, 2018	Decarbonising Maritime Transport Pathways to zero-carbon shipping by 2035
IATA, 2009 and ICAO, 2018	Aviation and Climate Change: Pathway to carbon-neutral growth in 2020 (IATA) and On Board a Sustainable Future (ICAO)
IEA, 2017	The Future of Trucking – Implications for energy and the environment
IRU, 2017	Commercial Vehicle of the Future. A roadmap towards fully sustainable truck operations
ITF, 2018	Towards Road Freight Decarbonisation – Trends, Measures and Policies
ECF, 2018	Trucking into a Greener Future
ACEA, updated 2018	Position paper: European Commission proposal on CO2 standards for new heavy-duty vehicles
Top Sector Logistiek (2017)	Outlook City Logistics 2017
Top Sector Logistiek (2018)	Outlook Hinterland and Continental Freight 2018
CEFIC, 2011	Measuring and Managing CO_2 Emissions of European Chemical Transport
CEPI, 2017	Decarbonising transport and logistics chains in Europe? Discussion Paper forest fibre and paper industry

The Goal



FACTOR 6

ton/km
gram CO_2

83% reduction in CO_2/tonne-km

CO_2

Note: Reduction goal freight transport assumed equal to overall 60% reduction goal for transport sector in EU Whitepaper (2011).

Indicative graph, based on:
"EU Energy, transport and GHG emissions, Trends to 2050", European Commission 2013

Source: Smokers et al. (2017). *Decarbonising Commercial Road Transport*. Delft: TNO.

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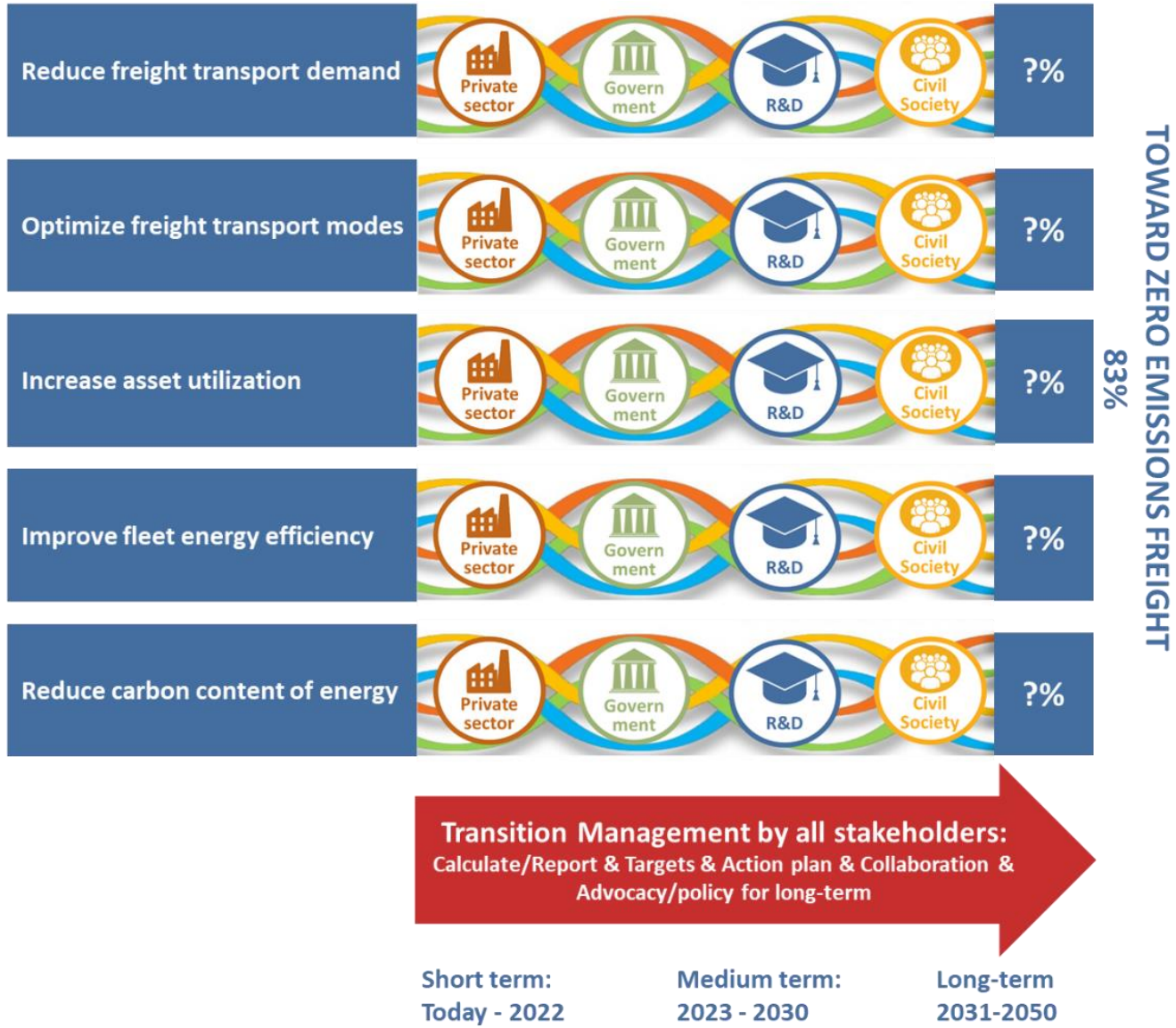
Roadmap overview



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Main Sources of Solutions for Decarbonization

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REDUCE FREIGHT TRANSPORT DEMAND

- Supply chain restructuring
- Standardized modules/boxes
- 3D printing
- Dematerialization
- Consumer behavior

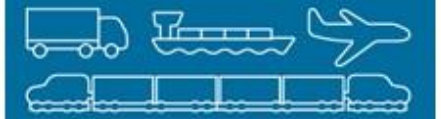
OPTIMIZE FREIGHT TRANSPORT MODES

- Modal shift
- Multi-modal optimization
- Synchromodality

INCREASE ASSET UTILIZATION

- Load optimization
- Load consolidation and asset sharing
- Logistics centers and warehouse management

IMPROVE FLEET ENERGY EFFICIENCY



- Cleaner and efficient technologies
- Efficient vehicles and vessels
- Driving behavior
- Fleet operation
- Fleet maintenance

REDUCE CARBON CONTENT OF ENERGY

- Cleaner and lower-carbon fuels
- Electrification
- Fuel management

Smart Freight Centre; categories based on A. McKinnon 2018

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Solution Areas

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Freight Transport Demand (*indicative)*

GHG Impact	High >20%	•	• Consumer behaviour (negative impact possible) • Localization and nearshoring	•
	Medium 10-20%	•	• Supply chain restructuring • 3D printing products	• Dematerialization
	Low <10%	• 3D printing spare parts • Decentralization	•	•
		Short (today-2022)	Medium (2023-2030)	Long (2031-2050)
		Timeframe		

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Stakeholder groups

+

Roles

S/M/L term

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Example Stakeholder Roles

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Private sector

Solution area	Activity description	Actors
Improve fleet energy efficiency	• Include fleet efficiency criteria in logistics procurement processes	Shippers / LSPs
	• Adjust purchasing policies giving preference to fuel efficient vehicles/vessels and other equipment	LSPs / Carriers
	• Make training of fleet managers and drivers part of a company's policy	LSPs / Carriers
	• Adapt the TMS to optimize energy efficient fleet operation	LSPs / Carriers
	• Co-invest in fleet efficiency options to help carriers overcome the investment barrier, e.g. through negotiating bulk purchasing	Shippers
	• Develop loans for energy efficient equipment/vehicles/vessels tailored to the situation of carriers	Financiers
	• Offer the standard installation of energy-efficient technologies in new vehicles/vessels to help avoid retro-fitting costs by customers	OEMs
	• *Other…*	

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Process to complete Roadmap

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4 Webinars by stakeholder group (March-May)

- Validate current solutions for Europe: impact, timeline, feasibility
- Generate a final list of actions required to successfully implement solutions & critical roles of other stakeholders
- Determine priorities: which stakeholder actions are most critical?

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Process to complete Roadmap

Workshop (24-25 Sep Vienna)

- Aggregate input from 4 stakeholder groups
- Work out transition management, taking priority stakeholder actions into consideration

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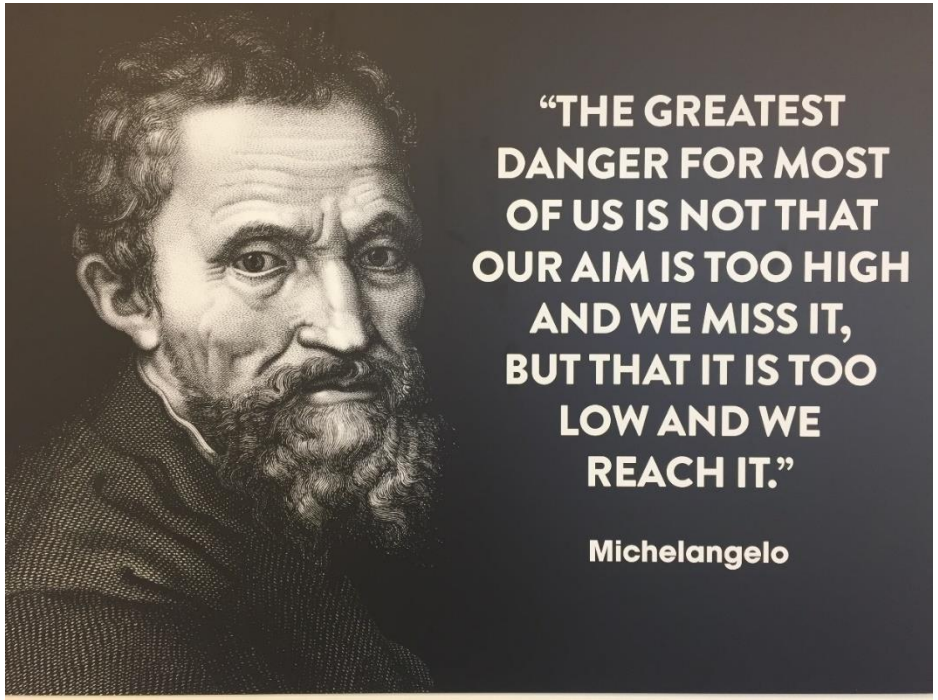

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Logistics innovation for a more competitive and sustainable industry

Thank you!

The Best Way To Predict The Future Is To Create It!

Source: President Abraham Lincoln

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