Logistics for Life

Logistics Industry Coalition **for**
Long-term, **I**CT-based **F**reight Transport **E**fficiency.

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Roadmap "ICT for Sustainable Freight Transport and Logistics

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2007 - 2013
European Commission
7th Framework Program
ICT Theme

Purpose

- Provides strategic guidelines:
  - Future research and development activities in the ICT for transport logistics field,
- Ensuring the long-term sustainability
  - Environmental,
  - Economic and
  - Societal
- Contribute to the EU Research and Innovation
  - Common Strategic Framework (2013 – 2020)

Scope until 2030

- Identify challenges to be overcome by ICT for freight transport and logistics to increase the sustainability.
- How to overcome the challenges
  - research,
  - development and
  - pre-competitive deployment expected in key technological areas.

Vision

Policy objectives / Industry goals	Improvements by 2030
Co-modal freight corridors.	30% of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050, facilitated by *efficient and green freight corridors*.
Zero-emissions urban logistics.	Achieve essentially CO2-free city logistics in major urban centres by 2030.
Low-carbon freight transport services(business perspective	Significant market-share for low-carbon services for environmentally concerned customers, taking into account emissions alongside price and speed of transport.
Increased logistics efficiency	Holistic approach for supply chain, incl. All modes and all stakeholder
European multimodal transport information, management and payment system.	Increased reliability of transport schedules by 50%, as measured by average time loss, (scheduled time vs. real travel time).
End-to-end supply chain security	Make sure that the EU is a world leader in safety and security of transport in all modes of transport.
Cooperative vehicles and infrastructures.	The large majority (80%) of vehicles and infrastructures will be cooperative, supporting safe and optimal utilization of transport infrastructures and improvement of driver's behaviour.

Challenges: Co-Modal freight corridors

- State-of-the art
  - Little evidence that investments in EU research over the last 15 years has contributed to moving cargo from road to other transport modes
  - Rail transport has received 81% of the TEN-T budget of 400 bill Euro. Growth in freight on rail estimated to be approximately 10%
- Improvements
  - Many stakeholders need to cooperate efficiently ➡ Interoperability
  - Making the best possible use of the infrastructure
  - Need for new solutions that naturally chooses green alternatives
  - Making the best possible use of each vehicle moving in the infrastructure

Challenges: Co-Modal freight corridors

- Main ICT-related Challenges
  - Introduce an efficient Soft Infrastructure

Common Framework

  - Introduce the concept of Corridor Management

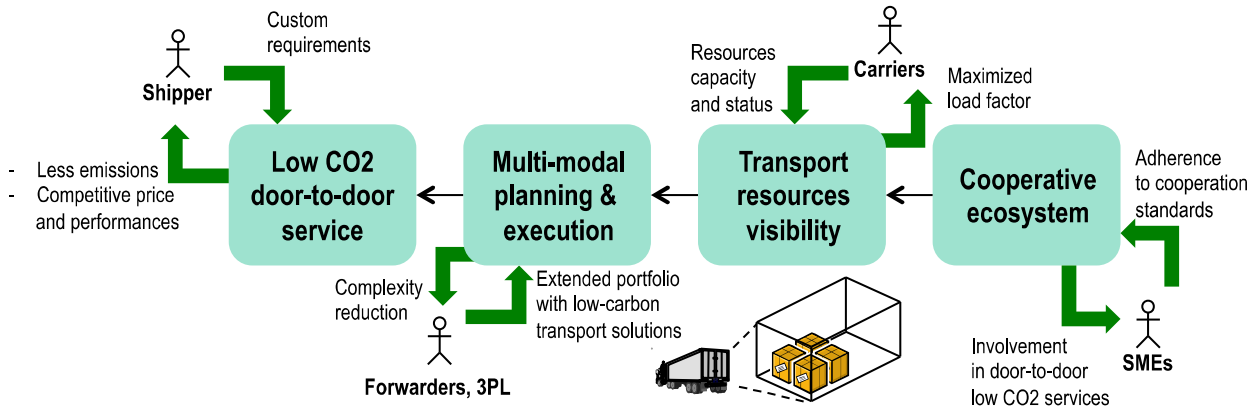
On top of ITS-TAF/TSI, RIS, and e-Maritime

Challenges: Zero Emission Urban Logistics

- State-of-the art
  - Urban transport is dominated by road transport
  - Rapid development in motor and car technologies
    - Battery (electrical vehicles), gas motors, hybride motors
  - The drivers are controlled by two different objectives
    - More efficient traffic (traffic management)
    - More efficient transport (freight distribution management)
  - Low loading factor
- Improvements
  - Harmonised control of vehicles taking into account both traffic management and freight distribution management
    - Increase in load factor
  - Utilisation of the shorter range for fully electrical vehicles
- Main ICT – related challenges
  - Connection of the vehicles and the road infrastructure
  - Interoperability between traffic management and freight distribution management systems
  - Connection of goods information and car information => Total set of information about cars transporting in urban areas

Challenges: Low-Carbon Freight transport services

- State-of-the art
  - Model shift solution
  - Brokerage services
  - Green deliveries
- Improvements
  - largest share of door-to-door freight transport services optimized for emissions reduction, well speed, reliability and price.



- Main ICT – related challenges
  - Standard indicators and methods for environmental performances of freight transport services
  - Multi-actor, multi-criteria freight transport planning
  - Cooperative environment for logistics information services

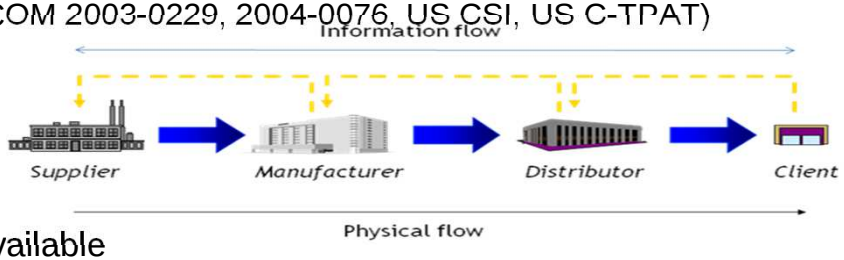
Challenges: European Multi-Modal transport information, management and payment system

- State-of-the art
  - Many platforms and interoperable solutions for information exchange
  - Trend towards better collaboraton and information sharing in ecosystems
  - Existing standards for information exchange – Pan European projects for electronic invoicing, etc.
  - xRM for ‘’Anything Relationship Management’’
  - Cloud computing / Internet of Services / Internet of Things/ Internet of Content - convergence
- Improvements
  - Adoption of technology
  - Logistics as dynamic ecosystems - More actors enrollment (communities, non-hierarchical networks)
  - New tools and services for intelligent data capturing, analysis and information sharing
- Main ICT – related challenges
  - Wireless Sensor networks adoption in Logistics industry - Integration of intelligent sensors
  - Cloud (Private/ Public) interoperability
  - Federated Open Platforms in Logistics – Services easily configured, discovered, composed and used by companies with different IT maturity levels

Challenges: End- to- End Security

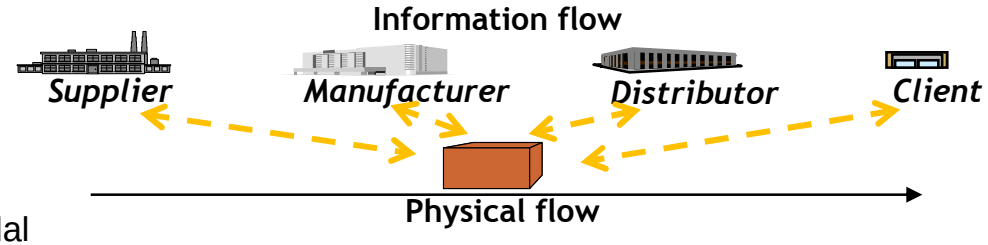
- Credentialing of participants in the supply chain.
- Screening and validating of the contents of cargo being shipped.
- Advance notification of the contents to the destination country.
- Ensuring the security of cargo while in-transit via the use of locks and tamper-proof seals.
- Inspecting cargo on entry.

- State-of-the art
  - Tracking and tracing partly possible, SCM software available for some stakeholders
  - Transport means identification
  - Information gaps along the chain,
  - Security regulations to be fulfilled (ISPS, EU-COM 2003-0229, 2004-0076, US CSI, US C-TPAT)
  - Solutions for ICT security available



- Improvements
  - ITS: information and goods flows synchronous
  - Web based information systems as prototypes available

- Main ICT – related challenges
  - Standards
  - Different regulation
  - Hardware/Software cost, maintenance
  - Interconnection of different solutions
  - Challenges reg. security and multi-modal



Challenges: Cooperative Vehicles and Infrastructures

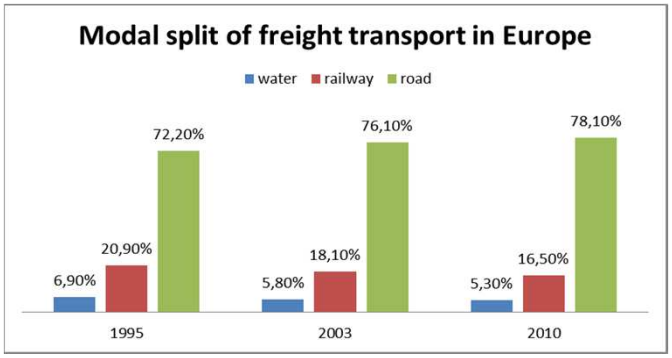
- State-of-the art
  - ITS services active road safety and traffic efficiency
  - Service networks for subscribing and publishing of goods information for all stakeholders
  - Mobile systems with real-time connection to infrastructure and goods
- Improvements

	Environmental	**Economic**	**Societal**
ITS services infrastructure	• Traffic flow optimizations	• Increased transport efficiency • Lower cost due to fewer accidents and increased transport work.	• Reduced number of accidents • Increased dependability on the road network
Fully developed and integrated service network	• Accurate emission calculation based on actual transport work. • Linking transported goods with environmental impact	• Possibilities for third party service providers to deliver services • Reduced administration as part of total transport cost.	• Increased insight in all steps of the transport. • Improved basic data for policy makers.
Advanced mobile trucking systems	• Improved routing through reduced erroneous driving and higher visibility.	• Reduced time duration per transport • Reduced administration.	• Less trucks for the same amount of freight.

- Main ICT – related challenges
  - Single technology testing and validation replaced by sub-system evaluation
  - Merge currently existing domains to enable information sharing, aiming towards openness.
  - Agreement on concepts, services and stakeholder involvement
  - Resolving the “Chicken-and-egg”-problem of ICT investments

Challenges: Increased Logistic Efficiency

- State-of-the art
  - Mode specific systems
  - Mode specific regulations
  - Inefficiency
  - Lack of seamless information flow



- Improvements
  - Shared infrastructure
  - SOA for better data exchange
  - Implementation of technologies
- Main ICT – related challenges
  - Standardization
  - Hardware/software related

Contributors to the current version of the Roadmap

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Thank you for your contribution

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