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# ICT in multimodal transport and logistics (Best practices)

Gerhard Schilk, 27.09.2012 (Zagreb, HR)

# Course of the presentation

- eFreight
- ICT in transport planning and monitoring
- eDocuments, eReporting,...
- ITS for transport and logistics
- Conclusions and future trends
- (References)

# E-FREIGHT

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# eFreight: Today's problems

- **Complexity of freight transport information exchange** in the context of multimodal transport:
    - **lack of interoperability** along the supply chain => inefficiencies, costs, reduced visibility of freight
    - **operators provide information several times for different purposes** => administrative costs + perceived complexity for multimodal transport
    - **lack of information** on intermodal availabilities => no full exploitation of multimodal transport / non-optimization of use of existing transport infrastructure
- => **Need for interoperable interfaces for information on freight in the various transport modes**

# eFreight: The vision

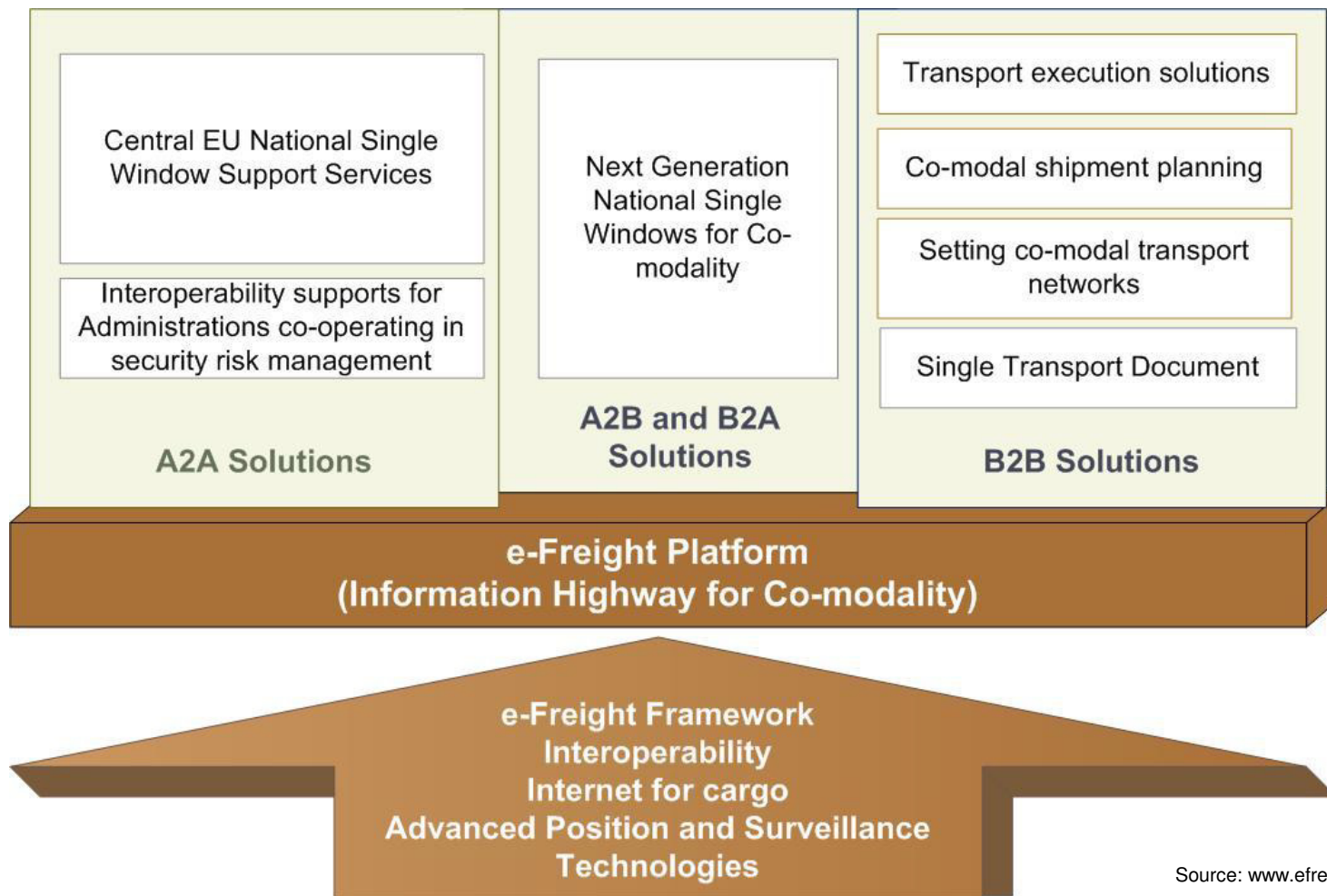
- **Interoperability** between paperless freight information systems
- **Zero paper documents** needed for planning, executing and completing any transport operation within the EU
- **Reduced waiting time** at hubs related to administrative procedures
- **Standard framework** for intermodal information exchange
- **Harmonised** border crossings

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# eFreight: The challenges

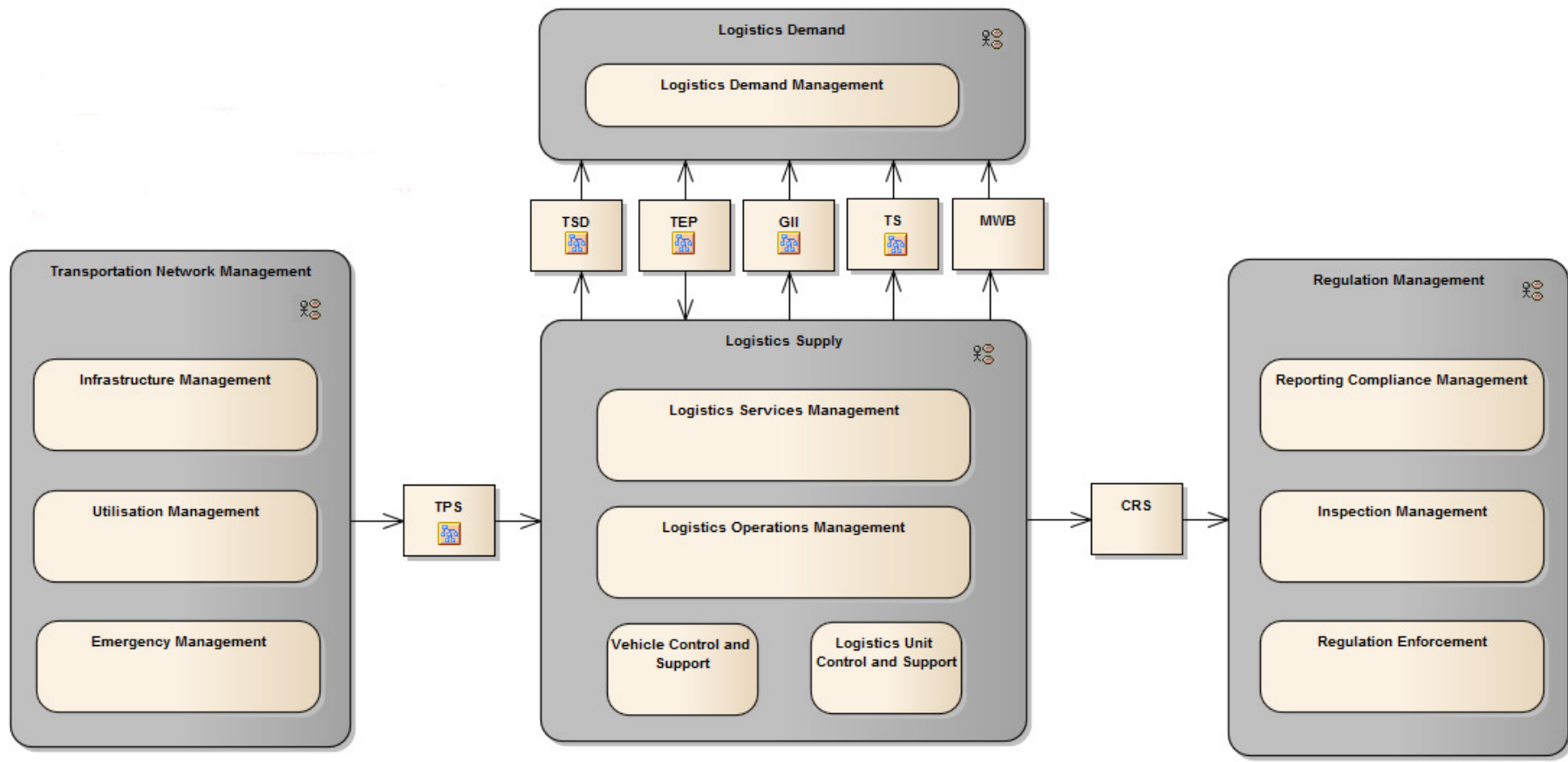
- **Technology is available** but implementations on a large scale are slow to appear
- How to ensure **market uptake?**
- **Co-operation between stakeholders** requires interoperability
- **Standardisation**
- **It is not only about technologies**, but about change in organisation and behaviour
- **Sharing of information requires trust** and, where needed the appropriate legal framework, data security and data protection
- The **fragmented structure of the business sector**, major players and thousands of **SMEs** and micro companies

# eFreight – EU project



Source: [www.efreightproject.eu](http://www.efreightproject.eu)

# eFreight – EU project (Interoperability)



Source: [www.efreightproject.eu](http://www.efreightproject.eu)



# ICT IN TRANSPORT PLANNING AND MONITORING

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# ICT in transport planning

INtegration in the intermodal goods Transport of non EU states: Rail, Inland/coastal waterway Modes

TOOLBAR

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Route: Piraeus - Berlin - Westhafen  
Optimization Mode ECO Quantity 350 Duration (d, hh) 13, 21 Distance (km) 9341 ECO (MJ) 3964754 Costs (€) 422376

Routing Segments							Segment Details			
From	To	Mode	No. V	Duration	Distance	Costs	Name	Info	Type	Category
Piraeus	Riieka	Short	1	2.12	1614	752539	Piraeus	Port of Piraeus	TSP	
Riieka	Budapest -	Rail	6	2.19	3212	1160177	Riieka	Port of Riieka	TSP	
Budapest -	Budapest -	Rail	6	1	8	23636				
Budapest -	Wroclaw - Port	Rail	6	3.9	3405	1206229				
Wroclaw - Port	Berlin - Westhafen	Water	3	5.4	1103	822173				

Possible connections sorted by total transit time (TT)

From: Austria Wien  
To: Netherlands Amsterdam  
4 destination terminal(s)

[Get Complete PDF Report](#) [Proceed to Logistics Benchmarking Tool](#) [Exit](#)

debugging...

Terminal Name Origin	Terminal Operator	Total Link		1st Segment		Transshipment			2nd Segment	
		Total TT	Total Freq.	Mode	Freq.	Country	Place	Terminal	Mode	Freq.
Wien Nordwest CCT	<a href="http://www.railcargo.at">http://www.railcargo.at</a>	3	1	Rail	3	Germany	Duisburg	Duisburg	Inland Shipping	1
WIENCONT		3	1	Rail	2	Germany	Duisburg	Duisburg	Inland Shipping	1
WIENCONT		3	1	Rail	2	Germany	Duisburg	Duisburg	Inland Shipping	1
Wien Freudenau Hafen CCT	<a href="http://www.wiencont.com">http://www.wiencont.com</a>	4	2	Rail	2	Netherlands	Rotterdam	ECT Delta / ECT Home / Euromax	Inland Shipping	3
Wien Freudenau Hafen CCT	<a href="http://www.wiencont.com">http://www.wiencont.com</a>	4	2	Rail	2	Netherlands	Rotterdam	Rotterdam Maasvlakte - ECT	Inland Shipping	4
Wien Freudenau Hafen CCT	<a href="http://www.wiencont.com">http://www.wiencont.com</a>	4	1	Rail	6	Germany	Duisburg	Duisburg	Inland Shipping	1

Sources: SONORA project, BE LOGIC project

## Projects/ Demos:

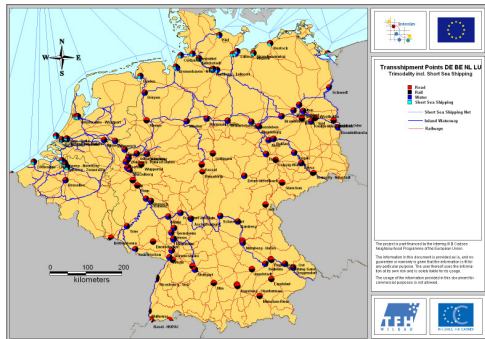
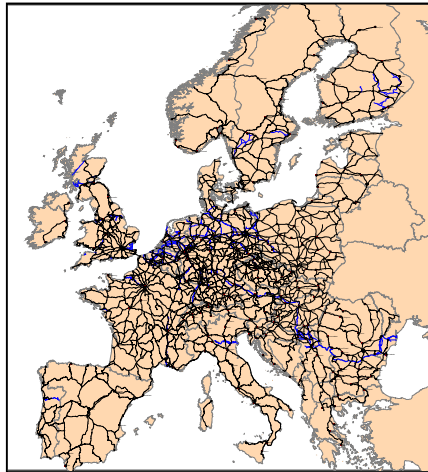
- SONORA, BELOGIC,...
- eFreight, SPIN-ALP, ..
- GET Service platform etc.

## ICT services:

- IT-based intermodal route planning,
- Intermodal transport scheduling,
- Future: Integration into existing ERP systems

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# ICT in transport planning



Integration in the intermodal goods Transport of non EU states: Rail, Inland/coastal waterway Modes

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Route: Piraeus - Berlin - Westhafen  
Optimization Mode ECO  
Quantity 350  
Duration (d, hh) 13, 21  
Distance (km) 9341  
ECO (MJ) 3964754  
Costs (€) 422376

From	To	Mode	No. V	Duration	Distance	Eco	Costs
Piraeus	Rieka	Short	1	2, 12	1614	752539	136211
Rieka	Budapest	Rail	6	2, 15	3212	1160177	113261
Budapest	Budapest	Rail	6	1	8	23636	10021
Budapest	Wroclaw - Port	Rail	6	3, 9	3405	1206229	109099
Wroclaw - Port	Berlin - Westhafen	Water	3	5, 4	1103	822173	51764

Segment Name	Info	Typ	Category
Piraeus	Port of Piraeus	TSP	
Rieka	Port of Rieka	TSP	

Fixed Relations

Routing

> >> 1 of 18

from Terminal	to Terminal	Info	Company
Hamburg - Altenwerder	Sopron	...	intercontainer
Hamburg - Altenwerder	Budapest - Jozsefvaros	...	intercontainer
Hamburg - Burchardkai	Budapest - Jozsefvaros	...	intercontainer
Hamburg - Billwerder	Budapest - Port	...	kombiverkehr
Hamburg - Billwerder	Gyor-Gonyu	...	kombiverkehr
Hamburg - Billwerder	Budapest - Jozsefvaros	...	Link to TSP
Hamburg - Billwerder	Wien - Hafen	...	Link to TSP
Hamburg - Billwerder	Sopron	...	icfonline
Hamburg - Billwerder	Wien - Nordwest	...	kombiverkehr
Bremen	Sopron	...	icfonline

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Transshipment Point

Name: Basel - DUSS  
Description:

Location Informations | Technical Information | LSP

Company

Name: DUSS - Deutsche Umschlaggesellschaft Schiene-Straße (DUSS) m  
Phone: (07621) 987610  
Mobile:  
Email: basef@duss-terminal.de  
Fax: (07621) 987620  
Website: www.duss-terminal.de

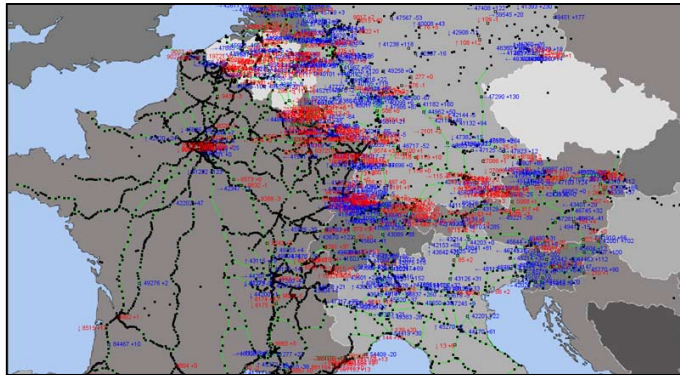
Address

Country/ZIP: DE / 79576  
Town: Weil Am Rhein  
Street: Am Umschlagbahnhof 1  
Opening times: Mo-Th 6:00 AM-7:00 PM, Fr 6:00 AM-7:00 PM, Sa 7:00 AM-11:00 AM, Su 6:00 AM-6:00 PM

Sources: SONORA project



# ICT in transport monitoring

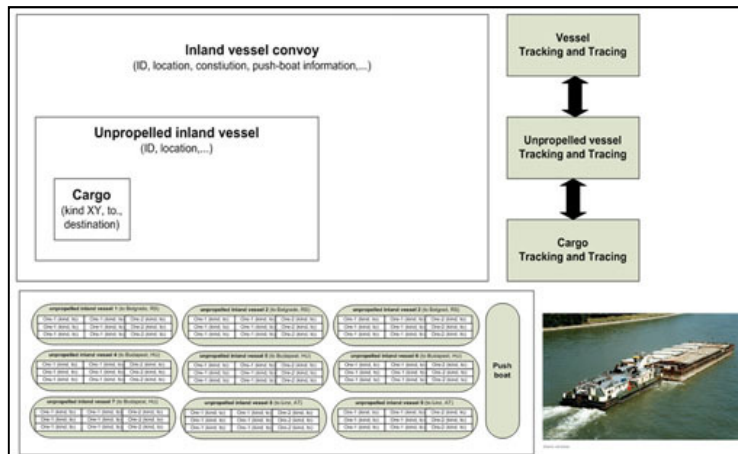


- **Telematic (ITS) Applications for Freight:**

- Rail: TAF-TSI
- Road: ITS
- Maritime: VTMIS, SSN
- Inland water: RIS

- **Tracking and Tracing:**

- Of cargoes (not vehicles),
- Cross-mode (multimodal),
- Cross-border (transnational).



Sources: RISING project, [http://www.railneturope.com/tis\\_real-time-information.html](http://www.railneturope.com/tis_real-time-information.html)

# E-DOCUMENTS, E-REPORTING,...

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# Single Transport Document



**BIMCO**



**House Waybills**

**CIM**

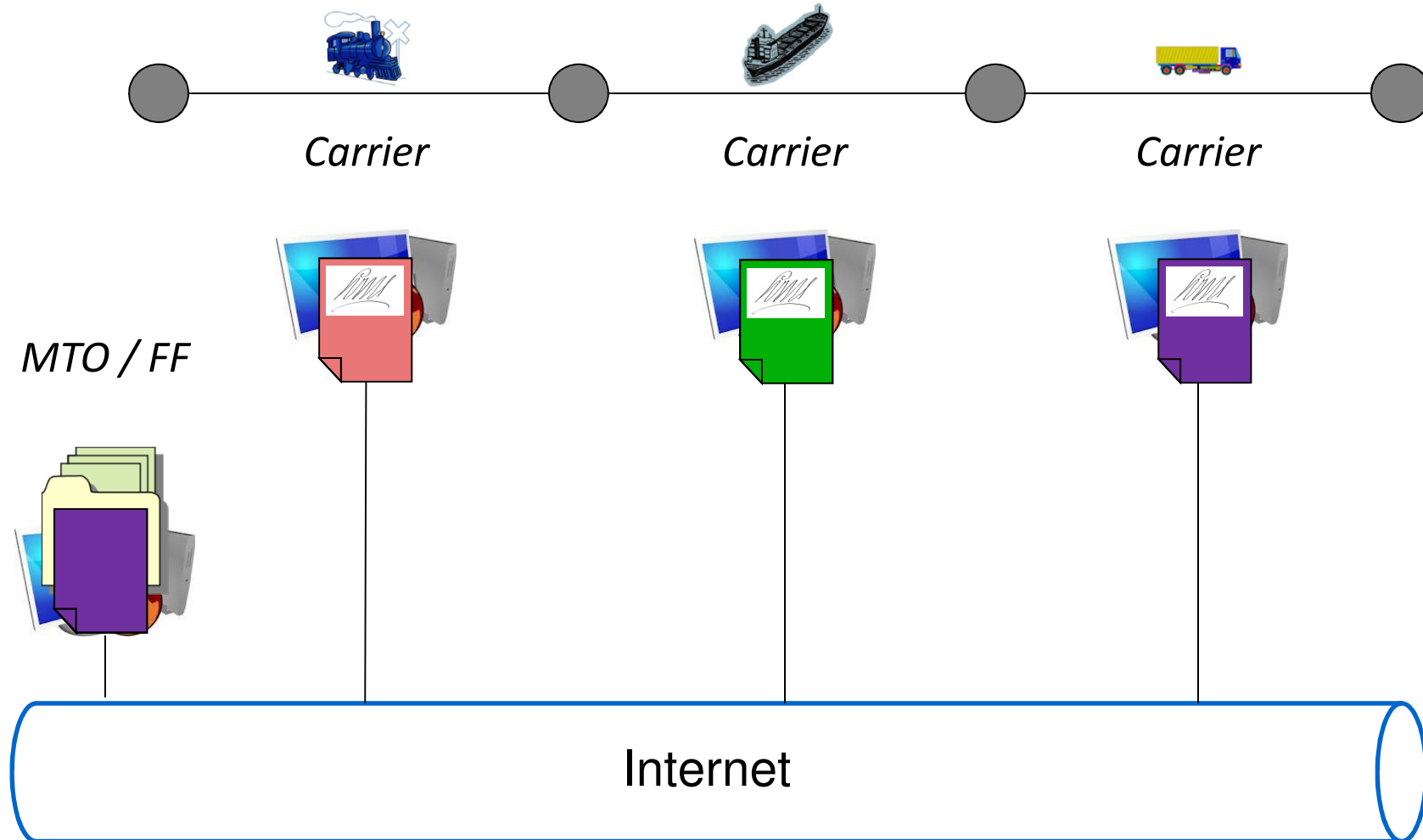
**CMR**

**Sea Waybill**

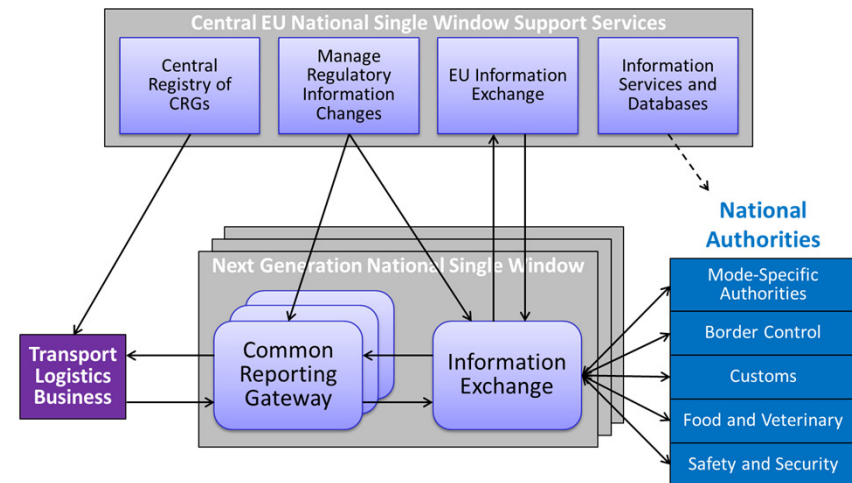


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# Single Transport Document



# Next Generation Single Window



## eFreight – Single Window:

- Reporting to authorities (easier, automated,....)
- Reporting to other transport modes (e.g. IWT-RIS to maritime-VTMIS)
- Latest and future ICT and standards (XML,...)

Source: [www.efreightproject.eu/](http://www.efreightproject.eu/) / <http://www.efreightproject.eu/uploadfiles/e-Freight%20D3%20Reference%20Solutions%20for%20Next%20Generation%20National%20Single%20Windows%20Nov11.pdf>

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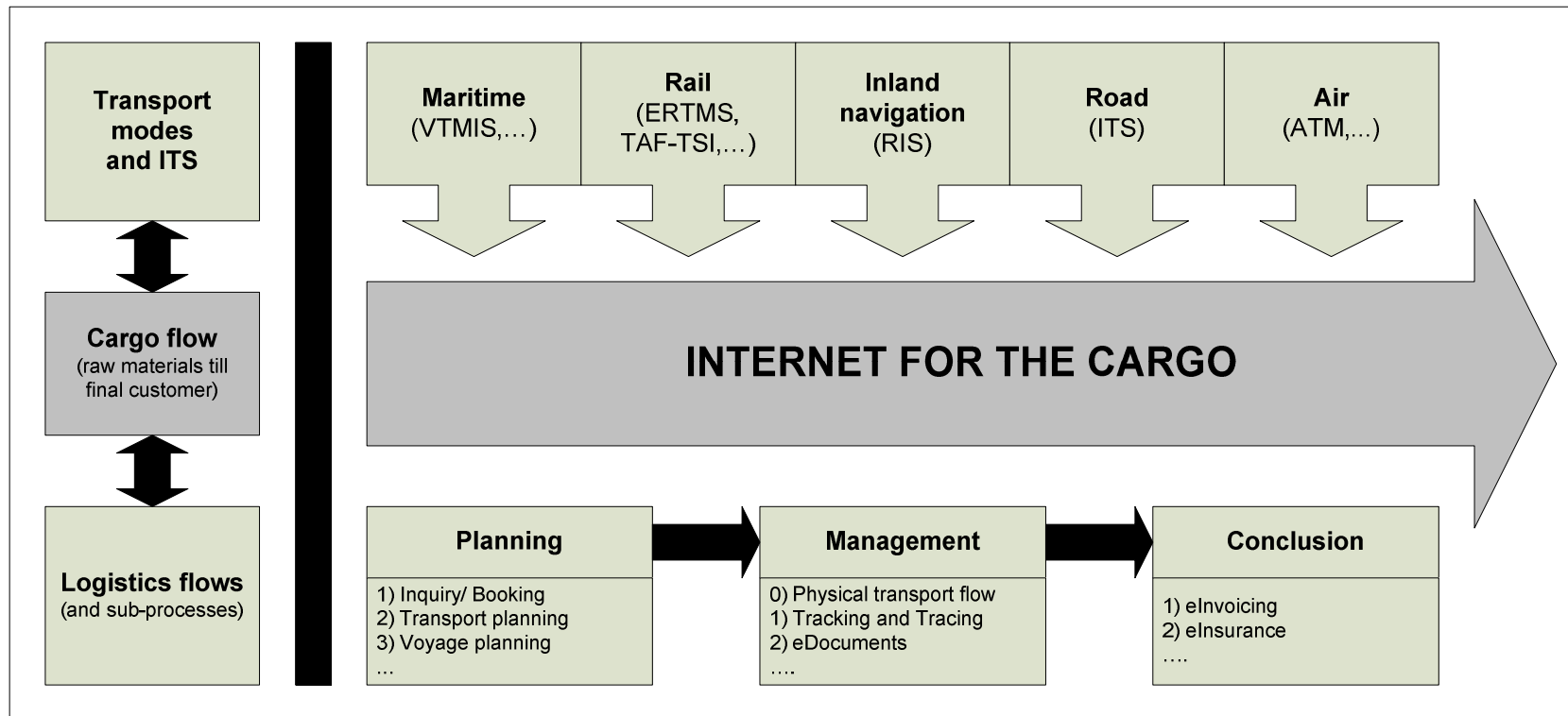
# ITS FOR TRANSPORT AND LOGISTICS

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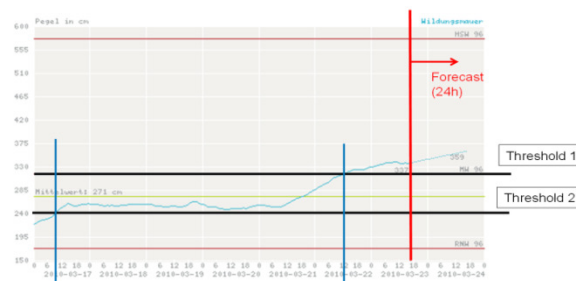
# ITS in the field of transport

- **Intelligent Transport Systems (ITS)**
  - **Providing real-time traffic** information,
  - **Supporting** traffic safety and **transport operations** etc.
- **ITS in the field of transport:**
  - Road intelligent transport systems (ITS),
  - Air traffic management system (SESAR),
  - European rail traffic management system (i.e. ERTMS) and rail information systems (i.e. TAF-TSI),
  - Maritime surveillance systems (SafeSeaNet et al.), VTMIS (Vessel Traffic Management and Information System and
  - Inland navigation (River Information Services [RIS]).

# eFreight – Internet for the cargo



# Example: RIS for transport & logistics



## Traffic infrastructure-based T&L services:

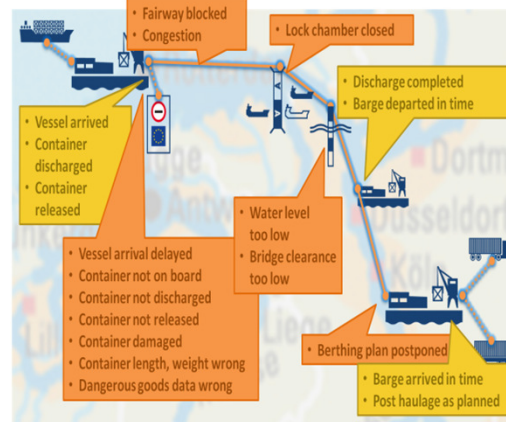
- Water level (prognosis) information,
- Vertical clearance info.,
- Lock info./ reservation,
- Traffic information

→ Optimal transport planning (incl. loading)

Source: RISING

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# Example: RIS for transport & logistics



## Transport services:

- Position data (incl. Event Management),
- ETA info./ support,
- Tracking and Tracing,
- RIS for port/ terminal/ berth management

→ **Optimal transport monitoring**

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# CONCLUSIONS AND FUTURE TRENDS

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# Conclusions and future trends

## Future topics:

- Integrated planning and management for improving mobility of freight,
- Decarbonisation of transport/ green transport,
- Integration of traffic (information services) into transport logistics processes,
- Interoperability (IT interfaces/ standards) between transport modes for seamless door-to-door mobility.

## Sources:

- Strategic Intermodal Research Agenda 2020 of EIRAC and EIA
- Horizon 2020, White Paper,...

# References (A-Z)

- BELOGIC EU project: <http://www.be-logic.info/>
- eFreight EU project: <http://www.efreightproject.eu/>
- European Commission (DG MOVE): ICT for transport logistics in the White Paper context, ECITL 2011 (14 October 2011, Thessaloniki).
- Freight Transport Logistics Action Plan - COM (2007) 607
- Get service platform: To be started in Oct. 2012.
- Horizon 2020 (2014 – 2020)
- ITS Action Plan ( DIRECTIVE 2010/40/EU)
- [http://www.railneteuropa.com/tis\\_real-time-information.html](http://www.railneteuropa.com/tis_real-time-information.html)
- RISING EU project: <http://www.rising.eu/web/guest;jsessionid=73E0BFE8488F7FF97C2A0D7334FBFAE3>
- SONORA EU project: <http://www.sonoraproject.eu/>
- SPIN-ALP (Scanning the Potential of Intermodal Transport on Alpine Corridors) EU project: <http://www.spinalp.ptv.de/index.html>
- Strategic Intermodal Research Agenda 2020 of EIRAC and EIA (<http://www.eia-ngo.com/eirac.html>)
- WHITE PAPER Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, Brussels, 28.3.2011, COM(2011) 144 final
- Telematic Applications for Freight - Technical Specification for Interoperability (TAF – TSI)



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