

FACT SHEET NO.: 7 / 3

PERFORMED BY: PRO

A GENERAL INFORMATION		
A 1	Category	7 Research and Innovation
A 2	Subcategory	7.3 Technology - Transport information systems, management and service
A 3	Transport policy measure (TPM)	E-Freight
A 4	Description of TPM	<p>Currently, there are different documents being used for freight transportation within Europe according to the different modes of transport. This procedure is expensive and entails administrative costs for multimodal transport. Hence, the enhancement of multimodal freight transport is one of the main objectives of the European transport policy which should be supported by the introduction of E-freight, as a procedure of handling all processes related to the movements of goods by all modes in real time and paperless. Moreover, the improvement of freight transport management will simplify the identification and location of freight regardless to the transportation mode. As a transport policy measure within the frame of multimodal transport of goods, the 'development of E-freight' supporting technologies (RFID, DSRC – Dedicated short range communication) overall aims to simplify the information exchange of freight and transport in general.</p> <p>This will be possible by the provision of information for economic operators to address/control the goods and vehicles only at one place, which requires the connection and completion of networks between administrations and businesses. Hence, the vision of 'tracking and tracing' can be build on a paper-free (electronic) information, which associates the physical flow of goods and its total journey for all modes of transport, also covering the exchange of content-related data for regulatory and commercial purposes (single transport document (electronic waybill)). In this respect, the necessary condition for E-freight is the implementation of standard interfaces within the various transport modes and the securing of intermodality across modes. One of the main technologies being essential for the successful implementation of E-Freight is the deployment of the RFID (Radio Frequency Identification) technology and the GALILEO satellite positioning systems. [1] Whereas the definition of "E-freight" is partly different compared to "intelligent cargo", both concepts are almost equal and have the same objectives.</p> <p>In addition, E-freight addresses the following inefficiencies of freight transport information:</p> <ul style="list-style-type: none"> - lack of interoperability - duplication of information submission - lack of multimodal booking tools - lack of integration of information.
A 5	Implementation examples	<p>The EURIDICE project (European Inter-Disciplinary Research on Intelligent Cargo for Efficient, Safe and Environment-friendly Logistics), funded by the European Commission, intends to fill the gap between the technical feasibility and adoption of ICT (Information and Communication technology) services platforms for goods mobility. In the EURIDICE vision "Intelligent cargo" connects itself to logistic service providers, industrial users and authorities to exchange the specific transport related information. Expected benefits will be available for logistics stakeholders at all levels: Carriers and logistic operators, industry and supply companies, public organizations and citizens.[6]</p> <p>SafeSeaNet and VTMS (Vessel Traffic Monitoring and Information Systems) for maritime transport RIS (River Information Services) for inland waterways, ERTMS (European Rail Traffic Management System) and TAF-TSI (Telematics Applications for Freight) for rail.</p>
A 6	Objectives of TPM	<ul style="list-style-type: none"> - Capability to view and compare online information on the services provided by the freight transport operators. - Administrative simplification across transport modes: administrative data can also be used for B2B communication. - Standardisation of information exchanges relating to location and other cargo information. - Development of secure ways of making supply chain information available on-line to customs, other regulatory authorities and businesses. - Development of practical ways of using positioning and communication technologies (e.g. RFID, DSRC - Dedicated short range Communication). - Improved integration and interoperability of computer applications used by different stakeholders involved in freight transport. - Synergies with e-Customs, e-Maritime and other related EU initiatives. [all 4]
A 7	Key changes concerning:	
A 7.1	- Choice of transport mode / Multimodality:	Increasing the multimodal transport of freight by optimal management of transport and better information support to operators, carriers and customers.
A 7.2	- Origin and/or destination of trip:	No change.
A 7.3	- Trip frequency:	No change.
A 7.4	- Choice of route:	No direct change. Likely that measure will positively influence the choice of route (optimisation).
A 7.5	- Timing (day, hour):	No change.
A 7.6	- Occupancy rate / Loading factor:	Measure does not directly aim to affect the loading factor, but an increase of loading factor is likely.
A 7.7	- Energy efficiency / Energy usage:	Measure will improve the multimodal transport of goods and strengthens rail and inland waterway transport (Road freight load factor is expected to increase). Hence, the energy usage for the freight transportation will decrease and the energy efficiency to transport the same volume of goods will increase.
A 8	Main source	[6] European Commission - EURIDICE project (2009): European Inter-Disciplinary Research on Intelligent Cargo for Efficient, Safe and Environment-friendly Logistics. Funded by the EC under FP7. available at http://www.euridice-project.eu/

B IMPACTS																																																				
B 1	OVERVIEW ON IMPACTS	<table border="1"> <thead> <tr> <th colspan="14">AFFECTED SEGMENTS</th> <th colspan="2">Geographical level</th> <th colspan="2">Source</th> </tr> <tr> <th colspan="5">Passengers</th> <th colspan="7">Transport operators</th> <th rowspan="2">Employees in transport</th> <th rowspan="2">Residents</th> <th rowspan="2">Economy</th> <th rowspan="2">Public bodies</th> <th rowspan="2">Society</th> <th rowspan="2">1st level</th> <th rowspan="2">2nd level</th> <th rowspan="2">Source of assessment</th> <th rowspan="2">Spatial level of source</th> </tr> <tr> <th>Road</th> <th>Rail</th> <th>Air</th> <th>Public transport</th> <th>Slow modes</th> <th>Road</th> <th>Rail</th> <th>IWW</th> <th>Air</th> <th>Maritime</th> <th>Public transport</th> </tr> </thead> </table>	AFFECTED SEGMENTS														Geographical level		Source		Passengers					Transport operators							Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source	Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport
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B 1.1	Summary	<ul style="list-style-type: none"> - Strengthening of the overall freight transport sector due to lower costs and higher productivity within all freight transport modes for carriers, operators and customers. - Improvement of multimodal transport, security level, service level and overall organisation of supply chains, because of more accurate, real-time monitoring of freight movements through ubiquitous and open connectivity of cargo, systems and users. [6] [5] - Investment / Implementation costs should not be disregarded. [EE] 																																																		
B 1.2	Summary: Income groups																																																			
B 1.3	Summary: Age groups																																																			
B 1.4	Summary: Disabled people																																																			
B 1.5	Summary: Gender groups																																																			
B 1.6	Summary: Ethnic groups																																																			

B 2 TRAFFIC IMPACTS																				
B 2.1	Travel or transport time																			
B 2.2	Risk of congestion																			
B 2.3	Vehicle mileage																			
B 2.4	Service and comfort																			
B 2.I	Overall impacts on social groups																			
B 2.II	Implementation phase																			
B 2.III	Operation phase																			
B 2.IV	Summary / comments concerning the main impacts	<ul style="list-style-type: none"> - Increasing level of service [6], but not generally valid. [EE] - Faster, and more automated operations and the reduction of delays and errors means less congestions and lower transport times. [6] 																		
B 2.V	Quantification of impacts	<ul style="list-style-type: none"> - "A widespread application of typical ITS-linked e-freight measures is expected to result in time savings of 10% and financial savings of 8%, while productivity rates should increase by 3-10% and freight logistics costs would decrease by 2-3%." [5] 																		

B 3	ECONOMIC IMPACTS	AFFECTED SEGMENTS													Geographical level		Source				
		Passengers					Transport operators						Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport									
B 3.1	Transport costs						↓	↓	↓	↓	↓							I		S	I
B 3.2	Private income / commercial turn over																	I		S	I
B 3.3	Revenues in the transport sector						↑	↑	↑	↑	↑							I		S	I
B 3.4	Sectoral competitiveness						↑	↑	↑	↑	↑										
B 3.5	Spatial competitiveness						↑	↑	↑	↑	↑										
B 3.6	Housing expenditures																			F	
B 3.7	Insurance costs																				
B 3.8	Health service costs																				
B 3.9	Public authorities & adm. burdens on businesses																				
B 3.10	Public income (e.g.: taxes, charges)																				
B 3.11	Third countries and international relations																				
B 3.I	Overall impacts on social groups	- Workers in the transport sectors needs to be educated on improved / new technical systems.																			
B 3.II	Implementation phase	- During the implementation phase public authorities and businesses are facing significant additional administrative burdens due to construction, organisation and integration into network, which influence the transport and administrative costs. [EE]																			
B 3.III	Operation phase	- The operation of an e-freight network (intelligent cargo network) will decrease the costs of administrative burdens. Until now, it is unclear to what extent																			
B 3.IV	Summary / comments concerning the main impacts	- In general, more accurate, real-time monitoring of moving goods, through ubiquitous and open connectivity of cargo, systems and users. - More efficient and effective logistic operations. Increasing operational speed and the reduction of delays and errors will positively impact the transport costs within all modes of transport for transport operators and increase its revenues. - Increasing information support will enhance the multimodal transport of freight ("one stop shop" for complex multimodal transport) . This will lead to an increase of load factor of road freight vehicles and favour environmental low-impact transport modes. - Improving customer relationships (more accurate pricing, higher productivity) and hence higher business revenues. [all 6] - Sectoral and spatial competitiveness will overall increase, but finally the impacts depend on the overall system configuration and implementation (geographic scope).																			
B 3.V	Quantification of impacts	- "A widespread application of typical ITS-linked e-freight measures is expected to result in time savings of 10% and financial savings of 8%, while productivity																			

B 4	SOCIAL IMPACTS	AFFECTED SEGMENTS													Geographical level		Source				
		Passengers					Transport operators						Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport									
B 4.1	Health (incl. well-being)																				
B 4.2	Safety																				
B 4.3	Crime, terrorism and security						↑	↑	↑	↑	↑										
B 4.4	Accessibility of transport systems																				
B 4.5	Social inclusion, equality & opportunities																				
B 4.6	Standards and rights (related to job quality)																				
B 4.7	Employment and labour markets																				
B 4.8	Cultural heritage / culture																				
B 4.I	Overall impacts on social groups																				
B 4.II	Implementation phase																				
B 4.III	Operation phase																				
B 4.IV	Summary / comments concerning the main impacts	- Security improvements across the supply chain; extended and highly automated security checks. [6] Although the level of security is already quite high. [EE] - Safety reinforcement due to less truck traffic. - Health of society is positively affected because of rising safety and security level. 3 level impact: - Increased efficiency and automatization of freight transport could lead to fewer jobs in transport/logistics.																			
B 4.V	Quantification of impacts																				

B 5	ENVIRONMENTAL IMPACTS	AFFECTED SEGMENTS													Geographical level		Source				
		Passengers					Transport operators						Employees in transport	Residents	Economy	Public bodies	Society	1st level	2nd level	Source of assessment	Spatial level of source
		Road	Rail	Air	Public transport	Slow modes	Road	Rail	IWW	Air	Maritime	Public transport									
B 5.1	Air pollutants																				
B 5.2	Noise emissions																				
B 5.3	Visual quality of the landscape																				
B 5.4	Land use																				
B 5.5	Climate																				
B 5.6	Renewable or non-renewable resources																				
B 5.I	Overall impacts on social groups																				
B 5.II	Implementation phase																				
B 5.III	Operation phase																				
B 5.IV	Summary / comments concerning the main impacts	- Decrease of air pollutants and noise emissions are positively affecting the society and residents (near congested / heavy loaded roads). - Less emissions positively impact the climate. - Strengthening of multimodal transport will save resources.																			
B 5.V	Quantification of impacts																				

C REFERENCES	
C 1	Other TPMs of this subcategory
C 2	References
	International [1] European Commission (2011): Commission Staff Working document . Accompanying the White Paper - Roadmap to a single European transport area. SEC(2011)391. Brussels [2] European Commission (2007): Commission Staff Working document . Accompanying document to the the Communication from the Commission. Freight transport Logistics Action Plan. Impact assessment. SEC (2007)1320 [3] European Commission (2007): Action Plan on freight logistics. COM(2007)607. Brussels [4] E-FREIGHT is an Integrated project within the EU's 7th Framework programme. Online: http://www.efreightproject.eu (15.01.2012). [5] European Commission (2008): Accompanying document to the Action Plan of the deployment of intelligent transport systems in Europe. Impact assessment. SEC(2998)3083 [6] European Commission - EURIDICE project (2009): European Inter-Disciplinary Research on Intelligent Cargo for Efficient, Safe and Environment-friendly Logistics. Funded by the EC under FP7. available at http://www.euridice-project.eu/ [7] DG Move (2012). Communication on e-freight. http://ec.europa.eu/governance/impact/planned_ia/docs/2013_move_001_e_freight.pdf