

PROJECT

SMARTFREIGHT

Smart Freight Transport in Urban Areas

Funding: European (7th RTD Framework Programme)

Duration: Jan 2008 - Apr 2011

Status: Complete with results

Total project cost: €3,044,211

EU contribution: €2,200,000



Call for proposal: FP7-ICT-2007-1

[CORDIS RCN : 85574](#)

Background & policy context:

Goods distribution is important for businesses and the life of a city. However, efficiency as well as environmental impact is negatively influenced by traffic congestion, scarcity of loading areas, sub-optimal delivery routes and too little use of return loads. The transport of dangerous goods is also a safety risk.

Objectives:

This project aimed to make urban freight transport more efficient, environmentally friendly and safe through smarter use of the distribution networks and improved delivery and return-load systems. The basic idea was to integrate urban traffic management systems with freight management and onboard systems.

This project set out to create a win-win situation, from which both city authorities and freight operators profited. ICT enables co-operation between traffic and freight management operations, as a step toward an integrated urban transport system. Freight transport was monitored and controlled through open ICT services. Traffic management measures were tailored toward individual vehicles by means of onboard units and a wireless communication infrastructure based on CALM (the ISO framework for heterogeneous communication in mobile environments). Individual routing and control depending on the individual vehicle profile, type of cargo and traffic situation was made possible.

Freight operations benefited from access to real travel time and traffic status information. Onboard units, sensors and smart tags using CALM MAIL (enabling DSRC communication with battery-powered units) and the wireless infrastructure enabled monitoring of goods transport, loading and unloading. An architecture specified open solutions applicable to European cities. This was achieved by obtaining user viewpoints addressing concepts, logical relations, open ICT services and preferred technical solutions. Test sites evaluated the technical solutions, through real and simulated application of the concepts for urban traffic and transport in cities.

Methodology:

SMARTFREIGHT aimed at:

Developing new traffic management measures towards individual freight vehicles through open ICT services, on-board equipment and integrated wireless communication infrastructure

- Assign different service levels to freight vehicles, depending on their environmental profile, type of goods transport and destination
- Grant priorities and access rights depending on the service level and traffic situation
- Allocate routes and times slots to freight vehicles to minimise conflicts and congestion
- Track and monitor vehicles carrying dangerous cargo
- Collect information for statistics
- Support control that enables enforcement
- Improve awareness in case of incidents

Improving the interoperability between traffic management and freight distribution systems

- Provide information that improves route planning for transport companies, such as more accurate transport network information, traffic and travel time information, through open ICT services

Coordinating all freight distribution operations within a city by means of open ICT services, on-board equipment, wireless communication infrastructure and CALM MAIL implementation in on-board and on-cargo units, for all freight vehicles

- Routing and re-routing for scheduled freight and service vehicles
- Provide information that improves the efficiency of these fleets
- Manage the use of loading and unloading areas
- Track freight vehicles
- Track cargo
- Monitor the status of cargo

Parent Programmes:

[FP7-ICT - Information and Communication Technologies](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Stiftelsen Sintef

Address:

Strindveien
7034 Trondheim
Norway

Organisation Website:

<http://www.sintef.no>

EU Contribution: €823,087

Partner Organisations:

Comune Di Bologna

Address:

PIAZZA MAGGIORE 6
40124 BOLOGNA
Italy

Organisation Website:

<http://www.comune.bologna.it/>

EU Contribution: €33,250

Statens Vegvesen

Address:

Brynsengfaret 6A
667 Oslo
Norway

EU Contribution: €144,444

Dublin Transportation Office

Address:

Floor 3, Block 6-7 Irish Life Centre, Lower Abbey Street
2
Dublin 1

Ireland

EU Contribution: €45,000

Polis - Promotion Of Operational Links With Integrated Services, Association Internationale

Address:

rue du Trône 98
1050 BRUXELLES
Belgium

Organisation Website:

<http://www.polis-online.org>

EU Contribution: €93,631

Etra Investigacion Y Desarrollo Sa

Address:

Calle Tres Forques
46014 Valencia
Spain

Organisation Website:

<http://www.grupoetra.com>

EU Contribution: €178,562

University Of Southampton

Address:

Highfield
Southampton
SO17 1BJ
United Kingdom

Organisation Website:

<http://www.soton.ac.uk>

EU Contribution: €194,137

Asociacion Para El Desarrollo De La Logistica

Address:

Calle Doctor Jose Lopez Trigo 1-2-2
46111 Rocafort
Spain

EU Contribution: €22,800

Q-Free Asa

Address:

Strindfjordvegen 1
7053 Trondheim
Norway

EU Contribution: €417,116

Chalmers Tekniska Hoegskola Ab

Address:

-

41296 GOTHENBURG
Sweden

Organisation Website:

<http://www.chalmers.se>

EU Contribution: €247,973

Technologies:

Freight transport technologies
Integrative logistics strategies

Development phase: Validation

Key Results:

SMARTFREIGHT has specified, developed, demonstrated and evaluated technical solutions that can make urban freight transport more efficient, environmentally friendly and safer. The solutions support among other things, access control to areas or transportation network sections; priorities; monitoring and control with dangerous cargo; pre-bookings of loading bays; and information exchange between traffic management and freight distribution to support better planning of transport operations. A holistic and generic approach has been followed where individual freight vehicles can be controlled and monitored depending on their properties like type of engine, weight, size, type of cargo, to name a few.

Innovation aspects

SMARTFREIGHT has enabled traffic management measures towards individual vehicles, depending on their individual properties. The interactions with the vehicles and cargo can also improve the awareness on the traffic situation (for instance dangerous goods inside tunnels) and data collection for traffic statistics. The information exchange with the cargo puts SMARTFREIGHT in the border of the Intelligent Cargo concept as well. The novel issue in SMARTFREIGHT is the use of the ISO Communication Access for Land Mobiles (CALM) media adapted interface layer (MAIL) standard for information exchange over the 5.9 GHz short ranged CEN Dedicated Short-Range Communication (DSRC). DSRC is an accurate and reliable technology with low power consumption, which is a promising technology to impact the field of both cooperative systems and intelligent cargo.

Strategy targets

An efficient and integrated mobility system.

Documents:

 [D1 2 - Final Report SMARTFREIGHT.pdf \(Final report\)](#)

STRIA Roadmaps: Smart mobility and services

Transport mode: Road transport

Transport sectors: Freight transport

Transport policies: Digitalisation

Geo-spatial type: Urban