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**Third Annual Thematic
Research Summary –
Freight Transport**

EXTR@Web Project

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Abbreviations and Acronyms Used

3PLP	Third Party Logistics Providers
CEC	Communication of the European Commission
CEEC	Central and Eastern European Country
CTP	Common Transport Policy
DG TREN	EC Directorate-General for Energy and Transport
DSS	Decision Support System
EDI	Electronic Data Interchange
EC	European Commission
EFTA	European Free Trade Association (Norway, Iceland, Switzerland, Liechtenstein)
ERA	European Research Area (EU, EFTA and CEECs)
EU	European Union
EXTR@Web	Exploitation of Transport Research Results via the Web (DG TREN FP 5 Accompanying Measure project)
FAQ	Frequently Asked Questions
FP 4 (5, etc)	EC Fourth (Fifth, etc) Framework Programme
FTMS	Freight transport monitoring system
GDP	Gross Domestic Product
GPS	Global Positioning System
GSM	Global System for Mobile Communications
HGV	Heavy Goods Vehicle
ICT	Information and Communication Technology
ITS	Intelligent Transport System
KPI	Key Performance Indicator
LoLo	Lift-on Lift-off
OECD	Organization for Economic Cooperation and Development

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R&D	Research and Development
Ro-Ro	Roll-on Roll-off
RTD	Research and Technical Development
SME	Small and Medium sized Enterprise
TEN	Trans-European Network
TRKC	Transport Research Knowledge Centre; TRKC website at ec.europa.eu/transport/extra
VOC	Volatile Organic Compound

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1. Introduction

This paper provides a structured guide to the results of Research and Technical Development (RTD) projects relating to **Freight Transport**, carried out in transport research programmes throughout the European Research Area (ERA).

It is one of a series of 28 papers. Two further from an original set of 30 transport themes – i.e. Long-distance Transport and Financing Tools – have been discontinued as separate reports, though all related projects will eventually be covered elsewhere in Thematic Research Summaries.

	Paper no.	Transport theme
Dimension 1	1.1	Passenger Transport
	1.2	Freight Transport
	1.3	Urban Transport
	1.4	Rural Transport
	1.5	Regional Transport
	1.6	EU Accession Issues
Dimension 2	2.1	Air Transport
	2.2	Rail Transport
	2.3	Road Transport
	2.4	Waterborne Transport
	2.5	Other Modes
	2.6	Intermodal Transport
Dimension 3	3.1	Economic Aspects
	3.2	Efficiency
	3.3	Equity and Accessibility
	3.4	Environmental Aspects
	3.5	User Aspects (incl. ergonomics, quality, choice and rights)
	3.6	Safety and Security
Dimension 4	4.1	Decision-support Tools
	4.2	Information and Awareness
	4.3	Infrastructure Provision (incl. TENs)
	4.4	Integration
	4.5	Intelligent Transport Systems
	4.6	Regulation / Deregulation
	4.7	Land Use Planning
	4.8	Transport Management
	4.9	Pricing, Taxation and Financing Tools
	4.10	Vehicle Technology

Of the more than 5600 projects from research programmes the Transport Research Knowledge Centre (TRKC) ultimately has considered, a total of **656** projects deal partly or fully with the issues of **Freight Transport**.

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1.1 How to use this paper

It is recommended that you use this paper to locate RTD (Research and Technical Development) results on sub-themes where you have a particular interest, rather than reading the paper from start to finish:

- Start in Section 2 to get an overview of the scope of the particular theme.
- Read Section 4 that summarises the findings for each sub-theme of interest to you.
- Consult Annex I to identify the individual projects, be they of European or national origin, relating to a particular sub-theme.
- If this is the first time you have used one of the series of thematic research summaries, it is strongly recommended that you read Annex II. This explains the background and purpose of the EXTR@Web project, and the basis upon which information in this document was selected and analysed.

The other sections of this paper can help you to gain an overall picture of the **Freight Transport** theme, associated policy issues and the background of project EXTR@Web.

The analysis in this paper is the responsibility of the EXTR@Web project team, and does not represent the official viewpoint of the European Commission.

1.2 The link to the Transport Research Knowledge Centre website

Further details on individual projects can be obtained from the Transport Research Knowledge Centre (TRKC) website at: ec.europa.eu/transport/extra

The TRKC website includes summaries and full final reports of individual projects, as well as a variety of analyses, and publications prepared by the EXTR@Web project.

How to best use the online resource:

- The 'Projects & Analysis' section allows the user to specify a project-wide search on 'Publication date', 'Origin', 'Document type', 'Mode', 'Sector', 'Geographic area', 'Policy objective' and 'Tool', or any combination of these criteria.
- This may be complemented, or superseded, by the flexible 'Free text search'.
- On the query result screen, free text search criteria may be refined, as appropriate. Further tick boxes here allow limiting query results according to 'Project status' (five levels).
- Query results are presented in a table, which allows for sorting by column (click on relevant column header for alphanumerical sorting).
- Project-specific summaries may include links to project websites, or provide contact details for the project, where available.

It should be noted that the online Transport Research Knowledge Centre will be updated frequently, though dependent on input from project co-ordinators.

Other parts of the TRKC website cover transport research at Programme level, and expand on transport related issues, e.g. in the 'Links', 'Events', 'Glossary' and 'FAQs' sections.

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2. Scope of theme

2.1 Definition of theme

Freight Transport is primarily concerned with the movement of raw materials, of work in-process inventory, and of finished goods from supplier to consumer. Also, it is concerned with the movement of agricultural products and animals, of new and used consumer products back to suppliers, and of waste to disposal and recycling plants. Freight movements utilise local, regional, national and international systems and are increasingly intermodal and multimodal. Indirectly, this theme is concerned with the organisation and management of the supply chain and logistics services as they dictate the quantity and quality of freight transport demanded and the nature of the commercial relationships between shippers and transport service providers.

2.2 Topics included in theme

Freight Transport is an integral part of logistical systems. Logistics is the process which ensures that the resources needed for work, production and consumption are positioned in the right places, at the right time, in the quantity required, and at the right price.

Main topics in the domain of markets and logistics include the following:

- The trade sphere shows a shift from national to global markets. This brings about a growth of congestion along trade corridors and at ports, airports and border crossings and poses challenges in terms of infrastructure capacity and harmonisation of trade and regulatory policies.
- The economic environment shows a shift from a manufacturing to a service economy with decline in manufacturing employment but increase in manufacturing output. This is accompanied by an increase of small shipments of light, high-value goods, and the emergence of e-commerce and e-business. As a consequence, there are increased needs for packaging, air freight and customer oriented door-to-door truck services. The economic development is becoming more dependent on high-quality, multimodal transport services which need to be reliable and predictable.
- The business logistics regime shows a shift from push to pull systems. Logistics is increasingly less manufacture-to-supply and inventory based rather than manufacture-to-order and replenishment based. This brings about lower inventory levels and smaller order quantities. The transport system thus faces increasing demand for flexible, timely, reliable and visible door-to-door services. The search for cost effectiveness leads to the growth of third party logistics providers and currently even fourth party logistics providers. At the same time there is an increasing concentration of supply chain control through shipper consortiums and alliances. Main challenges for the transport system include the management of potential service disruptions for either unanticipated peaks in supply and demand or system failure, the impacts of e-commerce on local pick-up and delivery truck services, and the security of cargoes.

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Main topics in the domain of carriers and transport systems include the following:

- The shift from modal fragmentation to co-ordinated logistics is accompanied by the development and adoption of technologies for tracing shipments and managing vehicles and fleets, and an increasing carrier concentration and consolidation. At the same time this trend poses challenges in terms of
 - harmonisation of practices,
 - standards,
 - government regulation and information technology across modal boundaries (as well as national boundaries),
 - investment in information technology particularly for SMEs, and
 - barriers to market entry and competition because of economies of scale and scope.
- The shift from system construction to system optimisation is driven by the need for cost-effective provision of more capacity. Road transport faces increasing congestion while intermodal transport suffers from bottlenecks at interchange points with ports and airports, again related to congested landside access. Capacity increases can be obtained from infrastructure projects, limited capacity increases from larger lorries and trains, and moderate increases from faster, larger ships and wide-body aircraft. On the other hand, increases in operational capacity are expected from IT and ITS-enabled freight transport systems if interoperability limits are tackled successfully.

The above summary of topics describes the principal breakdown of technical, organisational and managerial aspects that come under the theme, whereas Chapter 4 of this document reflects sub-themes according to actual priorities in transport research policy.

2.3 Significance of theme

Road transport accounts for nearly half of all goods traffic (44 %). Road's share of the goods market grew by 35% during the period 1995-2004. The share carried by rail is 10%. Among the main structural trends is the fact that rail freight transport has halted its relative decline since 2001 and is on a growth path in a number of member states. Freight transport is expected to grow at roughly similar rates of GDP (2.1%) for the period 2000-2020. Modal split is expected to roughly stabilise in the longer term [19].

CO₂ emissions from the transport sector were estimated as 28% of total CO₂ emissions in the EU-15 in 1998. Road transport accounts for nearly 90% of total transport CO₂ emissions, with 68% attributed to passenger and 32% related to freight.

	Energy consumption		CO ₂ emissions	
	passenger	freight	passenger	freight
On road totals	64.3%	35.7%	68.5%	31.4%
On EU transport totals	52.0%	28.8%	63.3%	29.0%

Source: Calculations based on data from: EC(1999) EU Transport in Figures 1999. Statistical Pocketbook. European Commission, Directorate General for Transport, and EC(1999) EU Energy Outlook to 2020. Special issue. European Commission, Directorate General for Transport

Table: Sector shares of energy consumption and CO₂ emissions of road transport

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3. Policy context

The development of efficient and integrated transport systems has long been recognised as a priority of the Common Transport Policy, both in the former White Paper on the CTP [2] and in the Action Plans which translated policy objectives into actions [3] [11]. From the general policy priorities which were set in the Action plans those which were most relevant to freight are:

- Market access in the railway and port sectors; and
- the promotion of integrated transport systems with the development of the Trans-European Transport Networks, the development of intelligent transport systems including the satellite navigation system and the deployment of traffic management for the different modes, and the development of intermodality.

In the rail sector, following the launch of the freight freeways [8] and the implementation of Directive 96/48/EC on the interoperability of the Trans-European high-speed rail system further steps were taken on the basis of the Commission's 1996 White Paper on revitalisation of Community railways [5]. The infrastructure package concerning charging, capacity allocation, separation of infrastructure management and operation and licensing proposed in 1998 [10] led to the approval of the three Directives in 2001 which have opened the main rail axes to international freight traffic and have defined the role of the rail infrastructure manager as far as access provision to rail service operators is concerned.

In the waterborne sector, following the 1997 Green Paper [6], the Commission has supported the liberalisation of port services. The integration of ports more closely into the Trans-European Transport Network taking into account the transshipment function has been stressed in the 1999 Communication on short-sea shipping [12]. It is recognised that there is a need for a better understanding of the role of governments in infrastructure planning and the respective role of public and private sector operators in financing infrastructure for both seaports and the inland terminals linked to them. Also there is a need to review the conditions for private investments in port areas, for example in handling operations.

Intermodality is a main priority of the European transport policy. The 1997 Communication has set the general strategies and actions [7]. The objective is to develop a framework for an optimal integration of different modes so as to enable an efficient and cost-effective use of the transport system through seamless, customer-oriented door-to-door services whilst favouring competition between transport operators.

A number of obstacles have been identified which prevent the extensive use of intermodal transport. These include the lack of a coherent network of modes and interconnections, the lack of technical interoperability among and within modes, a variety of regulations and standards for transport means, data interchange and procedures. There are uneven levels of performance and service quality between modes, different levels of liability and a lack of information about intermodal services. As a result, mode-independent door-to-door transport is underdeveloped.

It is recognised that implementing a European intermodal transport system requires coordinated development of transport policies at European, national and regional level. The four key strategies to provide the necessary impetus to the development of intermodal transport:

- A European strategy on infrastructure: Trans-European Transport Networks and nodes;
- the single transport market: harmonisation of regulation and competition rules;

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- identification and elimination of obstacles to intermodality and the associated friction costs; and
- implementing the Information Society in the transport sector.

Since intermodal transport is more data intensive than conventional transport, the mentioned EC Communication stresses that the use of information and communication technologies is key to efficient and customer oriented transport services. In addition, the use of information infrastructures and the development of additional specific capacities for intermodal operations will increase the attractiveness of the new approach.

It is clarified that intermodality does not aim or relate to a specific modal split, but addresses the integration of modes at three levels:

- Infrastructure and transport means (“hardware”);
- operations and the use of infrastructure (especially terminals); and
- services and regulation (from a modal-based to a mode-independent framework).

The action areas where intermodality depends on co-ordination at European level are identified in the following:

- Integrated infrastructure and transport means
 - intensification of intermodal design of the Trans-European Transport Networks,
 - enhancement of design and functions of intermodal transfer points,
 - harmonisation of standards for transport means;
- interoperable and interconnected operations
 - integration of freight freeways in an intermodal context,
 - development of common charging and pricing principles,
 - harmonisation of competition rules and state aid regimes on an intermodal basis;
- mode-independent services and regulations
 - harmonisation and standardisation of procedures and EDI,
 - intermodal liability,
 - research and demonstration,
 - benchmarking,
 - intermodal statistics.

The new White Paper “European Transport Policy for 2010: Time to Decide” [13] identifies a number of priorities specifically relevant to freight transport.

In the road sector it is recognised that there is a need to modernise the way freight transport services are operated while complying with the social and safety legislation.

Moreover, the White Paper proposes to open up national markets for cabotage, and to further push harmonisation in the field of safety and interoperability and the dedication exclusively to freight services of a network of railway lines. As a follow up, a new railway package has been proposed in 2002 which includes the full liberalisation of national and international markets and the creation of a Community structure for safety and interoperability.

The 2001 White Paper recognises that intermodality is of fundamental importance for developing competitive alternatives to road transport. There have been few tangible achievements apart from a few major ports with good rail or canal links. Action is therefore advocated to ensure fuller integration of the modes offering considerable potential transport capacity as links in an efficiently managed transport chain joining up all the individual services. The priorities must be technical harmonisation and interoperability between systems, particularly for containers.

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The new Community support programme Marco Polo will help shift more freight from roads to short-sea shipping, rail and inland waterways with the launch of freight services and facilities of strategic cross-border European interest.

Short-sea shipping is mentioned in the White Paper as one way to improve the competitiveness and sustainability of Europe's transport. As a follow up [17] the Commission has set out a programme for promoting short sea-shipping, including harmonising standards for intermodal loading units (ILUs). Within Europe many goods are shifted by road, rail and sea in ILUs, often referred to as "swap-bodies". The Commission's draft Directive would provide for harmonisation.

Given the saturation of certain major arteries and resulting pollution, the 2001 White Paper recognised that it is essential for the EU to complete the Trans-European projects already decided. For this reason a revision of the Community guidelines is needed which concentrates on removing bottlenecks in the railway network, completing the routes identified as the priorities for absorbing the traffic flows generated by enlargement, particularly in frontier regions, and improving access to remote areas. The review of the Trans-European Network must aim at introducing the concept of 'motorways of the sea', developing airport capacity, linking remote regions on the European continent more effectively and connecting the networks of the new Member States.

Amendment of the funding rules is recognised as a priority in order to allow the Community to make a higher contribution to cross-border railway projects crossing natural barriers but offering a meagre return yet demonstrable trans-European added value. Projects to clear bottlenecks still persisting on the borders of new member countries could also qualify for the maximum Community contribution. Given the low level of funding from the national budgets and the limited possibilities of public/private partnerships, innovative solutions based on a pooling of the revenues from infrastructure charges are needed. To fund new infrastructure before it starts to generate first operating revenues, it must be possible to constitute national or regional funds from the tolls, and user charges collected over the entire area or on competing routes. The charges imposed by Switzerland, particularly on lorries from the Community, to finance its major rail projects are a textbook example.

The priorities set in the White Paper in the Trans-European Network area have been followed up by the revision of the guidelines for the development of the TENs [14] and the rules for granting of financial aids [15].

In the infrastructure charging area, the White Paper follows the principles set out in the 1995 Green Paper [4] and in the 1998 White Paper [9]. It is generally acknowledged that not always and not everywhere do the individual modes of transport cover the costs they generate. The situation differs enormously among Member State and modes. This leads to dis-functioning of the internal market and distorts competition within the transport system. As a result, there is no real incentive to use the cleanest modes or the least congested networks. Therefore harmonisation of fuel taxation for commercial users, particularly in road transport, and alignment of the principles for charging for infrastructure use are proposed. The integration of external costs must also encourage the use of modes of lesser environmental impact and, using the revenue raised in the process, allow investment in new infrastructure, especially railway lines offering a more environmentally-friendly alternative.

The priorities as set out in the White Paper in the infrastructure charging area have been followed up by the 2001 Directive on rail infrastructure charging and the proposals for amendment of the Eurovignette Directive on the charging of heavy goods vehicles and the

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rules for the cross-financing of transport infrastructures [18]. In early 2006 the EU has finalised the approval of the new Directive on road infrastructure charging. It lays down rules for tolls or user charges on the trans-European network. The Directive applies to freight vehicles over 3.5 tonnes. The new Directive represents the first step towards taking account of external costs: it will allow a greater variation in tolls to reflect congestion, and toll variations to reflect the pollution caused by vehicles will be mandatory from 2010. It also makes provision for Member States to be able to increase tolls with a “mark-up” on roads in particularly sensitive mountainous regions. The income from these mark-ups must be used to fund alternative transport infrastructure.

The Mid Term Review of the 2001 White Paper [19] restated a few basic principles of transport policy. First it abandons the principle that growth of transport should be decoupled from economic growth. It recognises that in the years 1995-2004 the growth of goods transport has been broadly in line with economic growth. Transport is an important industry in its own right and mobility of goods and persons is an essential component of competitiveness of European industry and services. Rather mobility must be disconnected from its negative side effects.

It is stated that the future policy will have to optimise each mode’s own potential to meet the objectives of clean and efficient transport systems. Shifts to more environmentally-friendly modes must be achieved where appropriate especially on long-distance, urban areas and congested corridors. Each mode must become more environmentally-friendly, safe and energy efficient. “Co-modality”, i.e. the efficient use of different modes on their own and in combination will result in an optimal and sustainable utilisation of resources. Alternatives to congested road corridors involve co-modal logistic chains which optimise the use of transport infrastructure within and across the different modes. This includes transalpine tunnels, rail corridors and intermodal nodes for rail, sea or air transport.

The Mid Term Review also announces the development of a framework strategy for freight transport logistics in Europe. While the industry is developing sophisticated logistics chains in order to use the existing vehicles and infrastructures more efficiently, public policy should enable the optimal use and combination of different modes of transport. Actions include removing regulatory obstacles to co-modality, stimulate learning and exchange of best practice, promote standardisation and interoperability and investment in transshipment hubs.

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4. Synthesis of findings from completed projects

Research projects contributing to the theme of **Freight Transport** can be broken down to the following sub-themes:

- Logistics and supply chain management trends;
- logistics and supply chain management tools;
- intermodal transport;
- urban distribution; and
- efficient market place.

You may wish to further consult the following Thematic Research Summaries that present research findings which are complementary to those covered in this paper:

- D2.E-1.3 Urban transport;
- D2.E-2.6 Intermodal transport; and
- D2.E-4.9 Pricing, taxation and financing tools.

Results from the following projects have been included in the current version of this Thematic Research Summary:

Research sub-theme	Contributing projects
Logistics and supply chain management trends	LOGICAT; PROTRANS; SULOGTRA; Logistics and transport for local production systems: methods and models applied to North-East of Padana valley
Logistics and supply chain management tools	D2D; FIRE; GAUSS; GIFTS; RECORDIT; SPIN; TASKU; Supply chain resilience (FL0123)
Intermodal transport	CARGOSPEED; D2D; F-MAN; INTEGRATION; INTERMODESHIP; MD/DD/17; MOSCA; ROLLING SHELF; THEMIS
Urban distribution	BESTUFS; CITY BOX; CITY FREIGHT; GIFTS; IDIOMA; MOSCA
Efficient market place	HISPEEDMIX; WATERMAN-TS; Assessing the potential for rationalising road freight operations (STP 14/6/11); Costs imposed by heavy goods vehicles; Key performance indicators for non-food retail distribution (BG 77); Market analysis in trans-Alpine freight transport; Multi-modal freight model for distance-based HGV charging; Truck aerodynamic styling (GPG308)

4.1 Logistics and supply chain management trends

4.1.1 Research objectives

In this area research objectives include trends in product design, structure of logistics systems, alignment of the supply chain, scheduling of product flows, and management of transport resources.

4.1.2 Main findings

An analysis of was carried out to identify the most important challenges to determine barriers, success and failure factors and to assess future importance of intermodal transport for Third Party Logistics providers (3PLP) strategies at a European level. Main conclusions are that the development of transport connections between logistics hubs is vital for the development of the logistics network of the region, and that many regions are successful as logistics regions since they have developed an integral strategic logistics vision in which both public and private partners are involved. Policymakers should align infrastructure plans at all levels, in order to provide efficient transport connections and stimulate integrated logistics strategies.

An analysis of the effects of supply chain and logistics trends on the transport system and an assessment of the opportunities for improving supply chain performance were also carried out. A method was developed for assessing the potential for supply chain improvement for application and testing in case studies and finally best practice was established and disseminated. Furthermore, the process of value creation in supply chains and the relationship between logistical activities and economic development were investigated. Finally, the relationship between supply chain management and integrated intermodal systems has been investigated.

Finally, a project has studied the production, logistics and transport activities in four supply chains in the North-East area of Italy. Insights have been provided into the interventions that could support at the same time the flexibility of the chain, its rationalisation and the control of its total impacts. An important achievement has been the analysis of the costs perceived by the customers of the freight transport system with the aim of developing modal choice functions which can represent current and future share of transport alternatives.

4.2 Logistics and supply chain management tools

4.2.1 Research objectives

In this area research objectives include tracing/tracking and positioning technologies, information and communication systems, integrated production management software, electronic marketing and commercial tools.

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4.2.2 Main findings

Trials demonstrated how technologies and applications developed by research can improve mobility and transport management, by providing innovative services and creating favourable technical conditions for enhancing both the quality and the efficiency, while maintaining safety standards. Research developed a system, which integrates advanced communication and precise navigation, for providing reliable and effective location-based services oriented to transport and mobility applications (freight and fleet management, road safety and info-mobility, emergency assistance, dangerous goods transportation control, inter-modal transport), as well as a web platform of services for the logistics and freight transport industry in the European Union that is fully interoperable and integrated with any ICT system.

With regard to intermodal transport chains, which have inland navigation as core transport mode, a Freight Transport Monitoring System (FTMS) was developed, which can monitor at all times the status of the transport and provide real-time information to those who need it.

As far as rail-based international freight transport is concerned, an information service was developed, which provides via a range of means, including access over the Internet information on train schedules and wagon plans, wagon and train monitoring (including positioning, delays, arrival forecasts, wagon and goods status), and commercial offers including available services and tariffs. The characteristics of this information platform can help to overcome the opposition of railway companies to outsource information services and to pass on information to external.

Research also investigated intermodal transport issues. A study focused on the sources and drivers of supply chain disruptions. As a result, a high level methodology for the identification and management of supply chain risk, and a managerial toolkit were produced. Moreover, surveys showed that there is still very little tracking and tracing of cargo units, and the existing systems are mostly manual. It was also found that the main obstacles to the creation of an extensive tracking and tracing system that can process data on several parties and goods categories are the wide range of standards currently in use and the lack of common operating models.

Research also developed interactive software designed to simulate the impact of transport policies on the competitiveness of intermodal transport services and the corresponding implications in the area of sustainable development. Different design and policy scenarios were evaluated for several corridors and different geographical regions. A toolbox was also developed to assess the intermodal transport potential. The study improved the understanding and awareness of the complex intermodal market and the opportunities for the wider use of intermodal transport.

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4.3 Intermodal transport

4.3.1 Research objectives

In this area research objectives address issues of intermodal network efficiency, technical improvements to intermodal transport, improvement of ICT related to intermodality, different developments for different goods.

4.3.2 Main findings

With regard to technical improvements, new types of pallet and wagons able to accommodate them and travel at high speeds of up to 160 km/h were designed, as well as conceptual terminal designs, ranging from manual handling of loading and unloading to fully automated systems. An innovative solution for the transfer of semi-trailers, which consists of a wagon with a moveable floor and a pop-up system placed on a dedicated terminal, was developed to permit functioning rail freight systems to operate within a truly balanced and sustainable intermodal transport system.

To increase intermodal network efficiency, a thematic network produced a report on the integration of traffic and freight transport management systems, as well as a state of the art of transport and traffic management systems, ITS architecture and standardisation. Besides identifying the main barriers hindering shifting of cargo from road to waterway and the requirements to fulfil for a full integration of inland waterways into intermodal transport chains, research also studied existing technologies and their possible application to improve the land-sea connection, as well as ways to reinforce intermodal links with special emphasis on easing, improving and facilitating cargo flows between inland and sea (loading / unloading cargo operations), in order to significantly boost intermodal and maritime operators' operating efficiencies and freight volumes. An innovative waterborne transport concept for inland/short-sea operations was developed, which, accommodating various types of cargo units and permitting faster cargo handling and better use of cargo space, can replace current fragmented and traffic-jams-sensitive road, rail and waterborne transport.

Tools for improving the efficiency of door-to-door transport of goods in urban areas were developed. These tools, integrated in a system, can provide information to both supply and demand side, enabling and supporting planning decision both for private and public operators through services for shortest path finding, vehicle route planning, on-line vehicle routing planning, and urban shop delivery planning. Moreover research provided tools that make the management of railcar fleet possible under a European coverage, and developed a Freight Transport Monitoring System (FTMS) for intermodal transport chains with inland navigation as core transport mode, which can monitor at all times the status of the transport and provide real-time information to those who need it.

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4.4 Urban distribution

4.4.1 Research objectives

In this area research objectives include best practice and conceptual level, efficiency of platforms and freight villages, ICT issues, environmental impacts of urban distribution systems, and special goods distribution.

4.4.2 Main findings

Research produced a Best Practice Handbook on urban freight distribution, which aims at giving information and hints about innovative ongoing strategies, concepts and activities in European countries, providing knowledge and experiences of completed and running projects and actions. It was found that a significant number of European cities have problems (related to suitable infrastructure for deliveries, city access, noise and pollution) concerning urban freight transport which affect the attractiveness and quality of life of the city. It was also found that important issues concerning urban freight are: co-operation among all local actors; coordinated urban freight policy, information, statistical data acquisition; use of innovative vehicle technology for city distribution. Finally urban freight transport planning is neglected in many cities compared to passenger transport, and that generally there is a lack of statistics and data concerning urban freight transport, which are a very important basis for evaluation of suitable measures.

Research also developed guidelines for interested stakeholders (government, regional, or local authorities, network operators, shippers and consignees) on the advantages and drawbacks of some recent innovations in the field of inter- and intra-urban freight distribution systems. A number of initiatives implemented in Europe and concerning environment, market, land use and infrastructure, and delivery solutions, were assessed and collected in a database allowing the user to pre-select initiatives to adapt to their local situation and which have been successful in other places. Research found that new initiatives in urban areas distribution are needed especially in the pre and end haulage of intermodal transport chains, and that city/small container concepts can significantly reduce environmental impacts of freight transport. Another finding was that it is generally accepted that standardisation of loading units is conditional for the introduction and deployment of new concepts of distribution within cities, because the automation of loading, unloading and transfer processes it is essential to keep costs within acceptable levels. Standardised carriers and small city distribution vehicles result in increase in loading efficiency, reduction of costs, and a reduction of vehicle movements.

Finally a system was developed for improving the efficiency of door-to-door transport of goods in urban areas, which enables and supports planning decision for both private and public operators through services for shortest path finding, vehicle route planning, on-line vehicle routing planning, and urban shop delivery planning. Furthermore an open access Internet portal/e-marketplace providing services to the logistics and freight transport industry in the European Union was developed and demonstrated.

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4.5 Efficient market place

4.5.1 Research objectives

In this area research objectives include benchmarking, quality level certification, market tools for shippers, integration of environmental issues, fair and efficient pricing and training in logistics.

4.5.2 Main findings

A contribution to the assessment of how and to what extent the high-speed trains concept is applicable to freight transport have been made by developing a methodology to evaluate the investment return and profitability of high-speed rail freight and estimating a potential traffic matrix with 231 connections between 22 European cities. The results were that high-speed service had appeared suitable for the premium freight market mainly made up of air freight, integrator traffic, postal service and express road service, and that best economic returns have been reached in direct-night time connections covering distances up to approximately 1500-1800 km. Case study results had shown that present equipment would already allow trains to travel up to 300 km/h, and no extra maintenance arrangements had been requested by the implementation of high-speed rail freight services, except for those provoked by the traffic increase.

A thematic network on waterborne transport and traffic management prepared a series of synthesis documents on current trends regarding information systems developed for transport logistics and developed guidelines for traffic and transport management related information systems architecture.

Through a market analysis on Trans-Alpine Transport, it was found that reliable and punctual deliveries, primarily overnight, are critical for success in this market. The impact of banning goods traffic at night, and the impact of closing times of terminals, as well as the potential benefits of faster handling and speeding-up combined transport schemes, were identified, as well as the impact of monetary values and flexible switching between transport modes on reliability and travelling times. Finally, an analysis of policy support strategies demonstrates how current policies could be improved, and that the expected shift from road to rail can only be achieved if the railways drastically improve their performance.

Research also investigated track and environmental costs imposed by goods vehicles. As a result an Excel model of the HGV fleet was developed distinguishing between 33 different classes according to gross vehicle weight and axle configuration, and 16 different vintages, allocating track costs to four road types, and taking into account emissions of NOx, PM10, CO₂, non-methane VOCs, CO, benzene, butadiene and sulphur dioxide. The model for each HGV combination can then calculate average annual track and environmental costs.

In Great Britain was developed a computer program to analyse freight traffic flows, which combines a number of data sources and computer algorithms within a single system and applies simple micro-economic rules, seeking to explain the distribution of freight traffic, including commodity, mode, and route.

Finally, a study was carried out to measure key performance indicators (KPI) of vehicle utilisation amongst suppliers, manufacturers and hauliers within the non-food retail distribution sector. The survey highlighted opportunities for freight operators to improve fleet

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utilisation and energy efficiency in terms of key performance indicators. Another study provided guidance to truck users in the use of vehicle technology to achieve fuel savings and reduce emissions. A new set of software tools for retrospective analysis of the operational efficiency of truck fleets using data compiled in transport KPI-type surveys was also developed.

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Annex I: Contributing projects

Preface This Annex lists all the projects (European and national) which belong to the **Freight Transport** theme, in alphabetical order of project acronym (for projects with acronyms), followed by projects without acronyms in alphabetical order of the project's name in English. Where results have been made available to the EXTR@Web project, a summary of key findings and policy implications relevant to this theme are given.

In 'Origin' column, use ISO 3166-1 country designators as follows:

Austria – AT; Belgium – BE; Bulgaria – BG; Cyprus – CY; Czech Republic – CZ; Denmark – DK; Estonia – EE; European – EU; Finland – FI; France – FR; Germany – DE; Greece – GR; Hungary – HU; Iceland – IS; International – INT; Ireland – IE; Italy – IT; Latvia – LV; Lithuania – LT; Luxembourg – LU; Malta – MT; Netherlands – NL; Norway – NO; Poland – PL; Portugal – PT; Romania – RO; Slovakia – SK; Slovenia – SI; Spain – ES; Sweden – SE; Switzerland – CH; United Kingdom – UK; Other countries – Oth

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Key findings / Policy implications / Project website or contact			
BESTUFS	Harmonisation of strategies and highlighting best practice to determine optimum Urban Freight Solutions (Thematic Network)	EU	Urban distribution
<p><u>Key Findings</u></p> <p>The outcome of BESTUFS thematic network is a Best Practice Handbook which aims at giving information and hints about innovative ongoing strategies, concepts and activities in European countries, providing knowledge and experiences of completed and running projects and actions and describing the results as experiences rather than as a thorough scientific analysis. The results of the city inquiry have provided a good overview on the current problems and issues dealing with the goods movements in urban areas and the urban freight transport planning in city administrations. The main results can be summarised as follows:</p> <ul style="list-style-type: none"> • Most of the asked European cities have problems concerning urban freight transport which affect the attractiveness and quality of life of the city; main problems are related to suitable infrastructure for deliveries, city access, noise and pollution. • For most of the cities the important issues concerning urban freight are dealing with co-operation among all local actors, coordinated urban freight policy, information, statistical data/data acquisition and use of innovative vehicle technology for city distribution. • Compared the existing problems and issues to be dealt with in urban freight transport planning there is no or not enough manpower (compared to passenger transport) within the city administration that takes care about urban freight issues. Urban freight transport planning is neglected in many cities compared to passenger transport. • Generally there is a lack of statistics and data concerning urban freight transport: the data availability, a very important basis for evaluation of suitable measures, is poor if compared to passenger transport. <p><u>Policy Implications</u></p> <p>BESTUFS is designed to provide a mechanism for the exchange of ideas, initiatives and experience between key players involved in urban freight issues including commercial interests, policy makers, administrators and city planners. The use of workshops as a mechanism to explore ideas, proposals and experience and best practice in specific areas is seen as a particularly useful means to achieve these objectives. To this purpose, BESTUFS is establishing an open European network between the key players and inter-</p>			

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<p>est groups in urban freight issues as: the commercial interest groups (shippers, receivers and transport service providers), city administrations and policy enforcement agencies, civic interest groups, individuals, user groups, relevant national and European level directorates for city planning, transport facilities and services as well as relevant systems and technology providers.</p> <p><u>Project website</u> www.bestufs.net</p>			
CARGOSPEED	Cargo Rail Road Interchange at Speed	EU	Intermodal transport
<p><u>Key Findings</u></p> <p>CargoSpeed is an innovative solution to the transfer of semi trailers that will permit a functioning rail freight system to operate within a truly balanced and sustainable intermodal transport system. The main CargoSpeed task is to design, build and test the CargoSpeed system, which includes a wagon with a moveable well floor and a Pop-Up system, placed on a dedicated terminal.</p> <p><u>Policy Implications</u></p> <ul style="list-style-type: none"> • To halve the economic break-even distance for intermodal freight movements from the current 500 - 600 kilometres to around 300 kilometres. • To be operational within piggyback gauge, thereby avoiding the massive expense of upgrading tunnels to UIC 'C' gauge or super gauge (as Eurotunnel). • To accommodate standard non-liftable semi trailers, including high-cube and aerodynamic semi trailers. • To achieve random-access at interchanges, thereby enabling 'bus-stop' type operations along the route. • To achieve RoRo interchanges of 30 or more arriving standard semi trailers with 30 or more departing semi trailers SIMULTANEOUSLY instead of the existing one-by-one Lo-Lo practice. • To minimise the times intermodal trains spend in terminals. Rail wagons only earn when moving freight. <p><u>Project contact</u> blg-consult@blg.de</p>			
CITY BOX	stadsbox -Small loading unit for urban distribution	NL	Urban distribution
<p><u>Key Findings</u></p> <p>Goal of the city box project was to investigate the feasibility and determination of characteristics of a new logistics concept for city-distribution and supply.</p> <p>One of the main results was that commercial actors within their logistical chain more and more tend to create distribution points situated at the borders of cities or in the region. Reasons for this are public law restraints (in terms of area, weight, volume of the vehicles and the access regime, consisting or routes and time frames) and the aim to provide better service levels.</p> <p>Another finding was that it is generally accepted that standardisation of loading units is conditional for the introduction and deployment of new concepts of distribution within cities because:</p> <ul style="list-style-type: none"> • To mechanize and automate loading, unloading and transfer processes it is essential to keep costs within acceptable levels. This is only possible on the basis of standardisation. • Standardisation offers the possibility of more efficient combination of small freight. Standardised carriers and small city distribution vehicles result in increase in loading efficiency, reduction of costs, and a reduction of vehicle movements. 			

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<p>It was also concluded that for the successful deployment of citybox-concepts close cooperation between the actors is essential to realize large scale integrated applications and the resulting economies-of-scale as well as the societal benefits. Furthermore, from a economic perspective the citybox-concepts call for an integral approach (for example, further benefits may be achieved by using larger vehicles outside urban areas).</p> <p>Essential for the realisation of all innovative and efficient forms of city-distribution and supply is a consistent public policy making. This involves the commitment of the central government and local authorities. Harmonisation of access regimes in cities should be developed on a basis of a national framework.</p> <p><u>Policy Implications</u></p> <p>Within the citybox-project the following recommendations for further steps were formulated.</p> <ul style="list-style-type: none"> • The aim should be to realize a prototype citybox concept as soon as possible. This prototype should at least consist of the components that make it possible to test essential functions on a technical and operational level; • after successful testing a pilot should be initiated; • for the purpose of design-process of the prototype as well as the pilot a group of sponsors, private actors and municipalities willing to facilitate a pilot should be formatted; • this group should formulate principles and conditions for the (organisational) implementation; • during the prototype development phase other innovative concepts and options for standardisation should be explored that may be applied next to the citybox-concepts and may be mutually supportive; • expected long term effects of citybox-concepts should be explored; and • dialogue with government agencies concerning (harmonisation of) access- and environmental regimes should be intensified. <p><u>Project website</u></p> <p>www.stadsbox.nl</p>			
CITY FREIGHT	Inter- and Intra-City Freight Distribution Networks	EU	Urban distribution
<p><u>Key Findings</u></p> <p>The main outcome of CITYFREIGHT has been to provide guidelines for interested stakeholders (government, regional, or local authorities, network operators, shippers and consignees) on the advantages and drawbacks of some recent innovations in the field of inter- and intra-urban freight distribution systems. CITY FREIGHT has taken steps towards assessing a number of initiatives implemented in Europe and, furthermore, a initiatives database has been built, allowing the user to pre-select initiatives to adapt to their local situation and which have been successful in other places.</p> <p>Delivery solutions: These solutions usually are connected to deliveries outside the opening hours. Night deliveries have been successfully implemented in retail chains, where the company is responsible for delivering goods and the stores are not located too close to residential areas. The biggest problem with off-peak deliveries is that it affects the quality of life of inhabitants in terms of noise emissions. A further solution is deliveries on a scheduled day and time that enable the improved planning of reception of goods and decreases queue formation.</p> <p>Market initiatives: these initiatives aim at increasing co-operation among logistics companies and provide new and improved services in the distribution market. The most common form of co-operation is the consolidation of goods to be distributed and/or collected by different transport operators or suppliers. Consolidation reduces the number of vehicles needed for delivering the same amount of goods, improving the cost-efficiency of transport companies and reducing the environmental impacts.</p> <p>Environmental initiatives: Attempts are being made to lower the demand for transport by combining goods traffic with passenger traffic within the cities. Purchases made in the city centre or from distance selling</p>			

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<p>companies are being delivered to different kind of collection points that are located close to residential areas or workplaces, thus reducing the need to deliver to each household. A further solution is the utilisation of more environmentally friendly vehicles and transport modes to diminish the harmful impacts of goods distribution. Furthermore, the wide-spread use of alternative transport modes, which often need to be combined to road transport for the last kilometres of the transport chain, depend on the availability of appropriate multimodal infrastructure and cargo handling equipment allowing a fast and cost-efficient shift of transport mode. In addition, management, information exchange and administrative procedures need to be developed so that multimodal transport chains could better compete with road transports.</p> <p>Land use and infrastructure initiatives: the integration of town and transport planning has become increasingly common. Urban growth centres increasingly meet with difficulties due to residential areas located too close to zones with industrial and logistics activities and thus being subjected to harmful environmental impacts. Relocating logistics or industrial activities is one solution, but it is often difficult to impose by authorities due to companies' resistance. The location of supermarkets and hypermarkets within a city has notable impacts especially on the demand for goods transported by the customers in their personal cars. Furthermore, logistics centres are usually optimally located with good connections to road networks and possibly also to rail network, a seaport or an airport. Companies located in the centre may take advantage of services such as service stations, value added logistics services, common marketing, warehousing or co-operate with other companies by consolidating consignments. Finally, narrow streets, pedestrian areas, lack of suitable unloading places, and other distribution problems in the town centres have led to a growing use of underground deliveries.</p> <p><u>Policy Implications</u></p> <p>The most important general recommendations useful for the design, implementation and/or improvement of an urban freight distribution initiative and related to the project, are summarised as follows:</p> <ul style="list-style-type: none"> • A thorough problem analysis and a clear definition of objectives are essential; • urban freight distribution initiatives often impact an area which exceeds the city; • urban freight transport requires a systemic approach; • in urban freight transport, a long term perspective is needed; and • the support and participation of all relevant actors is essential. <p><u>Project website</u></p> <p>www.cityfreight.org</p>			
CP/37	An integrated instrument for the environmental evaluation of local traffic plans	BE	Urban distribution
<p><u>Project website</u></p> <p>www.belspo.be/belspo/fedra/proj.asp?l=en&COD=CP/37</p>			
D2D	Demonstration of an integrated management and communication system for door-to-door intermodal freight transport operations	EU	Logistics and supply chain management tools
<p><u>Key Findings</u></p> <p>In order to manage a transport chain properly, it is important that the status of the transport is monitored at all times, and that the status information is made available to those who need it on a real-time basis. The objective of the Freight Transport Monitoring System (FTMS) is to ensure that such real-time information is available in all D2D transport chains.</p>			

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<u>Policy Implications</u> <ul style="list-style-type: none"> • Preventing congestion by promoting modal shift. • Contributing to sustainable mobility by supporting the use of less polluting modalities. • Improving the quality of transport services by providing an innovative system for intermodal transport chains. • Qualification and working conditions: the D2D system may improve working conditions of transport company personnel by relieving them of some of their most stressful tasks, and may also result in a need for a higher qualified personnel by enhancing quality and accuracy of information flows in the chain. • Environment: shifting from road transport to intermodal transport will result in less air pollution, reduction of noise and less energy consumption. • Quality of life and health and safety of the citizens: reducing pollution and noise will have a positive impact on the quality of life and health of the citizens. 			
<u>Project website</u> prosjekt.marintek.sintef.no/d2d			
DFRAITCC	Development of the freight Railways transport in the conditions of the competition	BG	Efficient market place
<u>Project website</u> www.vtu.acad.bg			
EMBARC	European Maritime study for Baseline and Advanced Regional and Coastal traffic management	EU	Intermodal transport
<u>Project website</u> www.euro-embarc.com			
ETIS-LINK	Thematic network for European transport policy information system development	EU	Efficient market place
<u>Project website</u> www.etis-link.info			
EUTP II	Thematic Network on Freight Transfer Points and Terminals	EU	Intermodal transport
<u>Project contact</u> chn@eurabxl.com			
FATCAT	Future Antenna Technologies for Cars and Trucks	UK	Logistics and supply chain management tools
<u>Project website</u> www.ha-research.co.uk/projects/index.php?id=557			

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FIRE	Freight information in the railway environment	EU	Logistics and supply chain management tools
<p><u>Key Findings</u></p> <ul style="list-style-type: none"> The development of the general architecture for an information service for rail-based international freight transport. The FIRE Service provides information on: (i) train schedules and wagon plans (ii) wagon and train monitoring including positioning, delays, arrival forecasts, wagon and goods status (iii) commercial offers including available services and tariffs. Data about freight wagons is acquired from a range of different sources and made available via a range of means, including access over the internet. A Pilot Service, with a slightly different architecture, has been tested for a selection of wagons, international routes and consignments. It has been demonstrated that an information system for rail with the following characteristics is feasible: <ul style="list-style-type: none"> consignment-orientation (instead of the present wagon-orientation), modular software architecture, delay indication on the basis of the timetable of the wagon, integration of UIC-data framework such as HERMES, and data security. <p><u>Policy Implications</u></p> <p>The FIRE project has provided an information platform for the future European One Stop Shop showing that opposition of railway companies to outsource information services, like the FIRE Service Provider, and to pass on information to external parties can be overcome. Although the technology for the FIRE Service Provider is available on the market, the commercial breakthrough of the system is still less certain and calls for further analysis of the suitable commercial conditions. The pilot has suggested that improvements on the map display could be introduced in the future. Specifications of the On-Board Terminal and the Information Gateway, and definition of the interfaces provide a basis for future standardisation. In particular, the FIRE Consortium believes possible that FIRE specifications are taken as a basis for UIC-standardisation of GPS data transfer and has initiated discussions with UIC on this. The project results suggest also that AVI systems should be given less preference as main localisation systems compared to GPS/GSM based systems.</p> <p><u>Project contact</u></p> <p>Filippo.astrua@cargofs.com</p>			
FIT	Assessing the potential for rationalising road freight operations (STP 14/6/11)	UK	Efficient market place
<p><u>Key Findings</u></p> <p>The main deliverable from this project has been the new set of software tools for retrospective analysis of the operational efficiency of truck fleets using data compiled in transport KPI-type surveys. Use of these tools permits the assessment of potential efficiency gains against theoretical optima, in contrast to the earlier benchmark analysis which judged this potential against prevailing industry best practice. It is anticipated that the main use of the tools will be to estimate potential cost, energy and emissions savings at an aggregate level, though they could be applied to a single company's transport operation where it supplies sufficient fleet data. Other deliverables include (i) the results of the routing and backloading analyses on which the new software tools were tested and (ii) the results of the surveys of companies supplying and</p>			

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using road telematics systems. The latter results provide a useful insight into the current state of the telematics sector in the UK and the possibility of applying a similar set of software tools to commercial vehicle tracking databases.

Policy Implications

The software tools developed in this project essentially add value to the government's transport KPI initiative. They permit much more detailed spatial analysis of the trip data collected in the transport KPI surveys. This analysis can be conducted both at an aggregate level for the sample of fleets surveyed or for individual companies participating in the surveys. In both cases, the main output is an estimate of the potential reductions in vehicle kilometres, transport costs and emissions from improved routing and scheduling and greater backloading. The analysis can also help to identify where the main opportunities exist for efficiency gains. The Cold Storage and Distribution Federation (one of the research partners) is exploring the possibility of securing longer-term commitment from companies in the food sector to participate in transport KPI surveys on a regular basis. This would create new opportunities for the application of the software tools. Indeed, they could become an integral part of the transport KPI initiative. The surveys of companies supplying and using road telematics systems provided a useful insight into the current state of the telematics sector in the UK and the possibility of applying a similar set of software tools to commercial vehicle telematics databases.

Project website

www.rmd.dft.gov.uk/project.asp?intProjectID=10037

F-MAN	Rail Car Asset Management	EU	Intermodal transport
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Key Findings

F-MAN prototype, designed to provide Railway Cargo Operator (RCOs) fleet managers with innovative tools to control his wagon fleet, and to enhance the productivity of wagons. The F-MAN prototype consists of:

- Tracking System Module (TSM) to locate wagons wherever they are in Europe, and to retrieve wagon status information (loaded, unloaded, moving, ...);
- Data Processing Module (DPM) to progressively estimate the Expected Time of Arrival (ETA) for each wagon, and to make available all information regarding wagon history;
- Asset Management Module (AMM) to propose a proper choice of wagons to comply with clients' orders, according to customisable productivity indicators;
- Graphical User Interface (GUI) to present the fleet manager, in an intuitive and user-friendly way, wagons position and operating data on geographical maps; and
- service, support & training for installation and use Service, support & training for installation and use deal with all those activities that allow Railway Cargo Operators (RCOs) to properly use the F-MAN tools.

Policy Implications

F-MAN impacts positively on the implementation of the Information Society and Telecommunication policy. It aims at providing tools that make the management of railcar fleet possible under a European coverage, something that is currently impossible. F-MAN is also an important key to the completion of a freight-related information society. For instance, it would be possible to make available the state of the shipment, or the additional costs due to over routing to the customer requiring the shipment (or to the consignee), with integration of F-MAN with already existing or brand-new software for shipment tracing, or to common EDI systems. F-MAN has positive impacts on the implementation of the EU Transport policy. It enables efficiency-improvements, and thus increased capacity and productivity, in the European rail freight transport network. It therefore contributes to increasing the competitiveness of rail transport with respect to road. It does this by contributing to: Rail network interoperability; operational cost reductions; Improved

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network coverage throughout the EU; and development of a single market for rail. <u>Project website</u> www.civil.ntua.gr/f-man/			
GAUSS	Galileo and UMTS Synergetic System	EU	Logistics and supply chain management tools
<u>Key Findings</u> The trials demonstrated how the GAUSS technology and applications can improve mobility and transport management, by providing innovative services and creating favourable technical conditions for enhancing both the quality and the efficiency, while maintaining safety standards.			
<u>Policy Implications</u> GAUSS results open the way to the development and exploitation of advanced technology supporting high quality, reliable and effective services to the citizens for the transport sector and whole mobility domain, in view of GALILEO and UMTS scenarios: emergency assistance, safety-of-life applications, fleet and freight transport management (rail, road, maritime and inland waterway), dangerous goods transportation and containers tracking.			
<u>Project website</u> galileo.cs.telespazio.it/gauss			
GECOTRAM	Electronic system for container circulation management in multimodal transport for the European integration on the transport corridors across Romania	RO	Intermodal transport
<u>Project website</u> www.district1.ro/gecotram/			
GIFTS	Global intermodal freight transport system	EU	Logistics and supply chain management tools
<u>Key Findings</u> The European logistics and freight transport industry is facing considerable social and environmental impacts caused by the prevalent use of road transport. Intermodal transport represents a sustainable solution if supported by Information and Communication Technology (ICT) applications, which can also benefit the management of deliveries, and the treatment, sorting, storage and picking of freight. The GIFTS project has developed an open access Internet portal/e-marketplace providing services to the logistics and freight transport industry in the European Union. The project has implemented a web platform of services that is fully interoperable and integrated with any ICT system. It has been tested by means of a demonstrator platform, used in three different pilot scenarios. Subsequent market and commercial assessment have given encouraging indication about the appreciation of the adopted technical and architectural solutions as well as about operational benefits for the target users: Small and Medium-Sized Enterprises can improve business by better internal workflow and practices and share information with other operators. Application providers can find an opportunity to reach new users by integrating services into the platform. GIFTS users can benefit by:			
<ul style="list-style-type: none"> • Greatly improved real-time information along the length of the supply chain; • improved security and safety procedures; 			

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<ul style="list-style-type: none"> • real reductions in inventory thanks to shorter lead times; and • real reductions in losses caused by fraud or lack of adequate control. <p><u>Policy Implications</u></p> <p>GIFTS is typically a Research and Technological Development project and, apart some results belonging at the stage of Scientific/Technical knowledge and methodologies, the majority of the results constitute technological results at the stage of prototype, having been developed for the purposes of demonstration trials. The exploitation strategy that best applies depends largely on the stage of development of individual results. In the context of GIFTS, there is therefore a requirement for further investment, both of time and resource, to develop the results from the current prototype stage to the next stages, i.e.: technology implementation, dissemination and market introduction.</p> <p><u>Project website</u></p> <p>gifts.newapplication.it</p>			
HISPEEDMIX	High-Speed Freight on the European High-Speed Railway Network	EU	Efficient market place
<p><u>Key Findings</u></p> <ul style="list-style-type: none"> • The project has developed a methodology to evaluate the investment return and profitability of high-speed rail freight. • A potential traffic matrix has been estimated with 231 connections between 22 European cities. • High-speed service has appeared suitable, in the beginning, for the premium freight market mainly made up of air freight, integrator traffic, postal service and express road service. • Best economic returns have been reached in direct-night time connections covering distances up to approximately 1500-1800 km. • The cash flow expected to be generated by the whole HISPEEDMIX service investment over 30 years has, encouragingly, been characterised by an internal profitability rate up to 11,75%. • Case study results have shown that present equipment would already allow trains to travel up to 300 km/h, and no extra maintenance arrangements have been requested by the implementation of high-speed rail freight services, except for those provoked by the traffic increase. <p><u>Policy Implications</u></p> <p>In the short-term the know-how and capital investments dominate the overall production costs of high-speed freight railway transport. In the medium to long term, high-speed freight railway service will improve qualitatively and quantitatively the whole rail transport service with a consequent favourable change in the modal split. The success of this new service will be strongly affected by organisational factors rather than technical ones. As international co-operation seems to be essential, national railway operators could form together a new HISPEEDMIX company. Before starting with a pilot service, a detailed feasibility study on specific corridors, a specific business plan and a handbook on the technical and managerial aspects of the service should be built up. After initially focusing on the premium freight market, the service could be step-by-step extended to other customers.</p> <p><u>Project contact</u></p> <p>p.decicco@tiscali.it</p>			

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IDIOMA	Innovative distribution with intermodal freight operation in metropolitan areas	EU	Urban distribution
<p><u>Key Findings</u></p> <p>IDIOMA made once more obvious that new initiatives in urban areas distribution are needed especially in the pre and end haulage of intermodal transport chains Most significant IDIOMA results are:</p> <ul style="list-style-type: none"> Regional or local bundling projects in urban freight transport as demonstrated in Nuremberg, Randstad, Öresund and Zürich, were only partially successful. IDIOMA proved that on the one side a reduction of emissions can be achieved, especially when regarding intermodal transport chains. On the other side, it turns out that such approaches are extremely difficult to implement in the current transport business environment. City/Small container concepts can significantly reduce environmental impacts of freight transport. However the concepts demonstrated in IDIOMA met with technical problems and were therefore not commercially viable. It can be stated that the technical problems can be solved, but the economic perspective is still uncertain. To become economically viable city container concepts will either require large investments in infrastructure and equipment or entirely different transport patterns. Without such efforts small containers will play a marginal role in city distribution. The advantages of integrated transport of passengers and freight to urban areas are fast access to city centres and high priority transport. However the type of cargo is limited in size and the transshipment of cargo is not ideal and even clumsy when this has to take place on passenger platforms. The main problems turned out to be of a commercial nature (poor profitability) and difficulties with the internal organisation. Given the expected developments in urban freight transport, it seems that there might be indeed scope to renew interest in integrated passenger-freight transport. E.g. taxis could play a role in home shopping deliveries. <p><u>Policy Implications</u></p> <p>The problems shown in the commercial performance of the IDIOMA concepts call for support to development of freight transport structures in urban areas and to training and education of transport operators. The expectation that heavy vehicle fees might be introduced elsewhere following the Swiss example calls for the need to improve concepts in particular on the pre- and end-leg of intermodal transport. Standardisation efforts and further demonstration projects are recommended for small containers which will more likely play only a marginal role in city distribution without large investments in infrastructure and equipment. An overall approach should be developed for the handling and carrying of intermodal equipment as well as the processes and the facilities in freight centres. Further research is recommended on the share and usage of information along the transport chain as well as the entire supply chain and on transshipment systems to make small-volume terminals more profitable.</p> <p><u>Project website</u></p> <p>www.idioma.gr</p>			
IMPRINT EUROPE	Implementing pricing reform in transport effective use of research on pricing in Europe	EU	Efficient market place
<p><u>Key findings</u></p> <p>The key areas in which the Imprint-Europe thematic network reached conclusions are:</p> <ul style="list-style-type: none"> Measurement of marginal social cost: <ul style="list-style-type: none"> most countries have some information suitable for setting more efficient charges , though the disagreements and uncertainties identified above serve as a barrier to estimation of charges according to a common basis, 			

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<ul style="list-style-type: none"> a likely way forward is to seek consensus on a lower limit of costs that should be reflected in price, raising this as evidence becomes stronger and more accepted. Acceptability and phasing of pricing reform: <ul style="list-style-type: none"> acceptability tends to be higher where problems are particularly acute and demonstrable, where there is an identified package of complementary measures and where revenue use is transparent and/or earmarked, making simple and modest reforms first, progressing towards more sophisticated charging systems, can address concerns about reform, each new phase of reform should generally move prices in the right direction in terms of the ultimate goal, even if short term considerations might dictate otherwise, Drawing on experience and research, ten steps to implementation have been identified to serve as a guideline for policy-makers. Key Issues for Newly Associated States <ul style="list-style-type: none"> there is a strong link with financing: financing needs are more acute, and other sources of finance more limited, so pricing is seen very much as a way of financing investment, issues concern transit traffic and peripherality; there is a risk that NAS countries incur substantial costs to improve infrastructure for transit traffic but cannot recover this in price because of low congestion. <p><u>Policy implications</u></p> <p>A start has been made in some sectors: for instance the Rail Directive contained a sensible pragmatic approach to marginal social cost based pricing, and the proposed revised Eurovignette Directive was a step in the right direction, although still containing many constraints which would prevent fair and efficient pricing of road freight vehicles.</p> <p>However much disappointment was expressed that the proposed framework directive and common methodology paper for all modes seems to have been abandoned. It is felt that such a directive would be an important step forward as it would provide a clear objective towards which pricing reform should be concentrated on all modes, and encourage transparency in the setting of prices. In its absence areas where reform is most needed were identified as:</p> <ul style="list-style-type: none"> Congested urban areas; trans-European road and rail corridors; aviation; and ports. <p>Processes and institutions need research - what bodies should set or regulate prices and be responsible for allocating the revenue? How do prices feed through to and impact upon end-users? Institutional issues are particularly complex in the aviation and maritime sectors.</p> <p><u>Project website</u></p> <p>www.imprint-eu.org</p>			
INTEGRATION	Integration of sea land technologies for an efficient intermodal door to door transport	EU	Intermodal transport
<u>Key Findings</u>			
<p>Integration did not set out to invent completely new solutions, however. Instead, the partners carefully studied existing technologies and sought to adapt them or their application to improve the land-sea connection. The group decided that adapting established technologies would speed up their take-up by the industry. It also built on the results of another European project, IPSI, which had developed improved methods for automated cargo handling. The early stages of the project identified two key technologies in</p>			

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<p>current use. First, most short-sea vessels are roll-on-roll-off (ro-ro) ships, loaded 'horizontally' by driving containers on to the ship. Second, large ports such as Hamburg and Rotterdam have automated guided vehicles (AGVs) that move containers from a port's marshalling area to the quay cranes that normally load the ships. The second major activity of Integration is the rational design of new ro-ros, optimised for short-sea shipping.</p> <p><u>Policy Implications</u></p> <p>The designs and the results from the AGV pilots will be used in freight transfer simulations. Theoretical demonstrations will be the first step in convincing the shipping industry to invest in these new ships and loading technologies. Prototype ships should be ready by as early as 2005. The challenge is to offer intermodal and maritime operators a technology that will significantly boost their operating efficiencies and freight volumes. The project will demonstrate the potential of the technology, and the way it can improve performance through improved management of operations. If successful, it will give Europe's shipyards and port equipment manufacturers a new lease of life.</p> <p><u>Project website</u></p> <p>www.maritime.deslab.naval.ntua.gr/research/projects.asp?id=integration</p>			
INTERMODA	Integrated Solutions for Intermodal Transport between the EU and the CEECs	EU	Intermodal transport
<p><u>Project website</u></p> <p>www.intermoda.org</p>			
INTERMODE-SHIP	The intermodal ship	EU	Intermodal transport
<p><u>Key Findings</u></p> <p>An innovative waterborne transport concept for inland/short-sea operations, which accommodates various types of cargo units, allows for faster cargo handling and better use of cargo space. This concept will replace current fragmented and traffic-jams-sensitive road, rail and waterborne transport. The INTERMODESHIP, optimized for inland / short-sea operations:</p> <ul style="list-style-type: none"> • A door-to-door waterborne solution. • Positive effects on quality of life. • Reduced pollution and noise. • Reduced number of accidents. • Improved utilization of infrastructure. • Improved mobility of goods <p><u>Policy Implications</u></p> <p>This concept will reduce congestions of trailers on European roads resulting in a reduction of the following problems:</p> <ul style="list-style-type: none"> • High rates of accidents. • High levels of pollution. • High levels of noise. • Reduced infrastructural mobility. • Reduced mobility of citizens. <p><u>Project website</u></p> <p>www.kockumseng.se/intermodeship/Intermodewelcome.html</p>			

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IP	Intermodal Portal	EU	Intermodal transport
<u>Project website</u> www.intermodalportal.com			
LOGICAT	Concerted Action on Logistics, Supply and Demand Chain Management in Europe	EU	Logistics and supply chain management trends
<u>Key Findings</u> <ul style="list-style-type: none"> Information on finished, existing and future RTD Projects in the areas of logistics, Supply Chain Management and their relation with integrated intermodal systems have been collected; future research needs in the areas of logistics, Supply Chain Management and the relationship with Integrated intermodal systems have been identified; road maps for the implementation of the new logistics concepts have been designed; awareness has been raised and 'Supply Chain Management' has been promoted, to facilitate implementation within Europe; and the use of integrated intermodal systems has been promoted. 			
<u>Policy Implications</u> LOGICAT will have an added value through the clustering exercise. The clustering will group together finalised, existing and proposed European and national (Member States) RTD projects as well as relevant U.S. RTD Projects with a European impact to enhance the effectiveness of logistics.			
<u>Project website</u> www.innovation.expertel.fr/logicat/			
MD/DD/02	Sustainable mobility information system	BE	Urban distribution
<u>Key Findings</u> The tool developed by this research concerns the mobility of freight and looks at optimal ways for its transport. It analyses as well how the role of freight infrastructure has impact on regional growth and sustainable development.			
<u>Policy Implications</u> None			
<u>Project website</u> www.belspo.be/belspo/fedra/proj.asp?l=en&COD=MD/DD/02			
MD/DD/16	Legal remedies to foster sustainable mobility in urban and suburban areas	BE	Urban distribution
<u>Project website</u> www.belspo.be/belspo/fedra/proj.asp?l=en&COD=MD/DD/16			

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MD/DD/17	Inland navigation and sustainable development: analysis of factors that increase its market	BE	Intermodal transport
<u>Key Findings</u> The study want's to identify the main barriers hindering a shifting of cargo from road to waterway on the Belgian network and display the requirements to fulfil for a full integration of inland waterways into Intermodal Transport Chains <u>Policy Implications</u> None <u>Project website</u> www.belspo.be/belspo/fedra/proj.asp?l=en&COD=MD/DD/17			
MNS	System for advanced monitoring of the means of transport and freight mobility in the multimodal transport - Multimodal Network System	RO	Logistics and supply chain management tools
<u>Project contact</u> rodi@ici.ro			
MOSCA	Decision-support System for Integrated Door-to-door Delivery: Planning and Control in Logistic Chains	EU	Intermodal transport
<u>Key Findings</u> The project results are tools for improving the efficiency of door-to-door transport of goods in urban areas by providing both demand and supply side information in a system. Results are modules enabling and supporting planning decision both for private and public operators where tours, network structure, traffic regulation measures, etc, are concerned. This set of tools implements services for shortest path finding, vehicle route planning, on-line vehicle routing planning, urban shop delivery planning, etc. Main project outcome are therefore validated prototypes for demand services and integrated supply-oriented traffic and transport model together with user-oriented decision support system (DSS). MOSCA software includes the following modules: <ul style="list-style-type: none"> • MOSCA-FREIGHT: the module allows the calculation of business traffic and freight transport demand matrices of a city or region. The effort for data collection/processing depends on the availability of behavioural data and the definition of business traffic classes (VISEVA supports individual definitions of business traffic classes). The module can be integrated in an overall model structure including a passenger transport demand model (VISEVA) and a network/assignment model (VISUM). Based on this model detailed analyses of the commercial transport in connection with the passenger transport are possible. • MOSCA-SUSTAIN: the module allows the calculation of noise emissions and the according social costs. A rather high number of data input is necessary but as a result good estimations of the real noise levels are possible. • MOSCA-LINE: an algorithm to plan online deliveries, in front of unexpected events such as a new customer request or a traffic jam. MOSCA-LINE is able, given the current position of vehicles, the road network situation and the list of orders to be processed, to reorganize the next stops on the basis of the available information. The module can also gather information about the traffic conditions from the in- 			

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<p>coming communications from vehicles and it can use this information to produce better plans, taking into account new traffic situations.</p> <ul style="list-style-type: none"> • MOSCA-TOUR: an algorithm to plan delivery tours for a vehicle fleet if variable traffic conditions are given. After receiving all input data, the algorithm calculates the most efficient vehicle routes. The result is a set of optimized routes that is output back to the logistics application software. <p><u>Policy Implications</u></p> <p>MOSCA project challenge can no longer be seen in a narrow national perspective since urban good transport needs are becoming more and more sophisticated and environmental problems are a global issue. In order to achieve these European objectives, innovative management tools have to be implemented in Europe and the Accession Countries on a common basis. This will enable integration and interoperability at European level. Therefore, the development of innovative tools and methods for management of freight delivery in the city centres must be addressed at a European rather than national or private level since only in this way it is possible to harmonize the different settings dependant on specific local characteristics.</p> <p><u>Project website</u> www.idsia.ch/mosca/</p>			
ParcelCall	An Open Architecture for Intelligent Tracing Solutions in Transport and Logistics	EU	Logistics and supply chain management tools
<p><u>Project website</u> www.parcelcall.com</p>			
PROTRANS	Role of third party logistics service providers and their impact on transport	EU	Logistics and supply chain management trends
<p><u>Key Findings</u></p> <ul style="list-style-type: none"> • Snapshot of the 3PL market in Europe and ranking of logistics regions; and • benchmark defined best practices and success/failure factors (connections, terminals, accessibility and investments). <p>Main results are:</p> <ul style="list-style-type: none"> • The need of logistics market for a typology to identify and compare logistics regions; • regions are developing further to more international orientated regions; • a clear view on the importance of 3PLPs' activity in the development of an integrated freight transport system, in EU economy and competitiveness and in current and future state of Intermodal Transport (IMT); • identifying barriers and opportunities: barriers are either inherent to IMT or rooted in the missing service offerings for IMT. <p><u>Policy Implications</u></p> <p>The benchmark is an assessment tool that can be used by policy makers to develop logistics, but also by shippers and 3PLPs to gain insight in the regional variances, strengths and weaknesses.</p> <ul style="list-style-type: none"> • For more efficient logistics, further outsourcing and improvement of IMT is required. • policymakers should align infrastructure plans at all levels, in order to provide efficient transport connections and stimulate integrated logistics strategies. • future roles for 3PLPs are to act as Pan-European integrators and liability guarantors ('Freight Integrator' initiative as outlined in the White Paper). 			

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<ul style="list-style-type: none"> logistic centres for (de)consolidation nearby or in conjunction with a rail terminal are suggested. <p><u>Project website</u> www.logistik.tu-berlin.de/sulogtra+protrans/protrans/</p>			
RAILSERV	Thematic Network on Rail Freight Services	EU	Logistics and supply chain management trends
<p><u>Project contact</u> vladimir.segrcrantz@vtt.fi</p>			
Randstad - NL	Competition position and accessibility "Randstad"	NL	Efficient market place
<p><u>Key Findings</u></p> <p>The relevant market for main ports may expand for two reasons:</p> <ul style="list-style-type: none"> The catchment area expands; and volumes in the existing catchment areas are increasing. <p>Both mechanisms have been analysed. The catchment area can be expanded by improvement of the accessibility, especially in the proximity of the main ports. However, the existing national transport policy that is focussing more on national and regional accessibility problems is not in conformity with these findings. Furthermore, a strong local economy is equally important for the competition position of the main ports as is improvement of the accessibility. It is therefore necessary that improvement of accessibility is accompanied with improvement of the settling climate for international business in the Randstad.</p> <p>On the following points the position of the Netherlands can be enhanced:</p> <ul style="list-style-type: none"> Labour costs and productivity; schooling, education and the availability of high educated personal; innovation through application of R&D; the number of international institutions; touristic profile; and diversity of the economy. <p>These issues are the primary responsibility of the regional and national governments.</p> <p>Summarizing the report further concludes that:</p> <ul style="list-style-type: none"> The Dutch main ports have become dependent of their economy in the direct neighbourhood, the Randstad. This economy must be further developed by an integral policy to catch up with the competing regions. The main port is limited in its powers to influence the current governing organisations. With regard to the land-side accessibility Schiphol and Rotterdam have a number of interests in common when it comes to creating corridors via main roads to the east and south hinterland and improving the internal accessibility. These interests do not meet the priority and timing of the Dutch government in the MIT. <p><u>Policy Implications</u></p> <p>Improving the general competition-profile of the Randstad will also give new economical impulses to the development of the main ports.</p> <p>Economic impulses linked with the airport should be aimed at improving the business- destination traffic. That requires:</p> <ul style="list-style-type: none"> The settling of new international business in the Randstad. Improving and maintaining international organisations (a strategy that the government can influence to a large extent). 			

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<ul style="list-style-type: none"> • Tourism and congresses are important for generating transportation. Regarding the port of Rotterdam maintaining and improving the petrochemical sector is of great importance. Furthermore there are opportunities regarding attracting new companies which can profit from the economies of scale and the logistical qualities of the port and industry of Rotterdam. Examples are: • Logistical integration of agricultural activities in the Westland and the B-triangle with the main port facilities; • recycling industry; and • concentrate knowledge intensive logistical activities in logistical platforms. <p>New initiatives in currently un-existing or just arising economical sectors or segments need to be investigated. An example of this is the question whether there is an adequate infrastructure in the Netherlands for low-cost airlines and what economical activities are attached to this rapidly growing sector.</p> <p><u>Project website</u> www.connekt.nl</p>			
RATAMA	The modelling of freight transport of the building product industry in Finland	FI	Logistics and supply chain management tools
<p><u>Key Findings</u></p> <p>Based on the examinations it ended up that two different model systems were estimated. The more detailed models have been estimated for the usage of companies. The companies can utilise the estimated models in the evaluation of their own operation. The companies are able to test different alternatives and use the calculation system for choosing the best delivery channel and trade channel in each case. The more general models have been developed for the transport evaluation purposes.</p> <p><u>Policy Implications</u></p> <p>None</p> <p><u>Project contact</u> jari.grohn@mintc.fi</p>			
RECORDIT	Real Cost Reduction of Door-to-door Intermodal Transport	EU	Intermodal transport
<p><u>Key Findings</u></p> <p>The findings on cost structure, its components and the factors determining the total social cost were incorporated into a Decision Support Module, which has enabled interested parties to estimate the internal and external costs for door-to-door, or corridor movements, of their choice. Different design and policy scenarios were evaluated for those corridors and different geographical regions: the RECORDIT DSS. The RECORDIT DSS is an interactive software designed to simulate the impact of transport policies on the competitiveness of intermodal transport services and the corresponding implications in the area of sustainable development. The different stakeholders involved in the current debate on intermodal costs and prices, i.e. intermodal companies, intermodal transport agencies, road operators, are among the more proximate end-users of the RECORDIT outcomes. In addition, the nature of the RECORDIT outcomes, extensive overview on intermodal and road transport costs and prices, in addition to a Decision Support System (DSS), a software tool, for policy simulation, is also being able to interest policymakers at national and EU level.</p> <p>The flexible characteristics of RECORDIT DSS, i.e. the possibility to simulate costs and policies on different European corridors for road and intermodal transport modes allow the RECORDIT outcomes to exploit potential market segments in the field of consultancy for intermodal market analysis. Another major output</p>			

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<p>of the project, in conjunction with the intermodal industry, was to identify potential means that could improve the competitiveness of intermodal transport in specific corridors. Barriers (of a financial, governmental, organisational or technical nature) that inhibit the adoption of these opportunities were identified and assessed before final recommendations for improvement were made.</p> <p><u>Policy Implications</u></p> <p>With information about the private (internal) and social (external plus internal) costs of intermodal transport and its competitor - road freight transport, it was possible to identify how and why this gap varies in different parts of the European transport network. COM(97) 243 and COM(99) 519 suggest that 'many of today's transport problems result from differences in transport taxes and charges between Member States and between transport modes'.</p> <p>The final results of the project inform the debate on 'fair and efficient pricing', and show the necessary charges (taxation) that are required for road and rail transport in different countries in order to meet those twin objectives of efficiency and fairness. The results of the research also demonstrated the benefits that would flow from a harmonised pricing system together with the reduction in road freight transport (and increase in intermodal transport) that would occur. Major benefits resulted from the application of the findings and recommendations of the project. In particular it provided vital support and guidance to the initiatives in EU freight policy that took place after the project's completion.</p> <p><u>Project website</u></p> <p>www.recordit.org</p>			
ROLLING SHELF	Rolling shelf	EU	Intermodal transport
<p><u>Key Findings</u></p> <ul style="list-style-type: none"> Existing rail mode share for palletised cargo is, on average, less than 20%; there is a healthy potential market for the Rolling Shelf concept focusing on palletised goods and parcels on short distances, both segments estimated to grow at about 75% by the year 2015; design of a network of 53 terminal locations for central European countries (B, NL, D, A, CH, I) and simulation of the trains required to serve the network; design of new types of pallet, and of wagons able to accommodate the new pallets and travel at high speeds of up to 160 km/h; development of conceptual terminal designs, ranging from manual handling of loading and unloading to fully automated systems; and economic assessment, based on a modelled pilot corridor Amsterdam – Milan, which gave favourable results for small consignments over short distances (100-200 km) at train utilisations of 50% and above. <p><u>Policy Implications</u></p> <p>Several branches of findings from the Rolling Shelf project will be followed up by further initiatives, such as FP 5 projects CO-ACT on fast cargo train test trials, handling nodes and networks, and New Rail Wagon on the design and manufacture of prototypes of advanced freight wagons. Several projects on EU and national level are under way to evaluate the benefits of e.g. time table driven rail transport on major European links or the development of fast cargo terminal networks. Moreover, the operation of future rail freight networks and the provision of vehicles and infrastructures are investigated in current projects.</p> <p><u>Project contact</u></p> <p>hans.unseld@evecosoftware.com</p>			

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SPIN	Scanning the Potential of Intermodal Transport	EU	Intermodal transport
<p><u>Key Findings</u></p> <p>The SPIN project has developed the SPIN TOOLBOX. It consists of three decision support tools to assess the intermodal transport potential on company and on regional level: # QuickScan # Advanced Scan # MacroScan The concept has already been used in a number of business cases in Europe. New services have been explored, transparency about the complex intermodal market and awareness of the opportunities of intermodal transport have been created.</p> <p><u>Policy Implications</u></p> <p>SPIN tries to fill substantially the information gap between the supply and the demand side of intermodal transport.</p> <p><u>Project website</u></p> <p>www.spin-eu.com</p>			
SPIN-TN	Thematic network on the development of European strategies to promote short sea shipping, sea-river and inland navigation	EU	Efficient market place
<p><u>Project contact</u></p> <p>eric.gellee@fdc.fr</p>			
SULOGTRA	Effects on Transport of Trends in Logistics and Supply Chain Management	EU	Logistics and supply chain management trends
<p><u>Key Findings</u></p> <p>The SULOGTRA project generally achieved to:</p> <ul style="list-style-type: none"> Analyse the effects of supply chain and logistics trends on the transport system; and assess opportunities for improving supply chain performance. <p>by:</p> <ul style="list-style-type: none"> Identifying the logistics/supply chain trends; examining the decision making process; developing scenarios within the different sectors for the following 10 years; and comparing experiences in logistics and supply chain management - SCM (it analysed the situation in Asia and the US). <p>The examination of the decision-making process showed possibilities of moving the transport decision to the design phase. Key performance indicators were identified in order to develop different parameters as the basis for improvement of supply chains.</p> <p>The project also developed SCM metrics, mapping tools and benchmarking procedures (i.e.: a set of supply chain indicators allowing the collection, analysis and mapping of logistics data for the planned case studies).</p> <p>A method was developed for assessing the potential for supply chain improvement for application and testing in the case studies and finally best practice was established and disseminated. Finally, the project investigated the process of value creation in supply chains and the relationship between logistical activities and economic development. All above tasks culminated in carrying out case studies, where companies were questioned on subjects such as supply chain integration and collaboration, the application of information and communication technologies, network and transport optimisation.</p>			

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<p><u>Policy Implications</u></p> <p>The White Book on Common Transport Policy presented a core set of orientations which impact directly in SCM trends. Because of its repercussion in other sectors of economic activity and the current societal concerns towards a sustainable development, the environmental policy constitutes today the foreground of any debate. Another set of issues which have captured the attention of policy makers and are likely to offer new developments impinging on SCM trends are those related to infrastructure (harmonisation of fuel taxation, internalisation of external costs, pricing and charging, improvement of quality and safety in road sector). Another set of wider social and economic concerns was also taken in consideration in the analysis of policy issues affecting SCM and finally, enterprise policy was taken into account as an 'horizontal' policy, since it 'crosses' all the above-considered policies, and 'touching' the same points within each of them. The main concerns of the enterprise policy are, within the context of SULOGRTRA related to competitiveness issues, access to the European markets and small and medium sized enterprise (SME) policy. EU policy measures (White and Green Papers and Directives) produce many indirect impacts in logistics and SCM, seen from the point of view of the global political and legislative framework. From the large spectrum of EU policies, five sets of impacting policies have been clearly identified and prioritised: transport, environmental, infrastructure, social and economical and enterprise policies. In fact, logistics and supply chain management activities have not yet been clearly 'targeted' by EU policies. Although the White Paper defines areas for future action in the field of logistics no tangible action has yet been taken.</p> <p><u>Project website</u></p> <p>www.logistik.tu-berlin.de/sulogtra/</p>			
TASKU	Tracking and Tracing of Freight Transport	FI	Logistics and supply chain management tools
<p><u>Key Findings</u></p> <p>Surveys of interest groups suggest that there is still very little tracking and tracing of cargo units, and the existing systems are mostly manual. Only the largest logistics operators have access to more high-tech systems that are often tailored for individual clients. But the need for more efficient operations within transport chains calls for the development of more extensive systems that can process data on several parties and goods categories.</p> <p>The main obstacles to the creation of such a tracking and tracing system are the wide range of standards currently in use and the lack of common operating models. Additional insecurity for system implementation is caused by the speed at which technology is advancing in this field. The first parties to implement the new kinds of tracking and tracing systems will most likely be the major transport chain operators. In the future, the data included with each cargo unit will be able to be read by a variety of technologies. One possible solution is a combination of bar code, RF tag and written information. The parties involved will have to decide on matters associated with the information content, data security and safety.</p> <p><u>Policy Implications</u></p> <p>None</p> <p><u>Project contact</u></p> <p>jani.granqvist@vtt.fi</p>			

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THEMIS	Thematic Network in Optimising the Management of Intermodal Transport Services	EU	Intermodal transport
<p><u>Key Findings</u></p> <ul style="list-style-type: none"> • Report on the integration of traffic management systems and freight transport management systems; • links with various initiatives in the THEMIS domain, (various national initiatives); • state of the art for transport and traffic management systems; and • identification of state of the art ITS architecture and standardisation. <p><u>Policy Implications</u></p> <ul style="list-style-type: none"> • State of the art for transport and traffic management systems (all modes); • point to information sources on current and past ICT projects; • contribute to ITS architecture and standardisation to improve ICT interconnectivity; • link people and companies with similar or matching challenges in the transport sector; and • point to sources for funding of R&D and implementation projects. <p><u>Project website</u></p> <p>www.themis-network.org</p>			
ToKi	Supply chain as a key to competitiveness	FI	Logistics and supply chain management trends
<p><u>Key Findings</u></p> <p>Within the timeframe of the project only two industrial partners were found. A quantitative analysis of their supply chains was performed and development plans were formulated. Both of the analysed supply chains displayed structural promise of the usefulness of a VMI (vendor managed inventory) implementation to integrate customers and/or suppliers. In both cases, however, the analysis revealed other, more pressing and promising developmental actions, which the partners subsequently decided to pursue. The timeframe of the project and the situational factors of the industrial partners did not allow a VMI implementation to take place and thus the main hypothesis of the project was not proven. No evidence was discovered that this hypothesis was incorrect.</p> <p><u>Policy Implications</u></p> <p>None</p> <p><u>Project contact</u></p> <p>juha.jalovaara@qdc.fi</p>			
WATERMAN-TS	Waterborne Traffic and Transport Management - Technical Secretariat	EU	Efficient market place
<p><u>Key Findings</u></p> <p>Waterman Thematic Network prepared a series of synthesis documents on current trends regarding, among others:</p> <ul style="list-style-type: none"> • Information systems developed for transport logistics; • the rationale and applicability of the Formal Safety Assessment methodology; and • the SafeSeaNet network. <p>Based on the project methodology:</p> <ul style="list-style-type: none"> • Approximately 150 EU projects were reviewed; 			

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<ul style="list-style-type: none"> a computerised database was created and maintained, including detailed information on a span of 65 relevant projects; and guidelines for traffic and transport management related information systems architecture were developed. <p><u>Policy Implications</u></p> <p>None</p> <p><u>Project website</u></p> <p>www.waterman-ts.net</p>				
–	Aid to supervision and operational direction for Franco-German freight traffic	FR	Logistics and supply chain management tools	
<p><u>Project contact</u></p> <p>daniel.de-briey@equipement.gouv.fr</p>				
–	Alternative Delivery Solutions - Nottingham Trial (FL0206)	UK	Urban distribution	
<p><u>Project website</u></p> <p>www.rmd.dft.gov.uk/project.asp?intProjectID=11093</p>				
–	Concepts and Organisation within the Transport Sector	DK	Logistics and supply chain management trends	
<p><u>Project website</u></p> <p>www.ctt.dtu.dk/projects/clg/projects/subproject5.php</p>				
–	Costs imposed by heavy goods vehicles	UK	Efficient market place	
<p><u>Key Findings</u></p> <p>This project looks into the track and environmental costs imposed by goods vehicles. The project objective was to inform the fundamental review of Vehicle Excise Duty for goods vehicles that was announced by the Chancellor in the 1998 budget and which was overseen by an Advisory Board. The project covers the freight domain of carriers and transport systems and aligns to the following freight sub themes:</p> <ul style="list-style-type: none"> Logistics and supply chain management, in particular management of transport resources; and efficient market place, in particular the issue of fair and efficient pricing. <p>The research was carried out in two parts producing:</p> <ul style="list-style-type: none"> An Excel model of the HGV fleet was developed distinguishing between 33 different classes according to gross vehicle weight and axle configuration, and 16 different vintages (33 X 16 HGV combinations). Track costs were allocated to four road types, whilst emissions covered NO_x, PM₁₀ and CO₂. The model for each HGV combination can then calculate average annual track and environmental costs. Phase 2 expanded the coverage of environmental costs to incorporate non-methane VOCs, CO, benzene, butadiene and sulphur dioxide. Monetary values applied to these emission rates identify health and non-health impacts. 				

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<p><u>Policy Implications</u></p> <p>The model also takes into account estimates of noise associated with HGVs This project potentially contributes to reducing environmental impacts through operational and strategic measure including fiscals measures, pricing and incentives. The model examines pricing methodologies for the freight industry, which has implications for freight operators.</p> <p><u>Project website</u></p> <p>www.rmd.dft.gov.uk/project.asp?intProjectID=10475</p>			
–	Data Collection to Improve Understanding, Operational Efficiency and Policy Considerations of Home Delivery (FL 0117)	UK	Urban distribution
<p><u>Project website</u></p> <p>www.iecrc.org/homeshopping/resources/project_overview.pdf</p>			
–	Development of an Integrated Management System for Transport based on GSM	ES	Logistics and supply chain management tools
<p><u>Project website</u></p> <p>www.setsi.mcyt.es/progarte/Fichas/Microsoft%20Word%20-%20SI%20064%20008f.pdf</p>			
–	Driver Development Training (FL0214)	UK	Urban distribution
<p><u>Key Findings</u></p> <p>Specific objectives for this project were to roll Safe and Fuel Efficient Driver (SAFED) training out to the industry. The achievements of Driver Development Training to date have included:</p> <ul style="list-style-type: none"> • In total, 6,375 drivers underwent SAFED training. 3,121 of the drivers trained worked for companies employing less than 50 employees. Over 370 instructors now able to deliver SAFED training. • Data generated from training (6000+ sample) shows 36.9% reduction in gear changes, SAFED does not add time to journeys, substantial fuel savings recorded in litres and pounds and an average improvement in MPG of 10.01% was recorded. • Discounted insurance. <p><u>Policy Implications</u></p> <p>An example of good practice, through the development of an ongoing and industry (Road Haulage Association) led driver training programme promoting financial savings (insurance, fuel, time) through affective driving behaviour. Potential benefits of the SAFED standards have been recognised and rolled out to the driver training and logistics industry.</p> <p><u>Project website</u></p> <p>www.rmd.dft.gov.uk/project.asp?intProjectID=11108</p>			

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–	Effectiveness of Motorway Service Areas in Reducing Fatigue-related Accidents (S301M)	UK	Efficient market place	
	<u>Project website</u> www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/pdf/dft_rdsafety_pdf_022211.pdf			
–	Effects of deregulation on the cost-structure and on the large-scale production benefits of the Swedish railways	SE	Efficient market place	
	<u>Project contact</u> arne.jensen@handels.gu.se			
–	Effects on the goods transport of opening the Finnish railway network to new competitors	FI	Efficient market place	
	<u>Project contact</u> martti.kerosuo@rhk.fi			
–	Efficiency of Reverse Logistics (FL 0217)	UK	Urban distribution	
	<u>Project website</u> www.rmd.dft.gov.uk/project.asp?intProjectID=11109			
–	Efficient terminals for intermodal transport	SE	Intermodal transport	
	<u>Project website</u> peter.grundevik@sspa.se			
–	European Sea Transport and Intermodalism - Waterborne transport – consequences for Switzerland	CH	Intermodal transport	
	<u>Key Findings</u>			
	<ul style="list-style-type: none"> • Through the changes of the Italian port reform 1994, the Italian ports have reached the necessary conditions to operate efficiently. • The total port related freight traffic across the Alps is less than 7.425 Million tons (5% of the whole freight traffic across the Alps). • The container flows across the Alps might decrease in coming years with some positive environmental effects. 			
	<u>Policy Implications</u>			
	<ul style="list-style-type: none"> • Bottlenecks in railway infrastructures and, more recently, lacking quality in railway service jeopardise considerably the opportunities for Italian port's further expansion. • New railway infrastructures are the backbone for further growth in Italian ports. 			

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<u>Project website</u> www.nfp41.ch			
–	Ice class regulations for winter navigation	FI	Efficient market place
<u>Project contact</u> harry.favorin@mintc.fi			
–	Implications for Ireland's Road Infrastructure of Heavier European Trucks	IE	Efficient market place
<u>Project contact</u> eugene.obrien@ucd.ie			
–	Key Performance Indicators for Non-Food Retail Distribution (BG 77)	UK	Efficient market place
<u>Key Findings</u> The objective of this study was to measure KPIs of vehicle utilisation amongst suppliers, manufacturers and hauliers within the non-food retail distribution sector. The survey highlighted opportunities for freight operators to improve fleet utilisation and energy efficiency in terms of key performance indicators. Key Performance Indicators for the Non Food Retail Sector contributes to knowledge in the freight sub theme of logistics and supply chain management as it deals with the alignment of the supply chain and the management of transport resources. It also contributes to knowledge in the freight area efficient market place, dealing as it does with benchmarking market tools for shippers, integration of environmental issues and training in logistics. This survey highlighted opportunities within the non-food retail sector to improve fleet utilisation and energy efficiency, especially in the areas of:			
<ul style="list-style-type: none"> • Vehicle fill, weight capacity, available cube capacity, deck length capacity, use of double and triple deck trailers, issues of balance, fill by weight, cube and deck length use. • In addition the project discusses the importance reverse logistics flows needing to be centrally managed in order to make efficient and coordinated use of the vehicle fleet. • The study also looks at timings noting despite external constraints, such as restrictions on delivery times, there is scope for many operators to reduce fleet sizes by spreading activity throughout the 24 hour period with beneficial reductions in associated running and management cost. 			
<u>Policy Implications</u> Fleet operators are provided guidance on how to improve efficiency through use of KPI's to achieve economic and environmental cost savings.			
<u>Project website</u> www.rmd.dft.gov.uk/project.asp?intProjectID=9987			
	Key Performance Indicators (KPIs) in the road leg of air cargo (RHS 0105)	UK	Efficient market place
<u>Project website</u> www.rmd.dft.gov.uk/project.asp?intProjectID=9971			

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–	Logistics and transport for local production systems: methods and models applied to North-East of Padana Valley	IT	Logistics and supply chain management trends
<p><u>Key Findings</u></p> <p>The project has investigated the production, logistics and transport activities in four supply chains in the North-East area of Italy. Insights have been provided on the interventions which could support at the same time the flexibility of the chain, its rationalisation and the control of its total impacts. In particular interventions on the railway system have been addressed.</p> <p>An important achievement has been the analysis of the costs perceived by the customers of the freight transport system with the aim of developing modal choice functions which can represent current and future share of transport alternatives.</p> <p><u>Policy Implications</u></p> <p>The project provided recommendations for the development of mode choice models and emphasised the need for a correct evaluation of the generalised cost of transport and the difficulties inherent in establishing a sample for calibration purposes. It was found that the generalised cost should include quality variables as well as the confidence of the decision maker in the reliability of the alternative, The project has produced procedures for setting up the data system needed for the estimation of mode choice models.</p> <p><u>Project website</u></p> <p>cofin.cineca.it</p>			
–	Maritime transport and terminal firms: market forms and competition strategies	IT	Efficient market place
<p><u>Project website</u></p> <p>cofin.cineca.it</p>			
–	Market Analysis in Trans-Alpine Freight Transport	CH	Efficient market place
<p><u>Key Findings</u></p> <ul style="list-style-type: none"> • From the point of view of supply of demand, and possible policy support strategies, the central conclusion is that reliable and punctual deliveries, primarily overnight, are critical for success in this market. The Summary demonstrates the impact of banning goods traffic at night, and the impact of closing times of terminals, as well as the potential benefits of faster handling and speeding-up combined transport schemes. Differentiating between the market segments of "full truck load" (FTL) and "less than truck load" (LTL) becomes increasingly important. • On the demand side, the impact of monetary values and flexible switching between transport modes on reliability and travelling times have been identified (adapted stated preference survey), which could serve as important inputs for traffic models and scenarios. • Finally, an analysis of policy support strategies demonstrates how current policies could be improved, and that the expected shift from road to rail can only be achieved if the railways - as a result of competitive pressure - drastically improve their performance. 			

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<p><u>Policy Implications</u></p> <ul style="list-style-type: none"> • A central role is played by the promotion of competition on rail through a non-discriminating access on the network. An increased competition will permit to realise unused productivity potentials and thus to increase quality of supply. • The improvement of time related qualities of combined transport services and an increase in reliability will be crucial. • The optimisation potentials created by infrastructure improvements and optimisation of the transport chain will only be effective in the medium and long run. • Given that Switzerland has introduced the kilometre dependent tax on road freight traffic, the EU should follow this strategy in order to improve the competitiveness of rail bound transport services. The key to success lies in the implementation of the Swiss measures. <p>The pillars of such a policy are:</p> <ul style="list-style-type: none"> • Active promotion of competitive allocation of access rights, allocation of slots by the confederation. • Provision of funds for subsidies on request in specific cases of new transport and for the funding of important investments that improve the quality of the transport chain. • Introduction of a monitoring that permits to allocate subsidies in function of changing market performance. • The non-alpine part of Switzerland should be opened to 40 tons trucks. • The night ban on truck should be kept in place and the controls on road transport (driving hours, weight, speed) should be intensified. <p><u>Project website</u> www.nfp41.ch</p>			
–	Modal shift and modal integration in freight transport: actors and study cases in Italy	IT	Intermodal transport
<p><u>Project website</u> cofin.cineca.it</p>			
–	Multi-modal freight model for distance-based HGV charging	UK	Efficient market place
<p><u>Key Findings</u></p> <p>The GBFM, Great Britain Freight Model, is an evolving computer program designed to analyse freight traffic flows in Great Britain. It combines a number of data sources and computer algorithms within a single system and applies simple micro-economic rules, seeking to explain the distribution of freight traffic, including commodity, mode, and route. Created in January 2002, this version of GBFM was commissioned by the DfT, to address the need to link specific costs, such as road user charges to the GBFM, and became known as GBFM version 4. This modelling tool incorporates the following freight theme topics:</p> <ul style="list-style-type: none"> • Covers international and domestic freight flows, concentrating on average to long distance shipments. • Uses 3 geographic scales including international (NUTS2/3), domestic multimodal (nuts3), and domestic road (2700 zones, based on postcode boundaries). • Is based upon OD matrix derived from existing datasets, including trade statistics, the Continuing Survey of Road Goods Traffic, and Network Rail's database of rail freight flows. • Uses trends to forecast trip generation, some land use impacts (limited to inland freight facilities, i.e. trans-shipment points with local storage) can also be modelled. • Uses the DfT's NTM road network, and produces outputs compatible with other NTM modules, e.g. FORGE. 			

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<ul style="list-style-type: none"> Generates multi-model paths by combining network and freight service data. Employs “accounting” models of transport costs, designed to reproduce realistic freight rates for given trip chains. Attributes utilities (or negatively, generalised costs) to multimodal network paths, adding time based and reliability-based costs to the calculated freight rates. <p><u>Policy Implications</u></p> <p>Policy instruments such as vehicle taxation, road user charging, freight grants and revenue support, fuel taxation, and legislation covering drivers’ hours can be represented as part of a forecast scenario. Outputs can be analysed in terms of mode split, regional impacts, and changes in demand for infrastructure. These can also be translated into values suitable for transport appraisal, such as changes in external costs and user benefits.</p> <p><u>Project website</u></p> <p>www.rmd.dft.gov.uk/project.asp?intProjectID=10046</p>				
–	Optimal sizing of container terminal and fare efficiency	IT	Intermodal transport	
<p><u>Project website</u></p> <p>cofin.cineca.it</p>				
–	Optimisation Models for the Transport Sector	DK	Logistics and supply chain management tools	
<p><u>Project website</u></p> <p>www.ctt.dtu.dk/projects/clg/projects/subproject6.php</p>				
–	Organisation, administration, management of port freight terminals	GR	Intermodal transport	
<p><u>Project contact</u></p> <p>chlom@unipi.gr</p>				
–	Powerful locomotives for non-electrified lines	FR	Logistics and supply chain management tools	
<p><u>Project contact</u></p> <p>daniel.de-briey@equipement.gouv.fr</p>				
–	Promotion of the use of Advanced Telecommunications Services in the Transport Sector	ES	Logistics and supply chain management tools	
<p><u>Project website</u></p> <p>www.setsi.mcyt.es/progarte/Fichas/Microsoft%20Word%20-%20SI%20063%20010f.pdf</p>				
–	Rail interoperability for Franco-German green freight corridors	FR	Efficient market place	
<p><u>Project contact</u></p> <p>daniel.de-briey@equipement.gouv.fr</p>				

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–	Regional logistics system for environmentally efficient and competitive transports	SE	Logistics and supply chain management trends
<p><u>Project contact</u> arne.jensen@handels.gu.se</p>			
–	Road to Rail: Open Access Intermodal Gateway to the UK - TDG European Chemicals (GPCS 399)	UK	Intermodal transport
<p><u>Key Findings</u></p> <p>This commercial sector case study shows how the logistics provider TDG has worked with BP chemicals to tailor a specific road to rail freight transport service with the re-opening of a disused national rail link in the form of the open-access Grangemouth terminal. The case study examines the development of the facility from its inception through to current examples of usage, identifying the following areas of thematic relevance such as:</p> <ul style="list-style-type: none"> • The application of Intermodal transport chains, specifically in relation to the road rail sea linked location of this terminal; and • terminal and transfer point efficiency. <p><u>Policy Implications</u></p> <p>This is a Case Study of good practice in the commercial sector, promoting intermodal freight transport. As a direct result of this initiative, it is predicted that 360,000 tonnes of bulk traffic will be transferred to rail in 2006. Without the new terminal 14,500 truck round-trips would have to be performed, totalling 5.9 million miles a year and using 3.35 million litres of diesel fuel. This quantity of fuel, if used, would have generated 8.85 million kilograms of carbon dioxide. Another advantage of the Grangemouth facility is that any rail company or any road operator can use it. This open access allows TDG to market the service to other customers, encouraging them to use the terminal as part of their transport operations.</p> <p><u>Project website</u> www.rmd.dft.gov.uk/project.asp?intProjectID=10231</p>			
–	Social Economic Evaluation of Freight Traffic Decantation from Highways to Parallel State Roads	SI	Efficient market place
<p><u>Project contact</u> heda.kocevar@omegaconsult.si</p>			
–	Supply Chain Resilience (FL0123)	UK	Logistics and supply chain management tools
<p><u>Key Findings</u></p> <p>Sponsored by the Department for Transport (DfT) and supported by the Chartered Institute of Logistics and Transport, this study explores further the sources and drivers of supply chain disruptions and provides some practical approaches to the management of supply chain risk. Its aims were as follows:</p> <ul style="list-style-type: none"> • To extend awareness of supply chain vulnerability as a threat to business continuity. • To develop a high level methodology for the identification and management of supply chain risk, including the development of a managerial tool-kit. • To develop approaches that will enable organisations, large and small, to increase the resilience of 			

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<p>their own supply chains.</p> <p>Multi modal networks; commercial fleet and public transport operations; transport demand management</p> <p>The work included a survey of experienced supply chain management professionals; An in-depth case study of five tiers of a defence industry (aerospace) supply network; in-depth interviews with leading companies in seven other 'critical sectors'; the development of managerial tool-kit for the identification and management of supply chain risk; the development of a check-list based workbook for Small and Medium Enterprises; a review of available software solutions; and a review of the impact and after-effects of some high-profile transport disruptions.</p> <p>This research touched upon the following freight related topics:</p> <ul style="list-style-type: none"> • Logistics and supply chain management trends + tools; and • efficient market place. <p><u>Policy Implications</u></p> <p>This project intended to assist organisations to identify and to be more resilient to supply network vulnerabilities by proposing a toolkit for concerned professionals. This research produced a general framework and a downloadable "tool-kit" for concerned organisations, including aspects of emergency planning. The outputs are suitable for change managers based in industry or consultancies to use to increase the resilience of critical national supply networks. Recent events, not least those of 9/11 or the UK's Foot and Mouth Disease outbreak, highlighted that supply chain disruptions have a major impact upon advanced, industrialised economies. Whilst these were exceptional events, this research created a toolkit for better supply chain management for ordinary and extraordinary eventualities.</p> <p><u>Project website</u></p> <p>www.rmd.dft.gov.uk/project.asp?intProjectID=10985</p>			
–	Sustainable Freight Distribution in an Historic urban Centre	IE	Urban distribution
<p><u>Project contact</u></p> <p>margaret.omahony@tcd.ie</p>			
–	Systems for combined transport between road and railway	SE	Intermodal transport
<p><u>Project contact</u></p> <p>arne.jensen@handels.gu.se</p>			
–	The introduction of information systems in major companies and the consequences on transport and logistics companies	FR	Logistics and supply chain management trends
<p><u>Project contact</u></p> <p>gerard.brun@equipement.gouv.fr</p>			

Theme: Freight Transport			Last update: 01 August 2006
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Transport intensities within industrial branches in Finland	FI	Logistics and supply chain management trends
<p><u>Key Findings</u></p> <p>In 1989-2002 Finland's domestic transport haulage increased by only 11%, while Finland's industrial production concurrently increased by 41%. Differences in development of haulage and industrial production can be explained by changes in industrial structure. Technological industry, which produces a low need for transport, has increased in multiple rate compared to basic industry, which produces a high need for transport.</p> <p><u>Policy Implications</u></p> <p>None</p> <p><u>Project website</u></p> <p>jari.grohn@mintc.fi</p>			
–	Transport Models	DK	Efficient market place
<p><u>Project website</u></p> <p>www.ctt.dtu.dk/projects/clg/projects/subproject7.php</p>			
–	Truck Aerodynamic Styling (GPG308)	UK	Efficient market place
<p><u>Key Findings</u></p> <p>This vehicle technology project specifically covers the use of critical technology and aerodynamics in relation to the road freight and haulage industry. Truck Aerodynamic Styling aimed to provide guidance to truck users in the use of vehicle technology to achieve fuel savings and reduce emissions.</p> <ul style="list-style-type: none"> • The project evaluated available aerodynamic vehicle technology solutions to improving moving vehicle functionality. • This project cumulated into an illustrated guide offering truck operators practical information on aerodynamically effective truck add-ons. • The majority of this Guide is devoted to helping truck operators in the freight and haulage industry to predict and realise fuel savings that can be obtained by applying particular aerodynamic features to truck fleet including a focus on cab, body and chassis elements as well as ancillary equipment. • In addition, the guide evaluates various manufacturers' claims to aerodynamic status, provides driver training tips to reduce fuel cost, as well as essential Aerodynamic dos and don'ts, such as flat bed loading hints. <p><u>Policy Implications</u></p> <p>This project is part of the Transport Energy Best Practice programme, which provides authoritative, independent information and advice to help implement sustainable transport initiatives. This information was disseminated through publications, videos and software, together with seminars, workshops and other events to truck operators.</p> <p><u>Project website</u></p> <p>www.rmd.dft.gov.uk/project.asp?intProjectID=10235</p>			

Annex II: General information on the Transport Research Knowledge Centre and analysis process used

The Knowledge Centre's background

The EXTR@Web project – Exploitation of Transport Research Results via the Web – attempts to collect, structure, analyse and disseminate transport research results, covering not only EU supported but also nationally financed research in the European Research Area (ERA), as well as selected global transport RTD programmes and projects.

The EXTR@Web consortium has brought together eight main contractors to combine strong and in-depth technical knowledge of transport technology and of EU and national transport RTD programmes with solid communication and dissemination experience.

The current project's direct predecessor, EXTRA (a Fourth Framework Programme Transport RTD project), co-ordinated dissemination activities on the European level for the first time. While FP4 addressed transport research on a mode-by-mode basis, the current Fifth Framework Programme (FP5) focuses on generic themes that consequently reflect transport policy objectives.

The EXTR@Web project will provide support to research at European and national levels by building up and promoting an electronic hub. The key objectives are:

- To establish a comprehensive web-based Knowledge Centre, providing structured and timely access to both detailed and user-oriented summary information on transport research programmes and their results across Europe;
- to provide an electronic hub for inter-connecting European and national programmes and individual networks concerned with transport research into an easily navigable European network;
- to establish a common best practice scheme for the structure and content of the reporting of transport research results;
- to provide high-quality analytical outputs that are structured and tailored according to the type of stakeholder and medium; and
- to raise awareness of the new service, the implications of emerging results, and the wider opportunities under national research programmes across Europe as a whole.

EXTR@Web will provide a comprehensive pool of programme, project and results related information to users, principally in electronic format via the Internet. The approach is based on three main strokes of work covering:

- Monitoring, analysis and information preparation;
- website and electronic news service, the principal dissemination channels; and
- management of knowledge transfer, including dissemination by non-electronic means, and also the maintenance of a contact database and e-mail enquiry service and evaluation of the performance of EXTR@Web.

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Definition of transport research

For inclusion into the Transport Research Knowledge Centre, Transport research programmes and projects have to be within the definition of research and transport simultaneously. This will define the eligibility of projects.

Definition of research

General OECD definition:

"Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications."

Additional transport research criteria:

- Targeted – in line with transport policy aims, strategies and processes to solve the inherent problems for society.
- Accessible – a public activity, open to scrutiny by peers.
- Transferable – useful beyond the specific research project, applicable in principle to other researchers and research contexts as well as decision-makers in policy, industry and science.

Definition of transport

In order to clarify expectations from the Transport Research Knowledge Centre, and to ensure a common understanding of important terms, the Programme Analysis Group of EXTR@Web has come up with the following definition of transport.

- Transport is the means by which a person or material of any kind is passed from its origin to its destination.
- Transport comprises:
 - the transport users: passenger, business, freight;
 - the transport vehicles (full life cycle issues);
 - the transport infrastructure (full life cycle issues);
 - the transport system: the interaction of users, vehicles and infrastructure;
 - the impacts of transport: contribution to objectives, and hence to overall sustainability; and
 - the transport tools: methods and instruments to help ensure an effective contribution to the objectives.

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Three levels of analysis

Project level analysis

For European, national and international projects the following harmonized process was agreed:

- For each eligible project, the project co-ordinator will be requested to draft a Project Profile;
- the EXTR@Web consortium identifies, for each project all relevant themes (typically up to five), and provides the project linkage;
- for each eligible project, the project co-ordinator will be requested to draft the other elements of the reporting scheme – Progress Summary and Result Summary – due to the project progress and provides the final report;
- projects with highest relevance and best available final results will be selected for analysis;
- for every such relevant theme within each project a short and concise paragraph – structured with bullet points as appropriate – will be written to present the key findings of the project in relation to the objectives of the theme; and
- this information will be searchable on the Knowledge Centre website.

Thematic analysis

The thematic analysis has been exploiting existing project level analysis. The consolidated project wise findings have been structured and analysed along 30 themes, which are fixed for the project life time and fed into annual Thematic Research Summaries and Annual Compendia. However, for reporting purposes Thematic Research Summaries have been limited to 28 volumes (cf. Chapter 1).

The sequence of outputs has been comprising an explanation of the overall structure, and regular reports treating national, European and international research in a comprehensive way.

Deliverable number	Title	Release date (final version)
D2.A	"Thematic structure and definitions – all themes"	August 2006
D2.B	"European, national and international project database"	July 2006
D2.C	"First annual thematic research summary"; 30 vol.	December 2004
D2.D	"Second annual thematic research summary"; 10 vol.	March 2006
D2.E	"Third annual thematic research summary"; 28 vol.	August 2006

Table: The sequence of deliverables

Policy level analysis

Whilst the 30 themes are fixed, this type of analysis should give the flexibility to provide information on ad hoc policy priorities. Hence, policy level analysis will synthesize key findings of projects across combinations of themes. As an output, policy brochures shall be prepared depending on ad hoc requirements by DG TREN or by the high-level Advisory Group (AG).

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Annex III: Editorial team for Thematic Research Summaries

Please note that – in principle – all EXTR@Web partners and sub-contractors will be contributing to a particular Thematic Research Summary because all project level findings that are of some relevance to one of the 28 (30) individual themes are presented in the comprehensive format of these papers.

The following summary of authors and peer reviewers is presented in alphabetical order while the main author of this paper is given on page i of the document.

Fabien Dreveton, ISIS; France

Mr Dreveton has an electrical engineering post-MSc degree, an MBA and over 8 years experience in Intelligent Transport Systems for road transport. He has been a senior engineer with ISIS since 2001, specialising in traffic control, motorway management, ITS standards development process and system architecture.

Co-author: Road Transport

Prof J Augusto Felício, Neptune – CEGE/ISEG; Portugal

Professor Felício, holding a PhD in management, is teaching graduate and post-graduate courses such as 'Maritime transport and port management' and 'Land transport and logistic management' at ISEG, School of Economics and Management (Technical University of Lisbon). His activities include participation in transport research where he has published several related articles and books.

Main author: Waterborne Transport, Intelligent Transport Systems

Peer review: Efficiency, Vehicle Technology

Dr Paul E Firmin, Institute for Transport Studies, University of Leeds (ITS); UK

Dr Firmin has 30 years of experience in transport planning and engineering, including local authority, consultancy and academia. His research specialities are: traffic management, transport survey design & analysis, traveller information systems; driver route choice behaviour and transport telematics. He is currently the MSc(Eng) degree programme leader and international student adviser at ITS, University of Leeds. He teaches computing skills and traffic management, and supervises student dissertation projects.

Main author: Information and Awareness

Peer review: Safety and Security

Dr Nils Gendner, Neptune – University of Bremen, ISL; Germany

Dr Gendner has been working for more than four years at the University of Bremen, Institute of Shipping Economics and Logistics. His main topics include the analysis of processes, functions and data flows in shipping and within the rail sector. He contributes to ongoing efforts in intermodality by participating in several projects dealing with intermodal concepts and developments.

Main author: Intermodal Transport, Integration

Peer review: Financing Tools, Pricing and Taxation

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Wolfgang Helmreich, Industriebetriebe-Betriebsgesellschaft mbH (IABG); Germany
Mr Helmreich is a civil engineer from the Technical University of Munich. He has more than 15 years experience with transport planning and infrastructure design in the rail, road and air sector, and sound knowledge of vehicle technologies. His expertise also includes project management, web publishing and dissemination skills. He joined IABG in 1999 as a senior transport consultant after working as project manager at several German engineering companies. He is principal editor of all Thematic Research Summaries.

Main author: Air Transport, User Aspects, Safety and Security

Peer review: Regional Transport, Rail Transport, Waterborne Transport, Environmental Aspects, Land Use Planning

Cristina Ivan, Group of Independent Experts Ltd (GIE); Romania

Ms Ivan has a law degree and has graduated a Master course in project management. Ever since 1998 she has participated in various projects financed by international donors in Romania. The main areas of her expertise cover: project management, legal approximation of the EU acquis & drafting of environmental legislation, as well as the carrying out of awareness raising and dissemination activities, including those for the transport sector.

Main author: EU Accession Issues

Peer review: Economic Aspects, User Aspects, Transport Management

Dr Ann Jopson, Institute for Transport Studies, University of Leeds (ITS); UK

Dr Jopson is a Research Fellow whose main interests and expertise lie in the areas of travel behaviour psychology, transport marketing and urban transport planning and policy, with particular emphasis on travel demand management through attitudinal and behavioural measures. Her PhD thesis was based on the role of psychology in reducing car use.

Main author: Environmental Aspects

Peer review: Rural Transport

Dimitris Koryzis, Systema; Greece

Mr Koryzis is a production & management engineer from the Technical University of Crete and holds an MSc in Decision Sciences from Athens University of Economics & Business. He has more than 8 years experience as technical and managerial consultant for 30 European programmes in the transport sector (road, maritime and intermodal) as well as in research and innovation technology EC projects.

Co-author: Pricing, Taxation and Financing Tools

Ulrich Leiss, Industriebetriebe-Betriebsgesellschaft mbH (IABG); Germany

Mr Leiss is an aerospace engineer from the Technical University of Munich. His professional career includes 24 years experience with research, technical analyses, monitoring and managing national and European projects and programmes. These activities cover the areas aerospace, transport, energy and new technologies.

Main author: Other Modes, Vehicle Technology

Bryan Matthews, Institute for Transport Studies, University of Leeds (ITS); UK

Mr Matthews has 9 years experience of transport research and project management in both consultancy and university settings. His research expertise is in transport policy analysis and transport economics. He has worked on a number of EU, UK DfT and Research Council projects. He also contributes to teaching activities, lecturing on Air Transport Systems and supervising student projects.

Main author: Rail Transport

Peer review: Air Transport

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Prof Anthony D May, Institute for Transport Studies, University of Leeds (ITS); UK
 Professor May has over 35 years' experience in transport planning and traffic engineering. He has been a professor at Leeds since 1977, and has served as Head of the Department of Civil Engineering, Dean of the Faculty of Engineering, Pro-Vice Chancellor for Research and Director of the Institute for Transport Studies. He also has practical experience with the MVA consultancy and the GLC in London. His research specialities include: land use planning, traffic management, road pricing, sustainable urban transport, integrated transport and environmental impacts of transport.

Supervision of entire process of thematic reviews

Batool Menaz, Institute for Transport Studies, University of Leeds (ITS); UK
 Ms Menaz is a transport economist from the University of Leeds. She has been involved in a number of various projects including research into transport pricing reform issues in air, road and rail for the IMPRINT-Europe thematic network project, and research for the UK Rail Research Centre looking at the alternative visions for the future of the British rail system.

Main author: Regulation/Deregulation

Co-author: Passenger Transport, Equity and Accessibility, Land Use Planning

Peer review: Road Transport

Christina Paschalidou, Systema; Greece

Ms Paschalidou is a transportation engineer from Aristotle University (Thessaloniki), with a MSc in Urban and Regional Transport from Laboratory of Transport Economics in Lyon. Her field of interest is transport planning and engineering, EU and national transport policies, sustainability issues and research. She joined Systema in 2005, while her previous experience includes an internship in ISIS, traffic studies elaborated individually and research activities in the Aristotle University.

Main author: Transport Management

Peer review: Information and Awareness, Integration

Ignacio Rada Cotera, Neptune – IkerConsulting; Spain

Mr Rada Cotera is a lawyer from Deusto University in Bilbao, holding a diploma and certificate of European studies from Deusto and Saarland Universities, respectively. He has been working on EU projects since 2000. His main expertise is European commercial and regional policy, maritime transport and port affairs, legal aspects of international economic relations, urban planning, regional benchmarking and development.

Main author: Regional Transport

Marco Valerio Salucci, Università di Roma "La Sapienza", DITS; Italy

Mr Salucci holds a degree in mechanical engineering from the University of Rome "La Sapienza". His past research experience has focused on computer modelling of the operations of freight terminals and automatic passenger transport systems, the latter being carried out within EC funded research projects. His current research for a doctorate is in the area of transshipment and information and communication technologies for intermodal freight transport.

Co-author: Freight Transport, Urban Transport, Rural Transport, Efficiency, Decision-support Tools

Peer review: Intermodal Transport

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Dr Karsten Seidel, Neptune – European Networks and Cooperation; Belgium/Germany
 Dr Seidel has graduated as economist and holds a PhD from the University of Bremen. He has been working on EU projects since 1988. His main expertise is in European industrial and regional policy, telecommunication research projects, maritime transport and port affairs, evaluation of technical aid, urban planning, regional benchmarking development.

Co-author: Regional Transport

Dr Paolo Delle Site, Università di Roma "La Sapienza", DITS; Italy
 Dr Delle Site holds an PhD, and is a senior research fellow at DITS, Transport Area, University of Rome "La Sapienza". He combines professional experience with research activities, the latter mainly being carried out within EC funded research projects. Related activities comprise urban transport planning, urban public transport design, transport project assessment, and policy analysis. His teaching activities include courses in transport planning. Furthermore, he is author of papers in Transportation Research Part A – Policy and Practice and in the European Journal of Transport and Infrastructure Research.

Co-author: Freight Transport, Urban Transport, Rural Transport, Economic Aspects, Infrastructure Provision, Pricing, Taxation and Financing Tools

Peer review: EU Accession Issues, Intelligent Transport Systems, Regulation/Deregulation

Damian Stantchev, Institute for Transport Studies, University of Leeds (ITS); UK
 Mr Stantchev holds a degree in Economics and Trade from Varna University of Economics in Bulgaria and an MA in Political Science from the Central European University in Hungary. His early research experience was in the area of small business development in transitional economies of Central and Eastern Europe. Damian has also contributed to an extensive report on the role of the logistics and transportation sector in society for the Logistics & Transportation Corporate Citizenship Initiative of the World Economic Forum. His research for a doctorate examines the role of logistics in enhancing the competitiveness of the regional economy and encompasses all aspects of original research and data collection including the design, conduct and analyses of large scale surveys as well as the collection of commercial data and development of case studies.

Main author: Passenger Transport, Land Use Planning, Equity and Accessibility

Peer review: Freight Transport

Andrew Winder, ISIS; France

Mr Winder is a transport planner with a BSc in transport management (Aston University, England) and over 15 years experience in consultancies and public transport authorities covering transport planning and policy, particularly at UK, French and Europe-wide levels. Since 1998 he has been a senior engineer at ISIS, responsible for a wide range of European projects focusing primarily on Trans-European Networks, ITS for road traffic management, urban and regional public transport and EU enlargement aspects.

Main author: Road Transport

Peer review: Passenger Transport, Urban Transport, Other Modes, Equity and Accessibility, Infrastructure Provision

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Ard Wolthuis, Università di Roma "La Sapienza", DITS; Italy

Ard Wolthuis graduated in Science & Innovation Management, in the field of Transport and Mobility, from the University of Utrecht. He has been involved in transport projects and analysed socio-economic, environmental, political and legal aspects, such as the Phileas project, the Fokker bankruptcy, and innovation policy of companies in the Netherlands. Has participated in a European project on innovation in urban public transport systems. Since spring 2005 has joined DITS as a research fellow. His main areas of activities are policy analysis and dissemination of research results.

Co-author: Efficiency, Decision-support Tools

Dr Zhaomin Zhang, ANAST – University of Liege, Neptune; Belgium

Dr Zhang has got the university degrees of Civil Engineering, Mechanical and Marine Engineering; Master of Transportation Sciences and Doctor of Philosophy. He is a senior engineer and led the important projects related to the "Establishment of a mathematical traffic model on the Belgian waterway network" (Belgian national research program "Transport and mobility"), the project called "On computerisation and management in real-time of operations relating to the exploitation of fluvial traffic to organise the waterway transport", Belgian Regional Ministry of Public Works) and the Project related to the development of a transport cost model in the inland navigation sector. He has also been involved in numerous simulation and operation research activities.

Peer review: Decision-support Tools

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