Freight Modal Shift and EU Transport Policy

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European Transport Policy
Focus

- To increase Europe’s competitiveness and prosperity
- Accommodate globalisation of production/supply chain
- Address the environmental and social disbenefits
- Reduce reliance on imported fossil fuels
EC Goals and Objectives

EU Reliance on imported energy

Source: EC Green Paper (2001)
A changing transport context:
Expected growth in freight transport activity by mode
(2000=100)

Source: EU, 2001
NB: In USA railfreight market share is circa 40%
Rail now has 11.5% of the surface transport market (rail and HGV), and 8.3% of the total freight market including pipelines, water and air freight. At privatisation, the surface transport market share was 8%.  

Total surface transport, internal and external, Source DG TREN
Negative Impacts of Transport

- Energy consumption in the transport sector is roughly 28% of emissions of CO2, the leading greenhouse gas.
- If nothing is done to reverse the traffic growth trend, CO2 emissions from transport can be expected to increase by around 50% to reach 1 113 billion tonnes in 2010, compared with the 739 million tonnes recorded in 1990.
- Road transport alone accounts for 84% of the CO2 emissions attributable to transport.
- Reducing dependence on oil from the current level of 98%.
- Congestion, which is estimated to rise from 0.5% of GDP to 1% of GDP by 2020. In 2001 it was estimated that road/rail/air congestion consumed an extra 1.9 billion litres of fuel, which is some 6% of annual consumption.
- Accidents and fatalities, whilst truck drivers are on the whole safe drivers, any accident involving a truck is far more likely to involve a fatality.

Positive Impacts of Transport

- Transport liberalisation has enabled the Single Market and the growth of prosperity across the EU.
- Transport allows more efficient manufacturing and distribution.
- Transport, especially the standardised sea container, has enabled the expansion of China and effectively the export of the devaluation effect to Europe and USA.
- Transport enables a pull based low stock and high quality economy where customers can ask for and expect product at their factory, office or home on time at short notice.
- 10-15% of all of Europeans work in transport and logistics, it represents about the same percentage of GDP in all developed countries.
- 80% of all Europeans live in urbanised areas and as such are highly dependent on freight transport.
- Just as Western Europe has started to suffer from the effects of too much transport, Eastern Europe is reliant on it to trade with the older member states and become part of what has been described as an ‘Empire of Equals’.
Key milestones in EU Freight Transport Policy

- **March 1957**: Treaty of Rome, Common Transport Policy.
- **June 1985**: Measures for liberalizing and harmonizing transport policies across the Community.
- **Dec 1992**: Commission Communication on the future development of the Common Transport Policy.
- **Dec 1995**: Green Paper “Towards fair and efficient pricing in transport”.
- **July 1996**: Adoption of a Decision on Community guidelines for the development of the trans-European transport network.
- **July 1998**: “Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU”.
- **Sept 2001**: “European transport policy for 2010: time to decide”.
- **2006**: “Keep Europe Moving: Sustainable mobility for our continent”
Decoupling and modal shift:

- Aimed to decouple economic growth and transport growth; would also be much slower growth in road haulage thanks to better use of the other means of transport (increase of 38% rather than 50% between 1998 and 2010).
- This approach would allow the market shares of the other modes to return to their 1998 levels and thus make for a shift of balance from 2010 onwards. This approach is far more ambitious than it looks, bearing in mind the historical imbalance in favour of road for the last 50 years.
- Strong reliance on revitalising railways, infrastructure charging, motorways of the seas and intermodal trans-shipment.
- It failed.. see previous mode share charts.. with some exceptions..
Key EU Policy milestones:

- Co-modality:
  - Complementary and efficient use of modes in an optimal European transport system
  - Looking at each mode individually and their integration in logistics chains
  - Essentially a recognition that in order to achieve objectives it will be necessary to improve all modes rather than intervene in the market.
Key EU Policy milestones: Freight Transport Agenda, Oct 2007

“The EU freight transport agenda: boosting the efficiency, integration and sustainability of freight transport in Europe”

- The Freight Logistics Action Plan.
- Communication on a freight-oriented rail network.
- Communication on a European Ports Policy.
- Commission staff working paper «Towards a European maritime space without barriers».
- Commission staff working paper on Motorways of the Sea.
EU RAILWAY PACKAGES

- A strategy is in place to revitalise the railways in Europe. Its aims are to:
  - promote market opening;
  - improve performance of rail freight;
  - create incentives for product innovation and service quality; and
  - encourage the development of a sustainable, well integrated and efficient rail system.

- Rail legislation in the early nineties introduced a certain degree of market opening and prompted the railways to concentrate more on competitiveness. Since then, the European Commission has put forward further initiatives in the shape of packages of legislative measures.

- Further details on these and other issues can be found on the Europa website.
The First Railway Package

The First Railway Package is an important suite of European Directives. It is designed to:

- open the international rail freight market,
- establish a general framework for the development of European railways, and clarify the formal relationship between the State and the infrastructure manager on the one hand, and between the infrastructure manager and railway undertakings (train operators) on the other hand (Directive 2001/12/EC);
- set out the conditions that freight operators must meet in order to be granted a licence to operate services on the European rail network (Directive 2001/13/EC); and
- introduce a defined policy for capacity allocation and infrastructure charging (Directive 2001/14/EC).
The Second Railway Package

- Directive 2004/51/EC opens up both national and international freight services on the entire European network from 1 January 2007;
  - covers the accession of the European Community to the Intergovernmental Organisation for International Carriage by Rail (COTIF);
  - Directive 2004/49/EC (the Railway Safety Directive) develops a common approach to rail safety. It lays down a clear procedure for granting the safety certificates which every railway company must obtain before it can run trains on the European network and harmonises safety levels across Europe by, among other things; specifying what infrastructure managers need to do in order to receive safety authorisation.
  - Directive 2008/57/EC (the Interoperability Directive) harmonises and clarifies interoperability requirements; and
  - Regulation (EC) 881/2004 sets up an effective steering body, the European Railway Agency, to co-ordinate groups of technical experts seeking common solutions on safety and interoperability.
Third Railway Package

- The European Commission adopted a third package of measures on 26 September 2007, consisting of:
  - Directive 2007/59/EC on the certification of train drivers operating locomotives and trains on the railway system in the community: lays down conditions and procedures for the certification of train crews operating locomotives and trains;
  - Directive 2007/58/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure: envisages opening the market for international passenger services to competition from 1 January 2010; and
  - Regulation 1371/2007 on rail passengers' rights and obligations: ensures basic rights for passengers, for example, with regard to insurance, ticketing, and for passengers with reduced mobility.
The European Commission (EC) sent letters of formal notice to 24 European Union (EU) member states on June 26, 2008 regarding their failure to properly implement the First Railway Package legislation.

The EU contends that the creation of an integrated railway market is a key factor in boosting its efficiency and competitiveness, as well as a further step in ensuring sustainable mobility in Europe.

As part of its duty to monitor the transposition of EU legislation into national law, the EC found implementation failures in Austria, Belgium, Bulgaria, the Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Lithuania, Luxembourg, Latvia, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, and the United Kingdom.

"Proper transposition of the first railway package is essential for creating competition in the European railway markets and increasing the competitiveness of railways in relation to other modes of transport," said Antonio Tajani, EC vice president in charge of transport.
Specific Failures

- The 2006 report found that, although member states had introduced the necessary legislation, some countries needed to take further measures to ensure an effective regulatory framework as well as the satisfactory functioning of the railway markets.

- Following a detailed analysis of the conformity of national legislations, the EC noted such shortcomings as:

  - Lack of infrastructure manager's independence from railway operators.
  - Insufficient implementation of the directive's rules on track access charging, such as absence of a performance regime to improve the performance of the railway network and lack of infrastructure manager's incentives to reduce costs and charges.

- Failure to set up an independent regulatory body with strong powers to remedy competition problems in the railway sector.

- Source: European Commission.
Rail Freight Initiatives

- Trans European Rail Freight Network (TERFN)
  - declared 2001
  - huge sprawling network of lines open to competition.
  - no focus, more symbolic than actual.
- Railfreight corridors
  - Linked to TEN-T corridors
  - Have been studied and demonstrated with research programmes:
    - REORIENT
    - TREND
    - NEW OPERA
    - BRAVO (Brenner)
    - RETRACK (BENELUX-ROMANIA)
    - CREAM (BENELUX-ROMANIA)
Logistics Action Plan

- E-Freight and Intelligent Transport Systems
- Sustainable Quality and Efficiency
- Simplification of Transport Chains
- “Green” Freight Transport Corridors
- Urban Freight Logistics
- Vehicle Dimensions and Loading Standards
Work actively with stakeholders towards e-freight and identify the problem areas where EU action, such as standardisation, is required. Identify the added value and obstacles to creating an "Internet for cargo" with appropriate follow up. Encourage the standardisation of a uniform way to electronically describing freight transport services.

Establish a single window (single access point) and one stop-administrative shopping for administrative procedures in all modes.

- NewRail has worked as a research partner on:
  - KOMODA: quantitative Delphi Study based research into eLogistics, co-modality and SME involvement in ICT & Transport Logistics.
  - Freightwise: developing a system architecture for eFreight within and between modes and roles.
  - eFreight: started 2010, developing the eFreight concepts further.
Sustainable Quality and Efficiency

- Continuous bottleneck exercise. 500+ bottlenecks identified and growing.

- Transport logistics personnel and training

- Indicators for transport chain performance
  - To establish, in consultation with the stakeholders, a core set of generic indicators that would best serve the purpose of measuring performance, sustainability and efficiency in transport logistics chains. Incorporate the above results into a code of best practices ("standard Shipping terms"), legal act or recommendation.

- Benchmarking transhipment facilities

- Newrail has worked as a research partner on:
  - BE LOGIC: identifying and building benchmarking tools for transport chains and quantitative research to evaluate the need for new quality standards/labels for freight transport.
Promotion of best practice

- Establish a network between logistics institutes to exchange experience, and disseminate best practice.

- NewRail has participated as a network partner in:
  - BESTUFS I and II, networks for promotion of best practice in urban freight logistics;
  - BESTFACT, a new best practice network to be launched early 2011.
"Green" Freight Transport Corridors

Promote the establishment of sustainable and efficient "green" long-distance freight corridors, between hub terminals, for all modes of transport

- NewRail is a research partner in:
  - SuperGreen, a research project to define and develop the Green Corridor concept.
  - BESTFACT Green Corridor cluster leader.
Urban Logistics

The Commission will function as a catalyst to bringing urban areas together towards a holistic framework leading consisting of a set of recommendations, best practice, Indicators or standards for urban logistics, including freight deliveries and delivery vehicles, which could be adapted locally for different circumstances. Make recommendations of commonly agreed benchmarks or performance indicators to measure efficiency and sustainability of delivery and terminals and, more generally, in urban logistics and planning. This could also help finding the most efficient solutions through freight consolidation and modelling.

- NewRail has been a research partner in:
- BESTUFS I and II: network promoting urban freight best practice;
- CITYFREIGHT: case study based research into city logistics;
- BESTFACT: new FP7 project with an urban freight cluster.
Freightvision was an FP7 foresight project visioning freight transport in 2050, and backcasting to suggest an action plan to achieve a desired future.

Controversially it suggested that modal shift was one of the lowest factors for meeting the objectives:

- It should be possible to reduce GHG emissions by 80% in long-distance freight transport
- It should be possible to reduce Fossil Fuel Share to 40%.
- It should be possible to reduce Congestion by 50%
- It should be possible to reduce Accidents by 80%

Caveats abound, UIRR denounced it as “barely an opinion poll”

CER almost walked out.

A new transport policy is being developed!
## Freightvision Targets and Sensitivity

**Source:** Freightvision Management Summary, 2010

### GHG emissions and fossil fuel share – Influence factors:

<table>
<thead>
<tr>
<th>Influence Factors</th>
<th>Target for 2020</th>
<th>Target for 2035</th>
<th>Target for 2050</th>
<th>GHG</th>
<th>FFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Stabilizing the increase of km</td>
<td>Max. +30%</td>
<td>Max. +43%</td>
<td>Max. +44%</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>II. Decreasing vehicle energy demand</td>
<td>-20%</td>
<td>-40%</td>
<td>-50%</td>
<td>88%</td>
<td>~</td>
</tr>
<tr>
<td>III. Reducing carbon emissions in electricity production</td>
<td>-37.5%</td>
<td>-61%</td>
<td>-88%</td>
<td>55%</td>
<td>22%</td>
</tr>
<tr>
<td>IV. Electric engines in road transport</td>
<td>0%</td>
<td>10%</td>
<td>25%</td>
<td>41%</td>
<td>5%</td>
</tr>
<tr>
<td>V. A Increased share of biofuels</td>
<td>8%</td>
<td>24%</td>
<td>33%</td>
<td>38%</td>
<td>30%</td>
</tr>
<tr>
<td>V. B Biofuels upstream emissions</td>
<td>-35%</td>
<td>-83%</td>
<td>-83%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI. Increased efficiency in usage of yep.</td>
<td>+8%</td>
<td>+30%</td>
<td>+50%</td>
<td>25%</td>
<td>~</td>
</tr>
<tr>
<td>VII. Improved engine efficiency</td>
<td>+21%</td>
<td>+40%</td>
<td>+45%</td>
<td>21%</td>
<td>2%</td>
</tr>
<tr>
<td>VIII. Higher modal share of rail and IWW</td>
<td>Road 75%</td>
<td>Road 70%</td>
<td>Road 65%</td>
<td>7%</td>
<td>~</td>
</tr>
<tr>
<td></td>
<td>Rail 19%</td>
<td>Rail 22,5%</td>
<td>Rail 25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IWW 6%</td>
<td>IWW 7,5%</td>
<td>IWW 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IX. Increased share of electric rail</td>
<td>66%</td>
<td>75%</td>
<td>80%</td>
<td>3%</td>
<td>~</td>
</tr>
<tr>
<td>X. Usage of larger trucks</td>
<td>2%</td>
<td>8%</td>
<td>10%</td>
<td>2%</td>
<td>~</td>
</tr>
</tbody>
</table>

Source: Freightvision Management Summary, 2010
Modal share target for rail is pessimistic:
- Rail modal shares in many countries is already above 25% (from 26% to 58%)
  - Latvia: 58%; (decreased by -18% between 2002 and 2007)
  - Estonia: 57%; (decreased by -18% between 2002 and 2007)
  - Switzerland: 44%; (stabilised)
  - Lithuania: 41%; (decreased by -13% between 2002 and 2007)
  - Sweden: 36%; (grew by 6% between 2002 and 2007)
  - Austria: 35%; (grew by +19% between 2002 and 2007)
  - Finland: 26%; (grew by +12% between 2002 and 2007)
  - Poland: 26%; (decreased by -27% between 2002 and 2007)
  - Slovakia: 26%; (decreased by -36% between 2002 and 2007)

Source: CER, Jacques Dirand

It’s all about infrastructure:
- In EU15, between 1970 and 2005
  - Road freight more than tripled
  - Rail freight decreased by a fifth.
- Over the same time, road infrastructure increased by 3.5 and rail fell by 14%.

Vision is based on claims for improvement by road vehicle industry whereas rail has a clear environmental and safety advantage now.

Increased safety on roads will create a cost burden on road that will drive customers to rail.
A considered view.. mine

From working in industry as a supply chain manager and from my consultancy and research work, backed up by multiple private and public research projects, customers choose a mode of transport on 2-3 criteria:

Total cost, that is the total cost of a transport chain (or even a supply chain) from A to Z, not a price from A to B.

Reliability, more important than speed, the ability to consistently meet loading, departure, arrival and unloading times is crucial to modern manufacturing and distribution.

Flexibility, the ability to adapt services to changing conditions is key.
A considered view.. mine

Railfreight has a variety of problems that prevent it competing with road:

- Very long and inflexible planning horizons.
- Appalling reliability.
- Lack of visibility of goods.
- Very slow and unreliable trans-shipment.

Below these lie a wide variety of inherent issues, and we at NewRail have worked to address many of these:

- Interoperable international freight corridors; (RETRACK, SuperGreen, BESTFACT)
- Interoperable ICT systems; (Freightwise, KOMODA, eFreight)
- Benchmarking of terminals and transport chains; (BE LOGIC)
- Assessment of quality standards; (BE LOGIC)
- Horizontal transhipment; (INHOTRA)
- Novel train formations and trains; (IRIS, SPECTRUM)
- Addressing the rail-urban interface. (BESTUFS, CITYFREIGHT, BESTFACT)
The US and other countries (such as China or South Africa) have long distance rail networks integrated both operationally, economically and politically.

The EU, for historical reasons, has a rail network separated by technical incompatibility, cultural separation, network separation and a disconnection between infrastructure and operations.

Developing long distance freight traffic is key to unlocking the long haul intermodal business, and NewRail is working to this end in several projects:

(RETRACK, SuperGreen, BESTFACT)
RETRACK

The main objective of the RETRACK project is to develop, demonstrate and implement an innovative and market-tested rail freight service along an East-West trans-European corridor.

We have learnt that cultural, political, economic and integration issues are more likely to prevent cross border railfreight in EU than technical issues:

Freight is usually diesel hauled avoiding electrical issues, we could run a single loco from NL to RO, but choose to run 2 for operational reasons,

A bigger issue is the licensing of drivers, lack of standardised language, and the interactions between private railway undertakings re liability.
Interoperable ICT systems

The ability to seamlessly transfer data re freight movements between operators, authorities and modes in a standardised fashion is a key goal for the EU and key stakeholders such as Procter and Gamble and others.

NewRail has led work in key projects such as (Freightwise, KOMODA, eFreight to “Integrate Through Simplicity”):
Transport Service Description

- ID
- Service Category
- Valid From
- Valid To
- Company
- Service Details
  - Service Charge
  - Service Goods Type
  - Service Load Unit Type
  - Environmental Performance

Transport Means

Service Location

- Timing
  - Type
    - Area Description
    - Location
      - Point(s)
      - Area
Summary and Conclusion

Freight Modal shift started as a key EU policy in the 90s and thru to 2006.

Recognition has shifted to that fact that the objective is not modal shift but, by 2050:

- Reduction of GHG emissions by 80% in long-distance freight transport;
- Reduction of Fossil Fuel Share to 40%.
- Reduction of Congestion by 50%
- Reduction of Accidents by 80%

Railfreight has not yet managed to compete with road, it has many problems to resolve, but it also has great goals to reach, even in the standard Freightvision scenario railfreight modal share needs to double.

To compete railfreight needs to address fundamental issues about operation, organisation, ICT, technology and culture.

Modal shift is still a key goal and one that NewRail will actively work to achieve, but the electrification of road and rail may still have a material impact. Electrification of rail may
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References


- Various reports and policy documents at: