Freight Best Practice

Non-road Modes Research

Executive Summary

Research

Department for Transport

Executive Summary

Expanding, Exploring and Embedding the Freight Best Practice programme

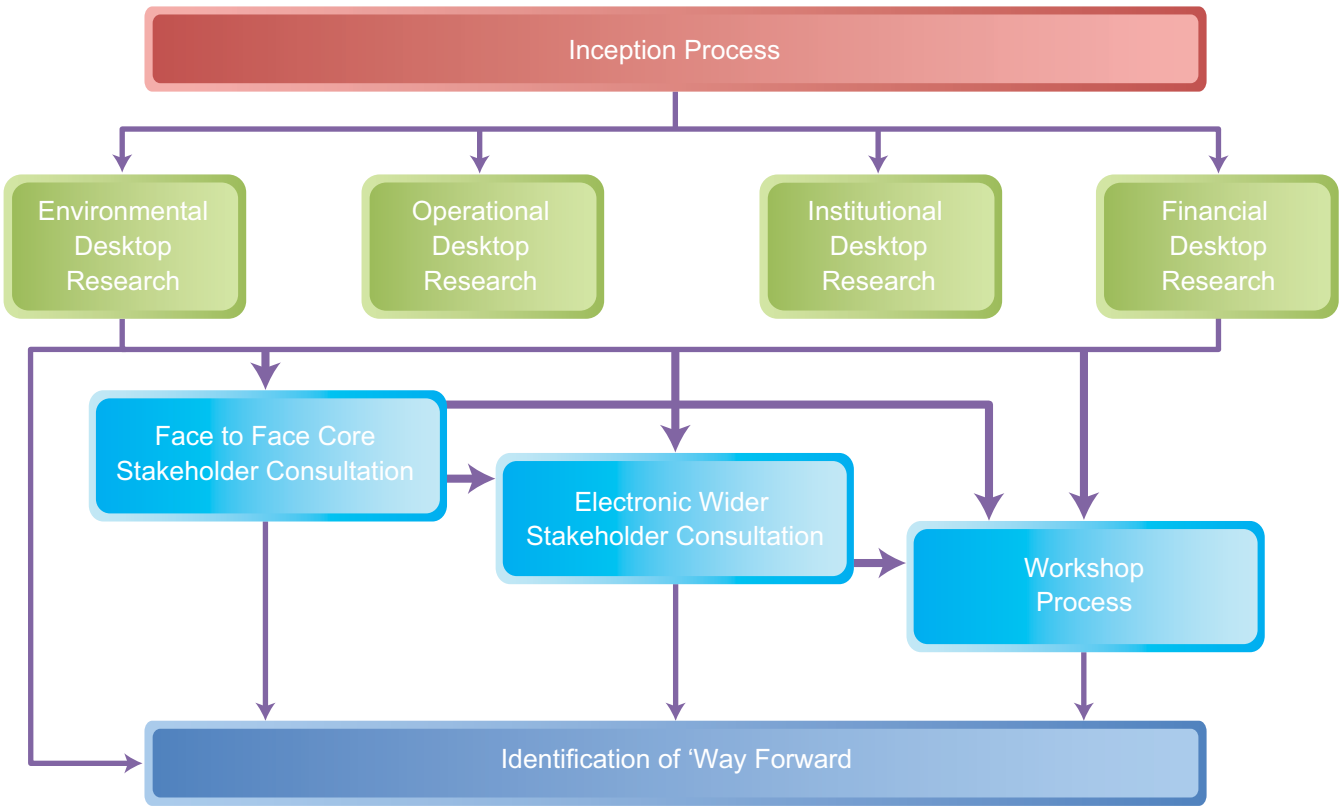
The Freight Best Practice Programme has until recently mainly focused on providing efficiency-based information to road freight operators in order to facilitate reductions in CO_2 emissions . In response to the current market, and to ensure a fully inclusive programme, the Freight Best Practice programme has expanded its remit to include 2 non-road modes; rail and waterborne freight. This piece of research is designed to explore topics that will form an integral part of the programme and help embed efficiency improvements across the supply chain by optimising the use of rail and water transport.

This piece of research sought to resolve:

- To what degree do non-road mode operators optimise the fuel efficiency within their own operations, and is there scope for further efficiency improvements?
- To what degree do these modes already play an optimal role in the freight market?
- What level of awareness do potential users of non-road modes exhibit?

This research has been carefully constructed to answer these questions and to recommend how to achieve efficiency throughout the freight industry and where the Freight Best Practice programme can be best engaged to help.

The following diagram represents the methodology used to understand the current operations of non-road modes. This executive summary will summarise research in the following 4 areas: Environmental, Operational, Institutional and Financial.



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Environmental Findings

Efficiency Improvements

Freight Best Practice has been driving and reporting on best practice developments in the road freight industry sector for many years. The concept of 'doing more whilst using less resources' is aimed squarely at improving operational efficiency and fuel efficiency of vehicles. Fuel efficiency and modal shift form 2 of the 4 core parts of the DfT's policy.

The Department for Transport are committed to reducing the impact of travel on the environment and are promoting policies to:

- Reduce the fossil carbon content of transport fuel
- Increase the fuel efficiency of vehicles
- Encourage a move towards more environmentally friendly forms of transport
- Work towards the inclusion of transport in emissions trading schemes

This research has identified a range of efficiency interventions which are applicable to the rail and waterfreight sectors. Chapter 2 contains a list of the interventions and Appendix A gives further details of all the interventions and, where possible, details the percentage CO_2 savings presented by each.

Encouraging Modal Shift - Environmental Opinions

Given that 76% of respondents in our stakeholder consultation were aware of the relative environmental benefits of mode switch, it was surprising that 95% had not researched these benefits and 60% of them had no knowledge that environmental benefits are of core concern when applying for mode shift grants. As a reflection of this fact, only 17% of freight transport users have heard of Sensitive Lorry Miles (SLMs) or Mode Shift Benefits (MSBs). This knowledge gap has been identified as being of concern, and as a possible intervention area for the Freight Best Practice programme to address.

In addition, there was some concern shown and found over the differences between CO_2 conversion factors. The main research has been compared and contrasted the different figures in some detail. It is percieved that the variation in figures may be a barrier to growth.

Workshop Outputs

As part of the consultation process, the workshop asked key stakeholders what the core environmental areas of concern are in the industry, and the possible intervention areas for Freight Best Practice.

The following two tables summarise this approach, with a score of 7 being a maximum and a score of over 4 indicating positive support. The issues marked in bold have strong support (a score over 5).

Environmental Issues

Rank		
	Benefits of using non-road modes difficult to quantify	
	Transport accounts for over 20% of UK greenhouse gas emissions	
	Freight industry is heavily/almost completely dependent on fossil fuels	
	CO_2 reductions and efficiency improvements are required within the rail industry	

Freight Best Practice Intervention Areas - Way Forward

Rank	Issues Identified	Score
1	**Work with other departments within government to develop a standardised approach to measuring the benefits of different modes in terms of emissions**	**6.04**
2	**Interactive multi-modal map**	**5.92**
3	**Interactive flow matching service**	**5.64**
4	Train loading aerodynamics research	4.86
5	Rail Freight Benchmarking	4.67
6	Shore power plug in demonstration	4.30

Operational Aspects Findings

Rail and Water freight have some generic operational advantages and disadvantages compared with road freight. These characteristics are tabulated in Chapter 3 and are discussed in detail in Appendix B.

This chapter covers the importance of an integrated freight transport system in maintaining an efficient and environmentally friendly operation. In the road haulage sector, it is possible to optimise within a single mode However, when dealing with rail and/or water freight there tends to be a necessary requirement for interface with road freight networks for certain legs. This interface is crucial to enable an optimal multi-modal freight transport solution, and requires the optimisation of each mode and the interface between each mode.

Key Issues From the Research:

Rail Freight

- There are certain areas that suffer from capacity issues on the network and at open access terminals.
- The extension of services to a six or seven-day operation to rival road transport is often hampered by track engineering works, but this is an issue the Network Rail are working on.
- Perceptions of rail freight are often based on the performance of passenger trains.
- The industry is becoming increasingly focused on customer service, with a greater variety of services being offered and a shift towards taking greater responsibility for customer service.
- Small volumes can make using rail freight more expensive but this may be changing with a few services starting to offer scheduled trains with capacity sold on a per container basis, through consolidation centre or partnership working.

Coastal Shipping

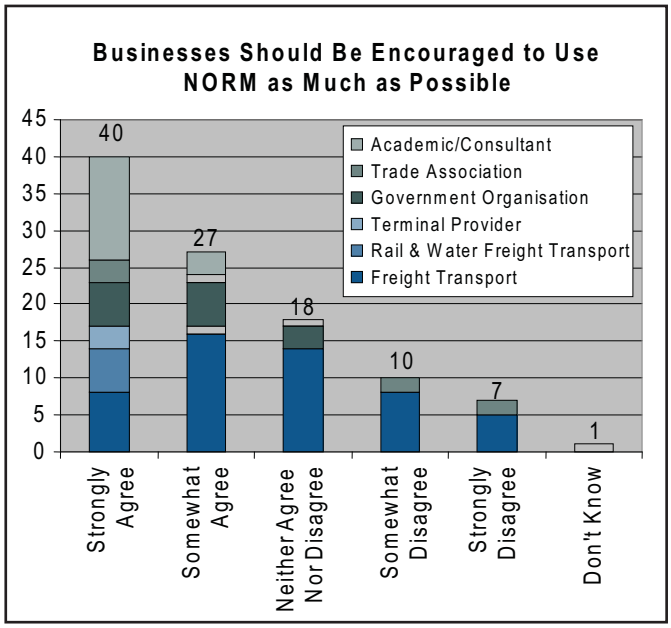
- Within the last couple of years, a number of developments have been approved at ports throughout the UK.
- The new concept of automated transfer is especially interesting for the short sea/coastal market as it could significantly reduce transhipment costs.
- A well designed loading and unloading plan, using IT management systems, is essential to speed up the port operation.
- Emissions of air quality pollutants such as SOx and NOx can be relatively high but as cleaner fuels and vessels are introduced and legislation passed, these emissions will be reduced.

Inland Waterways

- One of the problems facing inland waterways is the lack of a national network and alternative routes. In addition, narrow and variable gauge waterways as well as tidal and canal lock time constraints restrict inland waterway from development.
- The inland waterways infrastructure and vessels are generally reaching or have reached the end of their operational life.
- Labour skills shortages are also threatening the future of freight on inland waterways.

Workshop and Consultation Outputs

Our consultation has identified that 65% of respondents think that businesses should be encouraged to use non-road modes as much as possible, and this research has given examples in Appendix B on 4 private rail user sites and 8 major ports.



It has been highlighted that trade associations could form a bridge between potential users and the different freight sectors, and that some form of information resource is required to offset (where possible) the 29% of stakeholders that 'strongly disagree' that non-road modes (NORM) are important to business operations.

Other points of concern included the acknowledgement that service providers within the non-road mode sector do not do enough to market themselves. Whilst there are some signs that this is being addressed, stakeholders' impressions of a lack of business approach and customer service culture are both potential barriers to further uptake.

This learning has been translated into outputs for the Freight Best Practice programme in the future, and are presented in Chapter 7 (The Way Forward).

Institutional Aspects Findings

This part of the research was aimed at developing an understanding of the different institutions that exist in the freight market. The research has developed an understanding of the roles of these bodies and the current and potential roles that they can play in influencing the prevalence of non-road modes.

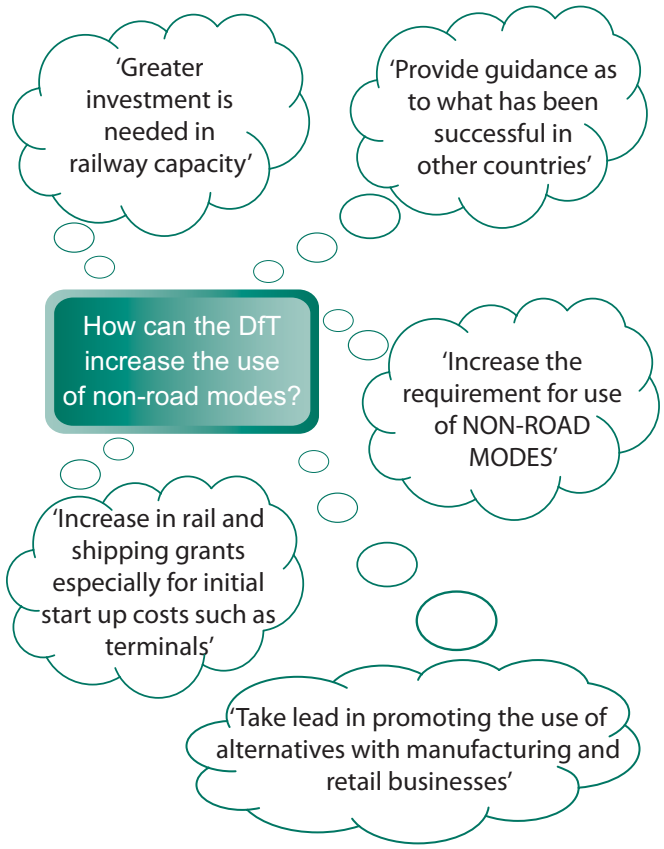
There are various organisations and institutions responsible for the operation of the three key non-road sectors. This research has highlighted their structure, roles and responsibilities in order to determine the level of interoperability and information shown by the institutions. There are currently six active rail freight operating companies in the UK, nine major coastal shipping operators and four major inland waterway operators.

Some of the findings from the research have highlighted that there are discrepancies between the central and regional level of bodies and information and the fact that these discrepancies are strongest in certain governmental policies. For example, the 2000 Transport Plan fails to address waterborne freight. Equally, in planning, there are wide variations in approaches; multi-modal sites cannot be promoted sufficiently by the current planning system and the Standard Appraisal Systems. It is recognised that the new Planning Act 2008 seeks to address planning of ports, airports, and strategic networks including strategic rail freight terminals.

Equally covered in the Institutional Aspects chapter of this report is a summary of the key elements of core documentation, including DfT's DaSTS, Strategic Freight Network and TaSTS, CILT's An Inconvenient Truck?, FTA's Making use of Rail, RHA's Inhibitors to Rail Freight Growth and further relevant information from the University of Westminster.

Workshop and Consultation Outputs

Stakeholders interviewed as part of the consultation process were sceptical as to the efficacy of current mode-shift policy, but recognised that the DfT played a core role in setting and directing policy. Despite this, there was a poor awareness of current policy, and the respondents felt that policy formulation was better spent on certain re-development areas, rather than on policy which directly addresses modal shift. Some of the key findings are displayed in the diagram below.



Financial Aspects - Findings

Financial aspects tend to be often cited and perceived as a fundamental barrier to modal shift. This part of the research addressed this issue and sought to understand the costs associated with rail and waterborne freight in addition to other financial conditions that may prevent modal shift. In addition, the scale and provision of grants was of concern.

Cost is often the most influential factor in determining which mode to utilise in the transportation and distribution of goods. However, there are disparities in cost comparisons between modes as the cost structures do not match. The following table outlines these cost-type differences.

Types of Costs included between Intermodal Rail and Road

	Inter-modal rail	Road
Fuel	✓	✓
Wages	✓	✓
Wagons	✓	×
Track access	✓	×
Terminal charges	✓	×
Other	✓	✓

The costs of non-road modes tends to be cheaper on a tonne-km basis, but they often struggle to reach economic viability when other mode-specific costs such as capital investment and track access are taken into account. In contrast to the relatively transparent road haulage sector; some of these types of mode-specific costs tend to be commercially sensitive. This is in some cases acting as a barrier to investment, particularly when coupled with the institutional barriers which highlight the relative de-skilling that has occurred in non-road mode knowledge and labour in recent years. The lack of clear on-demand cost information is preventing some organisations from making the business case with which to approach senior internal stakeholders, and also contributes to unwillingness to investigate grant application procedures.

Stakeholder Consultation

In addition to operational costs there are also a range of financial investment perceptions shown by stakeholders which act as barriers to take up. In some cases the economic business case is justified on the latent marketing and corporate image perception opportunities. Equally, the cost of infrastructure and maintenance and the knowledge of certain network pinch points highlight this fact. It was generally felt that rail in particular was important to the UK economy and the freight sector's development, and that the promotion of other modes provides for financial and operational resilience in supply chains. Whilst there is the overall perception that operational costs and mode specific 'hidden' costs are a key barrier to take up, the lack of knowledge of the existence of government grants to assist modal shift, for example WFG, FFG or REPS, is also a problem. The stakeholders' key element of feedback was that the grants process was too complex.

Stakeholder Consultation - Highlighting 'The Way Forward'

Stakeholder consultation is seen as a key means of determining the role of Freight Best Practice. The role that stakeholder consultation has played with regards to each element of research has been highlighted within each chapter. However, the following table highlights the cumulative stakeholder view on the role that Freight Best Practice should play in the furthering of non-road modes. This table and the associated tasks have informed a programme known as 'The Way Forward'.

The Way Forward

The information collected and analysed has provided a base of information regarding non-road modes from a range of stakeholders. The Way Forward hinges on the targeting of information at three groups.

The groups are presented as follows:

- Potentials users - highest potential for CO_2 benefits as they could experience a six-fold drop in CO_2 emissions by changing mode;
- Present users of non-road modes - It is important that their position in the sector is consolidated by sharing best practice and promoting the benefits of rail and water;
- The general freight sector - Widest group of the general Freight Best Practice audience.

The following table outlines the output areas gained from the research and consultation, and the applicable groups to which they are applicable.

Section	Idea	Idea Rating (out of 7)	FBP Score (out of 10)	Timeframe		Target Audience		
				Year 2	Year 3	Present Users	Potential Users	Whole Sector
Environment	Benchmarking	4.67	6	Yes		✓	✓	
	Interactive flow-matching service, demonstration	5.64	6		Yes		✓	
	Interactive multi-modal map	5.92	6	Yes		✓	✓	✓
Operational	Guide: Integration of modes – road to rail and water interchanges	5.89	7		Yes	✓	✓	
	Operational Efficiency Research	5.47	6	Yes		✓	✓	
	Case Study: Demonstration financial and environmental savings	5.20	7	Yes		✓	✓	
	SAFED: Safe and Fuel Efficient Driving Scheme for Water	5.12	6		Yes	✓	✓	
	Case Study – Winner from Rail Freight Group Awards 2008	5.06	7	Yes		✓	✓	
	Guide - Best Practice in Rail Operations	5.06	6		Yes	✓	✓	
Financial	One Stop Shop for information and marketing includes preparation and a member of staff	5.82	6		Yes		✓	
	Flyers – easy-to- read tips for use of rail/water	4.92	7		Yes	✓	✓	✓
	Freight Facilities Grant Support	5.11	6	Yes			✓	✓