STRATEGIC POLICY AND FEASIBILITY STUDY OF POTENTIAL RAIL AND FERRY LINKS BETWEEN FRANCE, BELGIUM, AND THE UK

FINAL REPORT

Prepared for

FINESSE

by the

STAMFORD RESEARCH GROUP

in association with

EUROTRANS

and the

UNIVERSITIES OF ANTWERP AND BRUSSELS

---

91 Chiswick High Road
London W4 2EF
England
Tel: +44 20 8995 1317
Fax: +44 20 8995 1318
Email ray.fenyoe@stamfordresearchgroup.co.uk

June 2005

Contents

TECHNICAL REPORT

Technical Paper	Authors
Introduction to the Technical Report	Ray Fenyoe
1 EU Rail Policy and Network	Jan de Haan, Gerald Barton
2 UK Rail Policy and Network	Gerald Barton. Julia Miller
3 FR Rail Policy and Network	Jean-Luc Fouquart
4 BE Rail Policy and Network	Elvira Haezendonck, Michaël Dooms
5 FINESSE Ports	Elvira Haezendonck, Michaël Dooms, Jean-Luc Fouquart, Neil Crossland, Ray Fenyoe
6 Traffic and Forecasts	Ray Fenyoe
7 Modal Competition	Ray Fenyoe
8 Rail Markets	Ray Fenyoe, Gerald Barton. Julia Miller, Neil Crossland
9 Modal Costs	Jonathan Packer
10 Train Ferries	Ray Fenyoe, Julia Miller
11 Market Survey UK	Julia Miller
12 Market Survey France	Jean-Luc Fouquart
13 Market Survey Belgium	Elvira Haezendonck, Michael Dooms
14 External Costs	Michaël Dooms, Ray Fenyoe
15 Expert Panel	Herve Arki , Tony Berkeley, Hen Gerritse, Phil Goodwin , Koen Kerckaert, Cathy Macharis

1. Objectives

The transnational Freight Intermodality and Exchange on Seas & Straits in Europe (FINESSE) project is aimed at the development of *innovative and sustainable* intermodal freight transport services between the UK and mainland Europe via Kent and Nord Pas de Calais/Flanders, using intermodal rail and ferry technology. The underlying policy objective is to shift freight from road to rail *on this freight corridor*.

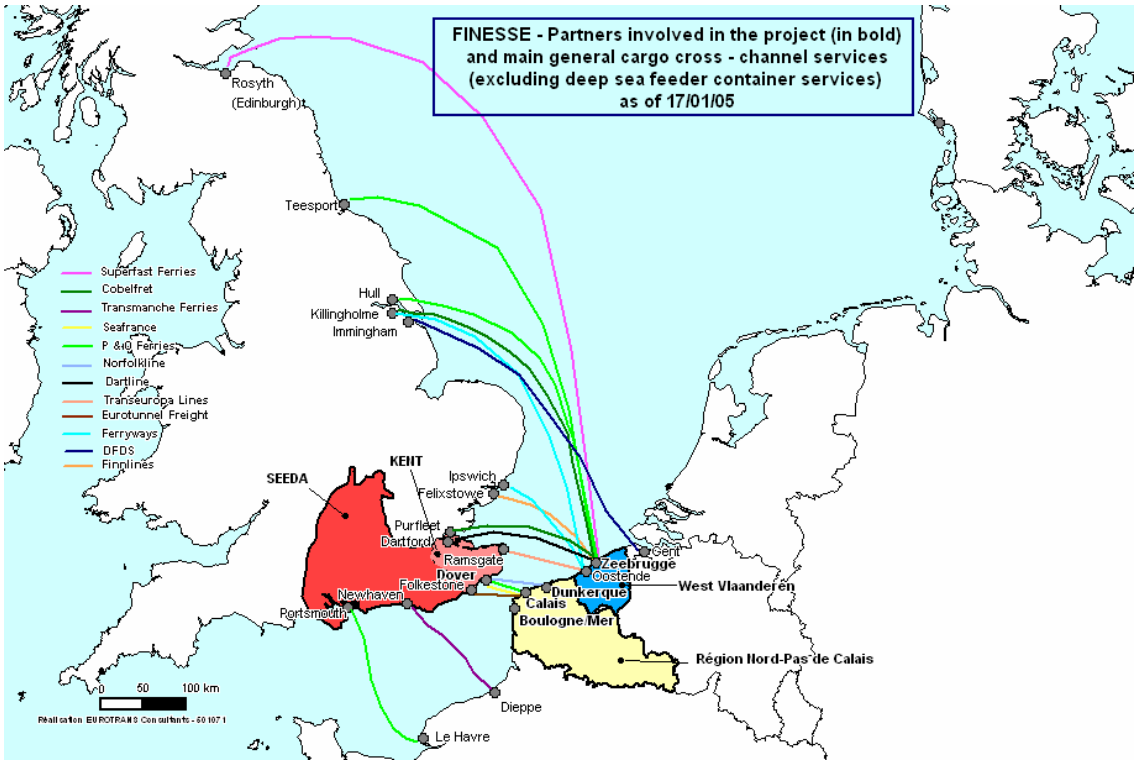
The Objectives of the study were to:

- Examine the *policy* and *market* environment within which intermodal rail and ferry services could be launched on the Dover Straits freight corridor between the UK and mainland Europe, involving the Ports of Zeebrugge, Boulogne, Calais, Dunkerque and Dover;
- Establish the key issues relating to the rail network, land availability and other surface access in the hinterlands of the above ports.
- Provide the FINESSE project with the information it requires to develop detailed business plans for services, secure operators, examine funding issues for specific services and develop an Action Plan leading to the launch of the services themselves, where feasible, between Belgium and Dover, and between Boulogne, Calais, and Dunkerque and Dover.

Answers to the following key questions were required:

- What are the potential options for developing services, using intermodal rail and ferry technology, on the corridor?
- What are the technical and economic/commercial issues that may affect the service option(s) and which of the options are most likely to be feasible?
- Are there spatial constraints in the ports that limit options?
- What is the capital cost of any infrastructure work required at the ports to allow the launch of the service(s)?
- What are the capital costs of infrastructure work on the wider rail network?
- Are the service(s) likely to be commercially viable in the medium (2-5 years after launch) to long term (5+ years after launch)?
- What would the wider impacts be of the launch of the service(s) e.g. environmental impacts and impacts on levels of employment and added value?

Project partners and the main general cargo routes linking France and Belgium with Great Britain are shown on the map overleaf.


FINESSE - Partners involved in the project (in bold)
and main general cargo cross - channel services
(excluding deep sea feeder container services)
as of 17/01/05
Rosyth
(Edinburgh)
Teesport
Hull
Killingholme
Immingham
Superfast Ferries
Cobelfret
Transmanche Ferries
Seafrance
P &O Ferries
Norfolkline
Dartline
Transeuropa Lines
Eurotunnel Freight
Ferryways
DFDS
Finnlines
SEEDA
KENT
Ipswich
Felixstowe
Purfleet
Dartford
Ramsgate
Dover
Folkestone
Newhaven
Portsmouth
Gent
Zeebrugge
Ostende
West Vlaanderen
Dunkerque
Calais
Boulogne/Mer
Région Nord-Pas de Calais
Dieppe
Le Havre
0 50 100 km

2. Introduction

The conclusions of our study are presented in the Progress Report, and provide a workable solution to the questions posed by the study objectives. They have been developed from the Technical Report, which includes fourteen detailed technical papers (summarised at the end of this Introduction) each of which analyses a particular issue relating to the development of rail linked port services for Europe-UK traffic. The transnational consultants led by Jean-Luc Fouquart, Michaël Dooms, and Ray Fenyoe developed the conclusions presented in this Main Report. The study meets the Objectives specified above, and provides recommendations for an Action Plan and the further development of the Project.

This main report is structured as follows:

Chapter 1: Objectives

The ***Objectives*** set by the FINESSE partnership have been identified in Chapter 1. They formed the basis for the Terms of Reference for the study, and the analysis and results are firmly based on the requirements identified in these objectives.

Chapter 2: Introduction

Chapter 3: The FINESSE concept

Our approach to the study was to examine all possible physical options for rail/sea services within the Terms of Reference, taking into account all factors affecting their potential viability, and to develop a workable rail/sea concept from this assessment.

The logic used to develop this workable concept is presented as ***How the FINESSE concept was developed*** at the beginning of Chapter 3, and includes a description of the physical transport units involved both in combined transport and in competing all-road moves. The remainder of the chapter is dedicated to a fuller description of how the concept would work, how it would be phased, and what traffic volumes might reasonably be targeted on potential routes, which are themselves identified.

The ***Public Strategy implications*** of the concept are discussed, demonstrating the way in which the concept meets EU and other strategic objectives for modal shift from road to rail and therefore how partners should seek support for their attempts to further the stated aims of public policy.

In the ***Future development of the FINESSE concept*** subsection, the bones of the concept are fleshed out and its advantages more fully explained. The ***Development stages*** are identified and described, and the rationale behind the phasing explained.

The ***Strategy development*** subsection presents an Action Plan for the strategic commercial development of the concept as required by the Terms of Reference: that is, a description of the steps required to implement the concept. Here, strategy refers to the steps by which a commercial proposal can be implemented rather than the steps that might be taken by public authorities to implement public policies.

The remaining subsections deal with specific broad areas or issues having a bearing on the development of the concept.

Chapter 4: Public policy

Public policy on sustainable distribution, modal shift from road to rail (and water), and towards the rail and combined transport industry, is discussed at EU, national, and regional level in

Chapter 4. The apparently contradictory short-term effects of some of these policies are identified, and the distinct position held by the UK Government highlighted.

Chapter 4 also describes the programmes public authorities have developed in support of their strategies, and the institutions involved in their implementation.

At national level and below it is impossible to discuss public policy towards rail networks without at the same time discussing the actual physical characteristics of the national and port rail systems, so that Chapter 4 also covers the physical issues around rail networks.

The particular issues relating to the UK rail network have a tremendous impact on the possible development of UK-associated rail/sea services and are explained in some detail, as FINESSE cannot meet its objectives without a clear understanding of the limitations of the UK rail network and the need for its enhancement.

Chapter 5: Markets

Chapter 5 identifies the key characteristics of the FINESSE target market. It quantifies the size of the market and identifies key UK trade partners, as well as the inland regional destinations of European cargo within the UK. It forecasts the growth of the market, and describes the nature of modal competition and its results. Chapter 5 also explains the importance of geographical relationships in determining modal choices for trade.

The general issues of competitiveness of rail-based solutions against all-road in the principal cross-Channel market any FINESSE option would compete in are covered.

Chapter 5 includes the cost analyses, in which the costs associated with different vessel option for the cross-Channel move are compared, together with the rationale for the choices made in developing the "FINESSE concept" in Chapter 3. It also includes a detailed analysis of the actual cost of a through move from inland Continental origin to inland UK destination using different modal options and routings, which lays bare the critical importance of the geographical relationship between the two in determining modes and routes.

Chapter 5 concludes with a very important part of the study: the results of a market survey carried out in the UK, France, Belgium, and elsewhere in Europe, designed to identify the reasons for modal and route choices as seen by the market itself. This survey focused on competition between combined transport and all-road services, and tested market responses to the "FINESSE concept".

Chapter 6: Rail operational and market issues

Chapter 6 covers rail business structures, explaining different types of existing rail offers and their operational implications, and examining existing markets for rail offers through the Channel Tunnel.

The chapter also examines the historical train ferry operation between Dover and Dunkerque, provides an analysis of specific rail/combined transport markets, and includes a review of world train ferry operations.

Chapter 7: Comparative external costs

Chapter 7 identifies the potential environmental and social benefits of a modal shift from road to rail, a key objective of the FINESSE project. It quantifies the difference between the costs imposed on society by combined transport and all-road operations, and demonstrates the circumstances in which combined transport is more environmentally friendly than road.

The links between the major sections of this main Report and the Technical Report are shown below:

Topic	Description	Technical Paper	Principal Authors
Public policy	European Union strategies for rail and intermodal traffic: rail networks and equipment	1	Jan de Haan, Gerald Barton
	National strategies for rail and for sustainable freight transport	2,3,4	Elvira Haezendonck, Michaël Dooms, Jean-Luc Fouquart, Gerald Barton. Julia Miller
Markets	Current and future structure of UK/Continent trade and traffic	6	Ray Fenyoe
	Modal choices and competition (road/rail/sea)	7	Ray Fenyoe
	Comparative evaluation of cross-Channel freight options	9	Jonathan Packer
	Market attitudes to cross-Channel freight options	11, 12, 13	Elvira Haezendonck, Michaël Dooms, Jean-Luc Fouquart, Julia Miller
Rail operational and market issues	European and national rail operation: commercial issues	8	Ray Fenyoe, Gerald Barton. Julia Miller, Neil Crossland
	Dunkerque, Calais, Boulogne, Zeebrugge, and Dover ports: rail networks and operations	5	Elvira Haezendonck, Michaël Dooms, Jean-Luc Fouquart, Neil Crossland, Ray Fenyoe
	Global assessment of train ferry markets and operations	10	Ray Fenyoe
	Dover/Dunkerque train ferry operation and markets	10	Julia Miller
External Costs	Comparative evaluation of external costs and environmental impact	14	Michaël Dooms

3. The FINESSE Concept

3.1. Introduction

This chapter describes the evolution of the FINESSE concept developed in response to the Objectives of the FINESSE project, and our proposals for carrying it forward.

The Objectives of the FINESSE project are:

- *to develop an Action Plan for the development of innovative and sustainable intermodal freight transport services between Kent and Nord Pas de Calais/Flanders and hence to wider European destinations, using intermodal rail and ferry technology.*

The structure and contents of this chapter are described below

	Section title	**Description**
3.2	Concept evolution	The steps towards the development of the concept
3.3	The potential for rail freight/intermodal services	Target market sizes in France, Belgium, and UK
3.4	Public strategy implications	Strategic action required to support the concept
3.5	Justification for the FINESSE concept	More detailed explanation of the rationale for the concept and its justification
3.6	Development stages	Project staging and future development
3.7	Strategy development	How to make the concept work- a new promotion agency
3.8	The FINESSE business plan	Agency functions and finance
3.9	UK Gateway Pilots	Suggested pilot projects for the new agency to develop

3.2. Concept evolution

The steps towards the development of the concept are set out below.

1	The FINESSE project aims & objectives
2	Type of rail service to be used – train ferry or partial rail services
3	Potential routes
4	Volume requirements for viability - rail.
5	Volume requirements for viability - sea.
6	Port choice

1 The FINESSE project aims & objectives

The aim of the FINESSE project, as identified above, is to identify the potential viable rail linked port services for Europe-UK traffic at FINESSE partner ports: Dunkerque, Calais, Boulogne, Zeebrugge, and Dover.

The traffic could be won from other modes, and other routes but the major objective is to shift it from road to rail. The main competing maritime modes are: accompanied trailer, unaccompanied trailer, and container.

The principal competing mode, accompanied trailer, is discussed and pictured overleaf, and compared with the combined transport alternative. In practice, because of the locations of the ports studied, and because of its dominance of the market, any rail linked port services for Europe-UK traffic at FINESSE partner ports will compete primarily with accompanied trailers using ferries or the Shuttle, and with the Channel Tunnel city-to-city intermodal service.

2 Type of rail service to be used – train ferry or partial rail services

One of the FINESSE project's objectives was to establish whether or not the reinstatement of a train ferry service, to achieve the FINESSE objective of modal shift, would be viable. If not, FINESSE aimed to establish whether other rail and ferry technologies, including the use of trailer or other types of ship, could meet the objective. The crucial change intended is the use of combined transport rather than all-road on land.

The maritime choice, between train ferry and another sort of ship, is a **fundamental** choice. The nature of operations, the markets to be accessed, and the investment required, are all different. With a train ferry, cargo is carried from continental origin to UK destination in one carrying unit, a rail wagon. There is no requirement for cargo to be moved as a train ferry involves rail wagons being loaded onto ferries with rail track, and the wagons themselves are the load carrying units (conventional). A train ferry is directly linked to rail tracks on land.

Any other solution involves the use of intermodal loading units, which can themselves be carried on wagons, road trailers, or ships. Here units are transferred between rail and road modes (intermodal). Intermodal traffic can be carried on any service by sea using ro-ro vessels or containerships. Therefore, if train ferries (with their physical link between continental origins and UK destinations) are not used, intermodal development in the UK and on the continent can take place separately: intermodal development on the continent would not **depend** on rail provision in the UK.

We therefore examined the potential for a train ferry on the route very closely so as to decide this issue at the outset

The dedicated Train Ferry

Train ferries carry rail freight wagons, typically on one of two decks, the other carrying unaccompanied trailers (trailers without drivers or road tractors). To handle wagons, ports need rail track linked to the national network and to the lines on the ship at the berth – the link between ship and berth is called a linkspan.

Basic road transport units

Accompanied trailer, with tractor. The principal mode, dominating UK-continental traffic. The trailer is a single unit comprising body and chassis, and is loaded at origin and unloaded at destination. Without the road tractor and its driver, this becomes an **unaccompanied trailer**, and as such travels on longer sea routes, such as those between Zeebrugge and Purfleet or Dunkerque and Dartford, as well as other east coast GB routes.

Chassis, or flatbed trailer, with tractor. This unit can carry a 40' container or a long swapbody. Containers and swapbodies are intermodal loading units (ILUs) and may be carried by road on chassis, or on special rail wagons for the intermodal rail move.

ILU on chassis, with tractor. This is a 20' container or a short swapbody, which is lifted off its chassis for rail movement. The unit is loaded at shipper's premises while on its chassis and with the tractor and driver in attendance. The combination is taken to a rail terminal, where the unit is usually lifted to ground before being loaded to a rail wagon for the rail move. On conclusion of the rail move the unit is loaded to chassis for its journey to the consignee, where it is unloaded. The combined unit looks very similar to an accompanied trailer.

At sea, the trailer plus ILU could be carried accompanied, with driver and tractor, or unaccompanied. The ILU **alone** could be carried on a ship's trailer, used only between ports or, if it is a container, on a containership, in which case it would be **lifted** rather than **rolled** on.

Illustrations taken from *Legal Loading*, Swedish National Road Administration

The *Nord Pas de Calais* train ferry service between Dover and Dunkerque, operated by the British and French national rail companies ceased in 1994, and its services were transferred to the Channel Tunnel.

This Tunnel rail freight service carries ***conventional traffic*** - cargo loaded into wagons directly from export shipper's private sidings to import consignee's private sidings with no intermediate cargo handling as well as ***intermodal traffic*** directly between continental and British intermodal terminals. Although Eurotunnel does not pay for it, the cross-Channel infrastructure required is already built, but infrastructure costs are not reflected in charges to shippers because of UK and French Government subsidies, which are unlikely to be removed. Under these circumstances the service operated by EWS and continental railways has grown the railfreight market inherited from the train ferry, and developed an entirely new intermodal offer, though this is mainly for Italian traffic and is very much smaller than originally forecast.

Our investigations/research, presented in Technical Papers 7, 8, 9, and 10, as well as in the Market Surveys of Technical Papers 11, 12, and 13, has shown that the reintroduction of a dedicated train ferry provides no viable solution to FINESSE for the following reasons:

- A train ferry cannot compete with the Channel Tunnel for conventional traffic, which is the type of traffic train ferries are best suited to. A ferry would require handling at ports, making it more expensive and slower, and such a service competing directly with the Tunnel would be unlikely to obtain subsidies. (Technical Paper 1)
- There is no market requirement for such a service (Technical Papers 11, 12, and 13). Potential users do not favour the reintroduction of a train ferry service, due to lack of knowledge of the operation and doubts about its feasibility. The hazardous cargo flows that used the old service have disappeared or transferred successfully to other modes (mainly unaccompanied containers on chassis crossing via Zeebrugge), (Technical Paper 9) and were anyway insufficient to sustain a ferry service. Potential shippers will not commit to the volumes required to make the service viable.
- Even without competition from the Channel Tunnel, the Dover / Dunkerque train ferry was never commercially viable (Technical Paper 10) because it could not charge high enough prices to cover costs and still win traffic. Although cost savings could no doubt be made in a private sector operation prices have also fallen substantially since that time, so that this suggests that it could be difficult for a reinstated service to operate viably.
- The reinstatement of a train ferry service would require investment in a new linkspan at all ports apart from Dunkerque (and possibly Dover, which has a mothballed linkspan). It would require substantial investment in rail-linked berths at all ports, and in a marshalling yard at Dover. Ports, which are happy to build road linkspans without having them underwritten by particular customers, are unlikely to invest in rail linkspans without such commitment, which nobody else is likely prepared to give.
- Train ferries exist in the context of strong rail traffic routes for heavy, high volume, cargoes such as ores, steel, paper and timber, moving long distances between origins and destinations which cannot be better served by shorter road movements and longer water movements. They are part of overall rail services, and were normally provided where this need was first identified. British/European imports and exports of these cargoes move to and from ports closer to origin/destination, and uses conventional ships because UK inland moves are very short, and the nature of these commodities has changed due to economic restructuring.

- Where train ferries have lost out it was not because there was inadequate traffic, but because there was sufficient traffic to justify a more expensive fixed link. Where fixed links (rail bridges, tunnels) can be justified, parallel or closely located train ferry services have normally been withdrawn. This happened between Denmark and Sweden when the Øresund and Great Belt bridges were built, when the Channel Tunnel and the Tsugarn Tunnel in Japan were built, and will happen when the Italy-Sicily bridge is built. Most remaining train ferries operate only on longer routes, such as Germany to Scandinavia and across the Black and Caspian Seas, and between Hainan Island and the Chinese mainland (where rail would be the natural mode for the extremely long land distances involved even if motorways existed).
- Technical Papers 7, 8, 9, and 10, and the Market Surveys of Technical Papers 11. 12, and 13, provide a fuller examination of the mode and explanations behind this conclusion

Other rail and ferry technologies involving intermodal services

The only alternative to a dedicated train ferry meeting the FINESSE aims is the development of intermodal **services**.

Intermodal units (ILUs) - containers and swapbodies – imported to the UK would be carried by rail on rail wagons to a continental port or near-port location. For the maritime link with the UK, the units would be carried on a ro-ro ferry or a containership.

If there is no rail terminal at Dover, and the units are carried on a ro-ro ferry, it will be possible for them to move straight from the continental rail terminal to the UK shipper without further handling, as they would be carried on road trailers.

If rail services are available at Dover, and the continental rail terminal is port located, the unit could be carried at sea by a containership or on a trailer on a ro-ro ferry, either unaccompanied or accompanied by the road tractor and driver`. The equipment described is pictured and further explained in the diagram on page 3.

The following sections continue to focus down so as to specify the situation in which the option described could be viable in the context of FINESSE

3 Potential Routes

Intermodal rail services are only plausible on longer routes, as they cannot compete with all-road over shorter distances. This is because intermodal moves require a road move at either end of the trip and handling from rail to road at terminals. These costs have to be compensated by the rail movement itself, possible because rail is cheaper than road on a per mile basis. The conventional estimate for the distance at which intermodal rail can be competitive is 500 km, but of course other factors (such as congestion, or alternatively the existence of uncluttered motorways) affect this number. Adding the external costs of road and rail could cut the competitive margin to 400 km.

Possible distances in the UK are much shorter than on the continent. Even Leeds is less than 500 km from Dover by road.

The longer routes available for a proposed service on the FINESSE corridor are therefore:

- South France and Spain via French ports
- Italy, and Central and East Europe via French ports or Zeebrugge
- Dover – Northern England, Scotland.

The choice of route is also affected by Tunnel competition. The Tunnel intermodal service is only effective, **at present,** for Italian traffic, with wagons and units balanced at both ends of the route. The service offers the environmental benefits of rail from inland Europe to inland UK and may be better reconsidered when FINESSE can offer similar benefits.

4 Volume requirements for viability - rail

Any rail linked port services for Europe-UK traffic must become viable in a market where interest in alternatives to all-road transport still depends largely on significantly lower prices. This suggests that investment costs should be minimised at service start-up.

On the continent, new services can be piggybacked on existing rail intermodal services, rather than committing to dedicated trains. Zeebrugge is served by trains carrying deepsea containers and European swapbodies, and there are daily trains between Dourges[1], near Lille, and Perpignan and Toulouse. Dourges is proposed as the intermodal link for French start-up services because French ports in the FINESSE partnership do not as yet have intermodal rail services.

If existing services can be used initially, there is no minimum required flow for viability. A dedicated service with a daily train would typically carry 30 units each way, an annual two-way flow of about 20,000 units: the minimum volume requirement for viability of a dedicated service. Dedicated trains at French ports can be considered once the flows to Dourges approach this level.

Dover is not yet rail-connected and there are no intermodal terminals nearby. Development of services at the port requires investment in a rail yard (the land reserved at Dover for this purpose is ideal) and enhancement of the Tunnels between Dover and Folkestone, because they are not high enough to allow the passage of units on rail wagons. The investment must be considered as soon as continental services approach viability, demonstrating market interest in the concept.

5 Volume requirements for viability – sea

At sea, there is no minimum volume requirement for units carried on road chassis and loaded onto conventional ro-ro ferries, accompanied by the tractor and driver. If a dedicated trailership is used, however, the volume requirement for viability is much higher than for rail services, because over Channel distances a ferry can make several round trips per day. If five round trips are possible the minimum volume requirement would be 100,000 units.

At least at start-up, assuring viability thus suggests the use of existing ferry services. If the concept is successful and volume sufficient, a dedicated trailership can be introduced, carrying unaccompanied trailers alone. However, although this could reduce unit costs at sea it would increase organisational complexity, and would only be **required** for traffic travelling on rail both from Dover and from continental ports, and even then only if existing services could not accommodate unaccompanied equipment.

Units could also be carried on containerships, but this option has been **rejected** because there is no advantage over dedicated trailerships while costly container handling capacity would also be required at Dover and other ports.

---

[1] The new trimodal (road, rail, waterway) Delta 3 combined transport terminal at Dourges replaces the Lille St-Saver terminal, which was small, congested, and poorly served by road. The location was chosen, amongst other reasons, as complementing the maritime services provided by the Nord/Pas-de-Calais Area ports (Dunkirk, Calais and Boulogne/Mer). Under Open Access Delta 3 will accept any operators wishing to use it.

6 Port choice

Dover is the pilot UK option for this study. Once the FINESSE concept has been proved, investment in dedicated train services and rail facilities at Dover must be considered, but it is crucial that public support for rail at Dover be obtained before this time. So as to minimise short-term investment requirements, the UK move will initially be by road alone.

On the continent, currently only Dunkerque and Calais have services to Dover. To participate in the FINESSE concept in the short term other ports will need to develop ro-ro services. Also in the short term, to avoid investment in costly dedicated train services, the existing rail service to Dourges should be used, with the Dover transit via either Dunkerque or Calais.

3.3. The potential for rail freight/intermodal services

There is significant potential for a new rail/sea service offering benefits against the through rail intermodal service, and competing with road vehicles on specific routes. The minimum flow required for train viability is very small, as a daily train only needs some 20,000 units per year for viability, which is a negligible share of the total market (equivalent to about three million trailers on the short Channel crossings). It is also only a third of estimated annual market growth, which at 2% per annum are 60,000 units. The minimum figure for viability of a new, dedicated, train service is about a quarter of the figure actually currently achieved by the Tunnel intermodal service – about 80,000 units.

Because the UK market is imbalanced in favour of imports the import leg is more valuable to the haulier than the export, and a new intermodal service should therefore focus on UK imports. Beyond this, geography and the nature of rail networks dictate the nature of potential for different countries and the target volumes proposed.

A crucial advantage of the way in which the concept has been developed is that **initial investment and contractual commitments are minimised: there is no large system cost to underwrite.** This fact will help in the requirement for public funding, as public authorities will welcome our **realistic** approach.

The precise nature of the service to be provided is described in the "Justification for the FINESSE concept" section, though it needs to be stressed that the rail offers on the continent and in the UK have to be pursued independently in the short to medium term.

France

The target market consists of Italian, Spanish, and southern French traffic. Because of Eurotunnel's intermodal concentration on Italy it is best to focus initially on the significant Spanish market. Italian traffic can also transit Switzerland and Germany to Zeebrugge and on to UK East Coast ports, but this alternative is not available for Spanish traffic. A Spanish service can also take advantage of Nord Pas de Calais southbound exports to help balance flows - this French offer would not be restricted to the Spain/UK market; Dunkerque in particular should also be able to capitalise on its deep sea services.

UK/Spain volumes could eventually amount to 25% of the total of 400,000 units on the route to the UK, plus some more northerly traffic, carried by shippers or hauliers who prefer to use accompanied vehicles via Dover. The target market share for 2007 is about 10%, or two trains per day. The environmental gain of the modal shift on this route approaches 50 million euros per year at that time, with the potential for further increase later.

Belgium

Zeebrugge's hinterland is very broad, including Italy as well as northern and Eastern Europe. Its orientation and existing maritime links with Thames ports – which offer earlier potential for rail links - suggests that these, and more northerly ports, provide a superior option for a new intermodal service for the port.

Zeebrugge can aim to win some 20% of the longer distance UK-continental markets, which amount to some 300,000 units. Its share is the equivalent of three trains per day, though in practice Zeebrugge's offer can best be developed by piggybacking on existing services to the port, and on the dispersed European intermodal service network.

The environmental benefit of modal shift from road to rail on these continental routes would be comparable to those in France, (50 million euros) but are potentially larger because distances can be greater.

Any capacity development between Zeebrugge and Dover should be based on a commercially viable, high quality and low risk service option, offering significant effects of scale, as the viability would be conditional on a large and continuous flow of traffic from the start

UK

The potential for rail services in the UK depend on UK inland origin and destination rather than on continental patterns, and consists of links from Dover to the north. The start-up position of a train per day in the UK, targeted for 2010, would require a less than 5% market share of the available volume. The environmental gain would be 10 million euros initially, less than for France because UK road distances are smaller.

3.4. Public strategy implications

3.4.1. UK

There is strong support for the environmental gains available from modal shift at EU level and at all levels of government throughout FINESSE partner regions, with the single exception of UK Government level, because of a change in the UK Government's perception of the value for money of sustainable transport options. It is imperative that Dover Harbour Board, the Dover District Council, Kent County Council, and SEEDA draw the attention of the UK Department for Transport, the Strategic Rail Authority, and Network Rail to the environmental benefits offered by the FINESSE concept, as their support will be required when the time comes for rail terminal development at Dover and the necessary associated enhancement of local tunnels.

In a new, and very recent, development of UK policy, the trust port of Great Yarmouth is planned to receive financial support towards the proposed £40m EastPort harbour development, from regeneration funding by EEDA, Norfolk County Council, Great Yarmouth Borough Council and European Union Structural Funds. Local pressure for new port infrastructure is bolstered by pressure for improved road access. The A47 Alliance, a pressure group including Norfolk's county and district councils, Cambridgeshire County Council, Chamber of Commerce, the local MP, and the East of England Regional Assembly, is campaigning on the long-term economic benefits of dualling the Acle Straight, a long stretch of non-dualled carriageway on the A47 between Great Yarmouth and Norwich. It has commissioned a report that confirms its view that dualling the road would play an essential role in the regeneration of the Great Yarmouth area, parts of which are among the most deprived in the UK. Specifically, the report suggests that dualling the road could generate up to 1,000 new jobs as part of existing regeneration plans for the Great Yarmouth area.

This suggests that UK policy may not be as rigid as publicly stated, and, importantly, demonstrates the impact that strong local commitment and broad local support, led by local government and regional development authorities, can have.

In the UK there is open access to the rail network, allowing free competition and the resulting benefit of more competitive railfreight prices. This benefit should be encouraged also in Belgium and, more importantly, in France, where governments should not be allowed to fudge the issue of conforming to EU rules.

3.4.2. Belgium

In Belgium, the port of Zeebrugge is well served by rail, but development is hampered by central government control of rail and the allocation of investment according to the 60/40 rules between the Flanders and Walloon Regions. The policy shift required to allow the Flanders Region to properly implement its progressive policies for railfreight is the modification of this rule as regards railway infrastructure to reflect real comparative requirements, and this policy should be promulgated. The significant opportunities for environmental gain offered by the FINESSE concept are greatest over the longest distances, and giving the Flanders Region control over investment will allow it to develop the Iron Rhine and the opening to the east, as well as connection of services to Trans European Rail Freight Freeways (TERFFs).

Belgian rail and intermodal freight policy suffers from lack of attention at both the Federal Government and Flemish Government levels, mainly because rail policy is an exclusively federal matter. The Flemish Government has proposed that rail policy should be regionalised, and this demand has strengthened in recent years because seaport accessibility has suffered from the Belgian institutional structure. However, it is very unlikely that rail policy will become regional until at least 2008 / 2009 due to lack of political support from the Walloon region, and in any case it is not clear that regionalisation will actually solve the problems of lack of infrastructure investment.

The results of the new subvention scheme may influence government railfreight initiatives. The Flemish Government has a clear policy on railfreight infrastructure works, but depends on finance from the Federal Government via NMBS-SNCB. Its policy is therefore more oriented towards transport modes which it can influence, such as inland waterway transport. Spatial policy, as an exclusive regional matter, is also oriented towards the creation of logistics and industry clusters near waterways and other multimodal nodes.

The NMBS-SNCB cargo division is trying to become more competitive and cost-efficient, but current reforms may not be fully effective even when the market is fully liberalised, risking further loss of rail traffic to road or inland navigation. B-cargo is concentrating its efforts on major routes and cooperation with international partners, with some specific projects connecting rail to industry and logistics clusters located near waterways.

In the Regional/National Spatial Structure Plan Flanders (SSP), which has a planning horizon of 2007, rail linkages are divided into subgroups depending on their relative importance for the network. Those rail linkages seen to be of greatest importance for Zeebrugge are:

- Zeebrugge – Brugge – Gent – Moeskroen (Mouscron) – Rijsel (Lille) (F)
- Zeebrugge – Gent – Denderleeuw – Ath.- Paris (F)
- Zeebrugge – Gent – Mechelen (Muizen) – Leuven – Ottignies – Luxemburg
- The Iron Rhine (to be redeployed): Dunkerque – Antwerp – Neerpelt – Ruhr (G).

During daytime, maximum capacity on Zeebrugge's main network is reached in summertime, due to intense tourist travel. There is capacity available at night, or in the day outside the summer season. However, there seems to be a general lack of flexibility, incompatible with the fast growing demand and time sensitivity of container trains, and new car trains. This problem will persist, as passenger train numbers will also increase on the lines to Zeebrugge, resulting in a further decrease in freight train capacity unless network conditions are improved.

Rail is seen as important for Zeebrugge's competitiveness, as it helps to get cargo into and out of the port rapidly, and its 135 km of rail tracks are a valuable asset. They connect with the double track to Brugge at Dudzele.

However, improvements are still required. There are two main internal bottlenecks:

- The Zwankendamme train formation yard needs to be modernised because a passenger line cuts through the formation area, so that train formation has to use passenger tracks, and because of lack of freight capacity.
- Because there is no junction curve between line 51A (Zeebrugge) and line 51B (Knokke). Trains can only turn near Brugge railway station, some way from the port.

Excellent hinterland connections by rail are of the utmost importance for the port of Zeebrugge, as the port does not have adequate inland waterway connections. At present, about 19% of the port traffic is transported by train, compared with inland waterways at 1 to 2%. Rail plays a crucial role for the port of Zeebrugge, both to maintain competitiveness and to secure community acceptance of port activity.

Rail accessibility is still, however, inadequate, as described above, mostly because of lack of capacity. A separate problem is that only the Zeebrugge-Brugge-Ghent line is officially regarded as a principal rail freight line, whereas the Brugge-Kortrijk is also important for freight, which accounts for some 20% of its rail traffic. This impacts spatial policy around these lines, and also influences the investment planning decisions of, in particular NMBS-SNCB.

Current plans for infrastructure works to improve rail accessibility to the port are:

- Construction of a third track between the Dudzele node and Brugge
- Construction of two additional tracks between Brugge and Ghent. This project improves accessibility to the port of Zeebrugge, and is also important for the port of Ostend.

Both projects are to be completed by 2012.

3.4.3. France

In France, the Region Nord – Pas de Calais already has significant power over rail investment and is carrying out progressive policies, such as the development of the Dourges Delta3 multi-modal terminal to improve intermodal transport in the Region. Environmental gain through the implementation of the FINESSE concept demands port rail access improvements, and though these are planned some have been delayed, so that the Region still has a need to press for implementation to assist development of the FINESSE concept. The port of Dunkerque is, however, well placed to take advantage of the concept without further investment as soon as an intermodal service to the port is proved viable. The main contribution required of the Region Nord – Pas de Calais is, however, less to campaign for more infrastructure, as there could be a risk of duplicating facilities at its ports, spoiling the opportunity of those already best placed for creating viable FINESSE services, but more to support and develop the proposed French pilot scheme within the new FINESSE organisation we have suggested.

The calculations of environmental gain show the net effect over complete routes. The impact of environmental costs, however, fall particularly on port towns, where trucks concentrate and cause congestion and adversely affect air quality. In Dover, for example, trucks are frequently backed up along Townwall Road outside the port with their engines idling. It is in the interests of port communities to support the transfer of some of this traffic to rail, and to support their ports in their efforts to carry out this policy.

3.5. Justification for the FINESSE concept

The new intermodal service concept we describe here will eventually require railfreight services to Dover and some continental ports. However, new intermodal rail services are not easy to set up, for operational and commercial reasons, so that caution has led us to develop a phased and commercially realistic approach which minimises initial investment, and only moves to later stages once viability is confirmed.

Our strategy is also designed to take advantage of the specific strengths of a port-based system, and of the peculiarities of the European rail market, for instance, the way railways differentiate track access charges for domestic and international traffic. It is designed to avoid direct competition with Tunnel intermodal services, and will of course benefit, over time, from the pressure being placed by public authorities in favour of open access to rail networks and modal shift from road to rail. The measure being taken by national railways will increase the mode's reliability, and its acceptability to customers. Road transit taxes will encourage modal shift, as will other, additional, compensatory measures for road maintenance and road external costs (provided that rail operators do not increase their prices in line).

Our concept was developed after examining and assessing the commercial viability of various options over the medium and longer term, comparing maritime options, and carrying out modal cost and pricing comparisons. Analysis of the comparative advantage of train ferries against other options and of their global markets established that they could not compete against the Channel Tunnel for conventional traffic, and would be more expensive to institute (and therefore uncompetitive against other intermodal ferry options) because of the investment required rather than the cost of operation.

Rejection of the train ferry option decouples rail development in the UK from rail development on the continent. UK-linked services can be developed immediately on the continent, where such development can be built on the back of already existing services, and where ports are

already served by rail. In the UK, development of the project will require investment in infrastructure at and near Dover.

Intermodal units will initially be carried across the Channel on driver-accompanied vehicles in the same way as they are moved between customer and rail terminal. They will look like any other accompanied trailer, and can be carried on the existing ferry services between Dover and Dunkerque, and Dover and Calais. Later, some sort of dedicated maritime link can be considered, but it is not essential to the concept. Investment in infrastructure at and near Dover, however, is essential for full concept development. This solution was derived as a result of the analysis below:

- The most cost-effective vessel type for the cross Channel voyage is an unaccompanied trailer ferry, but associated with the use of containers and swapbodies for inland movement by rail (see picture, with unaccompanied trailer)

- Such a service would not, however, be viable in the short term because of excess capacity and low rates on the Channel. The maritime service would not achieve the **volume** required to achieve cost-effectiveness.
- In the longer term, volumes will increase and excess capacity disappear, strengthening rates and making the introduction of a dedicated trailership potentially viable. (The use of a dedicated unaccompanied trailer ferry is not, however, central to the concept)
- In the short term the low rates available on **existing** services make their use desirable. Accompanied swapbodies on chassis can take advantage of these services, but meet the FINESSE objectives by using rail for the land leg.
- In this way, the UK leg can be decoupled from the more immediate potential offered by continental rail networks. In France and Belgium new services need not be tied to UK traffic alone, and could be piggybacked on the intermodal services that already exist. Their development does not need to wait until Dover is rail-connected. In the UK completely new services based on Dover must eventually be developed.

- A port-based service allows loading unit positioning flexibility, and can target different markets from Eurotunnel, which is operationally organised around city-to-city services (such as Milan to Manchester).

Clearly operators are already applying this concept in some form, because no new investment is required. The basic infrastructure exists and can be used where appropriate. ICF, for example, has abandoned its Tunnel service from Italy and is carrying containers to Zeebrugge for distribution to the UK using existing services. However, there could be significantly greater use of this concept if it were properly marketed, and did not have to rely on the initiative of individual forwarders and operators.

The advantages of the concept are that it is:

EU/government focused

- An innovative and workable solution for modal shift, responding to EU transport policy and funding requirements within the EU Marco Polo programme
- A demonstrably practical proposal for modal shift for presentation to national and regional governments, providing a focus for funding initiatives
- An appropriate use of scarce resources through innovative use of current services and assets: the concept demands very little in the way of start-up capital investment
- A potential catalyst for improved landside port rail infrastructure
- A demonstration of what is possible in the development of new rail/ferry services elsewhere in North West Europe. This pilot implementation would be impossible without Interreg.

Customer-focused

The concept takes advantage of market developments: road transit taxes, and additional compensatory measures for road maintenance and for road external costs, will encourage modal shift in line with EU and most public authorities' policies, customers are beginning to appreciate the need to find alternatives to road haulage, and railways are being forced to respond to markets.

Public authorities now regard congestion charging, or road pricing, as being the most effective way to compensate for the external costs imposed by road transport. By thus increasing the costs of long distance road transport they expect to effect the modal shift from road to short-sea-shipping, inland waterway, and rail. The LKW-Maut, or heavy goods vehicle toll, introduced in Germany at the beginning of 2005 is the first national attempt to target heavy trucks in this way: carriers pay an average of 12.4 cents per kilometre depending upon axle number and pollution level. This imposes a significant extra cost on hauliers travelling long distances, most particularly on those crossing the entire country. There is no doubt that this measure will be extended to other EU countries.

As it seeks to support the thrust of public policy, the concept will be able to seek funding: in the UK a rail operator could secure Company Neutral Revenue Support (CNRS) support if it continues, and funding should be available under the Marco Polo programme.

The advantages are:

- SNCF domestic trainload rates are lower than international (Tunnel) prices.
- Retains current benefits of flexible and frequent shipping services
- In the short term, retains accompanied road benefits within the UK:
    - Continental are cheaper than UK drivers
    - Cheaper road fuel is available on the continent
    - Road delivery maintains flexibility for last-minute delivery requirements
- Maximises the potential for balancing northbound and southbound flows using traffic generated in northern France for southern France/Spain

3.6. Development stages

Implementation of the concept should be in stages, each stage building on the success of the last. We propose three stages:

3.6.1. Stage 1

Initially, load units for UK destinations will arrive at port or near-port continental locations by rail from distant origins, and then move directly by road and ferry to the UK shipper: the reverse move will take place for UK exports. The market accessed will thus be distant continental locations and any part of the UK. To minimise initial investment we propose that FINESSE uses existing rail services to Dourges near Lille in France (particularly the Perpignan and Toulouse daily services). A new dedicated service to French ports will depend on building volume for viability.

3.6.2. Stage 2

Once the strategy has taken root and sufficient volumes have been built, dedicated services to French ports will develop. They will still require the use of existing ferry services, and will therefore serve Dunkerque and Calais. If new Dover ferry services develop at Boulogne, it too can compete for port rail services linked to Dover crossings.

Zeebrugge can develop its own inland intermodal links, which are currently much larger than at French ports but which are not significantly associated with UK traffic. Its maritime link to the UK will more likely be via Thames and East Coast ports, where services already exist, as in the short term Zeebrugge is less competitive against French ports for Dover. Belgian operator Cobelfret has reserved berths at the proposed Thames Gateway port, which will be rail-linked. In the medium to long term a Zeebrugge based operator could link to Dover, either because of growth in Central and Eastern Europe volumes, or, for those using Zeebrugge as a volume hub port, for a potential Dover hub.

3.6.3. Stage 3

The final step will be taken when volumes have built up sufficiently to justify building a rail terminal at Dover, and investment in the upgrading of the tunnels between the port and Folkestone so that they can allow the passage of intermodal units. The rail services would again only be justified for longer distances, which in the UK means Manchester and further north. This step will open up a major new market for FINESSE, between the north of Britain

and the near continent. Units would travel from Dover by rail, but would typically originate in a road movement from near continent shippers.

Once Dover is linked into the network it will be possible for units to travel long distances by rail on both the continent and in Britain, moving between continental ports and Dover on unaccompanied trailers, and creating the possible justification for a new, dedicated, unaccompanied trailer ferry operation. The new market accessed will be distant continental locations and the north of the UK.

3.7. Strategy development

Essential to the implementation of the FINESSE concept is the build up of volumes in order to progress from stage 1 to stage 3 of the concept.

In order to achieve this a distinct offer and a clear presentation of the concept to the marketplace must be developed. Potential customers must be presented with a single price covering both the rail and road elements of a movement, just as they are for intermodal movements on the continent, and as they are for intermodal moves through the Channel Tunnel. This offer needs to be presented by an organisation - *FINESSE* – which could be set up by the FINESSE partnership to act as the umbrella promoter and marketing organisation for the concept, securing Government or other funding where possible, and acting as a one-stop shop on behalf of participating forwarders. *FINESSE* should not become a forwarder in its own right, but rather facilitate the application of the concept by existing forwarders.

FINESSE could therefore start life by presenting the concept to the marketplace, and marketing it to hauliers, third party logistics companies and forwarders. It should identify champions within this group, who would market to smaller operators as well as using the concept for their own shipper customers. The development of a niche intermodal promotion bureau to generate promotional material and implement the marketing strategy, modelled on the EU backed Short Sea Shipping Promotion Centres and the European Shortsea Network, (described overleaf) will be its initial function.

Champions would need, either singly or in a joint venture possibly organised by FINESSE, to:

- Be willing to take the risk of underwriting a rail operation, particularly in the UK, and possess significant experience in the use of intermodal rail.
- Control an appropriate mix of equipment: swapbodies, containers, tractors, chassis.
- Operate internationally, control sufficient volume to commit to the operation and control the mode and routing of traffic.
- Have access to the infrastructure required to manage and organise equipment transfer, tracking and contingency planning and be able to finance the leasing of wagons and other equipment.

These champions would be found amongst leading operators, forwarders, and lines, or even the newer logistics providers. Rail operating partners would need to be identified and links with existing terminals will also need to be created.

Once the concept is successfully launched on the continent, *FINESSE* will have the arguments needed to secure SRA/DfT and Network Rail support for enhancement of the rail link to Dover, potentially aided by other Dover flows, such as the intermodal distribution of fruit imports. This could lead, in the medium/long term, to the initiation of a new part-unaccompanied trailer ferry service dedicated to the FINESSE concept between two or more of the five ports.

European Short Sea Network (ESSN)

The European Short Sea Network is an electronic network that has been set up between the Short Sea Promotion Centres (SSC) within Europe. There is a representative body of the ESSN within most EU countries; the UK SSC body can be found at www.seaandwater.org.uk, which acts as a lobbyist for UK government policy and a repository of information on short sea shipping.

The role of the ESSN is to:

- Promote success stories, events and conferences within the short-sea shipping industry
- Act as a web portal for short-sea shipping services (www.shortsea.info) with a data bank of services
- Act as a facilitator for bi and multi-lateral initiatives amongst members
- Provide advice and market intelligence to shippers and forwarders
- Act strategically within the EU, helping to create a "level-playing field" between road and short sea transport

Membership of the short sea promotion centres comes from shippers, forwarders, ports, shipping companies and others involved within the industry.

Implications for FINESSE:

The ESSN is very much an information providing, promotional and lobbying network. It provides **neutral** information about all services using short-sea shipping. It has EU funding as it is seen to be sharing best practise and developing non-road modes of transport. It does **not** act as a commercial operator but it does provide operational information to potential customers and can be used to facilitate developments between members of the network.

FINESSE could develop along the lines of the ESSN, as long as it is financially and organisationally separate from the operators of the service. It could therefore be the promoter of the concept of innovative intermodal services to the UK, e.g. with a web-based information service.

The strength of the ESSN is that, like the UK Rail Freight Group, it has a relatively high proportion of the industry as subscribing members, because they recognise the value of the organisation as a lobbying and promotional tool, while the breadth of its membership provides the organisation with credibility with national governments and the EU.

ESSN lobbies for general investment but not for specific projects.

The promotion agency proposed differs from other combined transport promotion agencies in that it would be dedicated to the FINESSE rail-ferry concept. There are no agencies dedicated to this concept at present. The major combined transport promotion agencies, which are operated by the Union Internationale des Societes de Transport Combines Rail-Route (UIRR) and Union Internationale des Chemins de Fer (UIC), do not promote one-stop-shop services between the continent and the UK, and carry out none of the functions proposed for the new agency. They are concerned almost exclusively with combined transport on the continent, and their concern with combined transport and the UK is restricted to services through the Channel Tunnel.

For the UIC and UIRR, the use of rail-sea transport refers specifically to rail ferries, and there is no suggestion that conventional Channel ferries could be used as part of a combined transport move. The only accompanied services recognised by UIR and UICC are rolling road - where road tractor and trailer together travel on a rail wagon with a driver, not where road tractor and trailer together travel on a ship as part of a combined transport move.

The use of FINESSE project ports is not promoted by UIRR or UIC. Amongst the FINESSE ports, only Zeebrugge is recognised as a combined transport terminal: Dover, Calais, Boulogne, and Dunkerque are not.

It must be stressed that the potential modal shift and its associated environmental benefits will not be achieved without a public sector catalyst. Individual private operators are too small, and the commercial benefits too long term, for a single private company to develop the FINESSE concept. A non-profit, neutral, agency is essential to focus the concept and group the cargoes available from single operators into, eventually, trainload volumes. Even if one was large enough to achieve trainload volumes the gain would be limited to just one company's freight, and the opportunity for a wider and more successful offer would be lost.

3.8. The FINESSE business plan

The FINESSE partnership should develop a business plan for the new *FINESSE* organisation, which will need to cover:

- Management: we recommend that this should comprise partners drawn from the FINESSE project group. Subcontracting to a lead business partner is inappropriate, as its competitors may prove unwilling to use its services, limiting its market reach.
- Location: given that the best potential for initial development lies in French rail services the new organisation should be based in France
- Organisational structure and budget: circa €375,000/£250,000pa, for promotion as well as staffing. The agency will require a manager with preferably private sector experience of marketing in the combined transport industry, supported by an assistant at a cost, including expenses, of about €150,000pa. A similar sum would be allocated for the promotional budget, including website development, and a further €75,000pa for conferences and business partner meetings

This investment is minimal when considering the potential benefits of the project.

The functions of the new *FINESSE* organisation could include:

- Development of a niche intermodal promotion bureau, which would generate promotional material and implement the marketing strategy
- Promulgating door/door price offers from associated forwarders, and helping them simplify railway pricing structures
- Assuring a solid, reliable FINESSE structure of rail interchange and cross-Channel movement, ensuring effective train services, and negotiating lower rail terminal and terminal haulage rates
- Initiation of pilot projects for services on specific pathways as suggested below
- Operation of a rail equipment interchange and wagon slot sales clearing house
- Securing partner backer(s) for future infrastructure needs, such as the dedicated ferry and the UK rail link to Dover.
- Securing EU, Government, or regional funding for future infrastructure needs
- Investigation of the physical facilities and rail service connections to be used, the promotion of more rail links, stimulation of logistics investment, development of web based information systems for tracking, etc
- Encouraging development of excellent rail terminal logistics centres.

3.9. UK Gateway Pilots

3.9.1. France

Immediate further development of the core rail intermodal element of the project is most promising in France, as French ports are already linked to Dover, major improvements are taking place in the organisation of French railways, the French government and powerful regions are in favour of modal shift, and major markets are available in France at a rail-competitive distance.

We therefore propose that a pilot project be set up, dedicated to integrated combined transport between Spain / South France and the UK using train, ferry, and accompanied road transport. The attached map shows the flows targeted and the level of interest shown in alternatives.

The initial UK focus would be the major markets of London and the South East, and the calculations below are based on London, but the project is also competitive for other UK regions.

This pilot project could comprise the following four very approximately timed phases.

Phase 1 (2005): one daily train carrying intermodal units between Perpignan and Dourges / Delta 3, marketed as “the UK gateway”. Units would be trucked to UK destinations. The price offered for the service should cover the whole movement from origin to destination, including rail, terminal handlings, and the road move.

Phase 2 (2006): the same offer with a train extended to Dunkerque.

Phase 3 (2007): two daily trains to Dunkerque or Calais.

Phase 4 (2010 and after): transfer of UK Northern traffic to rail at Dover (one train per day, half the available traffic converted to rail).

This proposal benefits in the short term from Eurotunnel's disarray, which means that Eurotunnel customers with appropriate equipment are unable to use rail as they wish. This means that there are forwarders who have invested in swapbodies so as to use rail services but who are unable to use them as intended because the railways have withdrawn the associated Channel Tunnel rail services. Consequently, these forwarders are forced to use conventional road trailers instead. In the medium term Eurotunnel will benefit from the improvements expected in the organisation of French railways, so that FINESSE needs to take advantage of this window of opportunity to create services for which Eurotunnel would not wish to compete, given its particular strengths and weaknesses.

Initial volume estimates for the pilot project are given below, showing the environmental benefits available.

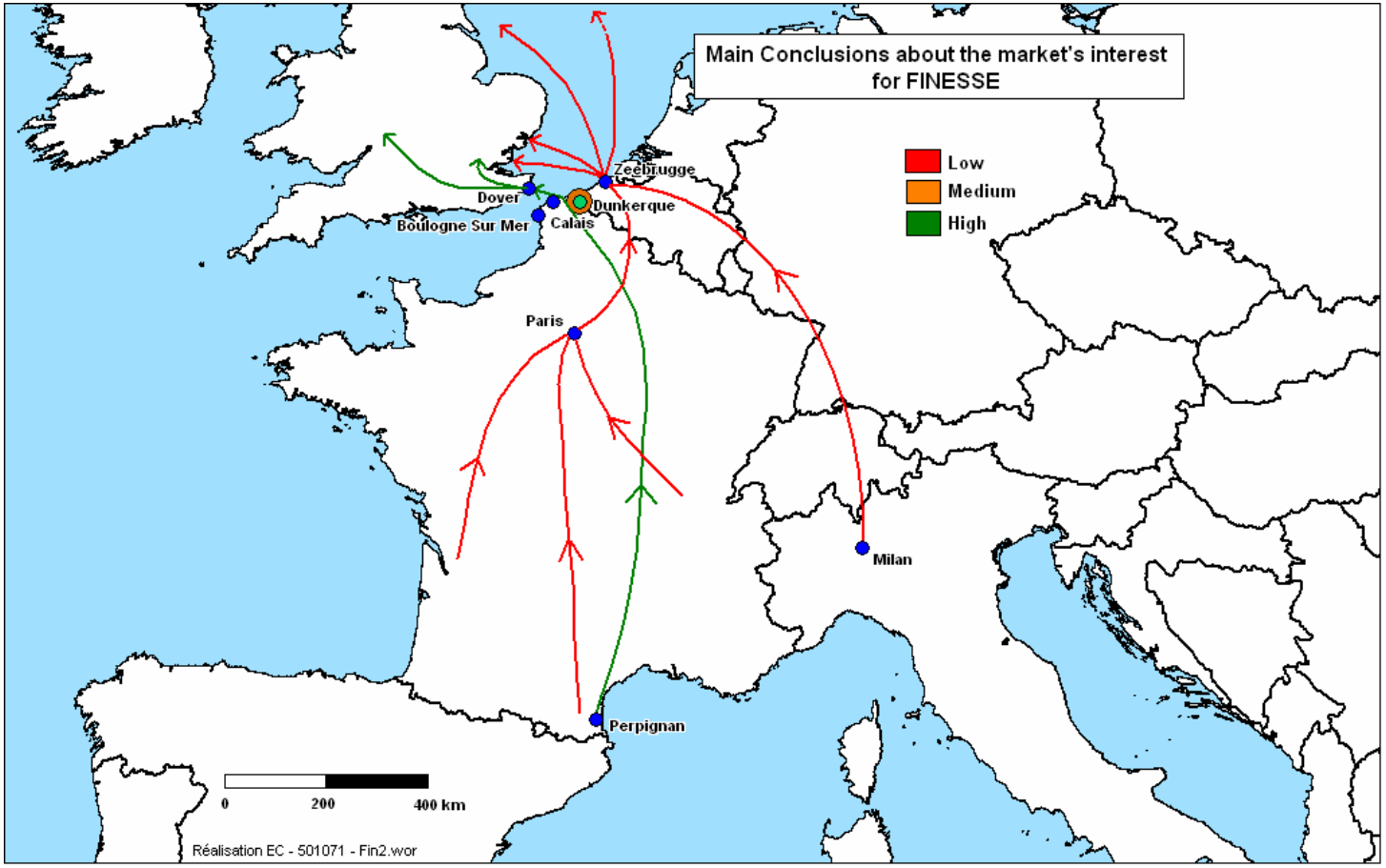
Initial volume estimates for the pilot project

	Stage 1 (2005)	Stage 2 (2006)	Stage 3 (2007)	Stage 4
Trains per day	1	1	2	3
Distance by rail	1,074	1,176	1,176	1641
Maximum road distance avoided	1,040	1,159	1,159	1281
Total volume shifted per day (000 tonnes)	1.2	1.2	2.4	2.4
Total volume shifted per year (000 tonnes)	312	312	624	624
Total modal shift generated per year (000 tkm)	324,480	361,608	723,216	872,976
Environmental benefits (million €)	22.2	24.9	49.7	60.0
FINESSE Subsidy request	648,960	723,216	1,446,432	1,745,952

The project's environmental gain is significant as a result of the long road move avoided in France (1040 km Perpignan – Dourges and 1159 km Perpignan – Dunkerque). The UK Stage 5 gain is relatively low because only half the traffic is converted and the distance for converted traffic is much smaller (Dover – North West 480 km). Even so, as remarked elsewhere, environmental damage is focused at particular places along routes, in this case as congestion in Kent and Dover, and very particularly as poor air quality on the approaches to the port itself. Thus, for Kent and Dover town, the environmental gain is significant.

The potential subsidy required to help service operators to cover the price difference between road and combined transport may be calculated using the formula promulgated in the Marco Polo call for tenders (1€ for 500 tons km shifted from road to an environmental friendly mode). This would suggest an annual amount of € 650,000 subsidy as from year 1, rising to € 1,746,000in year 5 with a Dover train included.

The new *FINESSE* organisation should initiate the pilot in close association with the Region Nord Pas de Calais, whose support is crucial to the success of the pilot. Together they should develop links with potential champions on whose operations the pilot will be based, and implement the suggestions made for *FINESSE*, targeted on the pilot pathway. For this pilot, *FINESSE* should also develop a business plan to help raise subsidies, for instance from Marco Polo.



The map shows that French interest in a rail/sea link via Dunkerque or Calais to Dover is high on the significant Spain and Southern France to Southern England route.

There is low interest on the other routes shown because more northerly parts of the UK can be better served via Zeebrugge.

Of course, this offers Zeebrugge an opportunity to convert these flows on the continent to rail, but the link would not be through Dover.

3.9.1.1. Characteristics of the UK/Spanish market

UK imports from Spain are about twice UK exports to Spain, but half of imports are refrigerated fruit and vegetables, so non-refrigerated trade is roughly in balance. Most traffic is carried by road vehicles across the Pyrenees, and most of this takes the short Channel crossings. The commodity structure of trade is not very important except insofar as it affects the equipment used. Forwarder customers know what commodities they are handling, and the shippers who are their customers. Spain is a major supplier of fruit to the UK, and this will demand refrigerated ILUs. Tiles, another major UK import, do not have any special equipment requirements.

Spanish road haulage is controlled by large numbers of individual hauliers operating their own vehicles – refrigerated trailers or curtain-sided trailers for non-refrigerated cargoes. These hauliers tend to have close links with export shippers, so that it has always been difficult to break the dominance of accompanied road haulage. Because of the geographical relationship between the Iberian peninsula and the UK, and the dominance of southeast Spain in the fruit and vegetable export industry; these commodities are typically carried overland by road. However, industry in the west of the country has also had the opportunity to use container shipping to the UK from ports on the Spanish north-west coast, and this amounts to some 200,000 container units. Container shipping is cheaper than road transport and offers the opportunity to serve British ports (such as Liverpool) closer to non-south east centres of demand. Consequently, container shipping lines have also developed good relationships with Spanish railways, and containers are carried intermodally even from the east.

Before the development of the Spanish road haulage industry fruit and vegetables were carried to the UK (Paddock Wood) in conventional rail wagons using the train ferry. This mode of operation died in the 1980s as a result of the opening of Spain to the world following Franco's death in 1975, Spain's accession to the EU in 1986, liberalisation of road haulage, and the building of motorways.

There have been attempts to create accompanied or unaccompanied ferry services from Spain to ports such as Southampton, but the distance is too great for accompanied trailers as drivers would waste time on ferries, and the structure of the road haulage industry has prevented the successful development of unaccompanied trailer services.

For a time Eurotunnel was mildly successful in importing industrial goods, notably car parts, from Spain using intermodal rail through the Channel Tunnel.

3.9.2. Belgium

Belgian railways are also improving their services, the Belgian government also desires modal shift to rail and is acting towards this end, and Belgian operators are developing close collaboration with Dutch and German partners, so that the same rail-competitive distance argument applies to Belgium as to France. However, although Zeebrugge has no maritime link with Dover it does with Thames ports, where UK rail links could probably also be provided more quickly.

Of all the FINESSE ports, Zeebrugge has the best intermodal connections and therefore the best opportunity to develop new intermodal services around logistics hubs. As part of this growth it could use its particular strength in the North Continent, and in the short term even to the south, to bring swapbodies in by rail for transfer to a FINESSE road operation through Dunkerque or Calais

However, given its strengths, this hardly looks the most promising role for the port. Within the broad FINESSE concept it seems that Zeebrugge's best option is to develop links with Thames or east coast UK ports rather than Dover. This is not a mere theoretical construct: our Belgian respondents (including hauliers and forwarders) were very clear that this was where they saw Zeebrugge's natural market.

Zeebrugge-based container transport companies are already responding to the imposition of the LKW-Maut in Germany by opting for intermodal solutions, notably for long-distance traffic from for instance Greece, Austria, and Eastern Europe. The port has high expectations that its combined transport business can be substantially expanded, but rail cannot replace road for this type of traffic unless adequate fast rail network capacity is available, and this is not yet the case. Competition between passengers and freight for scarce rail capacity is stretching the port's rail capacity particularly in the summer months.

Zeebrugge should develop its particular locational strength in the larger German, Belgium, Holland and middle European markets, and its natural orientation towards traffic routes via the Thames and East Coast ports. Within its distant, more dispersed, Continental hinterland the emphasis should be on using and growing the wider network of existing services rather than, as in France, aiming to develop a specific pathway. Although the concept may be applied to any of the UK ports served from Zeebrugge the best potential for achieving modal shift in the UK will be via the Thames, as rail distances are too short from more northerly ports. Cobelfret's Purfleet terminal (not rail-connected) on the M25 is on the north bank of the Thames, and the Dart Line terminal is on the south bank at Dartford, also on the M25. However, the new Thames Gateway development, where Cobelfret has reserved berths, and on the north bank of the Thames, seems a particularly good prospect, as services will be able to piggyback on the enhanced gauge intermodal services provided for deepsea containers.

For an accompanied delivery to the South East/London area it is debatable which is better and/or cheaper from the Zeebrugge Continental rail terminal:

- unaccompanied ferry to the Thames and then short haul delivery to the customer, or
- direct accompanied road move from Zeebrugge via Dunkerque-Dover ferry.

Similar arguments on the use of the Thames and unaccompanied services can be applied, if with less force, to the situation of the port of Dunkerque.

Zeebrugge could commission an expansion of this paper, considering existing material and traffics, outlining potential, and assessing potential competition with services that operate via Dover, and considering the extent to which Thames ports and Dover compete in the same marketplace, in terms of traffic types and origin/destination pair. The study could consider the potential for Zeebrugge to develop new intermodal services around logistics hubs, of course within the scope of the development of innovative and sustainable intermodal freight transport services between the South East of England and mainland Europe, using rail and ferry technology.

If this discussion paper indicates that there is potential for development for Zeebrugge within the broad FINESSE philosophy, focused in-depth interviews with players on the Thames routes (ports, operators, shippers) will be required to validate our conclusions and obtain additional relevant market information, from which a pilot proposal and business case similar to our proposed French pilot could be developed.

3.9.2.1. The potential for a Dover / Zeebrugge link

Townsend Thoresen initiated the Dover Zeebrugge freight ferry service in 1966, and P&O took the company and the route over in 1986. Its confidence in the Zeebrugge route was demonstrated in 1992, after the company was re-branded as P&O European Ferries, when three freight superferries were introduced to the route, together with the passenger superferry 'Pride of Burgundy'.

The Townsend Dover-Zeebrugge service carried 158,000 freight vehicles in 1980, as well as 292,000 cars and 1.6 million passengers. Growth in the freight element resulted in the major route investment of 1992, when 287,000 freight vehicles were carried, but volumes fell subsequently and the service was closed in December 2003.

Although this suggests that the market has moved permanently away from a link between Dover and Zeebrugge it would be dangerous to say that never and in no circumstances would the ferry be revived. Some argue that the reinstatement of the Oostende – Ramsgate service and its success in increasing freight volumes, and now its reinstatement of a passenger service, demonstrates that because one operator fails it does not mean that all operators will. Oostende and Zeebrugge, and Dover and Ramsgate, are not placed in significantly different locations from a haulier's point of view, and the Transeuropa Oostende – Ramsgate service started just a year after the longstanding Sally Line service on the route was closed due to lack of volume.

However, Transeuropa serves a particular niche market in a unique way, and from a regional strategy point of view it may not be desirable to compete with it and risk damaging employment at Oostende and Ramsgate for doubtful overall gain.

3.9.2.2. East European potential

FINESSE partners are aware of the potential growth of trade between the UK and Eastern Europe and see this as a major area for development of the rail/sea offer because the continental distances involved are clearly sufficient to justify the use of combined transport rather than all-road.

Respondents to our market surveys – speaking of all-road traffic - felt that future cross-channel market growth would depend significantly on political and economic development in Eastern Europe. They assumed that enlargement of the EU would lead to traffic growth, either because of outsourcing to Eastern Europe or simply because accession will inevitably increase in trade between the West and the East. Our analyses (Technical Paper 6) also support the view that East European markets will grow faster than the traditional major western markets.

Combined transport is likely to be more successful where large volumes of traffic are concentrated at few locations. Where a border is very long, traffic is usually dispersed, while if it is shorter traffic is more likely to be concentrated. Large Spanish and Italian flows to the UK are forced through relatively narrow land necks, while much East European lower volumes are dispersed along the 800 mile long border between east and west Europe, The potential for combined transport for the UK is therefore generally likely to be more successful for Italy and Spain than Eastern Europe.

However, there are concentrated flows of east European traffic through Hungary. This routeing creates real potential for Zeebrugge, which is closer to the Hungarian / Austrian border than Rotterdam or French FINESSE ports, and is already a recognised combined transport terminal

location. There is thus a potential combined transport corridor from central and southeastern Europe to Zeebrugge, as long as suitable maritime services for the UK are available.

Further information on East Europe and Hungary is included in Technical Paper 6.

We recommend that Zeebrugge further examine its combined transport potential for East European traffic.

4. Public policy

4.1. European Union strategies for railfreight and the rail network

4.1.1.Policy Framework

This sub-section covers the contents of *Technical Paper 1 EU Rail Policy and Network.*

The EU has increasingly recognised that intermodal transport (also referred to as 'combined transport') can help reduce road congestion and has adopted various funding programmes and policy measures to encourage modal shift. It has also recognised that developing a European intermodal transport system requires coordinated transport policies at European, national and regional levels. EU policy underlies the development of the FINESSE Project.

EU rail strategy is driven by its dissatisfaction with the performance of Europe's state railways, and has led it to seek:

- Splitting network control from operations
- Commercial operation of state railway companies
- Open access for new operators

Development of EU transport policy directives

Publication	Objective	Result
Treaty of Maastricht		Creation of TENS network
1st White Paper 1992	Opening up of rail competition and development of intermodal transport	Reduction and reimbursement of intermodal vehicle road tax
Transport Directive 1998	Growth in intermodal transport	Fiscal relief for intermodal transport
2nd White Paper 2001	Targets for 2010	International railfreight services to be open to competition from 01.01.2007 Established priorities for TENS projects and extended timescale to 2020

4.1.2.EU Funding

EU funding programmes

Funding programmes	Objective	Eligibility for FINESSE	Amount
TENS	Combined national plans for road, rail and intermodal corridors	All FINESSE ports on TENS "map" so eligible	Can give up to 20% aid for cross-border rail projects
Motorways of the Sea	Part of TENS, for port and access infrastructure	FINESSE ports and routes ineligible	
Marco Polo Programme	Maintain transport mode shares @ 1998 levels Three areas: - modal shift funding - catalyst actions - common learning actions	Could be eligible for: - Spain/France intermodal route - catalyst actions - common learning	Modal shift: subsidy of €1 per 500t/km shifted, a minimum subsidy threshold €0.5m and a subsidy rate of up to 30%. At least 250million tkm is to be shifted per contract, up to 3 years Catalyst actions: up to 4 years, with a minimum subsidy threshold of €1.5m and a subsidy rate of up to 35%. Common learning actions: minimum subsidy threshold up to €0.25m, subsidy rate up to 50%
European Investment Bank	Financing of infrastructure projects if promote rail and sea and on TENS network	FINESSE ports eligible	Can provide long term low interest loans to eligible projects

Additional funding will be available in future, perhaps for instance from Interreg 4, possibly particularly suitable for the proposed promotion bureau.

4.2. National/regional/port railfreight and network issues and strategies

4.2.1. United Kingdom

The contents of Technical Paper 2 UK Rail Policy and Network are summarised here. Dover rail issues are covered in Technical Paper 5 FINESSE Ports.

4.2.1.1. UK Rail Environment

In the UK there is a clear separation between management of rail infrastructure, regulation and train operations.

UK rail organisations, ownership and responsibility

Organisation	Ownership	Responsibility
Department of Transport	State	Setting government policy
Strategic Rail Authority	State	Strategic direction Funding of grants
Network Rail	"Not-for-profit" company, owned by various stakeholders, including UK government	Rail infrastructure Strategic implementation
Office of Rail Regulator	State	Oversees Track Access agreements Ensures fair competition Sets funding level for Network Rail
Freight Operating Companies*	Private	Rail freight operations

*There are five companies of which the largest are English Welsh & Scottish Railway (EWS) accounting for around 70% of rail freight in the UK, and Freightliners Ltd accounting for 25%.

4.2.1.2. UK Government Policy Framework at National Level

The UK Government's latest thinking on transport and the railways in particular is set out in the White Paper "The Future of Transport" published in July 2004. This marks a shift away from the policy set in the 1999 White Paper. Whilst a principal aim of policy remains a reduction in road congestion, the latest policy moves away from setting targets for increases in rail freight.

Key points are:

- A far greater emphasis on developing small-scale schemes to improve the workings of road haulage and distribution.
- The SRA is to be abolished and its functions subsumed by the Department for Transport by the autumn of 2005.
- Railfreight companies are to be offered a deal which gives them "better" access to the network but this is likely to cost them more
- Government funding is focused on the passenger rail network
- Funding systems for railfreight developments are either suspended or have no money available. It seems likely that grant aid for rail freight schemes will be limited and may be assessed alongside other, including road-based schemes, likely to bring reductions in the level of road usage.

4.2.1.3. Current UK Grant Funding

The Strategic Rail Authority currently administers grant aid for rail freight projects. As noted above, this will transfer to the Department for Transport.

Grant	Objective	Budget	Timescale
Company Neutral Revenue Scheme (CNRS)	To support domestic and port-related intermodal traffic on rail	Limited: much is pre-allocated to Freightliner	To run to 31.03.2007
Track Access Grant (TAG)	Environmental benefits Paid against specific flows of traffic to rail operator	No budget currently allocated	Not available
Freight Facilities Grant (FFG)	Capital costs for rail transfer projects	Suspended within England	Not available

4.2.1.4. Regional and Local Transport Strategies

Regional and local transport strategies are geared towards facilitating the use of rail whilst promoting developments to encourage maximum realisation of economic and regeneration potential. We have not identified any specific funding for railfreight projects, though under current Government policies there is nothing to stop regional or local authorities financing rail initiatives.

The Kent area has a role as the main gateway to Europe and this places substantial pressure on the transport system. The South East Regional Assembly (SEERA) has set regional planning guidelines providing a framework for strategy. Stated policies for the region, including the Kent Structure Plan, are:

- A desire to see rail's share of freight movement in the region increase, including on the Dover/Channel Tunnel – London corridor
- The need to ensure that sites potentially suitable for rail (or water) linked activity are safeguarded
- Provision for up to 3 intermodal terminals within the region.
- Reconnection of Dover Western Docks to the rail network as a medium-term priority
- Ensuring within Kent that potential for rail freight is taken into account in land use decisions

4.2.1.5. UK Rail Network Issues

Loading gauge

The UK rail network has been designed for wagons much smaller than the European norm so that it has problems dealing with modern intermodal equipment. Parts of the network have been enhanced to handle different sizes of container or swapbody, and routes to the main deepsea ports are being enhanced for high cube (9'6" high) containers, financed to at least some extent by the ports themselves.

Key points

- 8ft high containers 8ft wide and conventional wagons can travel safely everywhere in the UK on W6
- Standard maritime containers are 8ft 6in high, many are 9ft 6in
- Resolving the UK gauge problem for intermodal requires one or more of:
- Reclassifying routes
    - Providing a more generous loading gauge by removing obstructions

- Lowering wagon deck height

Route reclassification

- Freightliner routes re-classified to W8, allowing 8ft 6" containers
- Route to Channel Tunnel and international intermodal terminal routes to W9: can carry 9ft containers on new (lower) Freightliner wagons
- SRA/Network Rail study proposed W12 gauge on selected routes: W12: allows for total height of 3.9m (including wagon) and 2.6m wide
- Network Rail seeks external finance for gauge enhancement – Dover tunnels require enhancement to W9 for any effective intermodal service at Dover

UK Network Issue	Strategy	Actions	Likely cost
Loading gauge near Dover	Enhancement of tunnels	Initial assessment: by Laser Rail Enhancement	Could be up to £75,000 £5-£10 million – but a guess
No rail connection at Dover	Reconnection	Basic Services agreement with NR Track and signalling work	£25,000 – 50,000 £4-5 million
Network gauge enhancement	Respond to market requirement and demand private investment		

- If tunnel enhancement took place within the 2-3 years timescale of scheduled tunnel renewals, compensation to other operators could be reduced
- Reconnection would create sufficient space for a small terminal of 2 - 3 sidings of 500m+ in length However, as most transhipment freight activity takes place at the Eastern Docks, a road shuttle would be needed to the Western Docks rail terminal until a new berth was built

4.2.2. France

Technical Paper 3 FR Rail Policy and Network is summarised here. Rail issues for French ports are covered in Technical Paper 5 FINESSE Ports.

4.2.2.1. Rail Freight Policy

The former SNCF was divided into two separate bodies in1997	**RFF** (Réseau Ferré de France) owns the French Rail Network. Its objective is to manage and develop the rail network
	SNCF is a rail carrier both for freight and passengers. It is, in theory, just one RFF customer amongst many

Strategy for rail freight operations

The French Government must deal with the dual objective of reducing SNCF losses and preparing it for open competition: its plans are given overleaf.

Key dates

Date	Objective	Result	Implications for FINESSE
07.07.03	Opening of network to certain carriers with safety certificates	EU based rail carriers providing international goods transport on the TENS International groups associated with EU-based rail carriers carrying out international transport between the countries where these companies are based EU-based intermodal transport companies	It is not yet clear whether a move between the United Kingdom and France that included a non-rail ferry operation would be considered as international rail transport.
Plan Fret 2006	Return of conventional freight to profitability*	Shedding of some traffic, increases in rates Results for 2004 are encouraging	New services need to be underwritten
01.01.06	Full open access on all lines in theory		
01.01.07	Full open access for cabotage	Operators developing operations and experience in other countries while waiting for the French market to open	

*Combined (intermodal) transport is not included in this plan, this being a separate strategic issue for rail freight in France.

4.2.2.2. Network policy and projects

French infrastructure strategy is based on a range of different programmes and plans.

Scheme	Sphere of influence	Financial responsibility
Schema de Services Collectifs (SSC)	Identifies infrastructure requirements over 20 year period	Does not decide financing
Contrats de Plans Etat Region (CPER)	Identifies short term infrastructure needs, including relieving bottlenecks in Nord Pas de Calais Region	Specifies public body financial commitments Regional share usually 30%
Comité Interministerial d'Aménagement du Territoire (CIADT)	Identifies strategic short to medium term investments to 2025	At Ministerial level; includes dedicated freight railway Amiens – Calais

4.2.2.3. Regional Rail Freight Policy

The Région Nord – Pas de Calais policy for rail freight is mainly focused on infrastructure improvements. Other rail-related investments financed by the Region relate to the Dourges Delta3 multi-modal terminal. This terminal is expected to improve intermodal transport in the Region substantially. The Region is also interested in any concept aimed at cutting the heavy goods vehicle movements as it is already suffering from congestion (especially on the A1 motorway).

4.2.2.4. Port Rail Network Issues

The ports of Dunkerque, Calais, and Boulogne are all linked to the national electrified rail network. All have marshalling yards within the port areas, although for Calais, wagons need to be shuttled between the central station and the port. A study covering future rail access to Calais should begin soon.

Access to Boulogne is via Calais and Hazebrouck. Investment is planned to clear the two regional rail bottlenecks of Hazebrouck and Ostricourt (see above). The Ave Maria tunnel, and two others, on the approach to Boulogne is a possible limitation for high cube cargo.

Rail access to Dunkerque port is good, and the port has a large rail-road inland port with 4 gantry cranes inside the ro-ro and container terminal. Dunkerque alone has facilities for train ferry operation.

4.2.3. Belgium

4.2.3.1. Rail Environment

Technical Paper 4 BE Rail Policy and Network covers this sub-section in greater detail. Rail issues for Zeebrugge are covered in Technical Paper 5 FINESSE Ports.

The Belgian national railway operator NMBS-SNCB will be split into separate infrastructure and operating companies from 1st January 2005. The operating company will have responsibility for passengers and freight, and support services such as maintenance. The freight business is already run on commercial lines.

Key points

- NMBS-SNCB is responsible to the federal government.
- The Regions have far-reaching responsibilities for economic development, most aspects of spatial planning and transport (road infrastructure and inland waterway transport).
- All investment with regional importance, including rail infrastructure investment, must be split 60/40 between the Flanders and Walloon Regions. This hampers adequate investment in rail infrastructure supporting the ports - as a result, there has been pressure to give the Regions responsibility for rail

4.2.3.2. Federal Government Policy

Federal policy and investment has been mainly focussed on passenger transport, but increasing road congestion has led to a scheme, due to run to 2008, for support for intermodal traffic moving internally within Belgium:

€30m pa has been allocated, which is paid according to volumes moved. Track access charges for internal intermodal traffic have been reduced, and intermodal freight volumes are targeted to increase by 10% in the medium to long term.

4.2.3.3. Flanders Region Policy

The Region's priorities are:

- Further development of public passenger transport
- Further development of infrastructure networks.
- Port accessibility and improvements to main lines serving the ports

The Flanders region is relatively pessimistic in its assumptions about future rail freight market share: it sees rail's share falling by 1% (to 14%) by 2010. The regional government's ability to influence investment in rail infrastructure is limited as rail is a federal government responsibility.

4.2.3.4. NMBS-SNCB Policy

NMBS-SNCB has developed a short-term plan ('Move – 2007') in order to improve its competitiveness in the market and aims to double its freight volume by 2010 compared with 2001. The main focus of its activities is international movements between primarily Antwerp and Italy/Switzerland, Germany (Duisburg) and France (Paris).

4.2.3.5. Network Issues

The Spatial Structure Plan Flanders (SSP), which has a planning horizon of 2007, includes investment in four lines. There are capacity issues on both the key freight lines from Zeebrugge:

- Zeebrugge – Brugge – Ghent: carries about 80% of freight to/from Zeebrugge, two additional tracks planned in 2012
- Brugge – Kortrijk line: carries 20% of freight traffic to/from Zeebrugge, the signalling system is obsolescent. This causes nightly closures of the line and a general shortage in capacity for freight

4.2.3.6. New Zeebrugge Port Developments

The main port infrastructure developments at Zeebrugge relevant to the FINESSE project are:

- The construction of a new 57 ha ro-ro terminal in the outer harbour, planned to increase the port's intra-European ro-ro capacity, to come on stream by 2006.
- The development of a tidal zone in the current inner harbour to provide new ro-ro capacity in the medium to long-term. The project is still in its study phase, as other options exist, but if it goes ahead the first new areas will be available by 2011-2012.

In the long term, this new tidal zone could serve any FINESSE – associated development.

Comparative summary of rail and port rail issues in UK, France and Belgium

	UK	France	Belgium
Adequate loading gauge	No	Yes, except Boulogne tunnel	Yes
Adequate port links	No	Yes	Yes
Line capacity problems	Significant	Moderate	Not very significant
Current rail service at FINESSE port	No	Yes	Yes
Government focus on passenger	Yes	Yes	Yes
Targets set for intermodal growth	No longer	Yes	Yes
Rail companies restructuring loss-making areas	Not relevant (private)	Yes	Yes

Line capacity: there is potential rail congestion in the UK around London, but investment is planned for regional bottlenecks in France and Belgium

5. Markets

5.1. Market structure

5.1.1. UK imports by origin country and commodity

UK international transport structures are dominated by imports because of the very substantial imbalance of UK trade. Containers, wagons, and ships often leave UK ports empty or part-loaded. Consequently UK export transport prices are very low, and operators need to succeed in the import market to make profits. This analysis therefore focuses on UK imports.

The geographic market in which FINESSE would operate is mostly European, but could extend as far as the Central Asian Republics. A wide definition of the potential geographic spread is therefore taken here, shown in simplified form in the table below.

Excluding fuels and air traffic, the UK imports 90 million tonnes (2003) from this range of countries. Most is, however, accounted for by bulk or specialised shipping commodities such as sand and gravel, forest products, iron and steel, cars, chemicals, and fertilisers, an unknown share of which is carried in unit load services.

Also excluding these traffics, UK imports are about 40 million tonnes, mostly carried in unitised form: containers and trailers. Again, of course, some of this group of commodities are partly carried in bulk or specialised vessels - cereals for example could have been excluded.

UK imports in 2003, by origin area, shares by weight: excluding bulk and specialised commodities

Area	Dominant countries	Share %
North Continent (NC)	Germany (18%), Netherlands (16%), Belgium (9%)	47
Southern (S)	France (15%), Italy (9%), Spain (8%),	38
Nordic (N)	Norway (4%), Sweden (2%), Finland (1%)	7
Eastern (E)	Russia (1%), Poland (1%)	4
South-Eastern (SE)	Greece (1%), Turkey (1%)	4
TOTAL		**100**

Freight of this type is thus overwhelmingly imported from the large, wealthy countries that are the UK's traditional suppliers. Not all of it, of course, is open to a Dover offer. The natural orientation of North Continent, Nordic, and Eastern countries is to the Thames and the UK East Coast, though some part of the flows from these countries uses accompanied transport through Dover or the Tunnel either because it fits the particular origin/destination link or, probably more typically, because of the speed of accompanied road transport. In the South, accompanied traffic through Dover competes with container services to the UK east and south coast.

Part of the Southern and South Eastern volume totalling perhaps 25% of the total flow is available for rail offers via French ports, while about 20% is available for rail offers via Zeebrugge.

UK import traffic by weight by UK region is analysed below, again excluding bulk or specialised commodities. (*Base: about 35 million tonnes)* the implications of this pattern are discussed below.

Distribution of UK traffic by UK region, %

London and SE	NW	East Anglia	Midlands	Yorks/ Humber	Northern Ireland	South West	Scotland and NE	Wales	Total
35	15	14	13	6	5	4	6	2	100

5.1.1.1. Implications for FINESSE

The Dover Straits accompanied trailer market amounts to some 3 million units per year. The target market for a rail service at French ports is about 25% of this volume, 750,000 units, as it includes all Italian and Spanish traffic as well as some part of the French volume. Because of Eurotunnel's involvement in the Italian intermodal market it would be best to focus on the Spanish market initially, which will require less than a 10% market share to achieve a train per day. However, a French offer would not be restricted to the UK market. Dunkerque in particular should be able to capitalise on its deepsea services.

The situation of Zeebrugge is different, as its natural orientation is not via Dover, but via Thames and East Coast ports. Although at first sight the volumes available for rail movement in the North Continent seem larger than for either France or the UK Zeebrugge competes with all-water, for instance direct from the Baltic, and large volumes of cargo are generated in its near hinterland. Its far hinterland is also more dispersed than for French ports, so that it is not easy to speak of trains per day.

Its target volume for modal shift could be around 20% of the total, particularly if its success in taking southern European cargo for distribution to the UK East Coast is taken into account. Cargo from the far hinterland would need to be consolidated inland for movement to the port, so that Zeebrugge's offer depends more on piggybacking on existing services throughout its hinterland than on particular long-haul rail services. As with French ports, more cargo is available because of the port's relationships with countries other than the UK.

The potential for rail services in the UK depend on UK inland origin and destination, not on partner countries, and within the UK, imports are distributed in the proportions shown in the table above. The total plausible northern hinterland for rail traffic in the UK amounts to some 20%, or 600,000 units.

The start-up position of a train per day would require less than a 5% market share of this volume.

5.1.2. Market size and growth

This chapter covers the contents of *Technical Paper 6 Traffic and Forecasts*.

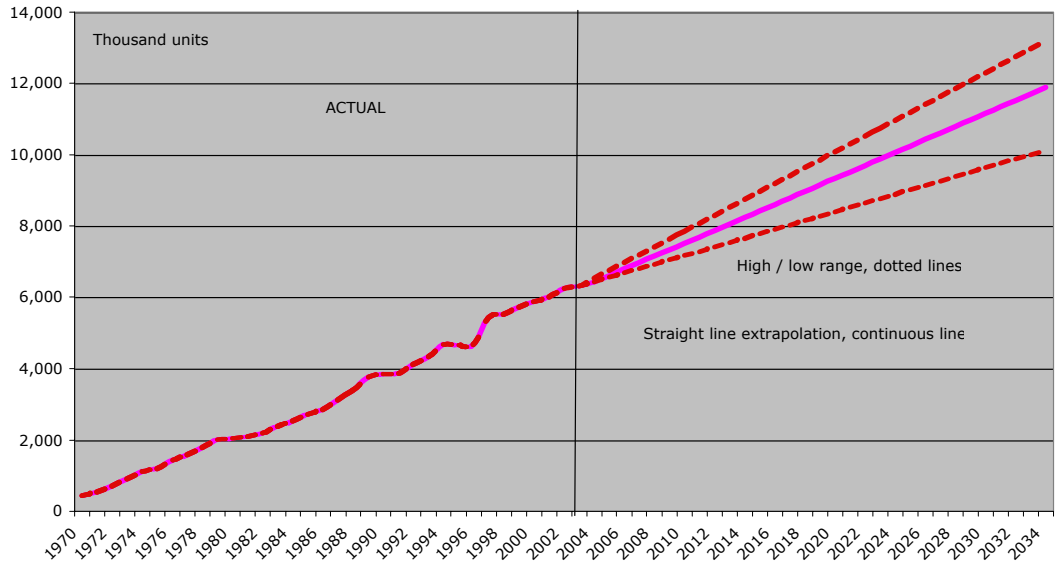
Our forecast for Dover Straits traffic growth is based on extrapolation of historical data for (non-Irish) all-UK trailer volumes for the period since 1970, as shown in the graph below, taking into account past changes in the Dover Straits share of traffic. Forecasts also took into account changes in markets which may be expected in future, arising both from the reorientation of UK markets to deepsea trade, and developments affecting the competitiveness of the Channel crossing against other UK ports.

Earlier, the *Étude de la part maritime dans les échanges transmanche* (MDS France 2002, for the French Ministry of Transport) forecast cross-channel freight growth of 4.8% pa.

In May 2004, the French Ministry of Transport forecast that goods transportation by road and

rail to 2025 would increase by 1.6% pa to 2025, Although this does not directly apply to the Channel market it tends to support lower growth scenarios.

UK RGV /TRAILER TRAFFIC 1970 - 2034



The specific assumptions and research findings affecting our view of the future were:

High - assumes higher than straight line forecast reflecting rising trend to 1999

Low - assumes turning point in accompanied trailer growth curve

- Total market rate of growth has fallen every year since 1999
- Unaccompanied trailer share (east coast) rose in 2002, 2003 after long decline
- Transfer of West European production to China (but east Europe as well)
- Working Time Directive forces change in operational patterns
- French 35 hour week has already had an effect
- Increasing fuel costs more of an influence than EU action
- Road congestion not yet an influence on road hauliers

The resulting forecasts for the Dover Straits were as follows:

Forecasts for freight traffic via Dover Straits to 2034, million units

	2003	***2014***	***2024***	***2034***
High	3.0	4.2	5.1	5.7
Low	3.0	3.7	4.2	4.4

Even on the high forecast, growth over the full 21-year period is forecast at only 3% per annum. The main consequence of this forecast is that it will be very many years before the problem of overcapacity on the Channel and in the Tunnel will be solved by market growth.

5.2. Modal Competition

5.2.1. Introduction

There are wide ranges of routeing and mode choices available to shippers in European transport markets, more thoroughly discussed in Technical Paper 7 Modal Competition. Decisions vary according to differing logistical requirements and philosophies and, in some cases reflect integration between international and domestic markets.

Comparison of road network and operation with intermodal rail

Issue	Road	Rail
Congestion	Yes, but varies by time of day	In parts – particularly around major cities
Density	Very dense	Not as dense as road, but better than water
Customer connection	Yes	Rarely
Flexible	Yes, very	No
Service frequency	On demand	Infrequent (train per day, or better for deepsea services)
Transit time	Shorter	Longer except over very long distances
Price	Competitive with rail to 300km	Needs long distance
Quality	Competitive with rail to 800km	Needs longer distance
Return loading and triangulation	Yes	Difficult
Cost structure	Level per km after 80 km	Tapers with distance
Price sensitivity to volume	Not very sensitive to volume: very sensitive to direction	Infrastructure costs vary with volume Price does not vary with direction
Margins	Very tight	Some, possibly a significant amount, traffic moves at a loss
Tracking and control	Accompanied easy to track Unaccompanied less easy to track	National systems available but data interchange problematic
Reliability	Very reliable	Perceived as less so – operators disagree
Ease of use	Very easy to use	Difficult to use
Cubic capacity	Can be much higher than intermodal	Lower cube: better for heavy cargoes

For the FINESSE project, competition between road and intermodal rail is the main issue since maritime, inland waterway, and air, are all peripheral to the freight market in which the proposed offer will operate.

Comments

1. Transit time is not always critical, reliability is
2. Rail can move large volumes over long distances more cost-effectively than road
3. Separation of infrastructure from operations has changed rail rate structures: rates very more by volume and distance than previously

5.2.2. Competition between Non-Rail Sea Modes

The main short-sea modes are accompanied trailer, unaccompanied trailer, and container, and they tend to be used on different routes and have different strengths. Voyage length is the principal determinant of vessel type.

Sea Mode	Sea distance	Vessel advantage	UK Routeing	Price	Speed
Accompanied	Near sea	Fast turn-round	Dover Straits	Most expensive	Fastest
Unaccompanied	Short sea	Better payload	Thames/Humber		
Lolo Container	Long, and deepsea	Cheapest vessel	North of Humber	Cheapest	Slowest

- Near sea, vessel utilisation is maximised by using drivers to stevedore their own trucks, minimising port stays
- Near sea, drivers can accompany trucks because the time on board is not wasted: it is part of their break time
- Short sea, drivers can use voyage time to sleep, but unaccompanied costs less though it is slower
- Ro-ro trailerships cost less than accompanied ferries (which also carry unaccompanied trailers short sea) because they have no passengers
- Mode is also determined by factors such as urgency, consignment size, and the physical nature of commodities - timber, paper rolls, and metals, for example, cannot easily be moved in containers that require end loading.
- UK routeing: since vessel choice depends on voyage length not UK port range this is indicative only.

5.3. Modal costs

5.3.1. Introduction

This chapter summarises the detailed analysis of road, rail and ferry costs contained in Technical Paper 9 Modal Costs. It also summarises the comparison of built up through costs on the route Munich-Manchester made in TP 9, a route chosen as rail friendly, given the overall length of haul. If a FINESSE offer cannot compete between Munich and Manchester it will find it difficult to compete at viable volume anywhere.

The analysis is of unit load freight traffic, with costs assessed as follows.

Road costs are current market rates for a single road trailer unit on the route. These are *prices.*

Rail costs are current cost estimates for intermodal trains with wagons round tripping on each sector. Wagon costs are included but equipment costs are not. A 15% margin was added to the national rail companies' rail haul costs but no margin is included for through operator's risk or profit.

Shipping costs are current cost estimates, with shipping system options modelled for optimum ship sizes, frequency of service and annual capacity on four port-to-port routes. Detailed analysis of port costs was also undertaken. No margin was allowed for the operator.

Rail and shipping estimates are thus *costs*, not prices.

5.3.2. Through road cost: Munich-Manchester

Long distance accompanied road trailer rates remain very competitive and have been falling in real terms for many years. Over long distances accompanied rates can be below €1.0 / km.

Fully accompanied via Dover: the cost comprises the single 880 mile/1,400km road journey and Channel crossing by ferry or Shuttle. The in/out trade imbalance is reflected in the road haulage rate structure. Typical rates for Munich-Manchester are circa €1,900/€1,250 northbound from Munich and €950/€650 Southbound from Manchester, and lower rates are frequently quoted.

Unaccompanied via Zeebrugge-Humber ferry: road distance is reduced by 30% to 618 miles/990km using this longer sea crossing, with an unaccompanied trailer carried by overnight ferry, with accompanied trips on either side of the sea. Unaccompanied rates for this routing are much the same as direct accompanied. Munich requires a long Continental road haul, making the option less competitive than it is for Belgium, Holland or North West Germany.

Cost Euros Munich-Manchester	**Accompanied via Dover**	**Unaccompanied Zeebrugge-Humber**	**Prevailing Market Rates**	
Road miles/km	880/1,400	618/990	Both modes similar	
Road cost	€1,200	€975	Northbound:	€1,900
Ferry cost	€225	€345	Southbound	€950
Total Cost	**€1,425**	**€1,320**	**Average**	**€1,425**
Range	€1,350-1,500			

5.3.3. Rail alternatives and costs: Munich-Manchester

The rail routing comparisons are for:

- Through rail Munich-Manchester direct train via the Channel Tunnel, with road collection and delivery from the rail terminal at each end.
- Munich rail to Continental Port plus:
  - Accompanied trailer to Manchester, or
  - Train ferry or unaccompanied trailer ferry to Dover, rail Dover to Manchester.

In all these cases road collection and/or delivery is required to/from the rail terminals. Charges for short haul C&D are typically €135 and for the rail terminal lift €30.

Because the Channel Tunnel rail service is a through service, the timetabled train and its wagons must be filled and co-ordinated between the two rail terminals concerned. The same would be true of a train ferry. For other rail options the continental and UK service legs are decoupled and independent. Intermodal units can piggyback on existing intermodal services, connecting to various origins and destinations in the port hinterlands. While this allows many more individual options it still requires much more co-ordination and management than a single unit on a road vehicle.

Rail cost estimates for a round trip train of 16 wagons and average 27.2 units:

	Train Cost	One way cost/unit
Munich – Manchester, Channel Tunnel:	€56,248	€1,033
- with CT charge relief (base case)	€47,865	€880
Munich - North Continental Port/Zeebrugge	€28,357	€522
Dover - Manchester (via Wembley*)	€16,603	€304

5.3.4. Channel Shipping and Port Handling costs

Shipping options are analysed for the four routes: Dover to Calais (20nm), Boulogne (27.5nm), Dunkerque (35nm) and Zeebrugge (75nm).

Shipping Options	The volume and cost analysis
Train Ferry Unaccompanied ro-ro trailer ferry Containership	Sea + port times. Round trips per day. Load factors. Units required. Required units pa Total ship costs and costs per unit
Accompanied trailer shuttle on the existing Dover-Calais/Dunkerque ferries	

The shipping costs are based on prevailing ship time charter rates, fuel consumption and port authority costs (ship dues, linkspan charges, mooring, pilotage, etc.).

The containership option was quickly rejected because although ship costs are low, port times are significantly longer and container handling costs higher than in the ro-ro options. Containerships become increasingly economic as voyage distance increases.

Train ferry size is a function of the size of train used and vessel sizes in service. It is usual for train ferries to carry accompanied trailers on a second deck, so analysis assumes a train ferry with a maximum 16 wagon/32 intermodal units rail capacity and up to 50 accompanied trailer spaces.

Unaccompanied ro-ro trailer ferry size is not constrained by organisation of the road mode on land, and can be varied to match traffic volumes. Analysis, based on the commonly available small 75-80 trailer capacity vessel showed that shipping cost per unit is rather lower than for the train ferry.

Port handling costs for the train ferry comprise two fixed cost elements, firstly, the €1.0m pa cost of the local based rail employees and shunting locomotives at each port to handle the wagons between rail yard and ship and, secondly, the €3.6m pa "infrastructure" cost to cover the capital coast of about €35m for the two specialist train ferry linkspans (€15m each) and a rail yard at Dover. The unit handling cost is lower than for unaccompanied trailer handling, from rail yard to rail yard, providing volumes are over 40,000 units pa.

Third party accompanied trailers could be carried, but the price would have to be very low to attract such traffic given low train ferry sailing frequency and competition from the turn up and go services offered by conventional ferries, themselves only achieving an average utilisation of under 50%. The table below assumes 30 trailers per round trip at an average achieved contribution of about €100 net. Even this is an optimistic assumption.

The calculations are based on 4 trips per day each way on Calais and Boulogne, 3/day on Dunkerque and 2/day on the longer Zeebrugge route. Limiting volumes and the round trips to 2 per day on all routes raises the costs per unit to approximately the Dover-Zeebrugge level of €330 per unit.

Train Ferry: 14,000grt, 32 rail units capacity + accompanied trailers

Dover to/from	**Calais/Boulogne**	**Dunkerque**	**Zeebrugge**
Round trips/day	4 (3)	3	2
Rail units/day (27 per trip)	216	162	108
- Units per annum (300 days)	64,000	48,000	32,000
@ 24 tonnes average/unit	1.54mt	1.15mt	0.77mt
Fixed ship & port costs/round trip	€7,208	€8,941	€11,254
Less net trailer contribution	(€2,700)	(€3,200)	(€3,150)
Cost per unit (54 rail units)	**€83**	**€106**	**€150**
Handling + infrastructure cost/unit	€96	€120	€180
Total net cost/unit – with trailers	**€179**	**€226**	**€330**

Port handling costs for the unaccompanied trailer ferry comprise the ILU lift from rail wagon to trailer, the tugmaster tow from rail yard to quay and the tow from ship to quay. These variable stevedoring charges are dependent on unit labour costs, equipment and terminal (rental) costs, the distance from rail terminal to ship, etc. The estimated costs range from circa €53 at Dover to €90-€100 per unit at the four Continental ports. There should be scope for reducing these costs.

The comparative costs for a small unaccompanied ro-ro trailer ferry are shown below.

Unaccompanied ro-ro trailer ferry): 7,000grt, 75-80 trailer capacity

Dover to/from	Calais/Boulogne	Dunkerque	Zeebrugge
Round trips/day	3	2.5	1.5
Rail units/annum (90 trailers/trip)	108,000	90,000	54,000
@ 20 tonnes average/unit	2.2mt	1.8mt	1.1mt
Fixed ship & port costs/round trip	€6,384	€6,364	€7,755
Cost per unit (120 units)	**€53**	**€53**	**€65**
Variable cost/unit	€150	€147	€142
Total cost/unit	**€203**	**€200**	**€207**

5.3.5. The through cost comparisons and conclusions

A. Existing road and intermodal routings		
1.	Through rail Munich-Manchester: Local C&D + terminal x 2	€330
	Rail cost via Channel Tunnel: **with**-without CT charge relief	**€880-€1073**
		€1,250-€1,363
2.	Accompanied trailer throughout journey (see 5.2)	**€1,350-€1,500**
3.	Unaccompanied trailer via Zeebrugge-Humber ferry	**€1,320**
4.	Rail Munich-Channel Port and accompanied trailer to/from Manchester	
	Rail Munich-Dunkerque €522 with C/D + terminal cost €165	€687
	Road Dunkerque-Manchester €465 + ferry €225	€690
		€1,377
B. New Cross-Channel systems and routings		
5.	Future Train Ferry and through train via Dover	
	Rail Munich – Dunkerque	€522
	Rail Dover - Wembley (train splits) – Manchester	€304
	Local C&D + terminal charges	€330
	Train ferry crossing (with accompanied trailers)	€226
		€1,382
6.	Future Unaccompanied ro-ro trailer Ferry and intermodal transfer	
	Rail + handling as in 6 above €522 + €304 + €330	€1,156
	Ro-ro trailer ferry crossing	€200
	Infrastructure cost Dover rail yard £3m	€9
		€1,365

5.3.6. Implications for FINESSE

- There is little difference between the through costs as estimated above.
- Direct, accompanied, haulage wins on price relative to quality of service (transit time and reliability) against intermodal rail and against unaccompanied trailer.
- Munich is too far south for unaccompanied trailer via Zeebrugge/East Coast UK to have a clear competitive margin on price versus service.
- The Channel Tunnel route alternative is only competitive on price when Tunnel charge relief is given. This charge relief could reduce on review by the UK Government in 2006.
- The rail ferry and trailer ship options require over 1 million tonnes of rail derived traffic to be economically viable.

- The unaccompanied trailer ship cost is very low, but the double handling, from rail yard to quay and quay to ship, is excessive and could perhaps be significantly reduced for a regular traffic flow.
- The train ferry unit cost is too high unless it can win a contribution from accompanied trailers but in practice it will be very hard for a 3 sailings per day ferry from a port location remote from the ferry terminal to compete against hourly departures by conventional ferries. The train ferry is a less flexible system and it requires an operator to run the through trains, commit to a long term charter of a more expensive vessel and invest in the specialist rail ferry berths (through a long term contract). It may also be difficult to find an existing vessel configured to carry sufficient long intermodal rail wagons and a commitment to an expensive new vessel may be required at the start up phase.

The through cost analysis indicates the subsidy, or penalty to be applied to road haulage, required for intermodal units by rail to compete. The common view of industry is that intermodal routes and rail modes need to have a 30% cost advantage to compensate for their disadvantage versus accompanied road haulage. This is equivalent to a required cost advantage of €400-450 per unit. The relative external costs of the intermodal routings versus the through road routing are about €150, against this €400, using the analysis elsewhere developed from the RECORDIT study. This differential is insufficient to swing the balance in favour of the intermodal options if the external costs were to be internalised.

5.4. Attitudes and preferences

5.4.1. Introduction

This chapter summarises the results of the market survey carried out amongst some 50 shippers, forwarders, and other rail users, potential users, and operators in the UK, Belgium, France, and other European countries, as detailed in Technical Papers 11 *Market Survey UK*, 12 *Market Survey France*, and 13 *Market Survey Belgium*.

Interviews were carried out both face-to-face and by telephone. Interviews with government organisations are excluded from this chapter, as information from them has been included in relevant Strategy chapters and Technical Papers.

5.4.2. Current services

Zeebrugge offers the main route for unaccompanied trailers into the UK, and the services offered from Zeebrugge satisfy current market requirements. Traffic moves to the UK from Italy, German and Switzerland via the Thames and East Coast ports for the road move to its final destination. Rail is used on the continent to Zeebrugge where the distance to the port makes it worthwhile (the general consensus was 400km as the minimum critical distance).

Unaccompanied traffic from Southern France and Spain either moves by rail to Northern France, primarily to Lille and Dourges, where it is transferred to accompanied road, or directly to Zeebrugge for an unaccompanied crossing.

Spanish hauliers move accompanied trailers via Dover or the Tunnel, and say that their companies are not large enough to invest in intermodal units.

A wide range of different factors drives mode and routing choices. Those identified in the market surveys (which are not exhaustive) are:

- Accompanied vehicle via the Tunnel for speed
- Dover for accompanied vehicle, for sailing frequency
- Accompanied vehicle for flexibility - allowing the shipper to make late decisions
- Unaccompanied trailer when transit time is not critical, e.g. to Rosyth
- Cut-off times from UK ports and arrival times into Continental ports to make morning deliveries determine required speed of transit
- Distance and time to port - does it need one driver shift or a changeover

Shippers and, increasingly, forwarders are the transport decision-makers, but often the choice of route or port used is made by the hauliers, most of whom have accounts with all the carriers and who let the drivers choose the service they use on a day-to-day basis.

5.4.3. Future markets or services

Southern France and Spain

French respondents favour developing intermodal rail movement from Southern France and/or Spain to the Northern French coast for transfer to an accompanied road movement across the Channel and road movement in the UK. This maximises the benefit of a long rail haul in France and shorter, more flexible sea and land legs within the UK.

Eastern Europe

There is some uncertainty over the future of traffic from Eastern Europe, though most respondents do see potential growth in the long term. There is some predisposition to use rail services for the distances involved bur rail development may be hampered by rail infrastructure inadequacies and doubts about the quality of rail services in these regions.

Currently most overland traffic moves to the UK using accompanied trailers, because labour costs so little, but future development depends in the longer term on EU and national government attitudes to harmonisation on taxes, labour costs, fuel and, for rail, improving the competitiveness of the rail offer. There are other routing options for key elements of eastern traffic, notably the development of services on the short sea routes via Poland and the Baltic.

Zeebrugge – Dover

There is no demand from hauliers, forwarders, or transport operators for a Zeebrugge – Dover service of any type. This traffic was lost following the opening of the Channel Tunnel and subsequent re-structuring on the route. As current unaccompanied services from Zeebrugge to the Thames ports are satisfactory, as are accompanied services from French ports, the market does not see a need to introduce another route to a Channel UK port.

Train ferry

None of the respondents favoured the reintroduction of a train ferry service, due to lack of knowledge of the operation and doubts about its feasibility. None of the respondents identified any major hazardous cargo flows that might transfer to a train ferry service. Respondents in the UK, involved in previous attempts to reintroduce a train ferry, found that shippers would not

commit to the volumes required to make the service viable.

5.4.4. The ports

Zeebrugge has many strengths, including flexibility and a wide range of connections. It has significant areas of growth potential, as a container hub port, as a shortsea port capitalising on Rotterdam's lack of capacity, in developing niche markets such as new cars and in continuing to grow the unaccompanied traffic to the UK. There are possible stumbling blocks, such as the lack of a natural port hinterland and the need to develop transport infrastructure including improved inland waterway connections and rail infrastructure at Antwerp. However, respondents were in general satisfied with the port and optimistic for future developments.

French and Belgian respondents identified container traffic as offering potential for both Zeebrugge and Dunkerque: Belgians believe there is still significant traffic potential on the unaccompanied routes between Zeebrugge and Thames and East Coast ports in the UK. UK respondents too commented on the growing hinterland of the East Coast ports, which is damaging through Tunnel rail in its traditional North West and West Midlands markets.

From other work it is known that while users are very happy with the port of Dover they are concerned about its approach roads.

5.4.5. Rail and rail issues

5.4.5.1. General comment

The rail mode was widely criticised for lack of reliability, lack of flexibility, lack of a transparent pricing structure, high prices on some routes, and the priority given to passenger services. It was contrasted with road transport, which is flexible and allows shippers to choose the pre and post haulage leg very late

5.4.5.2. Channel Tunnel

Through Tunnel rail services are seen as the logical solution for traffics between the continent and the UK that use rail on both land legs. However, it is seen as too inflexible, and too expensive. It might lose market share if prices are increased. Interestingly, respondents also questioned its current capacity, believing it to be running at near capacity for rail.

5.4.5.3. Rail in the UK

Both French and Belgian respondents see a lack of rail infrastructure (particularly port connections), gauge issues and poor rail service quality within the UK. For the French, rail transport does not make sense within the UK: the distance between Dover and London is not sufficient and traffics for further north already move satisfactorily via the UK East Coast ports. The Belgians confirmed that for destinations further north in the UK, they also prefer to use the longer sea crossings to a variety of UK East Coast ports rather than entry at a southern port and the use of rail. Belgian respondents noted an apparent lack of government policy for railfreight, and lack of promotion of rail in the UK.

5.4.5.4. Rail in France

There is a general concern about the poor quality of service on the SNCF, although respondents in Zeebrugge thought that this benefits the Belgian port by encouraging traffic to be routed through Belgium rather than France. Recent price increases on SNCF and

continuing service quality problems mean that there is no immediate prospect of this traffic being recovered by SNCF, Any future improvements in price and quality are seen to be as likely to benefit Eurotunnel as French ports.

There is also concern about bottlenecks at both the Franco-Italian border at Modane and the French-Belgium rail border, and future congestion on the Ardennes route which is being used more and more to avoid the SNCF.

5.4.5.5. Rail in Belgium

There are no immediate or specific concerns regarding rail services in Belgium. However, for the port of Zeebrugge to continue to grow its rail business, there will need to be investment against future congestion, for example the second tunnel at Scheldt will need to be built, as traffic for Zeebrugge transits through Antwerp. Investment in rail in Belgium can be a lengthy process, involving passenger and freight requirements. There is a perceived lack of support at national level and subventions are limited to short distances within Belgium. Respondents pointed out that continuing investment in smaller scale improvements is required. There needs to be a focus on attaining the critical mass necessary to provide trainloads from the port.

5.4.6. Road

Respondents in France and Belgium avoid potential road congestion problems in the South East of England by selecting longer sea crossings and the unaccompanied trailer mode.

French respondents expressed no concern with any potential increases in road costs. However, there is a great deal of uncertainty both in Belgium regarding the impact of the LKW-Maut in Germany and in the UK regarding the impact of the Working Time Directive and possible lorry taxes in the future. Belgians expect that road transport companies will consider avoiding the German motorway network and this could impact port choices in future. Hauliers are responding to the WTD in various ways, including out-sourcing drivers, increasing use of Eastern European drivers and setting up drop trailer operations. However, in the UK at least, respondents are still very much waiting to see what the market will do.

Whether additional road costs will lead to any modal shift is uncertain. There is a view that that these costs will ultimately be absorbed into the general costs of road freight, and are in themselves unlikely to drive modal shift, particularly if rail prices also increase over time. However, they might help to create the conditions under which modal shift might at least be considered.

There are high cost elements within the UK, mainly fuel costs, which favour the accompanied mode crossing the Channel. The UK also suffers from driver shortages, making UK-based haulage potentially more expensive.

5.4.7. The Finesse concept

5.4.7.1. French response

It is important for the French market to the UK that any logistics proposal is driven by northbound flows, because of the trade imbalance, and that it should be flexible both in service delivery and in price. Potential benefits to customer include:

- Making use of the flexibility of current shipping services
- SNCF domestic pricing structure on a trainload basis, rather than international pricing, with

revenue going to the SNCB, for example

- Maximising the potential for balancing of flows southbound using Northern to Southern France traffic
- Potentially avoids current trucking cost between Northern France transfer point and Zeebrugge

5.4.7.2. Belgian response

Belgian respondents favour developments at those ports in the UK that offer potential for the growth of Zeebrugge traffic, for example improving rail connections at the Thames ports, rather than exploring the possibilities through Dover where they see no potential for Zeebrugge.

5.4.7.3. UK response

UK hauliers and forwarders were open-minded about the Finesse concept and were willing to consider rail as an alternative to road operations where appropriate and if performance and price criteria are met.

6. Rail operational and market issues

6.1. Rail business structures

6.1.1. Introduction

This chapter outlines the basic characteristics of international rail operations and services in Europe, and reflects fuller discussion in Technical Paper 8 Rail Markets– a paper incorporating information on rail operation, offers, markets and marketing channels. No discussion of new rail concepts can sensibly take place without a good understanding of these basic modal principles.

Railfreight operations are of two types:

Conventional wagon: the wagon itself is the load-carrying unit. Pricing is at trainload or wagonload levels.

Intermodal: the wagon carries detachable load carrying units (ILUs), which can be transferred between rail and road or ship

Structure of conventional and intermodal rail businesses

	Operation	Commodities	Marketing channels	Equipment provision	Pricing structure
Conventional	Trainload	Mainly bulk or high volume	Direct to shipper	Private or railway	Trainload
	Wagonload*	General	Direct to shipper	Private or railway	Per wagon/per tonne
Intermodal	Trainload	Unitised	Rail haulage to intermediaries, who sell to logistics operators, who sell to shippers	Private	Per train converted by intermediaries to per unit price

- Wagonload services move single or groups of wagons via a general network of trains. These networks are being rationalised throughout Europe.

6.1.2.Rail services for UK - Mainland Europe Traffic

Route	Rail offer	Destination	Commodities	Key features	Benefits
Channel Tunnel	**Intermodal**	Italy and Spain	General goods and automotive components	Through rail	Seamless transport offer
	Conventional				
	Trainload	France, Belgium, Italy	Semi-bulk and consumer	Through rail	Maximises volume
	Wagonload*	France, Belgium, Italy Germany, Austria, Switzerland	Semi-bulk and consumer	Through rail	Offers minimal risk at per wagon price
Via ports	**Intermodal**	Import to UK	Deep-sea and unitised	Most UK movements by road	Uses strong shipping links UK E coast ports minimising road distance Traffic can piggyback on other port-destined trainloads
	Conventional	Import to UK	Bulk Some consumer goods	Transhipment from wagon to rail or ship Uses road within UK	Can maximise continental wagon gauge
		Export from UK	Bulk	Transhipment to ship	Domestic trainload operation and pricing

* via Lille for France and Belgium, via Köln for Germany, Switzerland etc.

Comment on Channel Tunnel:

- Currently EWS is relieved of the liability for Eurotunnel charges. This agreement expires at the end of March 2005.
- Eurotunnel recognises that its current charges for railfreight are too high if increased volumes are to be attracted to rail

6.1.3. Hazardous Cargo

Rail is generally seen as a natural mode for the movement of hazardous cargo. Key points for this market on the Dover Straits are:

- Hazardous cargoes including nuclear materials are banned from the Channel Tunnel.
- Hazardous cargo used to be moved by train ferry, but was a small proportion of total traffic and probably did not exceed about 60,000t pa.
- SNCF had hoped to maintain the Dover – Dunkerque train ferry on the basis of hazardous cargo after the opening of the Channel Tunnel, but decided to withdraw the service after only a few months due to insufficient traffic for viability even after subsidy
- EWS study on the potential for a Harwich-Vlissingen train ferry found that most ex-train ferry customers had switched their traffic to ISO tank containers
- Most UK companies generating hazardous cargoes are small - this implies low volume, diffuse flows, unsuitable for wagonload movement.

6.2. Train Ferry Markets and Applications

6.2.1. Introduction

Detailed costing of a potential train ferry on the proposed routes, and a discussion of market views, is provided earlier in this Report. Separately, a full discussion of train ferries and their global application, including discussion of the Dover-Dunkerque ferry closed in 1995, is provided in Technical Paper 10 Train Ferries. This sub-section summarises the markets and contexts within which train ferries have and continue to operate, and identifies some of the issues resulting in the rejection of the mode for FINESSE.

6.2.2. Key features

- Used to cross un-bridged gaps as part of a rail network
- Generally underwritten by railway operators
- Usually withdrawn after fixed links have been built
- Over last 15-20 years number of routes has fallen from around 48 to 33
- New routes have been opened, where train ferries are cheaper than building a new fixed link

6.2.3. Cross-Channel Train Ferry Operations

- Train ferries are designed to take a full deck load of wagon types prevalent at the time. Intermodal wagons currently in use would make poor use of any design of train ferry deck.
- Ferry trains need to be split and re-marshalled at ports, whereas trains through the Channel Tunnel do not face this additional cost

6.2.4. Results of recent studies

- A study carried out by EWS considering re-introducing a Channel train ferry service concluded that it could neither compete with the Tunnel, nor with all-road operations
- The most recent proposal for a train ferry link was put forward by the RAFTS EEIG (European Transmodal Train and Ferry Link European Economic Interest Group). This would have operated between Ijmuiden and Hull. The scheme failed to get Marco Polo backing and potential customers were unwilling to make sufficient commitment to underwrite the proposed operation.

7. Comparative external costs

The full analysis of external costs summarised here is given in Technical Paper 14 External Costs.

The calculations of environmental gain considered here show the net effect over complete routes. The impact of environmental costs, however, fall particularly on port towns, where trucks concentrate and cause congestion and adversely affect air quality. In Dover, for example, trucks are frequently backed up along Townwall Road outside the port with their engines idling. This focused impact is not adequately reflected in customary measures of environmental gain.

It is particularly in the interests of port communities to support the transfer of some of this road traffic to rail, and to support their port authorities in their efforts to carry out this policy.

We have identified the circumstances in which rail or intermodal transport can compete on price with road transport, and found them to be quite limited because of the length of rail travel, and the volume, required for the economies of the mode to become apparent. Customers also tend to require much lower prices from rail to compensate for the loss of flexibility and ease of use associated with the mode: this differential is generally seen as needing to be around 30%

Rail is, however, widely recognised to be more environmentally friendly than road, so that the FINESSE project required us to examine the comparative external costs imposed by different transport modes. This approach, which allows a broader socio-economic evaluation of the efficiency and costs of different transport modes, permits recalculation of modal costings, and possibly demonstrates that public policy should be directed more towards achieving modal shift, most particularly in the context of the FINESSE project.

The EU and many governments and other public authorities of course already accept this argument and are directing their efforts towards the encouragement of rail and water solutions.

We have examined the latest studies carried out by the EU, specifically to guide its support for environmental initiatives and therefore appropriate for our work, on comparative external costs of freight transport. The most relevant is the state-of-the-art RECORDIT (2001) study, which considered the following cost categories, irrespective of transport mode:

- Air pollution;
- Accidents;
- Congestion and slot scarcity;
- Noise;
- Global warming.

Attaching monetary values to categories such as these, and weighting their relative importance in order to compare the impact of different modes, is a difficult and complex matter, and has been the subject of much research and economic analysis. Inevitably there is a significant element of qualitative judgement.

The RECORDIT study calculated marginal external costs on a transport corridor basis for three corridors: Genova-Manchester, Barcelona-Warsaw and Athens-Gothenburg. The study concluded that, on the Genova-Manchester corridor:

- Door/door, the direct cost of intermodal transport was substantially higher than all-road
- Internalising external costs makes intermodal transport more competitive, but still a little more expensive than road. As the study focused on external costs, not taking external benefits into account, the qualitative advantages of road transport (ease of use, flexibility, speed, reliability, etc) are ignored
- Internalisation of external costs would not lead to a modal shift on the Genova-Manchester corridor. To obtain modal shift policymakers need to increase costs to road by more than justified by internalisation of external costs, but using the same sort of measures - road and vehicle tax increases, more rigorous labour laws, driving time limitation, etc. (These measures may not achieve modal shift, but may instead reduce the growth of all freight transport, still achieving the desired environmental result).

Across all three corridors, RECORDIT concluded that:

- The external cost of intermodal transport is not negligible (between 10 to 16% of total costs), but is always significantly lower than all-road services (15 to 28% of total costs). Moreover, measures may be taken to reduce the external cost of intermodal transport. (The difference between road and intermodal is, in absolute terms, rather small)
- Rail transport, which is used for long distance haulage, is not always responsible for most of the total external cost of intermodal transport. The shorter local road collection and distribution legs may be more significant

The magnitude of the external cost benefit for intermodal transport depends heavily on collection/ distribution road distances, but the external costs of road are higher than intermodal for all reasonable distances, as shown below:

Intermodal external cost by road, and by rail / local road haulage, distances, euros

Local distribution distance, km	Long haul distance, km			
	200	**300**	**400**	**500**
30	34	39	44	49
40	42	47	52	57
50	50	55	60	65
60	57	62	67	72
70	65	70	75	80
All road	*58*	*87*	*116*	*145*

Source: SRG, based on RECORDIT (2001)

It should be borne in mind that intermodal hauls can be much longer than road hauls between the same shippers, not only because the local terminal haulage may represent a diversion, but also because intermodal rail services are not always as direct as road haulage.