Rail links into and out of the United Kingdom via the Channel Tunnel—opportunities and constraints

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Introducers
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In his opening address, Patrick McLoughlin, MP, expressed his gratitude to the President of the Institution of Civil Engineers for providing the opportunity to discuss the impact of one of the greatest British and French engineering challenges.

The Channel Tunnel will enable passengers and goods to go direct by rail between Britain and the Continent for the first time without changing transport mode. That means competition for the airlines, road transport and ferries which must be beneficial for industry and the consumer. In 1993, an EC Directive will provide a right of access to rail systems for international services operated by European groupings of railways, and also for combined transport services run by individual operators. Mr McLoughlin reported that the Government welcomes this.

The need for additional capacity will necessitate a new rail link. The Government prefers the easterly approach to London developed by Ove Arup because it not only meets Britain's transport needs, but will also have the potential to foster development in the East Thames corridor while having minimal environmental impact. The timing, precise alignment of the route and the financial aspects have yet to be decided. Future demand will be judged when the tunnel has opened and some experience of actual demand has been gained.

Mr Garnett, in his presentation, stated that Eurotunnel has a 55 year concession to finance, build and operate the fixed link between the United Kingdom and the Continent and will operate shuttles for cars, coaches and freight vehicles. Passenger shuttles will run every 15 minutes and freight shuttles every 20 minutes, with the journey through the tunnel taking 35 minutes. British Rail (BR) and (SNCF) have bought half of the tunnel capacity and will operate their own trains through it.

A peak hour journey time of 3 h 10 min from London to Paris will be highly competitive with air services once the French TGV line is completed in October 1993, as will the London to Brussels time of 3 h 15 min. In 1989, around 5·1 million foot passengers crossed the Channel from the United Kingdom and 75% of those were on the short sea routes, 62% of air passengers to France were on the London–Paris route, and 71% flying to Belgium/Luxembourg on the London–Brussels route. High speed rail should dominate this market within two years and BR has, Mr Garrett opined, underestimated the demand.

However, in the area of freight Mr Garrett said there will be a severe shortage of rolling stock capacity if early orders are not placed, and the lead times for inter-modal investment decisions and car transporter wagon orders are now becoming critical. Under EC legislation it will be mandatory to allow private operators access to the railways by 1993, and if the rail freight business is to be fully exploited, other freight operators should be encouraged to use the railway.

The tunnel will provide train paths every 3 min for 20 h per day, thus allowing ten trains per hour each way with only four trains per hour each way during the four-hour night-time maintenance period. Maximum capacity will therefore be 216 train paths per day each way, but the actual operating capacity will be 150 trains per day each way initially. BR anticipate a need for 90 trains each way per day by 2003 while Eurotunnel believes the need will be for 120 trains a day each way, so that the tunnel capacity will be adequate. However, there is restricted spare capacity on the Network SouthEast lines. They can absorb only about four passenger and two freight paths each way per hour off peak and only three passenger paths and no freight paths each way during peak periods. Furthermore, quality of service during peak periods would be affected when the need for heavy maintenance and renewal of infrastructure arises towards the end of the century.

These issues, said Mr Garrett, make it difficult to understand any argument for delaying the completion of the new rail link beyond the end of the century. Eurotunnel believe the proposed termination of the new line at King's Cross for passengers is essential, and it would be forward-looking to build the line to Berne gauge, terminating in the short term at Stratford for freight.

Mr Garrett said he found the vagueness of the Government's announcement on funding

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and timing for the new line depressing, at a time when our fellow members of the Common Market are making the necessary investments in transport infrastructure. The economic centre of gravity of the EC is moving east and the risk of peripherality for the United Kingdom is becoming greater. Against this setting, the delay by a possible further six years in the provision of the high speed route is, in his opinion, a great tragedy.

In her presentation Dr Robinson said that in attempting to estimate the economic impact of the Channel Tunnel on British industry, it is necessary to consider past and present trading patterns. In 1989 40% of the United Kingdom's gross domestic product (GDP) was accounted for by international trade; 70% of its international trade is now with the EC. There is a growing tendency for products to be of higher value and lower bulk, she said, and there are far-reaching developments changing the communications patterns associated with economic activity.

The extent and depth of regional impact will depend entirely on which routes are chosen and how road and rail networks allowing fast access are extended. The north of England fears that the new fast line routed via Stratford will not sufficiently integrate its economy into the European heartland.

Dr Robinson identified the two problems which inhibit the construction of these necessary connecting links, namely funding and the legal impediments to major project construction imposed by governments. There is a return on network investment and the funding should come from private sources. The role of government is to show political will and actively encourage private risk capital. The legal impediments and regulations which discourage private investment take several forms, e.g. public inquiry procedures and the EC laws on the environment. New procedures currently being considered must ensure that railway construction will not be prevented or delayed.

Passengers and freight will only use services through the tunnel if they are competitive with other cross Channel modes, particularly in frequency. The tunnel will be vital in the creation of a more competitive British economy as long as politicians give clear signals to enable industry to get on quickly with constructing the links. Without the necessary connecting roads and railways, there will be little positive economic impact on business in the United Kingdom.

Sir Bob Reid reported that a huge amount of preparatory work is already under way for the tunnel opening, with an expenditure of £1·6 billion to prepare for the inter-capital service and for the trains north of London to follow on. BR will start with a service taking 3 h from London to Paris and will move freight from Birmingham to Vienna in 35 h—almost half the time it takes its lorry competitors.

He explained that BR examined all the route options with the aim of maximizing the benefit to international and commuting passengers. Then the Government decided to include the stategic planning aim to regenerate the East Thames corridor. Now the requirements must be made clear before detailed design work is undertaken. The need for a new line is irresistible. Forecasters are predicting a rapid growth in international demand and capacity limitations will occur from 1993 onwards, initially in the evening peak. BR have aimed all along at completing the new links before the turn of the century. The cost–benefit return on the project BR submitted was 10%.

King's Cross provides a link with most of the high speed intercity network and will improve commuter services by expanding Thameslink into a north–south regional railway across the heart of London.

The Secretary of State has asked BR to look again at the costs, benefits and traffic potential for freight. Maximization of financial returns to the owner and operator of the line may conflict with the wider social and economic considerations. Is the development potential to be captured by the builder of the line? Engineering and design work would take nine months to get to detailed consultation and environmental assessment then private sector financing can be sought.

In the discussion one speaker pointed out that the EC is trying to establish a pan-European network and that it is vital that Britain becomes a part of it. As the UIC gauge railway expands in mainland Europe the container size will get larger and the proposed BR low-wheel bogie wagons will not be effective. The Government should therefore be promoting a B+ gauge system to lines beyond London.

Another point made was that public understanding is not high concerning a possible change of gauge and how far north to take the rail link. In the speaker's opinion a proper BR study is required on converting lines to the industrial heartland of the Midlands and the North to Continental loading gauge and also on details of who might fund it and when.

The new line should carry freight to Stratford and passengers to King's Cross, said another speaker, King's Cross is essential to serve northern interests and government support is needed to ensure the bill goes through as rapidly as possible. Support is also needed for the King's Cross–Stratford link which is also essential if northern interests are to be taken into account.

The Department of Transport has decided to go ahead with the East–West Crossrail which will take a traveller from Liverpool Street to Heathrow in 26 min. There is no reason, it was suggested from the floor, why the proposed fast link cannot connect with the East–West Crossrail at Stratford.

It was pointed out that a Berne gauge freight line from Scotland would take a long time to complete and therefore it is essential that the existing plans for routeing freight round London go ahead rapidly, together with the freight terminals in the north of England. The same speaker agreed that there is no reason why the fast link cannot connect with the East–West Crossrail at Stratford, and then link to Heathrow. The London airport system should be linked with the evolving high speed railway system in line with developments on the Continent.

An alternative route serving a freight terminal at Stanford-le-Hope was proposed. It could be extended as a bypass via Stansted Airport and across to the West Coast main line. Also, by using an existing line to Doncaster, a B+ loading gauge could be achieved cheaply. This scheme would save about £2 billion compared with the present plans.

Given the amount of useless railway axes spread around the country, the way forward in one speaker's opinion was to look again at ways in which these could best be brought into commercial operation by the private sector.

It was questioned whether BR would be able to finance the new route under the requirements of Section 42 of the Channel Tunnel Act. When Ove Arup's detailed design work has been done, BR could find that it is not possible to fund the new route and the whole project could be delayed further. The route has considerably less advantages to the Kent commuters. With regard to the new Bill procedures, there should be a time limit set on the decision-making process.

A French representative was bemused that the apparently urgent need to integrate the United Kingdom in the emerging European fast rail network keeps being postponed. This increases the danger of peripherality as Europe moves east. He proposed coalition building for rail between all the economic bodies interested in providing mobility for people and goods.

The heartland of Europe is in Brussels and the United Kingdom needs to facilitate access, said another contributor who hoped this discussion would establish connections between people who could then pressurize the Government to make projects come alive.

The opinion was expressed that the integration of transport systems needs to be followed up and that requires political will. The Department of Transport must also give the political impetus to allow private capital to come forward.

In summary the Chairman, Professor Tony Ridley, asked 'What is the Government trying to achieve?' There is no doubt that it changed its stance regarding the new line and put BR in an impossible position. It must now define the framework and objectives clearly. He acknowledged that there was widespread agreement that whatever has to be done has to be done quickly and that the year 2005 appears to be unacceptable. Britain must do something quickly about infrastructure development whether through the public sector or the private sector or a combination of both. In particular, he wondered how this is to be funded?

How, the Chairman asked, can the transfer of freight from road to rail be maximized? Any decisions must take into account connections in and around London to airports and other major land users. Above all, the political will must be encouraged.

He agreed that the railway gauge question is of fundamental importance. Transport and politics are indivisible. The Queen Elizabeth II Bridge at Dartford is a triumph of civil engineering and the same must be achieved in the railway area.