

Rail timetabling and stiff penalties for lateness mean that in general train performance is now as good as, or superior to, road for equivalent journeys

SUPPLY CHAIN

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Breaking the access barriers to modal shift

- Fuel costs and environmental issues mean there has never been a better case for switching to rail for UK internal transits in modern times. Nick Radcliffe looks at how to overcome the barriers to modal shift.



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The pressures created by fuel costs and environmental issues such as carbon pollution have greatly increased interest in modal shift away from road solutions to greener approaches. The big opportunity in the UK is internal transits, worth some £40 billion a year in haulage charges. This dwarfs port-related operations, whose annual worth is over 10 times smaller. However, modal shift internally has been very slow, whereas port-based operations have moved to around 25% of total carryings now moving by rail.

There are a number of serious issues in making the transition that have proved to be deterrents to some potential users in transferring to rail. This article looks at how some parties have overcome these obstacles and gained in terms of access, reliability and speed.

Access to the rail system and its providers

Access to intermodal solutions is more complex because of the way this particular business is marketed and managed by the freight operating companies. Most do not themselves operate retail systems for marketing space on trains, although aggregators do on some services.

For most non-rail-users, access to the rail system and its many providers is not obvious. The first point of contact, the forwarding industry, is not easily understood by inexperienced users, leading many to deal in the first instance with more accessible road hauliers. The forwarding industry often does not have good rail contacts or the means to make the more complex road-rail-road transits.

These are currently serious obstacles to organising UK internal transits, which consequently moves by rail instead. Retail bookings of open train space and spare contract space are done by telephone or fax. The work is often subcontracted to aggregators who act as agents for the train operators, to delegate the cost, delay and complication involved. Open train space is not available from all operators or on all routes.

For UK imports and exports, most, but by no means all, port-related rail transits are the subject of long-term contracts between shipping lines and train operators for regular block bookings of space. The detail is confirmed direct between the parties when the boxes arrive and have cleared customs. In practice, train loads are quite variable from day to day, as large ships dock and need to be unloaded and port services tend not to be consistent. There is currently limited capability either to fill surplus capacity or redistribute overloads to other services. This results in worse service for importers and exporters, waiting for train space even if there is a contract between the shipping line and the FOC. The alternative is long all-road transits, which are readily available but expensive and wasteful of vehicle and crew resources.

The Network Rail *Guide to Railfreight* gives a very broad introduction, but does not quote access contacts, locations of terminals or any method of planning a transit, retail or contract. Its latest freight website invites customers to contact one of six 'senior freight route managers'.

Freightmaster offers online access to the UK freight timetable, updated every Monday. This enables subscribers to find train services and design road-rail-road schedules.

DHL offers full and part-load logistics by road and rail, inviting enquirers to contact its 'road and rail experts' by means of a website link. Again there is no retail or groupage link.

Port cargo management systems, such as Fargo-tops, are used to move and trace boxes through ports and customs, but there are as yet no related systems for onward road or train space booking; Aurora Systems' Intermodal Dispatch system Trans*Eaz in the USA claims to offer multimodal booking, but only arranges despatch paperwork and billing; FreightCenter.com in the USA offers a multimodal booking system by telephone that claims to be flexible to customers' needs and deliver

postcode to postcode; and Qitq offers asset and crew planning to many rail and air operators, but does not do retail selling, booking and tracking of rail cargoes.

Internally, aggregators such as Russell Transport and Malcolm Logistics Services load trains and the associated road drayage services by telephone, which is costly and time-consuming for them.

Duration and reliability of road-rail-road transits

Rail timetabling and stiff penalties for lateness mean that in general train performance is now as good as, or superior to, road for equivalent journeys. However, the nature of the rail business means that scheduling of road and terminal operations at either end is slowly becoming a lot smarter and more interactive with customers. Rail often allows drayage operations to avoid congested suburban areas.

The terminal times for loading and unloading add to the rail transit time, but this is compensated by higher trunk haulage speeds. Customers' opening hours are also a key part of this dimension, but, as part of the total transit, allow a total door-to-door service to be totally competitive.

Typical freight train terminal to terminal times are:

- Southampton–Birmingham – three hours
- Felixstowe–Birmingham – four hours
- Birmingham–Glasgow – six hours
- Barking–Daventry–Coatbridge – 12 hours

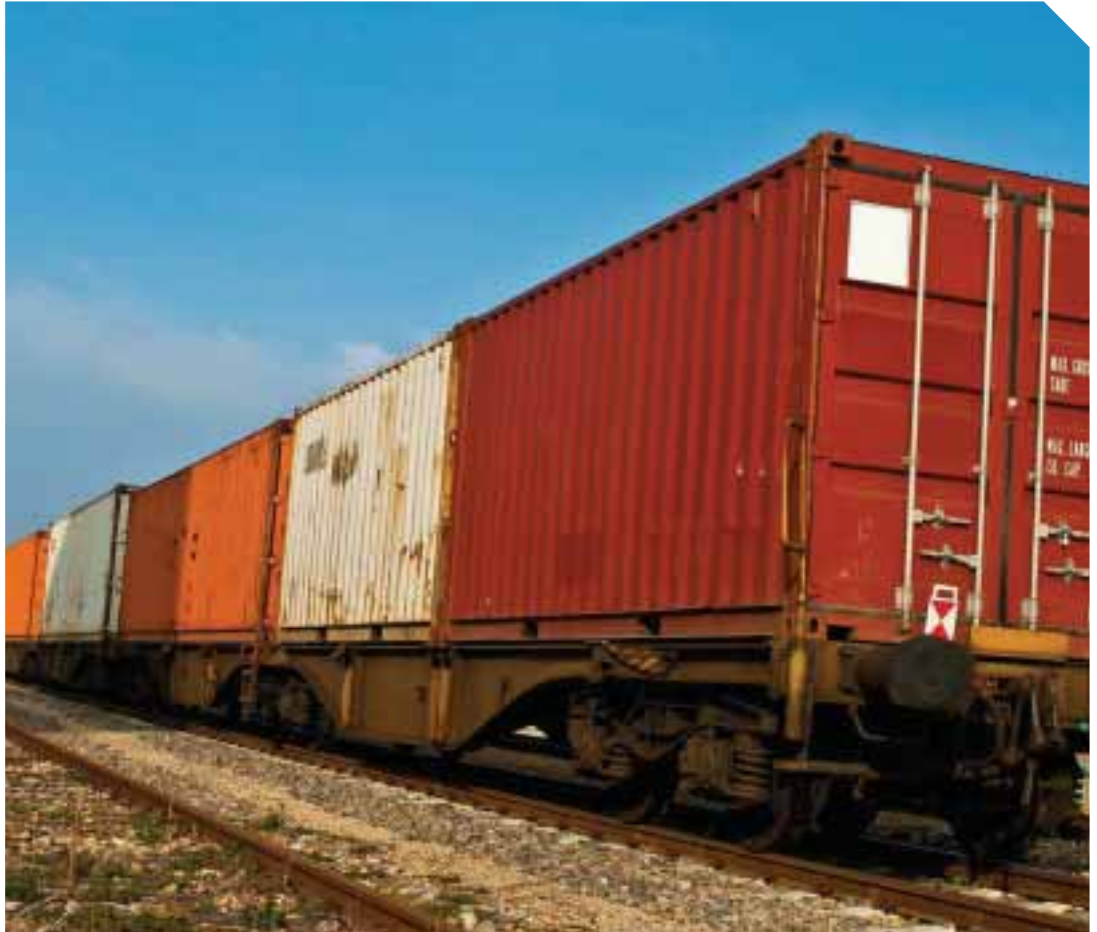
Terminal access and operations

Most conurbations have more than one terminal, operated by different companies. By dealing with only one FOC and/or terminal, customers are often constrained as to which services they can use, or become involved with complex discussions with multiple operators and schedules. For the low-volume user, it is much easier to call a road haulier.

Hams Hall on the eastern outskirts of Birmingham handles around 16 trains a day, between the south and the north-west and Scotland. It handles some 100,000 containers a year. It has an open layout, minimising lifts per container. It is open for business six days a week. It serves customers across eastern Birmingham and the Midlands.



Container trains have always made financial and operational sense on the Continent; now the case for the switch to rail is increasingly compelling for internal UK services



A typical container train has 30 platforms, each usually capable of carrying 60ft of containers

Barking, in East London, is well located for the port and industrial activities on the Barking, Purfleet and Tilbury peninsula. It handles containers efficiently and is open six-and-a-half days a week.

A recent study in the USA by L Ferreira and J Sigul has been used to model operations at terminals and compare terminal operations between container and RoadRailer operations. It is a first study and makes simplistic assumptions about terminal and, above all, road vehicle scheduling, but shows that this area is still open to a lot more investigation. RoadRailer is not currently available in the UK.

Traceability and security of cargoes

Most major road hauliers now offer end-to-end traceability of vehicles and their cargoes. When a cargo travels part of its journey by rail, this is more difficult. The current Network Rail TRUST system is difficult to use and anyway not many operators have bought licences to use it.

Most terminal operators have tracking within their terminal areas, using Autostore or similar software. This means that from box arrival by road to train departure, via the rail transit and from train arrival until the box leaves the terminal, it is fully traceable. All terminals record box arrivals and departures by road. Drayage contractors who have trackers on their vehicles can also trace cargoes to and from end-customers.

Container trains now operate between secure terminals, which have strictly controlled access. Most containers also display only their operator's or leasor's logos, reducing third-party visibility of vulnerable cargoes.

Crew and energy costs

One road vehicle can carry typically one 40ft or one 45ft container or sometimes only one 20ft box because of route or weight issues. A typical container train has 30 platforms, each usually capable of carrying 60ft of containers, although there is a shortage of 20ft boxes in the market, so one train typically carries around 80TEU of containers.

Average road speeds are around 40mph even on open roads. Rail speeds between junctions are typically over 60mph.

Each road vehicle needs a driver, who needs to be relieved or rested after 11 hours maximum. The vehicle stands for eight hours if the driver cannot be relieved. Road driver costs are, however, typically around 50% of rail driver costs, but the train keeps moving because crew rostering provides relief crew when necessary.

Typical road fuel consumption is around 8–10mpg for 2TEU. Typical rail fuel consumption is around 1mpg for 40TEU. Allowing for variations in load factors and routes, overall rail fuel use is around 30 to 35% of road fuel use for the same distance.

Conversion from road mode

Most UK internal trunk freight travels in articulated vehicles with 40ft tri-axle trailers and two or three-axle tractor units. This is a very flexible system and most cargoes travel door to door without transhipment. The same vehicles are used for collection and delivery services to end-customers, even in town centres.

The pallet networks run hub to hub. Trailer loads are consolidated from individual pallets and stripped at the end. Similarly, Gialiner trucks are likely to have to decant

their loads to smaller vehicles for town-centre collection and delivery, and mirror the patterns and costs of the pallet networks.

The move to containerisation presents a number of serious challenges:

- Differences between the dimensions and load capacity of trailers and containers or swap-bodies
- Most rented containers are end-loading, which is slower
- Rented containers are not guaranteed to be clean enough for some cargoes – for example, food
- Temperature-controlled cargoes can present challenges in travelling by rail
- Some terminals cannot lift the maximum-weight containers or those requiring bottom lifts
- Moving containers at customers' sites is often not as easy as trailers
- Many end-customers have large committed investments in tractor units, trailers and associated facilities
- The move from trunk haulage to local collection and delivery will cause differences in employment of drivers and others

The typical supermarket roll cage also matches poorly with road vehicle dimensions. At 1.8m high, it only occupies 60% of the cube of the vehicle capacity. Most pallets are also carried single-deck on trailers. Trailer load factors were also recently analysed by DfT and found to be very variable between days and time of year.

The maximum gross vehicle weight on road for a transit involving rail is increased from 41t to 44t in UK. This allows containers up to 32t gross (sometimes slightly more) to be carried legally by road. (Many 40ft containers are rated at 34t gross; some tank containers higher).

So with all these barriers, how will modal change occur? A starting point for many prospective converts from road to rail trunk operation will be to use the services of one of the container leasing companies, who give good advice to newcomers to rail.

Observations and conclusions

Though the shift to rail freight may have begun at a slower pace than hoped, there are plenty of reasons for optimism. The issue of fuel cost has become an increasingly important factor over the years and it is unlikely that new developments in the near future will swing the pendulum far enough back the other way as to return the industry to the position of the past, and so there is a demand from the market for a realistic alternative.

To become first choice, the system needs to become flexible, including access to terminals, opening hours and routes, employ full traceability, and make interaction for the end-customer simpler, especially for those to those unfamiliar with this method of working. This must include simple bookings – and modifications to the bookings – and a centralised information system that does not involve too much research to find how cargo can be set in transit.

Then, when each of these has been addressed, it is important to publicise modal shift as an option. Many customers have been using the same routes and same systems for years or even decades, and even though they understand that the burden of fuel price increases and environmental pressures are increasing. Until they are aware that there is an accessible and affordable postcode-to-postcode alternative, there is little reason to believe they will seek it out.

ESSENTIALS

ABOUT THE AUTHOR

Nick Radcliffe is Managing Director, FreightArranger, a cloud-based intermodal freight brokerage that enables forwarders to find, arrange and track intermodal freight solutions. FreightArranger, which secured £1.3 million funding from the Government's Technology Strategy Board and from private investors, has been two years in development and is expected to be commercially available in autumn 2013. For details on participation in trials, contact: Nick Radcliffe, Managing Director, FreightArranger. Website: www.freightarranger.co.uk

FURTHER INFORMATION

For more information on the issues raised in this article, why not join our Environment & Sustainability Forum? See our website www.cituk.org.uk for more details.

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