Changing myths

Despite several attempts, intermodal rail services have never captured the shorter-haul freight markets. But RailRunner is hoping that its innovative Terminal Anywhere technology will change all of this. **John Fossey** spoke to the company's ebullient president and ceo Charles Foskett about its market potential.

Charles Foskett, president and ceo of Lexington (MA)-based RailRunner NA Inc confidently told *CI*: 'It's somewhat earth-shaking. Our Terminal Anywhere technology might also be referred to as disruptive, because it is going to change many things.'

He was, of course, referring to his company's innovative bimodal piece of equipment, which he believes will shake up North America's shorter-haul intercity and port-to-city containerised freight corridors by diverting cargo from truck to rail.

Potentially, it is a huge market, with RailRunner claiming that, in the US shorthaul freight transport sector (defined as journeys in the 300- to 1,200-mile range), over 200 million trips per year are made, worth an estimated USD300 billion. On a value (revenue) basis, trucks account for more than 90% of this market, which, Foskett said, was growing at an annual average rate of about 4%.

He opined: 'Things have to change – particularly given the problems associated with traffic congestion, rising fuel prices, labour shortages and truck drivers' hours. Plus, there are growing concerns over transport's growing carbon footprint. Trucks, for instance, average 120 tons per mile for every gallon of fuel consumed, compared with over 400 tons per mile for rail.

'With 30% of the "big picture" problems being highway-related, the intermodal rail option has a tremendous opportunity.'

The executive argued that part of the reason for intermodal not realising its full potential was because of the 'inherent high costs involved in setting up services'.

He explained: 'Building intermodal rail terminals is very expensive, and this is one area that our technology circumvents. You don't need lots of paved area and sophisticated cargo-handling equipment.'

According to Foskett, a typical facility using RailRunner's Terminal Anywhere technology would involve a capital outlay of USD1-2 million, principally for lighting, ground preparation, a small office and security fencing. This compares with an intermodal terminal using reach-stackers and/or yard gantry cranes of USD12-25 million, depending on its size.

Charles Foskett, RailRunner

Hence, a small rail siding with some gravel and/or concrete near the railway lines, about 75m of manoeuvring space for each unit/railcar and a few terminal tractors, or something similar, for shunting the equipment around is sufficient for the RailRunner system to work effectively.

The key components of the RailRunner system are the lightweight highway chassis, which is designed to hold standard ISO marine and 53ft US domestic containers, and the specialised bogies (steel wheels) that allow the chassis to be transformed into a railwagon (see 'Nuts and bolts').

Foskett stressed: 'This means we can help extend the flexibility and cost savings available from the use of intermodal transport to a much wider audience of manufacturers, farmers, wholesalers, retailers, etc, by working out of smaller and cheaper transfer centres located closer to the points of production/consumption.

'This means less use of road transport, which is good for the environment, as it means emissions per ton of cargo shipped are reduced.'

'Take the international shipping business and those congested ports on the west coast. If our technology can help get that cargo out of the terminal and to smaller yards from where shorter-haul on-carriage or connection to intercontinental stack train services can take place, then that has to be good for us, good for the consignee, and beneficial to the environment.'

The executive is, nevertheless, aware of the challenges involved. After all, the bimodal concept is not new, and history in North America's and Europe's freight transport industries have revealed failures in its use on several counts.

Foskett asserted: 'It's a case of how do you get the dog food to the dog – or, in this case, RailRunner's Terminal Anywhere technology to the consumer/receiver. For this, we will work with service operators, which might be railroads, specialist logistics companies, truckers and/or stand-alone entrepreneurs – our so-called RailRunner Service Operators.

'We don't mind who runs the services, but we ourselves prefer not to be involved at this level, as there are potential conflicts of interest with our main business, which is designing, manufacturing and marketing the equipment to independent companies.'

However, the company does operate one service in the US. It was launched in August 2004 and links Jacksonville with Fort Wayne, a distance of 1,000 miles. Locomotives for the operation are provided by Norfolk Southern, a long-term supporter of bimodal technology, the company having been involved in the Triple Crown services for more than 20 years.

Foskett explained: 'Our RailReach operation needs to be viewed as a commercial pilot. From a strategic point of view, it got us into the big league, with a Class 1 railroad, and it enabled our technology to be certified by the US Federal Railroad Administration (FRA).'

Indeed, the FRA issued its approval for the RailRunner technology in March 2005.

Elsewhere, North Star Rail Intermodal (NSRI) is using the equipment to offer shippers of agricultural products in south-western Minnesota better, cost-competitive access to international markets.

Currently, containerised cargoes from the region have to be trucked to the Minneapolis/St Paul railhub, where transloading into containers then takes place. By using RailRunner's Terminal Anywhere technology, containers will be loaded at railyards located closer to the farms.

NSRI is supporting its new initiative by building a new intermodal rail terminal at Montevideo (MN), about 130 miles west of Minneapolis.

Craig Damstrom, ceo of NSRI, elaborated: 'Shippers will be able to load their products at this terminal into standard 40ft containers from either hopper trucks or railcars, or load agri-products directly into containers at the farm, processing centre or ethanol plant into standard 40ft marine containers.

'RailRunner gives us the tools to help accelerate the growth of agribusiness in south-western Minnesota. Farmers, processors and ethanol producers here have needed a more cost-effective way to ship by container right from the source, and we can now provide that.'

He estimated that the new rail option would save shippers of these products up to USD10/ton, compared with the previous relay services. Delivery of the equipment started in May.

Foskett stated: 'We have supplied all 66 of the 40ft chassis and two-thirds of the 48 bogies NSRI has ordered, and we'll complete by the last week in July. The training of NSRI staff, terminal operators and the railroad commenced in the second week of July, and service into

Minneapolis will start in early August.'

And he suggested that 'other projects were in the pipeline': 'In our negotiations with NSRI, we also had detailed discussions with Hapag-Lloyd and OOCL. One issue raised was their wrestling with the US' trade imbalances, and the resulting empty equipment repositioning requirements. We can help in this respect by positioning containers further inland and to areas closer to the cargo.'

There are various sectors that RailRunner views as being ideal for the concept, with the expanding waste disposal and 'identity-preserved' agricultural industries especially significant.

In the case of the former, waste is having to be moved to more remote sites, while the rules concerning disposal are becoming more onerous.

Foskett offered: 'We can help the process, by providing customers with the equipment to use intermodal services to the landfill site. This either eliminates a total truck move or a longer truck dray from a large intermodal railyard. Either way, the costs of transport come down.'

The 'identity-preserved' agricultural sector is even more interesting, according to RailRunner.

The industry stems from the rising demand by food processors to achieve consistency and particular tastes, colouring, texture, etc, in their products, by ensuring that the identity of the source material is kept intact from farm to processor. This requires the use of a different 'non-bulk' transport system, and the container is ideally suited.

Meanwhile, RailRunner's Terminal Anywhere technology allows rail services to be offered to a location much closer to the farm.

On the international front, Foskett believes there are 'immense opportunities'.

NUTS AND BOLTS

RailRunner's Terminal Anywhere bimodal technology comprises two main components:

- **A chassis that allows all types of marine freight containers and US domestic 53ft and 48ft units to be carried. However, it is different from standard highway trailers, in that it features additional longitudinal strength to cope with the pressures exerted by the acceleration and deceleration forces associated with train operations. The chassis is also equipped with special coupling boxes at each end for the rail bogies. A chassis capable of loading an ISO marine 40ft container costs approximately USD22,500, weighs 7,900lb, and has a payload of about 24 tons.**
- **Two types of rail bogies are manufactured. The intermodal bogies that fit to the chassis cost USD50,000, while transitional bogies, which enable chassis to be fitted to other train configurations, cost USD65,000.**

The chassis behaves as a conventional trailer when used on the road and as a light rail vehicle when fitted with the bogies and hauled by a locomotive. Charles Foskett, president and ceo, was keen to stress that, on rail, its equipment had the same integrity as standard flatcar equipment, and could operate at similar speeds.

In converting the chassis to the rail mode, a bogie is attached at each end of the unit, and then connected to the train's pressurised air system. The bogie's pneumatic pump system is then actioned, and the chassis lifted, so the road tyres are well clear of the railway line. The pneumatic system also provides cushioning, which means less rail noise and a smoother ride for the cargo.

The bogies are also articulated, and feature automated steering devices, which reduces wear and tear on the tracks. Meanwhile, the lighter tare weight of the equipment means that less fuel is consumed.

Foskett also alluded to the train configuration as helping RailRunner's 'green credentials': 'The cars are more closely spaced than on conventional container and/or stack trains, which means less turbulence between the containers and less aerodynamic drag on the train.'

Loading and discharging the trains can take place at very basic facilities, providing the hardcore surface has been graded-up to the height of the rail tracks. For a discharge, a truck reverses towards the chassis whose front bogie has been removed. The unit is then hitched up as a standard trailer, the rear bogie attaching the car to the next car is also removed and the container and chassis is driven away.

Loading of the train is the opposite, with the truck reversing towards the bogie. The unique bayonet tongue feature of the bogie then connects with the coupling device on the chassis. The chassis and container are then disengaged from the truck, and it is left comprising part of the train. The whole process takes only a few minutes.

In Europe, independent studies seem to suggest this, too. In March 2007, a report by the Research Association for Intermodal Transport (SGKV) concluded that RailRunner's technology 'offered the lowest overall cost per ton shipped in any markets not currently serviced with a traditional intermodal terminal handling high volumes.'

The SGKV report also stated that the system provided:

- the lowest tare weight (bogie plus chassis) and, hence, highest fuel efficiency of any of the few systems operating
- less friction and wear and tear on wheels and axles, thereby keeping maintenance costs under strict control
- the lowest level of capital investment costs for terminal development and handling equipment
- single ownership of the rail/highway chassis and bogies, thereby cutting out potential technical and operational conflicts of interest/problems.

In particular, RailRunner's bimodal system appears particularly well-suited to the emerging economies in Eastern and Central Europe.

As international trade increases to/from this region, traditional cargo distribution systems, which have been largely based on ports and inland truck/rail depots in Western Europe, will have to change.

Foskett revealed: 'We are looking at some of the niche markets within Europe's broader intermodal network. In Eastern Europe, there has been little investment in intermodal transport systems, while electrification prevents the use of double-stack operations.'

He also singled out Russia as needing a modern an efficient rail intermodal network. 'Russia is industrialising at a rapid rate, and although the movement of natural resources [bulk cargoes] will remain important, cargoes more suited to containers will expand. For Russia's industrial economy to succeed, it will need an efficient and modern intermodal network. RailRunner can help in this respect, as the entry investment of just USD1-2 million per terminal is highly affordable.'

Foskett also thinks India and China offer RailRunner good opportunities. In both countries, domestic intercity freight movements are set for substantial growth. These nations have extensive land areas, as does the US, they have a large number of cities that are expanding rapidly, as the exodus from rural areas continues, and they have rising levels of highway congestion.

RailRunner's technology is certainly generating considerable interest, and its timing might just be right, as pressures in the trucking business escalate and transport's carbon footprint rises up the global political agenda.

Clearly, there are areas where the concept can make both economic and environmental sense, but it will still take considerable efforts in shaking those myths that intermodal cannot work in the shorthaul markets.