Operator and in many cases there is no up-front transparency re infrastructure charging and track access. Regulation and licensing of locomotives is still restrained to national borders, there is not a single language for railway operation, very few drivers are licensed to drive locomotives in more than one country, and have to qualify in each state independently. Europe is saddled with at least five different electrical supply systems, and the safety regulations between countries can raise the cost of a multi-national loco by 50 per cent simply to accommodate multiple headlights for differing safety rules.

Average goods transport growth (2.8 per cent) has been higher than GDP growth (2.4 per cent) since 1995, but railfreight has consistently lagged behind the growth of road transport showing absolute reductions in billion tonne kilometres and falling market share in the EU-27, where it hovers around 9-10 per cent overall and is...
expected to fall lower. This compares with intercity freight market shares of 43-44 per cent in the USA.

European Union Railway Packages
The European Union identified in the 1990s the potential to reduce the environmental disbenefits of transport by encouraging rail transport, and has enacted a series of directives and communications intended to expand the sector. These have focused on a separation of infrastructure and operations, and allowing all licensed parties to operate across all EU infrastructures freely with equal track access and charging between all any operators. This started in 1991 with directive (91/440) which transformed the legal framework of European state railway companies, beginning the end of state-operated monopolies, requiring railways to be operated commercially like private companies, separate from the state, and with separate accounts for infrastructure and operation. This was followed by the three ‘railway packages’.

The First Railway Package (2001, adopted by member states 2003) is an important suite of EC Directives. The first Directive (2001/12/EC) is designed to: open the rail freight market for international competition; clarify the formal relationship between the state and the infrastructure manager, on the one hand, and between infrastructure manager and the railway undertakings (RUs), on the other hand. The second Directive (2001/13/EC) set out the conditions that freight operators must meet in order to be granted a licence to operate services on the European rail network and the third Directive (2001/14/EC) introduced a defined policy for capacity allocation and infrastructure charging.

The European Commission adopted a third package on 26 September 2007, consisting of: Directive 2007/59/EC on the certification of train drivers operating locomotives and trains. It lays down the conditions and procedures for the certification of train crews operating locomotives and trains; Directive 2007/58/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure: envisages opening the market for international passenger services to competition from 1 January 2010; and Regulation 1371/2007 on rail passengers’ rights and obligations: ensures basic rights for passengers, for example, with regard to insurance, ticketing, and for passengers with reduced mobility.

These directives have been implemented in a variety of ways in different EU countries: in the UK we have a complete implementation; in some countries there is compliance to the letter but not the spirit; in some Baltic countries they had already liberalised in an integrated fashion, causing some issues when the EU adopted a different position. In the new member states of Romania and Bulgaria the directives were used as a blueprint as part of the dismantling of the older command economy and therefore have a system almost identical to the model. The European Commission (EC) sent formal notices to 24 European Union (EU) member states on June 26 2008 regarding their failure to properly implement the First Railway Package legislation.

The European model of separation between infrastructure and operations is quite different to the reforms of the US rail sector under the Railroad Revitalization and Regulatory Reform Act of 1976 and the far more important Staggers Act of 1980. This was based upon freeing railroads of previous public carriage obligations and pricing freedom, within vertically integrated operations and infrastructure railroads.

Many in the UK industry and elsewhere in Europe often bemoan the fragmentation of the integrated railway, arguing (with some legitimacy) that an integrated railway can be planned more efficiently. We would suggest that since the objective of reform was to allow railways to compete at a continental scale, crossing national borders and allowing rail logistics services to compete with the relatively unfettered road haulage industry, who would have run the new integrated EU rail system? Would the French have happily sold their rail infrastructure to the Germans, or vice versa? Whilst it has disadvantages, the separated model with open access should allow free competition between operators across borders, leveraging the inherent advantages of rail for long-haul freight. However this liberalised railfreight system has not yet delivered results. Railfreight market share is static or falling, although absolute volumes are rising again.

RETRACK

NewRail has worked with new private railway undertakings in the RETRACK project since 2006 to develop a new integrated railfreight service from Benelux to the Black Sea. Against a backdrop of collapsing freight

Table 1: European rail freight performance in billion tonne kilometres:

<table>
<thead>
<tr>
<th>Year</th>
<th>EU-27</th>
<th>EU-15</th>
<th>EU-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>551.1</td>
<td>282.5</td>
<td>268.6</td>
</tr>
<tr>
<td>1980</td>
<td>641.4</td>
<td>289.8</td>
<td>351.6</td>
</tr>
<tr>
<td>1990</td>
<td>524.8</td>
<td>254.9</td>
<td>269.8</td>
</tr>
<tr>
<td>1995</td>
<td>386.0</td>
<td>222.6</td>
<td>163.4</td>
</tr>
<tr>
<td>2000</td>
<td>401.2</td>
<td>254.6</td>
<td>146.6</td>
</tr>
<tr>
<td>2005</td>
<td>413.3</td>
<td>262.0</td>
<td>151.3</td>
</tr>
<tr>
<td>2006</td>
<td>434.6</td>
<td>280.4</td>
<td>154.2</td>
</tr>
</tbody>
</table>

Source: www.retrack.eu
volumes during the financial crisis, we have analysed, designed and set-up a pilot service which started February 2010 on a shorter route between Cologne (DE) and Győr (HU). This project, co-ordinated by TNO of the Netherlands, has shown that many obstacles still block the development of cross border freight in Europe, and that on the whole they are regulatory and organisational, that the technical issues can be overcome (multi-voltage locos for freight are viable for Central European runs), but that often the new regimes replace national border checks with liability issues associated with handover between traction providers. Despite all of this, the pilot routinely makes the trip with 95 per cent delivery accuracy, in 24 hours, with spurs to Rotterdam or Antwerp in the west in six hours and to the Romanian border in another six hours to the east. This compares to current rail travel times from the ‘incumbent operators’ of between 80 hours and seven days, dependent on the cargo, at a price that is competitive to road transport.

In the Freight and Logistics research group at NewRail we work to understand and address the obstacles which stand in the way of sustainable growth in railfreight. We have carried out work in the engineering of trans-shipment technologies, of developing seamless ICT systems and messaging standards to integrate operators and data flows, examining new methods to train loco drivers on international routes, developing standardised operational ‘languages’ to better enable communication between staff, examining the opportunities and problems with variable and incompatible ECTS implementations along freight corridors, using market research to develop business models for new freight services, designing new short fast trains for high value goods and exploring new standardised power systems to supply refrigerated containers on rail.

We work firstly as logisticians, fully aware that in the freight sector the objective is to deliver goods on time in full, not to run trains or ships or trucks. Within that we utilise expertise in modelling, ICT, engineering, policy, economics and business to critically assess the opportunities for railfreight, how to integrate rail with other modes such as truck, sea and inland waterways, and how to deliver sustainable freight operations, that is efficient, profitable and with as low an environmental impact as is viable.

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