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EDITORIAL

# The future of European rail freight transport and logistics

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Rail freight transport plays an important role in creating a sustainable and competitive transport market, but has lost ground to other competing modes of transport, particularly road. The freight market is driven by a mix of external influences, including spatial planning, the decline of bulk traffic such as coal, and the arrival of a competent, aggressive and commercially competitive alternative. Transport demand is evolving, both in terms of cargo characteristics and customer requirements, and will continue to change in response to industrial and consumer needs. For example since the 1970s, containerised/unitised cargo and door-to-door (rather than terminal-to-terminal) transport service have become widely accepted, normal phenomena. Rail has been slow to respond to such changes, for example by failing to co-operate with transport chain partners to offer a door-to-door service. Consequently rail has lost market share. National rail policies across Europe have been set by governments and increasingly focused on cost containment and network contraction. Recognising this, a wide-ranging series of measures has been instigated by the European Commission, to turn the position of rail freight into a more attractive and competitive offering and this work is ongoing and evolving. The four articles in this topical collection address these issues and propose future developments in rail freight.

Rail freight service quality can be improved by better planning, application of appropriate ICT-systems and adoption of an integrated supply chain approach [3]. A more customer-orientated service will be vital and can be achieved by further deregulation of rail. The authors assert that to offer a competitive price and reliable service, a reduction in operating costs will be vital, and can be achieved by implementing a number of measures, including operation of heavier and longer trains, wider loading gauge, higher average speed, and better utilisation of wagon space and all assets. This will bring increased capacity, as well as better timetable planning, signalling systems and infrastructure improvements.

In order to improve efficiency and competitiveness the European Commission has also initiated research that has resulted in widely differing models of organisation and operation. One example is the 'Guide on the methodology for carrying out cost-benefit analysis'. Siciliano et al. [4] reviewed and adapted the methodology to assess innovative rail freight services. The research shows that the adapted methodology is capable of representing the multiple effects resulting from the theoretical introduction of an innovative rail service in the freight transport sector – assessing the impact of the proposed new rail freight service compared to the baseline scenario solutions (all-road solutions and regular rail solutions). The research also shows that the logical articulation of the analysis 'Guide on the methodology for carrying out cost-benefit analysis' is flexible to some extent. For example, two specific estimation schemes (the estimation of ad hoc unit parameters for the external costs involving emissions, noise and accidents and ad hoc approach for using Generalised Logistic Costs (GLC) as proxies of users' surplus in a scenario where the introduction of the innovative service modifies the modal split

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of freight transport between different solutions) were applied to this research. The authors assert that the adapted methodology can be applied to other service areas as well as to evaluate other types of freight transport services, provided that some unit data can be retrieved, which pertain to site-specific cost of infrastructures, average speeds and rates of different transport solutions, costs of personnel and other operating costs.

One attempt to increase the competitiveness of the rail sectors in the important container market is the Swiss Split concept. Swiss Split is a rail service in Switzerland which distributes containers via conventional shunting yards directly from intermodal terminals to the final recipients' sidings by rail. Currently Swiss Split service is quite successful, although it still has several weaknesses (e.g. in the areas of rolling stock, transhipment terminal structures and the service production schemes for single wagon load i.e. SWL) that reduce its competitiveness compared to container distribution by road [2]. With this in mind, the authors seek to answer two main research questions:

'Which feasible improvements for container distribution by rail can be determined?' and 'How far do these improvements increase the competitiveness of container distribution by rail compared to container distribution by truck?' The research suggests that the breakeven distance for Swiss Split compared to truck container distribution be decreased from 140 to 70 km and in such case using SWL for final distribution Swiss Split becomes competitive to trucking even for short transport hauls. The research concludes that rail freight can be competitive compared to road transport if a holistic approach which tackles all weaknesses of the existing services is applied.

One important future potential market is in east-west direction corridors. Organising railway freight transport between Slovakia and Ukraine is an example where the potential for improvements is high, but traditional manual procedures increase lead times dramatically and thus limit the attractiveness of rail freight. Abramović et al. [1] present a method for optimising freight traffic procedures on the border between Slovakia (European Union) and Ukraine. The most important organisational aspect of transport in this case is the existence of two different procedures. In Slovakia, transport is organised according to the Convention concerning International Carriage by Rail (COTIF), and in Ukraine, transport is organised according to the Agreement on International Goods Transport by Rail (SMGS). Unfortunately, all procedures are carried out completely manually. This means that transport documentation is rewritten from SMGS to COTIF, or vice versa. This process is very labour-intensive and time-consuming. The authors performed a case study using the critical path method (CPM) for optimisation of the technological process for transport methodology at the Čierna (Slovakia) and Tisou (Ukraine) railway stations and proposed a method for electronic data exchange between the rail and customs authorities of Slovakia and Ukraine to cut down the whole process by 170 min or 66.7% of the total time spent at the border stations.

The ongoing research in the area, articulated in this Topical Collection from the conference RailNewcastle - Intensive Programme in Rail and Logistics that took place in Newcastle, UK, from 23rd June to 11th July 2014 shows a variety of ideas and innovations that will significantly improve the efficiency and competitiveness of the European rail transport sector. It indicates that it is not lack of ideas and innovations that is the rail sector's biggest problem, but the lack of implementation capability.



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