

# Combined Transport in Europe – A Success Story

## 1. INTRODUCTION

As could be expected the European Union's enlargement to its present 27 Member States and more generally the (world scale) globalisation of the economies went along with a tremendous development of international trade and hence with a demand for freight transport which exceeded the average GDP growth. Where between 1995 and 2005 EU's GDP rose by 2.3%, transport in tonnes kilometres went up by 2.8%. Over the last ten years, rail freight scored +10%, road transport + 40% (EU 25) while combined transport carried out by the UIRR member companies showed a remarkable 60% increase.

Combined transport (CT) is thus representing an increasing share of rail freight, by way of example already one quarter of the actual tonnes kilometres for the major railways of Europe, the French SNCF and the German DB. A comparison with the dominant land transport mode, road, indicates that CT already reaches a level of 10% of its tkms on distances over 300 km and even of around 30% on Europe's heavy demand relations such as between Cologne (D) and Milan (I).

## 2. COMBINED TRANSPORT TECHNIQUES

Combined Transport is based on two different techniques:

- the unaccompanied transport of swap bodies, containers and cranes semi-trailers, representing 85% of UIRR's traffic and (see fig. 1)
- the accompanied transport or Rolling Motorway where the whole road vehicle is transported on special flat wagons and the driver is accompanying his truck during the rail transport in a sleeping car; this represents 15% of UIRR traffic. (see fig. 2)

These two techniques serve specific markets. The unaccompanied transport of loading units, in the long run the most economical form of Combined Transport, is minimising the dead weight to be transported on rail. But this technique requires long term collaboration between road and rail. The road hauliers and logistic companies should have regular traffic preferably with backload, to achieve maximum benefits. Personnel needs are lower and work mainly takes place

during day hours. And with a given number of trucks, a multiplied number of shipments can be handled, as rail is transporting them on the long distance and the logistic company must only organise the terminal haulage at both ends of the rail link. This is done either by establishing own branch offices abroad or by collaborating with local haulage companies.

The use of accompanied transport requires, on the contrary, no special investment or organisation and Rolling Motorways may also be used occasionally, or only in one direction. Often Rolling Motorways present only a part of a long international journey

tion of the road, the environmental and safety problems had led to the creation of Combined Transport operators already 40 years ago and to the foundation of their umbrella association: the International Union of combined Road-Rail transport companies.

UIRR has a decentralised structure, with a liaison office in Brussels and member companies which organise the combined transport as operators.

The task of the liaison office is the overall promotion of Combined Transport in close collaboration with the European Institutions



and are used to overcome an obstacle like the Alps or just to move forward while sleeping, in other words during rest time. This may accelerate the whole international round trip. Another motivation, mainly for road haulage companies of third countries, may be to cross European Union member states in the absence of sufficient road permits.

When they come to use Rolling Motorways regularly, the logistic companies should consider whether they cannot switch to unaccompanied Combined Transport with loading units, to increase their productivity further.

and other international associations and the coordination, harmonisation and standardisation of its members' activities. The liaison office is also a service centre in special fields, like distribution of codes for telecommunication and project management for research as well as for traffic shift actions. Most of the member companies were founded on a common initiative of road and rail and with the political support of the transport ministries. As road and rail are competing modes, the basic philosophy was to create operators with a majority of shares held by road hauliers or logistic companies but with a participation of the railways. In this way, neutral operators were created with the active participation of interested customers, in view of managing CT in the latter's interest and with the guarantee that these operators would never attempt

## 3. NEUTRAL COMBINED TRANSPORT OPERATORS

In European countries like France, Germany, the alpine countries and Italy the satura-



Figure 1 – Unaccompanied transport with intermodal loading units



Figure 2 – Accompanied transport of complete trucks (Rolling Motorway)

to directly intervene in the relations between shipper and logistic company. So profit making is not the principal objective. Combined Transport operators are best to fulfil their task when organising a fast and reliable service at reasonable prices for their customers of which more than a thousand are also their shareholders. This is also in the very interest of the railway companies which are benefiting from increasing freight traffic. Rail is a transport system with high fixed costs and additional traffic means raising productivity.

Especially in the last decade most of the continental European intermodal traffic is transported in complete trains, directly linking major terminals without passing through marshalling yards. This operational scheme has reduced costs and led to higher commercial speeds. On short and medium distance relations most companies offer the "night jump", meaning that units delivered in the late afternoon to the departure terminal will reach their destination early the next morning.

The success of continental Combined Transport is based on good cooperation and trust between road and rail and has always shown the best results when both are in the same boat and benefit from the transport policy taking care of favourable framework conditions.

#### 4. CT IS SUCCESSFUL WHERE APPROPRIATE FRAMEWORK CONDITIONS APPLY

CT is particularly successful on longer distances and where geographical and administrative obstacles hinder fluent road transport. About two thirds of continental CT is transalpine and roads transiting to the countries concerned are more than heavily congested. This situation but also the heavier costs of infrastructure developments have lead them to levy high road tolls. A determinant aspect in their transport policy is also the environmental sensitivity of the

population in the transit countries, which feels bothered by noise and air pollution and by the cutting into pieces of the landscape by roads draining so much traffic that it is often difficult to get across. So the alpine transit countries, mainly Switzerland and Austria, use these tolls, night traffic bans and other measures to limit road traffic on the one side, but they also invest in rail infrastructure and grant financial help for rail on the other side. With the enlargement of the European Union traffic is still rising over-proportionally, and other countries like Germany, France, Hungary, and the Czech Republic are likewise confronted with additional transit traffic, leading them to introduce or raise road tolls and will use a number of instruments to limit road traffic and ensure road safety.

Those instruments are week-end and night traffic bans and more severe controls of the technical conditions of trucks, licences, rest times, speed limits etc. All this, together with the saturation of roads, will improve the competitive position of CT as a more secure, reliable and environmentally friendly alternative, cutting for example CO2 emissions by half compared to road transport. Logistic companies can save personnel costs, especially when they have regular traffic. With the same investment they can handle much more traffic, as a given number of motor vehicles enables to carry out much more transports by using containers, swap bodies or cranable trailers.

#### 5. STANDARDISATION AND CODIFICATION

The basis for unaccompanied intermodal traffic with loading units is standardisation. The best known units are the ISO containers which have revolutionized world trade for 50 years and of which several millions are used in maritime transport. In Europe transport of the industrial product is based on the pallet, which unfortunately does not fit optimally into ISO containers.

In consideration of the road dimensions swap bodies which are larger and longer than 20 and 40 foot containers are the dominant loading units in Europe. Nevertheless most swap bodies are normalised by the European Standardisation Committee CEN with bottom corner fittings, handling devices etc. This means ISO and CEN units have common elements. Most inland terminal cranes are equipped with grapple arms so that they can also tranship swap bodies and cranable semi-trailers. Operators and railways have developed "universal pocket wagons" which can carry containers, swap bodies and cranable semi-trailers.

In this way Combined Transport offers a wide variety of loading units and flexibility to serve different customers' needs so that nearly all goods which are transported by road vehicles can also be transported in intermodal loading units. The transfer to rail is especially attractive for heavy goods and in countries which have maximum permitted truck weights below 44 tons (38t in Austria, 40t in Germany and France) but allow this gross weight in the short terminal haulage. Moreover, a lot of heavy units carry liquids, sometimes dangerous goods so that for the chemical industry the much higher safety of rail traffic counts as an additional argument. Cranable semi-trailer loaded in pocket-wagon

Combined transport loading units on wagons nearly always exceed the normal loading gauge of European railway lines which is limited by bridges, tunnels, catenaries or roofs of stations and therefore would have to be treated as special load. In order to carry out such kind of transport regularly, most of the main European railway lines have been specially measured and codified. The CT loading units (swap bodies, non ISO containers and semi-trailers) must also have a codification according to their dimensions. In order to be able to use a certain line, the



A light European swap body at a warehouse ramp



Cranable semi-trailer loaded in pocket-wagon

gauge code of the loading unit may not exceed the gauge code of the line.

The codification was developed in the seventies and was one of the key prerequisites for the rapid development of continental combined transport.



Codification plate on loading unit

#### 6. RAIL LIBERALISATION

The central idea behind rail liberalisation which was initiated in the early nineties was to create an open and harmonised European railway market. Main objectives were to end national monopolies, to separate infrastructure from operations and to harmonise the

technical and operative conditions. The liberalisation in Europe has now reached a stage where the forces of a free market on rail begin to show first results. On some international corridors rail freight customers now have a choice between two or more competing railway undertakings. The experience of combined transport operators shows that service and quality increase with upcoming competition, from new entrants as well as on the side of the incumbent railways. But in Europe the main international rail corridors are getting more and more congested. Passenger traffic generally enjoys priority. The high speed lines for passengers which have been built in the last decades have freed some capacity on existing lines which nevertheless are still commonly used by freight and local passenger trains. The consciousness is rising that the growing freight traffic needs at least a rail freight priority network.

Climate change is an important issue on the political agenda. While other industrial sectors have managed to reduce emissions, transport is the only sector which still depends to a large extent on petrol and produces rising CO2 emissions. With the ongoing European integration and globalisation only the shift from road to rail, inland waterway and short sea shipping may stop this trend. Combined transport is growing fast, proving that customers are searching for reliable and sustainable transport solutions. It is now important that European States make the necessary investments in conventional rail infrastructure. Two mega-projects have already successfully been inaugurated: outside the EU the Swiss Lötschberg base tunnel and the Betuwe-line dedicated to freight between Europe's largest port of Rotterdam and the German border. Moreover, several extensions of railway lines to three or four lanes and the other adaptations aimed at eliminating local bottlenecks, often around major cities, are under construction as well as new CT. The new

unique European signalling system ERTMS will enhance line capacity, facilitate border crossing and should after the likely problematic transition period lead to economies of scale when it will replace the more than 20 national signalling systems.

The International Union of Railways UIC and UIRR have just finished a research project (DIOMIS: Developing Infrastructure and Operating Models for Intermodal Shift) which has, in addition to the infrastructure needs, identified best practices and analysed operational, organisational and marketing measures aiming at the extension of rail capacity such as line upgrading for longer and heavier trains and organisational as well as marketing measures for the better use of existing train and terminal capacity etc. All major European ports are investing so as to raise their transshipment capacities. It will be mainly the available capacity which will determine which mode will participate in the transport growth and to what extent. Upcoming rail liberalisation has created a sense of a new era and competing incumbent and new railway undertakings as well as operators will find their place in the transport market if they are able to identify their opportunities and develop their services accordingly.

For more information see:  
<http://www.uirr.com>