

I. INTRODUCTION

A. Definitions

The basic feature of multimodal transport is that at least two modes of transport are used.

The definition jointly given by the United Nations Economic Commission for Europe (ECE), the European Conference of Ministers of Transport (ECMT) and the European Commission (EC) is “Multimodal transport: *carriage of goods by two or more modes of transport.*”

Sometimes, multimodal transport is connected to the international transport of containers and the need for transport facilitation. It derives its name from the United Nations Convention on International Multimodal Transport of Goods of 1980. The definition of the term “international multimodal transport” is provided in article 1 of the Convention, which reads as follows:

“International multimodal transport” means the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country.

It has evolved, however, to have various meanings closely related to multimodal transport, and these various definitions will be reviewed in turn.

- The most common is that the goods are carried from door to door in the same intermodal transport unit (ITU), usually a container, but it can be also swap bodies or piggyback trailers. This is called intermodal transport by ECE, ECMT and the EC, as well as the International Container and Intermodal Transport Bureau (ICB) and the International Chamber of Commerce (ICC). The definition jointly given by ECE, ECMT and the EC in *Terminology on Combined Transport*⁷ is:

¹ United Nations, 2001, *Terminology on Combined Transport* (New York and Geneva).

1.1 INTERMODAL TRANSPORT:

The movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes.

*By extension, the term **intermodality** has been used to describe a system of transport whereby two or more modes of transport are used to transport the same loading unit or truck in an integrated manner, without loading or unloading, in a [door to door] transport chain.*

Intermodal transport is also defined as the use of at least two different modes of transport in an integrated manner in a door-to-door transport chain.²

- A related term is combined transport. “Combined transport” is defined as intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial or final legs carried out by road are as short as possible. This term is used by ECE, ECMT and the EC to cover environment-friendly intermodal transport, involving as little road transport as possible, and supported by financial incentives. The definition by the European Union (EU) is even more precise, as follows:³

For the purposes of this Directive, 'combined transport' means the transport of goods between Member States where the lorry, trailer, semi-trailer, with or without tractor unit, swap body or container of 20 feet or more uses the road on the initial or final leg of the journey and, on the other leg, rail or inland waterway or maritime services where this section exceeds 100 km as the crow flies and make the initial or final road transport leg of the journey;

- *between the point where the goods are loaded and the nearest suitable rail loading station for the initial leg, and between the nearest suitable rail unloading station and the point where the goods are unloaded for the final leg, or;*
- *within a radius not exceeding 150 km as the crow flies from the inland waterway port or seaport of loading or unloading.*

² Organisation for Economic Cooperation and Development, 2001, *Intermodal Freight Transport Institutional Aspects* (Paris).

³ European Union, 1992, *Council Directive 92/106/EEC on the establishment of common rules for certain types of combined transport of goods between Member States* (Brussels).

At the root, however, the multimodal/intermodal concept is all encompassing to the point that it applies to passenger transport as well. For example, carefully planning a network of public transport combining buses, rail and metro (or skytrain) is a multimodal/intermodal exercise, involving also pedestrian access routes, bicycle lanes, car parks at hubs, appropriate access roads, etc.

In the United States of America, an Office of Intermodalism was set up in 1992 within the Department of Transportation. It states the following:⁴

The concepts of "intermodalism" have been applied by the freight industry for many years to provide the shipper with the most efficient movement of goods for the best value. The same concepts that work for freight have broad applications to all types of transportation.

In its simplest terms, "intermodalism" covers all of the issues and activities, which may affect or involve more than one mode of transportation. It has several aspects:

Connections: *the convenient, rapid, efficient, and safe transfer of people or goods from one mode to another (including end-point pick-up and delivery) during a single journey to provide the highest quality and most comprehensive transportation service for its cost.*

Choices: *the provision of transportation options through the fair and healthy competition for transportation business between different modes, independently or in combination.*

Coordination and Cooperation: *collaboration among transportation organizations for the purpose of improving transportation services, quality, safety, and economy for all modes or combinations of modes in an environmentally sound manner.*

This shows that multimodalism/intermodalism is not limited to freight transport. It is the opposite of unimodalism.

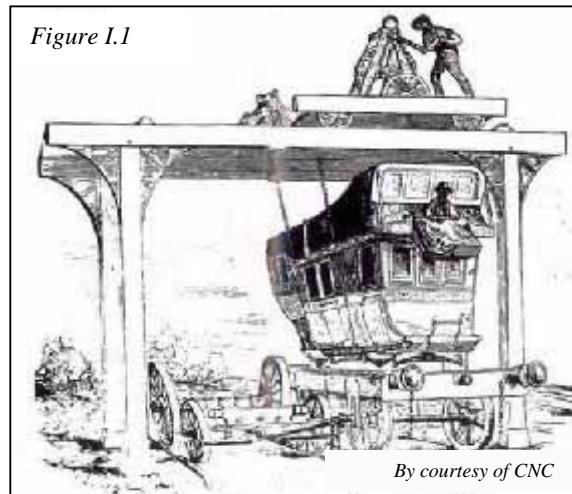
Going unimodal is a comfortable way of thinking, but is either impractical (like inland water transport (IWT) in deserts), expensive (like overland trucking) or not environmentally friendly (like single car occupancy in cities).

⁴ http://www.dot.gov/intermodal/about_us.html

Multimodal transport implies also related items, such as carefully arranged connections, in sites preferably tri- or quadri-modal, and a layout of connecting sites which encourages multimodality. It thus relates to ports, freight villages, hubs, interfaces, etc. Without such interfaces, a transport cannot be multimodal.

B. History

The “multimodal transport” concept is not new. In the seventeenth century, a famed French writer described how his horse-drawn carriage boarded a barge and went down the Rhone River for 400 km, to avoid the bumpy ride on the underdeveloped road network of the times. This was a precursor of roll-on/roll-off (Ro-Ro). Modern multimodal transport, however, was born with railways. On the



very first railways in 1830 (figure I.1), horse-drawn carriages were detached from their wheels and loaded onto flat wagons or attached to bogies, to save travelers the trouble of changing from carts to wagons. It might have been a way to win acceptance for this new mode of transport in order to show how similar it was to the accepted means of passenger transport. This system, however, disappeared quickly because of fierce opposition by some cities.

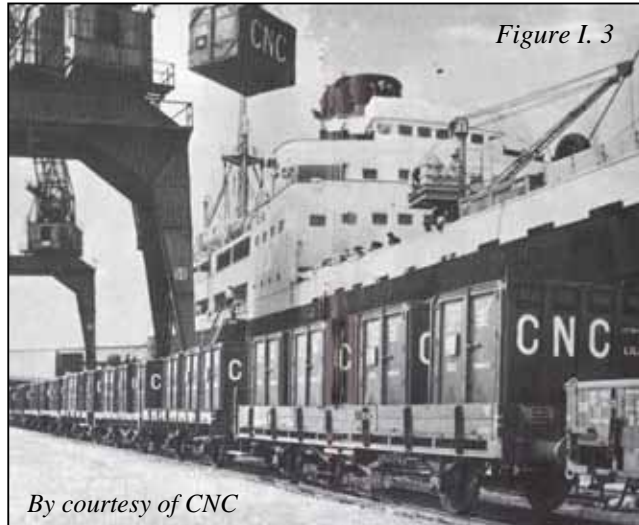
As far as cargo transport is concerned, container transport or unitization started on railways even before the First World War. In France, these “cadres” were some 2 x 2 x 2 m. strong wooden boxes (figure I.2), reusable, and carrying goods, mainly removals, from door to door. Some can be seen in the French Transport Museum.



An early road-rail-sea trimodal combined transport service between Paris and London operated through Calais and Dover just before the First World War. In 1933, these

international ventures led to the establishment of the International Container Bureau⁵ by ICC, both bodies being located in Paris, in order to sensitize the business community to the development of international and thus intermodal transport and its practical aspects.

A specific French domestic company, CNC, was established in 1948, with a fleet of steel “cadres” and a through bill of lading, exporting to all French-connected countries (figure I.3).



The real multimodal revolution, however, originated when a road transport operator, Malcolm MacLean, wanted to overcome the hurdles of the varying legislation concerning trucks in the fifty states of the United States. The interstate trucks needed as many license plates as states they crossed, and the authorized dimensions and specifications varied. Using a system of tractor-trailers helped to cross state borders without handling the goods, but not everywhere. At the beginning of the 1950s, some road operators put their trailers piggyback on railway flat cars to avoid these barriers.⁶ Malcolm MacLean, reminded of his frustration in the 1930s at the time lost by his trucks during port operations, gave this some thought. Putting them on a ship without unloading would save time, and sailing along the coast could avoid the barriers. However, he soon found that the wheels and undercarriage of the trailers were an unnecessary burden on board. He devised a chassis on which to bolt a container⁷ equivalent to a trailer of the maximum size then allowed on American roads (35' x 8' x 8'), and started the first real multimodal, domestic transport from New Jersey to Texas on 26 April 1956, on board deck of a transformed tanker. As a final touch to his invention, his next ships had on-board container gantries as well as cells in the holds, where the containers could be stacked one on top of the other and could nest safely in bad weather.

⁵ In 1948, the International Container Bureau was renamed the International Container and Intermodal Transport Bureau.

⁶ Some states, imposing a lower overall gross weight for the trucks, were called “barrier states”.

⁷ The first container on record, according to the *UNCTAD Report on Unitization of Cargo*, 1970, dates back to 1906. It was a 18' x 8' x 8' steel box, but it was not stackable.

Others seized upon the idea. The first Pacific crossing, though still domestic, took place in 1958, from San Francisco to Hawaii, the year when the authorized trailer length was increased to 40 feet. The first international multimodal move was initiated in 1960, between the United States and Venezuela. However, the agreed date of the full-scale revolution is April 1966, with the arrival in Rotterdam of the first full cellular containership from across the Atlantic, bringing Europe closer to the United States by weeks.

By providing such secure long-distance transportation chains, containerization aided by facilitation created what is known today as multimodal transport.

C. Multimodal mode ?

Multimodal transport has since evolved as a transport mode of its own, trying to carve its own laws, modelled around the container and its seamless transport. Some even speak of multimodalism, and UNCTAD fully supported this move in the United Nations Convention on International Multimodal Transport of Goods and UNCTAD/ICC Rules for Multimodal Transport.

As mentioned earlier, however, transport can be multimodal simply by carefully planning transport through a succession of at least two modes, for example carrying bulk goods.

This is one area where IWT can fit in, especially in Asia, where bulk transport will always have a role. IWT can easily fit into the multimodal transport system, and this is especially true for Asia, where bulk transport has a strong presence. For instance, in China, it has been a regular policy to organize coordinated shipments of coal by rail, north-south, and then by river, west-east, towards the consuming centres of the lower Yangtze, or for export. Two important reasons are the tremendous capacity reserve of river transport and railway capacity constraints. This is also a very environmentally friendly solution.