

# Metrocargo

Metrocargo is an innovative system integrating road and rail transport in a new and efficient way. The idea is to use for cargo the same concept used for passengers: to set up a network of shuttle trains running on a fixed time plan, loading the cargo units (10', 40' and 45' containers and swap bodies) progressively on different trains until they reach the terminal closest to their destinations, and using trucks for the final door transport. This is made possible by an innovative device that allows loading cargo units on train cars horizontally, and can therefore be used whilst trains are standing in station under the electric feeding line.

## Targets

- to move high volume of freight traffic from road to rail, using the existing railroad network and an innovative way of loading containers on rail cars horizontally, under the electric feeding line
- to form an integrated system using ships and trains for long range transport, and trucks for door delivery and pick up
- to reduce pollution owing to reduced transport by truck on medium and long distance
- to reduce the overall logistic costs owing to greater efficiency
- to effect fast connections between ports and dry-ports

## Highlights

- interoperability with other intermodal systems
- fast transport of cargo
- cost reduction over existing system
- flexibility and progressive development through modular construction
- low investments
- limited spaces required
- reduced environmental impact and added safety of road traffic

Transport by road to the nearest terminal where the unitized cargo (containers or swap bodies) are placed on a motorized rolls platform according their destination.

Cargo units are loaded on the proper train by the automatic system, and subsequently are transferred in other interchange terminals until they reach the one closest to their final destination.

From the last terminal cargo units are trucked to their final destination.



## Features of the system

The method includes a network of railway lines where shuttle trains composed by a fixed number of wagons operate to fixed destinations, like a city subway.

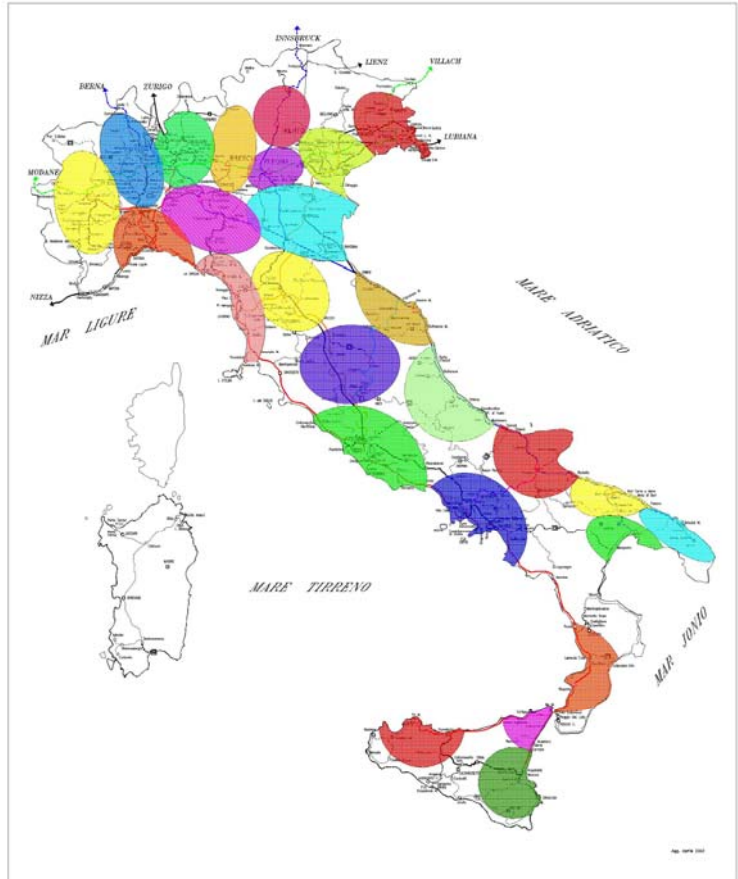
The load units, stored in each the terminal on motorized roller platforms, are automatically loaded in a single operation on the first train leaving towards their scheduled destination. At proper interchange terminals the units are then loaded on other trains towards their final destination.

In the particular case of Italy, it is easy to identify two north-south tracks with three transversal links.

As little as 20/25 terminals make up a Metrocargo system capable of serving 90% of the Italian territory. The system can be further linked to other seaports and to foreign countries.

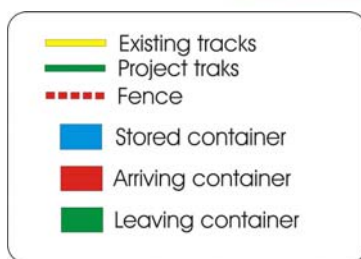
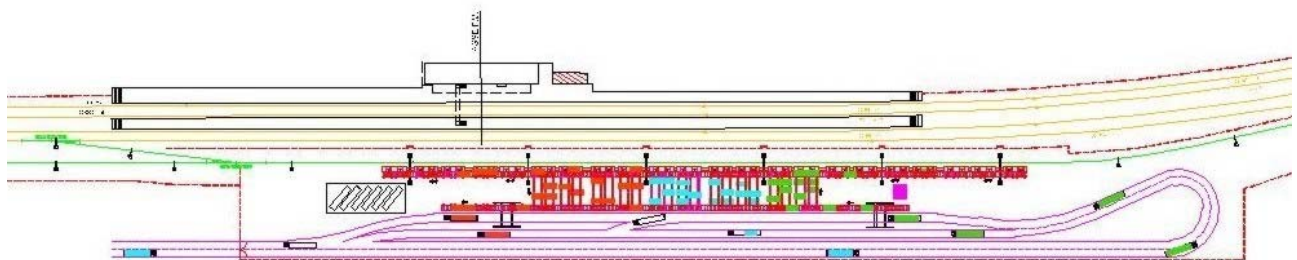
**This service is convenient for all kinds of clients, small or big, with high or low volume of traffic.**

This system reduces considerably the number of trucks running on freeways and highways, using trucks for pick-up and delivery of loads in a limited area; thus helping to reduce road accidents and pollution.



## Terminals

Terminals are built parallel to the railway, with side tracks. Trains will be constantly fed by the overhead electric line and no uncoupling of wagons will take place.



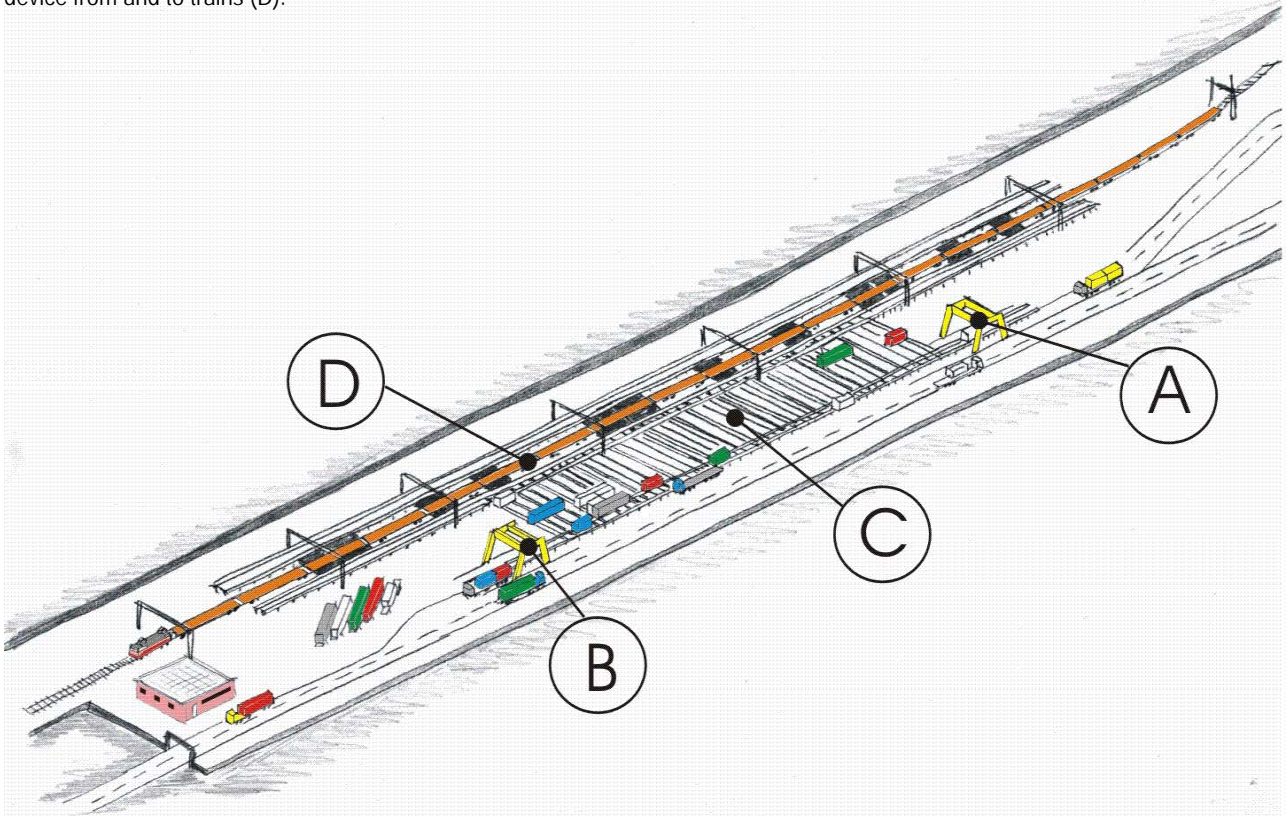


Metrocargo loads and unloads the containers and swap bodies from the train cars whilst the train is standing under the overhead electric line.

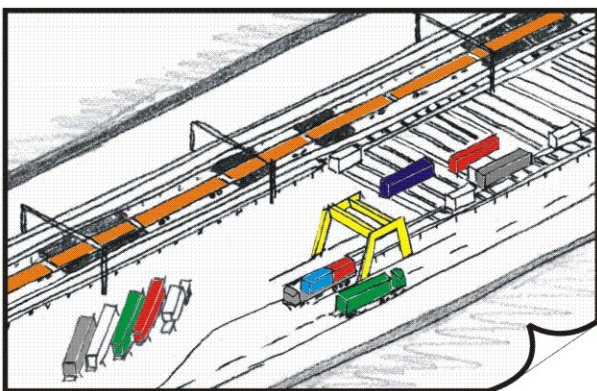
When a train reaches the terminals two operations take place:

- unloading the transported units that need to be discharged at that terminal, either to be reloaded on a another train or trucked to their final destination
- loading the units directed to other terminals

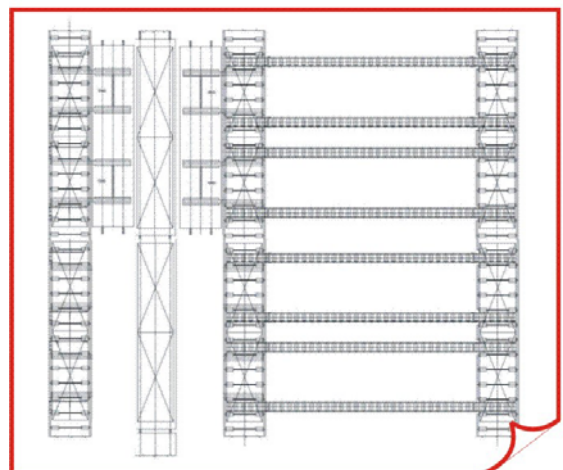
Terminals include entrance area of the load units (A), delivery area (B), automatic roller platform (C) and a loading and unloading device from and to trains (D).



Cargo is handled by a horizontal transfer platforms made up of separate sections that move simultaneously the different load units.



Cargo units are loaded and unloaded from trucks by means of gantry or mobile cranes.



Storage area is made up by motorized roller platforms that move the loads according to scheduled routes, both longitudinally and orthogonally.

Cargo is loaded and unloaded from railway wagons by means a "transfer device" using special forks.

### Port to dry-port connection

Trains can be rapidly loaded on electrified tracks in the port area, so that containers are quickly transferred to dry-ports for custom clearance and sorting. Occupancy of precious dock space is therefore greatly reduced.

A single track can dispatch as many as 20 trains per day.

Layout can be designed according to local conditions, to optimize space usage and productivity.

### Investments

The investment concerns only the building of the terminals with the technical features illustrated. The building costs of a terminal vary with size from approximately 5 to 15 million Euro.

As regards rolling stock, existing wagons can be used.

### Metrocargo main features

- low environment impact
- low investments, and just for transfer terminals, not for rolling stock
- fit for existing unitized cargo units (20', 40', 45' containers and swap bodies)
- a solution closely integrated with other transport systems
- no limits about destinations
- operating for single load units on medium and long distance
- short delivery times and lower costs than other transport systems
- it avoids accessory costs relative to traditional railway transport, such as:
  - long time to turn rolling stock equipments
  - long time of storage in traditional terminals
  - switching
  - terminalisation
- terminals can be built in unused areas close to the railways
- it can be fitted to any type of area with a railway network.

Metrocargo cuts down the number of trucks running on highways, reducing road accidents and pollution, contributing to a better life quality.