Problem 03

More Than One Modes

- Multimodal Transport
- Roles of Freight Forwarder
- Containerization in Intermodal Transport
- Intermodal Handling Equipment

Multimodal Transport (MT)

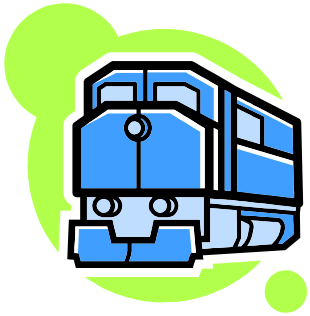
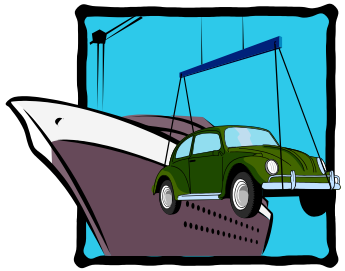
"... the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery for delivery situated in a different country"

UN Convention on International Multimodal Transport of Goods 1980

- Carriage of goods by two or more modes of transport.
- A single document of carriage, also evidencing transfer of title from seller to buyer

Multimodal Transport (MT)

- One operator who is responsible for the entire carriage operation, although he may subcontract one or more portions of the journey to other carriers, especially if he himself is not a carrier
- The carriage of goods between two or more countries


Multimodal Transport (MT)

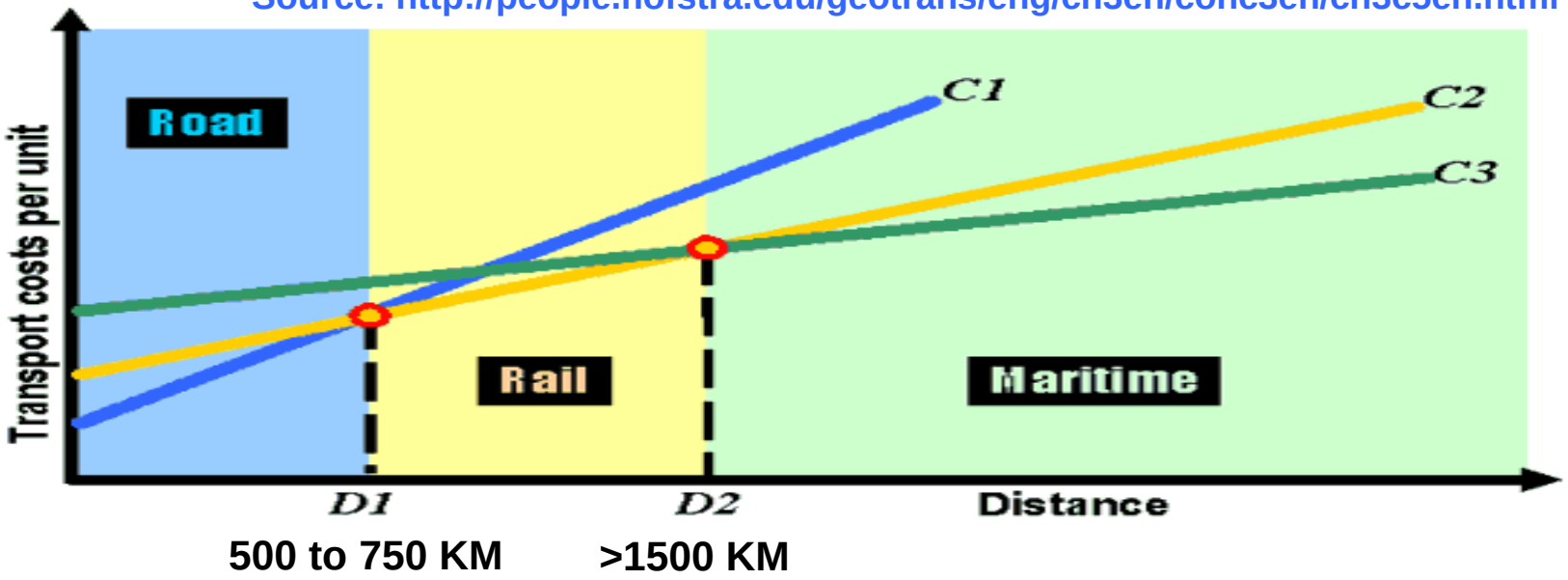
- Unimodal Transport – Goods are transported by one or more carriers using one mode of transport only
  - If there is only one carrier, he issues his own transport document; if there is more than one carrier, one carrier may issue a through Bill of Lading covering the entire transport.
- Intermodal Transport – One carrier organizes the whole transport of goods by several modes of transport from origin to destination via one or more interface points, through the use of the same loading unit (i.e. container).
- Combined Transport = Multimodal Transport

Advantages of Multimodal Transport

- Planned and coordinated as a single transport
- Speedy transfer and transit times improve time-to-market opportunities for sellers
- Burden of multiple documentation and other formalities connected with segmented transport are greatly reduced
- With more efficient movement of goods, freight rates are reduced
- MT operator (MTO) provides single point of contact, thereby promoting greater efficiency and productivity while reducing confusion

Why Intermodal Transportation?

Source: http://people.hofstra.edu/geotrans/eng/ch3en/conc3en/ch3c5en.html



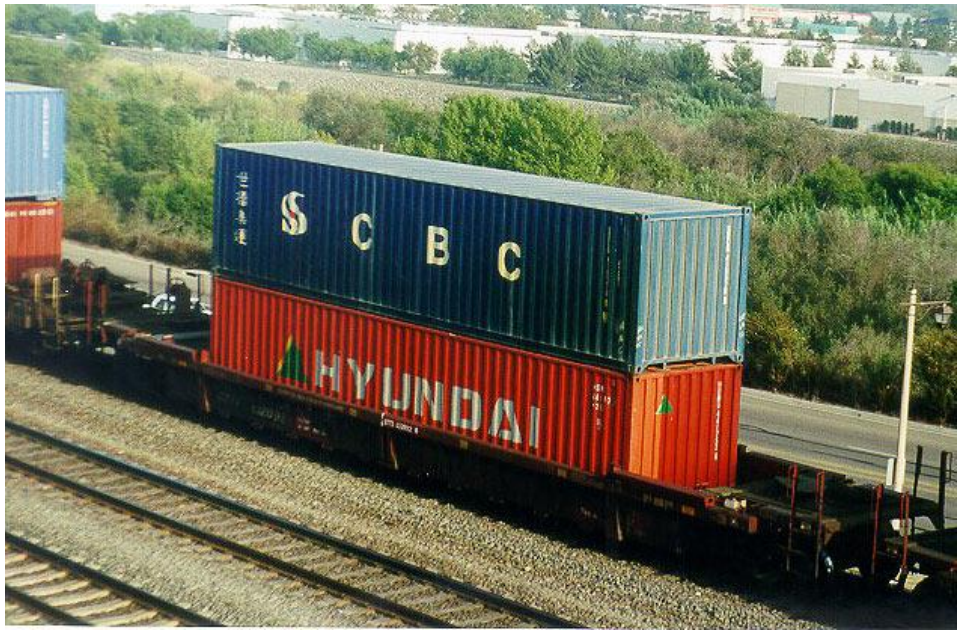
- Relationship between **transport costs**, **distance** and **modal choice**:
  - ✓ Road transport is usually used for short distances
  - ✓ Railway transport for average distances.
  - ✓ Maritime transport for long distances
- **Intermodalism**:
  - ✓ The opportunity to combine modes.
  - ✓ Find a less costly alternative than a unimodal solution.

Combining Modes of Transport

- **Sea-air**
  - Best of both worlds – speed of air cargo and economy of sea-freight
  - Preferred when the route combines large distances over land and water
  - Ideal for high-value items such as electronics and seasonal goods such as toys
- **Air-road**
  - Road transport is used to move cargo which prove to be uneconomical to service by air, or where airlines do not enjoy landing rights
  - Also known as Birdyback, which utilizes containers that are transferred onto planes for part of the journey

Combining Modes of Transport

- **Rail-road-inland waterways-sea**
  - Commonly used when goods in the country of origin are moved from an inland clearance depot by road, rail or inland waterway to the seaport



Combining Modes of Transport

- **Mini-bridge**
  - Containers are moved on a vessel from a port in one country to a port in the destination country, and then moved by rail to a second port in the destination country; all under a through B/L (Bill of Lading)

- **Land bridge**
  - Containers are shipped overland as part of a sea-land route in the land bridge system

Combining Modes of Transport

- **Piggyback**
  - Goods are packed in trailers and hauled by tractors to railway stations where the same trailers are moved onto railway flat cars
  - The trailer train has retractable wheels that allow it to move as a truck would on roads and be connected to rail bogies
  - Flexibility of truck loading and efficiency of long-haul railway

Combining Modes of Transport

- **Land-sea-land**
  - Containers are moved by road to a seaport and transferred by a vessel to the destination port; upon unloading the containers are moved by truck or rail to final destination
  - Also known as Fishyback

- **RO-RO (Roll On Roll Off)**
  - Usually used to transport new cars, making use of RO-RO ferries

Combining Modes of Transport

- **Sea-train**
  - Combines rail and sea transport using a rail-car instead of a RO-RO vehicle that is transported by sea and connected to the railway to complete the delivery

- **LASH (Lighter Aboard Ship)**
  - Combining inland waterway movement with deep-sea transportation
  - Barges are loaded onto LASH container vessels and
    unloaded at the waterways to carry on to the destination port

Freight Forwarder

- Freight forwarder provided specialist services to traders and shippers.
- Also known as Forwarding Agent or Third Party Logistics provider (3PL).
- Grown in importance and size due to globalization.
- Service commonly provided (but not limited to):
  - Advising on transportation and distribution
  - Arranging cargo insurance on behalf of customers
  - Assisting with documentation for import and export

Freight Forwarder

- Containerization
- Warehousing
- Transhipment
- Collection of cash-on-delivery charges
- When a forwarder acts as a principal, it becomes MTO:
  - ✓ Assumes the liability from the time the goods is picked up until the handover to consignee named in the transport document.
  - ✓ Sub-contractors engaged will still be under the forwarder's responsibility.

DB SCHENKER PANALPINA on 6 continents Expeditors GLOBAL AIRFREIGHT

Containerization

- Load unit that can be used by several transport modes.
- Usable by maritime, railway and road modes.
- Foremost expression on intermodal transportation.
- Rectangular shape that can easily be handled.
- Reference size is the Twenty-foot Equivalent Unit (TEU).
- The most common container is the 40 footer (12 meters)

Buying Container's Space

- **Full Container Load (FCL)**
  - Cargo in the container belongs to one shipper or one consignee
  - Container is loaded by the shipper or the agent and is delivered to the container yard used by the MTO
  - Shipper is charged based on the type and number of container used

- **Less than Container Load (LCL)**
  - Occur when cargo from an individual shipper is insufficient to fill the entire container

Buying Container's Space

Consolidation

- Freight forwarders issue their own house bill of lading to individual shipper
- Container is delivered to MTO as full load
- Freight forwarder is charged based on the type and number of container used

Intermodal Handling Equipment

Transtainers

- Large devices mounted on rails to transfer containers from vessels to trucks or rail wagons

Gantry (or portal) crane

- Designed to lift containers and swap bodies, and built with 4 corners with 1 leg each and wheels at the bottom of each leg

Intermodal Handling Equipment

Grappler lift

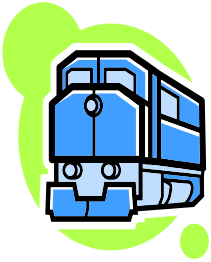
- Similar to the gantry crane, except that it is fitted with 4 arms designed specifically to handle swap bodies

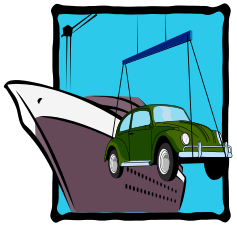
Reach stacker

- A heavy-duty materials handling truck that is fitted with a lifting arm and a spreader beam

Today's Problem

		Rail-Air	Rail-Sea	Truck-Air	Truck-Sea
Transportation Cost from Haicang District to Xiamen Port/ airport	Rail	$3,000	$3,000	$0	$0
	Truck	$0	$0	$4,000	$4,000
Transportation Cost from Xiamen Port/Airport to Singapore	Air	$9,000	$0	$9,000	$0
	Sea	$0	$2,000	$0	$2,000
Inventory Holding Cost (ICDT/30)		$540	$1,080	$360	$900
Miscellaneous Cost		$350	$300	$450	$500
Total Cost		**$12,890**	**$6,380**	**$13,810**	**$7,400**





Rail + Air OR
Rail +Sea OR
Truck + Air OR
Truck + Sea

Today's Problem

	Rail-Air	Rail-Sea	Truck-Air	Truck-Sea
Total Cost	$12,890	$6,380	$13,810	$7,400

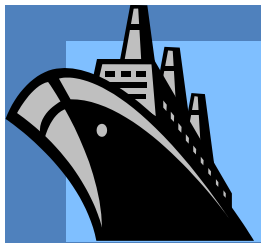
Still exceed budget

Cheapest but also the slowest

Fastest but also the most expensive; Way exceed budget

With a monthly transportation budget of $10,000,

- **Truck-Sea is the most suitable multi-modal transport (Costs $7,400)**
- **It takes 5 days in total**



Learning Outcome

- Multimodal Transport
- Roles of Freight Forwarder
- Containerization in Intermodal Transport
- Intermodal Handling Equipment