SEAWAY

Key to international trade

80% of world freight

- 1500 billions dollars turn over

Geographical and strategic space

- Some corridors of a few miles wide

Sea network with regular routes

Key cross places

- Ormuz straight 11m
- Panama more than 18 m and Suez 23 m canals
- Malacca 25 m ; Pas De Calais 20 m
- Due to
  - physical contraints
    - Such as winds, oceans flows, rocks …
  - Political borders
  - Coastal itinerary


rld's 50 Busiest Container-Shipping Seaports in
10
5
8
1
7
6
9
4
3
2
illions of TEUs
32.5
31.7
23.1
22.9
17.0
16.8
14.7
14.5
13.3
12.3
11.9
10.0
9.8
8.9
8.6
8.1
Notes: How busy a seaport is depends on the unit of measure, and could
or value of shipments. The data displayed here are based on twenty-foot
which is a metric of cargo capacity (volume). Values represent the total
including filled and empty TEUs. As such, the busiest seaports may not b
move the most cargo.

Inland waterway transport is limited

- In Africa, Australia and Asia … except …

Water transport picture

- **Oceans and rivers**
  - Seasonal use as far as rivers are concerned
- **The most important rivers**
  - Chang Chiang (6379 kms), Yang tsé Kiang (4672 kms)
  - Mississipi, Rhine, Amazon
- Oceans : 71% of world surface

Sea freight

- intercontinental
  - Trafic capacity and continuity
- Geaographical scale and density
- Heavy industries

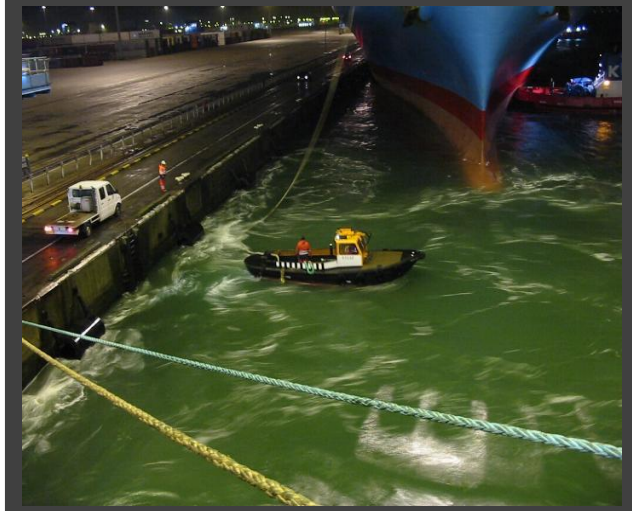
- Technical Innovations are
  - Infrastructures
    - **Expensive**
      - locks to canals, transshipment capacities
    - About speed : from 15 to 30 knots
    - And saving energy : ships shape, material hull
    - Engine : double propeller
    - Automatisation : navigation : assistance system
    - **Specialization**
      - Ships : bulk, breakbulk, containers
      - Routes

- Sea transport
  - The **most economical transport** mode
    - 1 l of fuel :312 kms by sea, 75 kms by truck
    - Turn over in 2020 : 2000 billions $
      - But high investment
  - **Public sector**
    - security, dredging, guiding /
    - private sector : terminals, ships, handling
  - **States influence**
    - economical power, ships yards industry
  - Flags of convenience
  - Inland waterways : Volga, St-Laurent ….
  - Trans continental connections
    - Energy
    - Sea mega firms
    - concentration

Flows organization

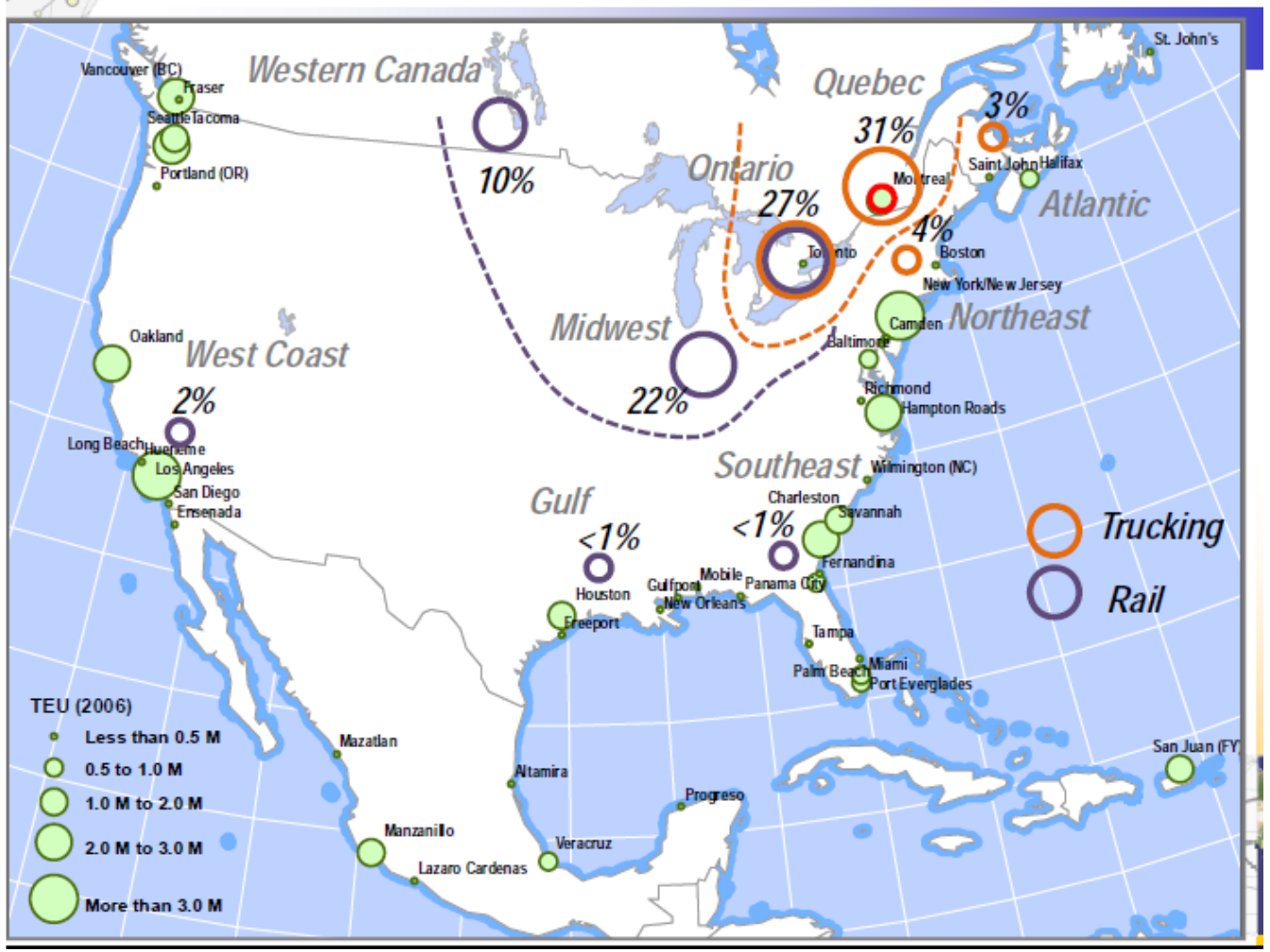
- Repetitive operation
- Flows
- Which volumes – which products – which period
  - At manufacturer premises
  - Intermediary stock
- Deliveries frequency
  - Volume and cost of transport
  - Fixed cost drop and inventory increasing cost
- Storage cost
  - Physical
  - Finance
  - commercial

2- Port choice



Opening of port services	Approach maneuver Vessel turning circle
Tides	
Handling means	Gantry cranes, financial capacities, fully geared Air draft : cranes height Commercial operations : enough freight
Communication channels	Board land breaking
Hinterland	Sea front also foreland

L'arriere-pays du port de Montréal



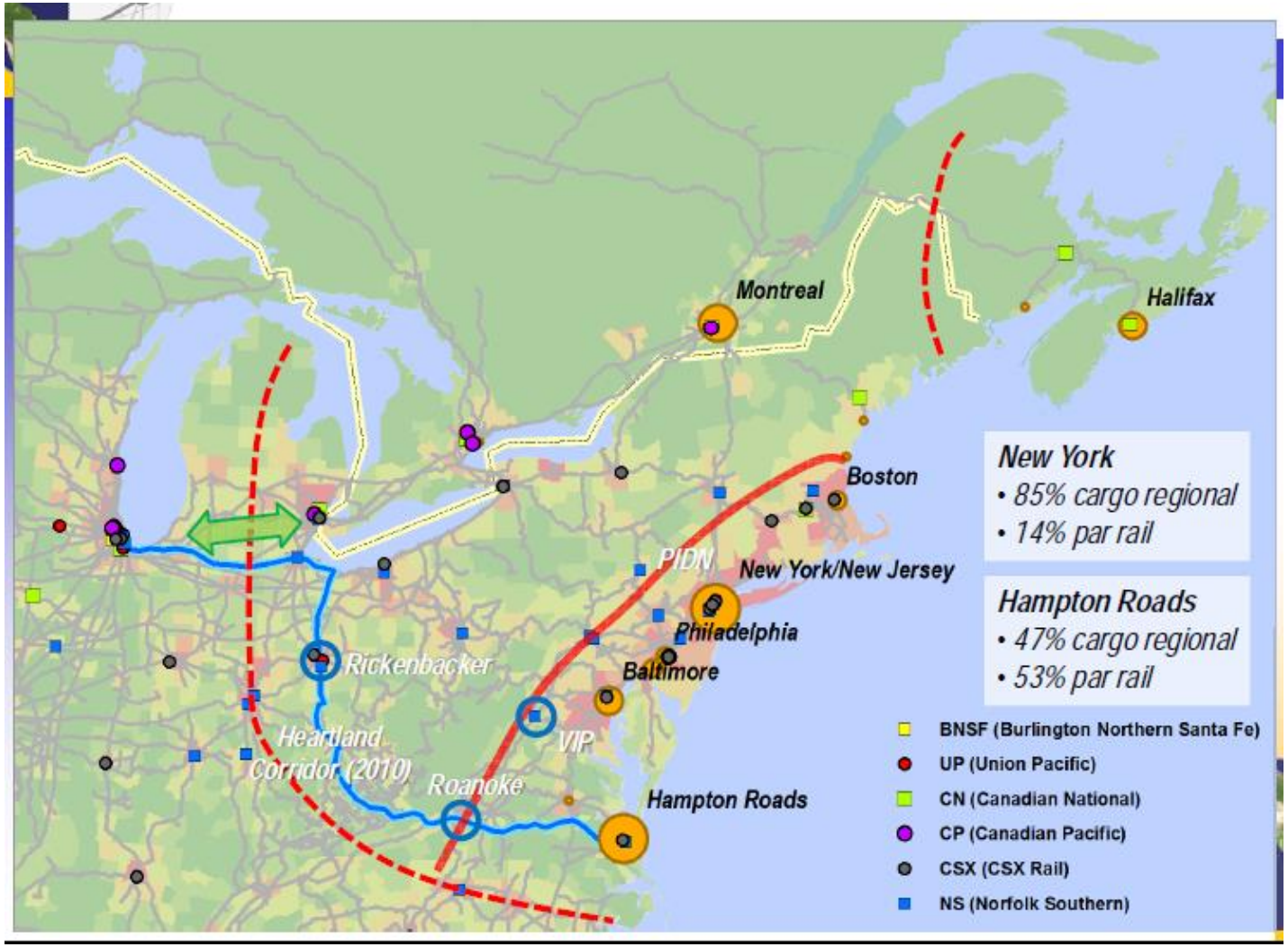
A range : several ports connected together

Main ports examples

- Northern range : from Dunkirk to Hamburg
- North America seafront from St Laurent to Mexico Gulf
- Western seafront : From Puget Sound to California
- Asian seafront : from Singapore to Korea

Feedering

- Increases due to big ships and limited number of ports


Montreal
Halifax
Boston
New York/New Jersey
PIDN
Philadelphia
Baltimore
Rickenbacker
Heartland Corridor (2010)
VIP
Roanoke
Hampton Roads
New York
• 85% cargo regional
• 14% par rail
Hampton Roads
• 47% cargo regional
• 53% par rail
BNSF (Burlington Northern Santa Fe)
UP (Union Pacific)
CN (Canadian National)
CP (Canadian Pacific)
CSX (CSX Rail)
NS (Norfolk Southern)

2- Intermodal moves

Export shipping- one shipping document

Ocean shipping

Liner – charter

- On demand – a given period
- Bulk and heavy

Type of cargo

- Conventional : oversized cargoes
- Container : to unitize cargo –loading and unloading

2-

- Ship size
- Tanker period charter market
- Dry bulk freight rates
- The liner shipping market
- Concentration in liner shipping
- Freight level of containerized services

Crude oil tankers	
Very large crude carrier	200,000 dwt* plus
Suezmax crude tanker	120,000–200,000 dwt
Aframax crude tanker	80,000–119,999 dwt
Panamax crude tanker	60,000–79,999 dwt
Dry-bulk and ore carriers	
Capesize bulk carrier	100,000 dwt plus
Panamax bulk carrier	60,000–99,999 dwt
Handymax bulk carrier	40,000–59,999 dwt
Handysize bulk carrier	10,000–39,999 dwt
Container ships	
Post-panamax container ship	beam of >32.3 metres
Panamax container ship	beam of <32.3 metres

000 tons load

Geared bulk carriers

- Feature **a series of holds** (from 5 for a 35,000 ton vessel to 9 for a 250,000 ton vessel)
  - They have cranes or derricks which allow them to discharge cargo in ports without shore-based equipment.
  - This gives geared bulkers flexibility in the cargoes they can carry and the routes they can travel.
- **Selfdischargers**
  - are bulkers with conveyor belts which allow them to discharge their cargo quickly and efficiently

Table 2.3: The average dimensions of different generations of container vessels.

Generation	Capacity in TEU	LOA (m)	Beam (m)	Draught (m)
First (1968)	1,100	(NA)	(NA)	(NA)
Second (1970–1980)	2,000–3,000	213	27.4	10.8
Panamax (1980–1987)	3,000–4,500	294	32.0	12.2
Post-Panamax (1988–1995)	4,000–5,000	280–305	41.1	12.7
Fifth (1996–2005)	6,400–7,500	300–347	42.9	14.0
Sixth (2006–2007)	8,000–9,000	330–380	47	14.5
Seventh (2007–2013)	12,500–15,000	380–400	58	15.0
Near future (2013–2014)	18,000	400	58	16.0

Source: OSC (2002) and Drewry (2011).

Breakbulk Vessels

carry non-containerized general cargo

As containerization proceeded, these ships were **forced off major trade routes** by more efficient containerships and ro/ro ships.

Today, breakbulk vessels remain in operation on secondary and tertiary routes.

F A S I S T A N B U L

Capacity	At 14 T	450	Teus	G.R.T.	6638
	Total Intake	560	Teus	N.R.T.	3737
				S. DWT	9729
Speed	Service	14	Knots	L.O.A.	126.08
	Maximum	15	Knots	Draft	8.26
				Beam	18.6
				Geared	Yes
Charter Rate	8,314 $			Cellular	No

Port Name	Dist Miles	T I M E (hours)						Cumul Days	Port Cost	Port Moves	Product.
		Sea	Manouv	Wait	Berth	Port	Total				
D M T			2	0	46.7	48.7	48.7	2.0	3,540 $	700	15
LPI	590	42.1	2	0	12.5	14.5	56.6	4.4	1,800 $	150	12
CNZ	548	39.1	2	0	22.7	24.7	63.9	7.0	4,600 $	250	11
ODS	173	12.4	2	0	27.3	29.3	41.6	8.8	12,000 $	300	11
BRG	299	21.4	2	0	12.0	14.0	35.4	10.3	14,000 $	120	10
LPI	478	34.1	2	0	11.7	13.7	47.8	12.2	1,800 $	140	12
D M T	590	42.1					42.1	14.0			
Reserve											
TOTAL	**2678**	**191.3**	**12**	**0**	**132.8**	**144.8**	**336.1**	**Hours**	**37,740 $**	**1660**	
		7.97	**0.50**	**0.00**	**5.53**	**6.03**	**14.00**	**Days**			

Vessel Consumption (t / day)

	FO 180 cst	DO
Sea	17	0
Man	8.5	1
Port	0	1

Voyage Consumption

	FO	DO
Sea	135.5	0.0
Man	4.3	0.5
Port	0.0	5.5
Total	139.7	6.0

Bunker Price

			Place
	FO	114 $	
	DO	208 $	
Total	**FO**	15,931 $	
Cost	**DO**	1,255 $	

VOYAGE COST SUMMARY

CHARTER HIRE	116,437 $	68%
BUNKER COST	17,186 $	10%
PORT COST	37,740 $	22%
VOYAGE COST	171,363 $	
YEARLY COST	4,466,103 $	

SLOT COST

%	Teus	Cost
100%	450	381 $
95%	428	401 $
90%	405	423 $
85%	383	448 $
80%	360	476 $
75%	338	508 $

Specialized Vessels

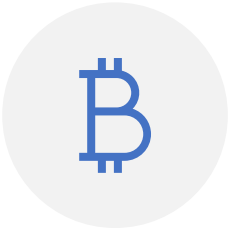
- Tailored for certain functions such as transporting vehicles to overseas markets like those described under the heading of **ro/ro.**
- Specialized heavy-lift vessels are used to carry extremely large and heavy items.
- There are also **customized ocean vessels** for carrying livestock, and reefer containerships with plug-in facilities for maintaining low temperatures in fruit, vegetable and meat containers.


MSC PAMELA
MSC
© Kai Foersterling/DPA

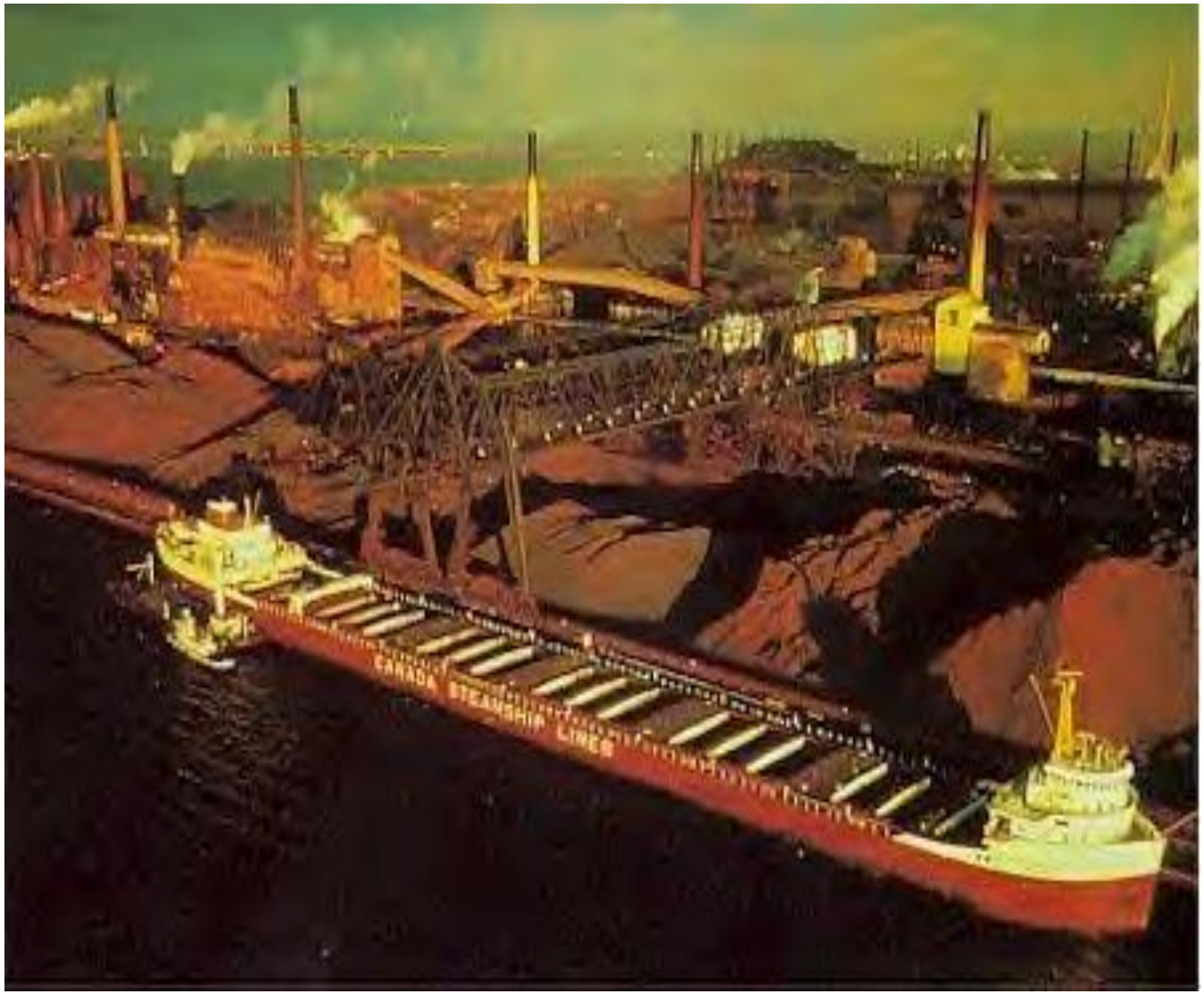
Combination Vessels

ARE DESIGNED TO TRANSPORT **BOTH LIQUID AND DRY BULK** CARGOES. IF BOTH ARE CARRIED SIMULTANEOUSLY, THEY ARE SEGREGATED IN SEPARATE HOLDS AND TANKS. COMBINED CARRIERS REQUIRE SPECIAL DESIGN AND ARE EXPENSIVE.

ARE OF NUMEROUS TYPES AND CONFIGURATIONS, INCLUDING RO/RO-LO/LO; THREE-WAY COMBINATION SHIPS FOR CONTAINERS, RO/RO AND BREAKBULK CARGO; AND **LASH SHIPS FOR CARRYING COMBINATION CARGOS**. AN UNUSUAL TYPE IS THE OBO **(OIL/BULK/ORE),** WHICH CARRIES BULK, OIL OR LIQUID PRODUCTS.



IN FINDING THE **SPECIFIC HYBRID SOLUTION** TO PARTICULAR TRADING CIRCUMSTANCES, CARGO MIX AND OPERATIONAL FLEXIBILITY MUST BE EXAMINED IN TERMS OF PRICE CHARGED, AVAILABILITY AND LOCATION OF THE SHIP, OPERATING AND CAPITAL COST DIFFERENCES, AND ANY RESULTING CHANGE IN OVERALL VESSEL PRODUCTIVITY


CANADA STEAMSHIP LINES

Gearless carriers

are bulkers without cranes or conveyors.

These ships depend on **the shore-based equipment** of the ports they visit for loading and unloading.

Due to their large size, they can only dock at the largest and most advanced ports.

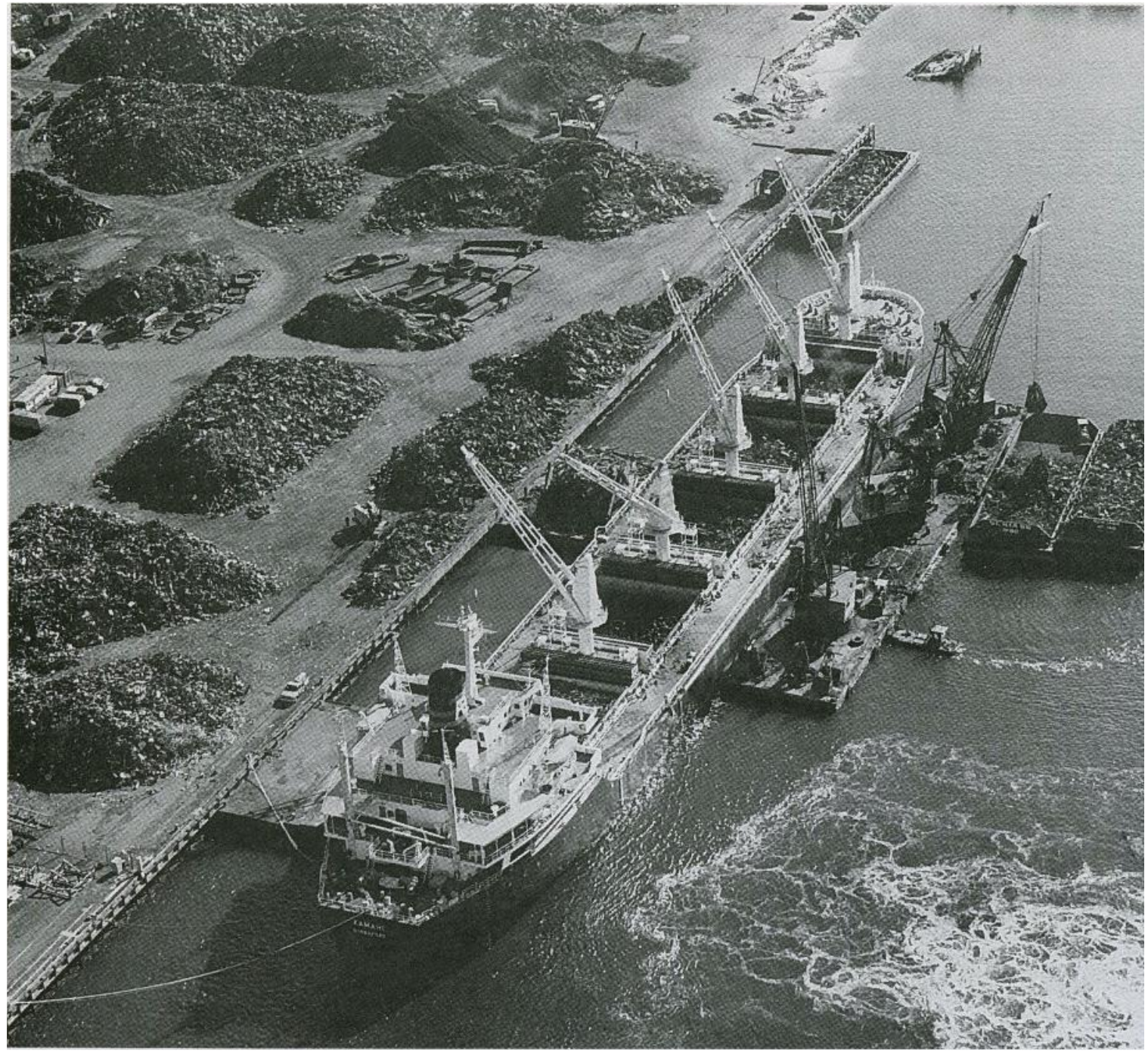
The use of gearless bulkers avoids the costs of installing, operating, and maintaining cranes.

Dry Bulk and Tanker Vessels

Bulk ocean vessels are constructed for transporting **basic commodities** like coal, grain, bauxite and iron ore, or primary products like wool and cotton.

Petroleum and other liquid bulk commodities and products are transported in vessels called tankers, specifically designed for these types of cargos.

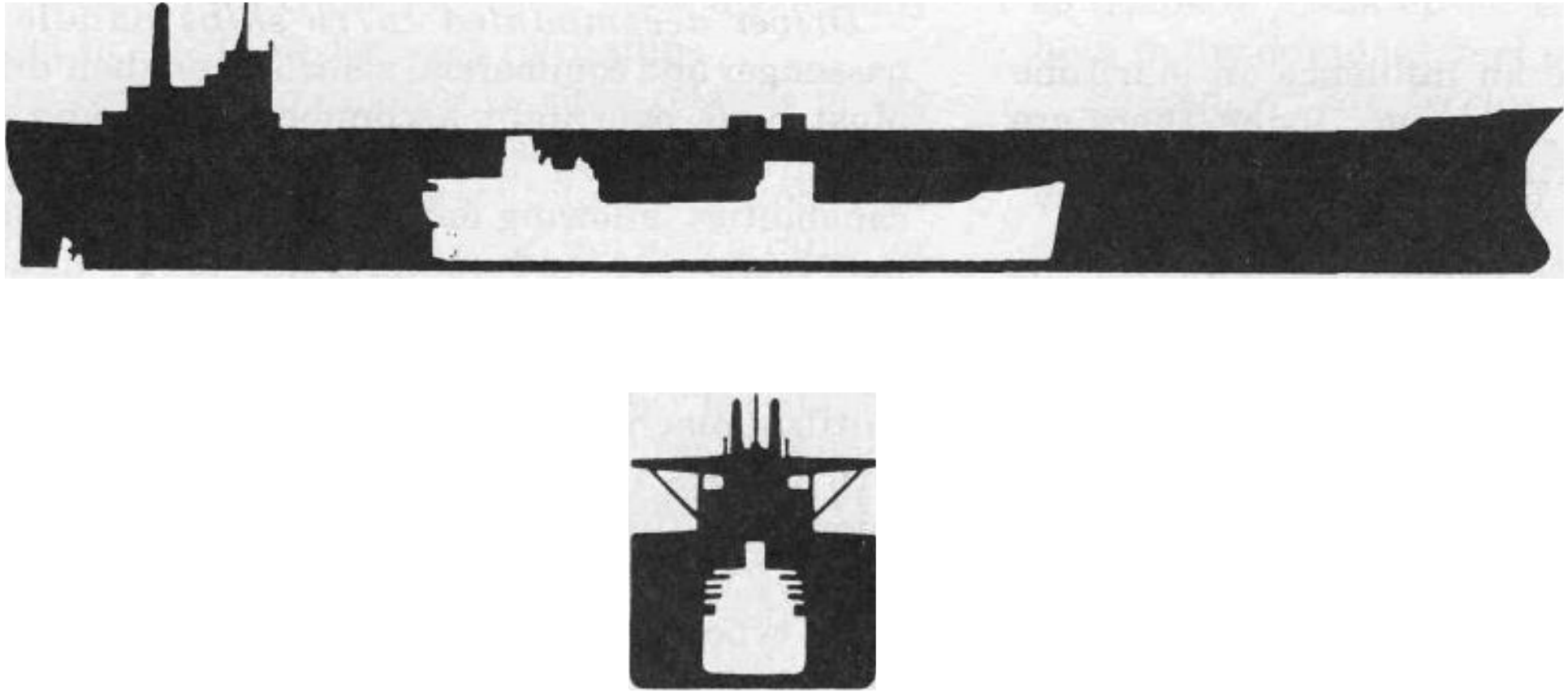
In a few, but **growing** number of instances, bulk commodities are being **containerized f**or carriage in containerships such as cacao and coffee.



BIBO or "Bulk In, Bags Out"

bulkers are equipped to bag cargo as it is loaded.

In one hour, this kind of ship can load and package 300 tons of bulk sugar into 50 kg sacks



A World War II T-2 tanker (503 feet) compared to a modern 1,000-foot VLCC containership.

Drawing courtesy of *A Half Century of Marine Technology, by* Steven Spear, published by the Society of Naval Architects and Marine Engineers.

Merchant oil tankers

- A wide range of hydrocarbon liquids ranging from crude oil to refined petroleum products.
- Their size is measured in deadweight tons (DWT).
- Crude carriers are among the largest, ranging from 55,000 DWT Panamax-sized vessels to ultra-large crude carriers (ULCCs) of **over 440,000 DWT.**
- Supertanker is an informal term used to describe the largest tankers. Today it is applied to very-large crude carriers (**VLCC)** and **ULCC**s with capacity over 250,000 DWT.
- These ships can transport two million barrels of oil. By**oil consumption of Spain and the UK** way of comparison, the combined is about 3.2 million barrels (510,000 m^3) of oil a day.
- On the other end of the journey, they often pump their cargo off to smaller tankers at designated lightering points off-coast.

Containerships

- Ships
- Containers
- Size categories
- Suezmax example

Built	Name	Length overall (m)		Length overall (ft)		Beam (m)	Beam (ft)	
	Maximum TEU	GT	Owner					
2015 (Switzerland)	MSC Oscar[1]	395.4	1,297	59	194	19224	193000	MSC
2014 (China)	CSCL Globe[2]	400	1,300	58.6	192	19100	187541	CSCL
2013	Magleby Maersk[3]		398	1,306	58	190	18270	174500
	Maersk (Denmark)							
2014	MSC Newyork[4]		399	1,309	54	177	18270	176490
	MSC (Switzerland)							
2013	Madison Maersk[5]		398	1,306	58	190	18270	174500
	Maersk (Denmark)							
2013	Mærsk Mc-Kinney Møller[6]		398	1,306	58	190	18270	174500
	Maersk (Denmark)							
2013	Majestic Mærsk[7]		398	1,306	58	190	18270	174500
	Maersk (Denmark)							
2013 (Denmark)	Mary Mærsk[8]	398	1,306	58	190	18270	174500	Maersk
2013 (Denmark)	Marie Mærsk[9]	398	1,306	58	190	18270	174500	Maersk
2012	CMA CGM Marco Polo[10]		396	1,299	54	177	16020	175343
	CMA CGM (France)							
2013	CMA CGM Alexander von Humboldt[11]			396	1,299	54	177	16020
	153022	CMA CGM (France)						
2013	CMA CGM Jules Verne[12]		396	1,299	54	177	16020	153022
	CMA CGM (France)							

Container

Includes any equipment used **to unitize cargo**, all types of containers and/or flats with iso accepted.

The acronym **ISO** stands for the International Organization for standardization with headquarters in Geneva.

The ISO freight container refers to a container complying with the ISO container standards in existence at the time of its manufacture.

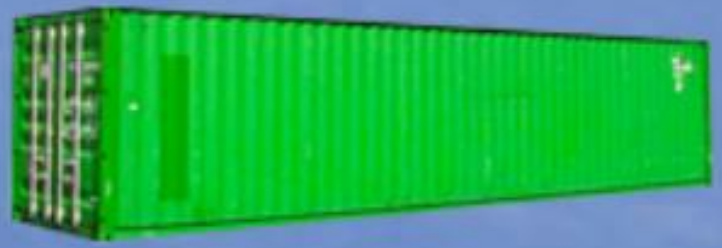
In 1960's, export shipments often relied on conventional (break bulk) vessels. The cargoes were placed alongside a vessel for hoisting on board. The **stevedores (dockers) were often employed** to carry cargoes on and off the vessel.

20' Standard Container

- **Cubic Capacity:** 33 m^3 (1 172 ft^3)
- **Inside Dimensions:**

Lenght:	5.895 m	(19' 4 1/8")
Width:	2.350 m	(7' 8 1/2")
Height:	2.392 m	(7' 10 1/8")

40' Standard Container



- **Cubic Capacity:** 67 m^3 (2 390 ft^3)
- **Inside Dimensions:**

Lenght:	12.029 m	(39' 5 1/2")
Width:	2.350 m	(7' 8 1/2")
Height:	2.392 m	(7' 10 1/8")

Container inside dimensions

Load to prepare in a container ?

- **This order to Singapore is about**
  - 800 products packed in 32 outer cases not stackable
  - To be loaded on euro pallets
  - Outer case
    - weight 565 kg
    - L 0.60 x l 0.40 x h 1.50 m
  - Europallet
    - 0.80x 1.30 x 0.15 m
    - Maximum load 2.5 t
    - Gross weight 30 kg
  - 20’ container dimensions
    - as before

  - How many pallets do we need
  - How many pallets in a 20’ container
  - Add any useful comment

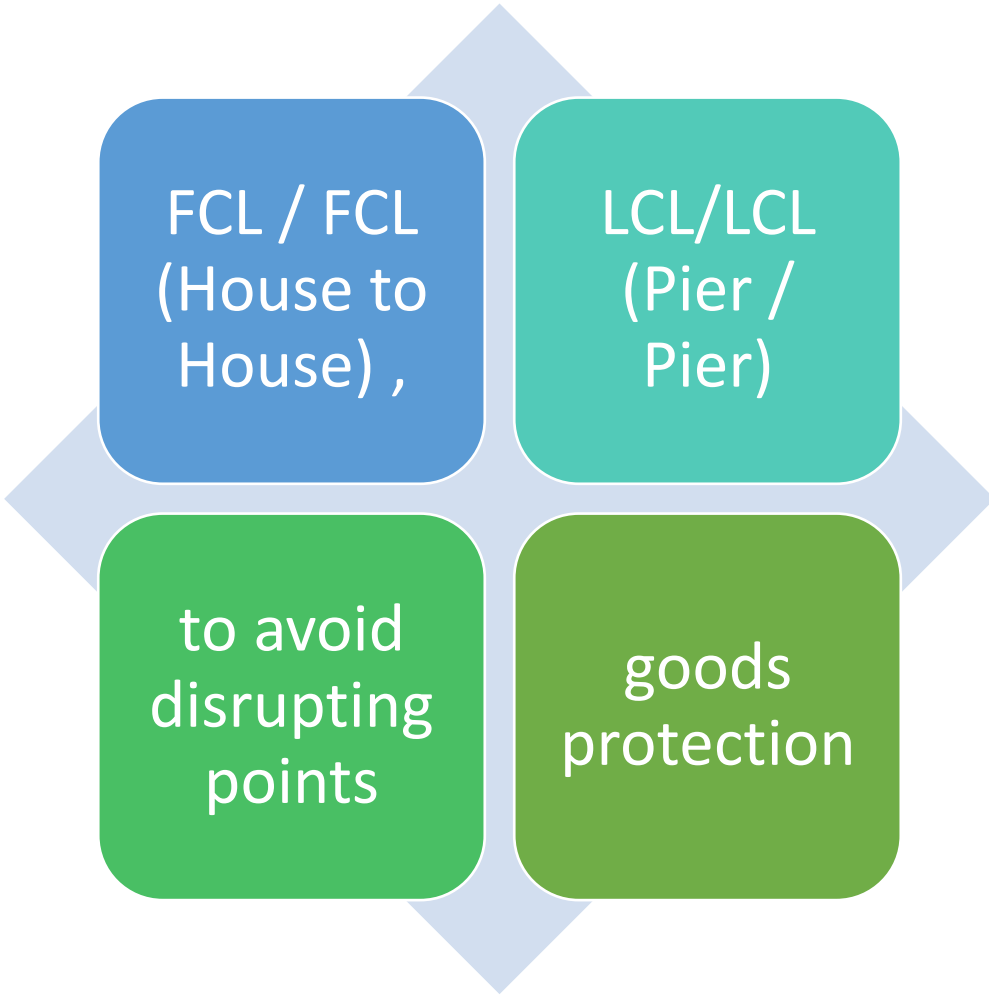
The loading and unloading

vessels consumed too much time, which caused dockside bottlenecks and delayed shipments.

With the increased use of containers the **congestion was decentralized and transferred** from the docks or piers to the container freight stations or terminals.

Carry **standardized** containers that greatly facilitate the loading and unloading of cargo and intermodal transfers

The **time a ship has to stay in a port** is reduced



Suez Canal bridge

Suez max

Suezmax is a naval architecture term for the largest ships capable of transiting the Suez Canal fully loaded, and is almost exclusively used in reference to tankers.

The current channel depth of the canal allows for a maximum of 16 m (53 ft) of draft, meaning many fully laden supertankers are too deep to fit through, and either have to unload part of their cargo to other ships ('transhipment') or to a pipeline terminal before passing through, or alternatively avoid the Suez Canal and travel around the Cape of Good Hope instead. Currently, the canal **is deepened to 20-23 m.**

The typical **deadweight of a Suezmax ship is about 150,000 tons** and typically has a beam (width) of 46 m (151 ft). Also of note is the maximum head room - 'air draft' - limitation of 68 meters,

Special containership

- The **Panamax size ship** : less than 294 m length and 32.20 m width
- In 1988 : 292 m length, 32 m width for 4000 containers loaded
- Panamax is determined principally by the dimensions of the **canal's lock chambers**, each of which is 33.53 metres (110 ft) wide by 320.0 metres (1050 ft) long, and 25.9 metres (85 ft) deep. The usable length of each lock chamber is **304.8 meters** (1000 ft). The available water depth in the lock chambers varies, but the **shallowest** depth is at the south sill of the Pedro Miguel Locks and is **12.55 metres** (41.2 ft) at a Miraflores Lake level of 16.61 metres (54 feet 6 in).

Overpanamax ships

They are unable to cross Panama canal

In 1996 with overpanamax ships, their size reaches 320 m length, 43 m width for 7000 containers

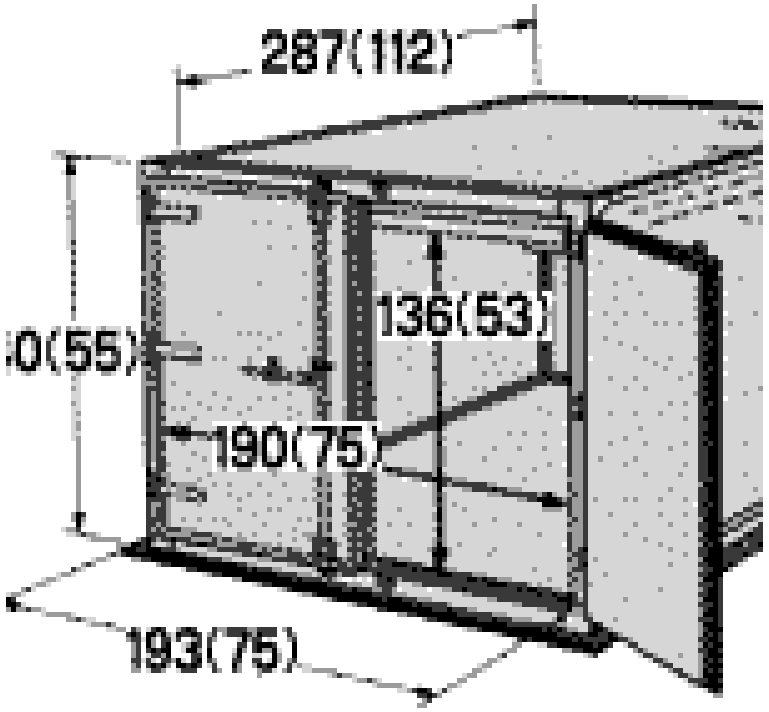
The container ships used in the international traffic are designed with **the cells (compartments** with cell guides) resembling a honeycomb wherein the containers are placed, thus named cellular container ships.

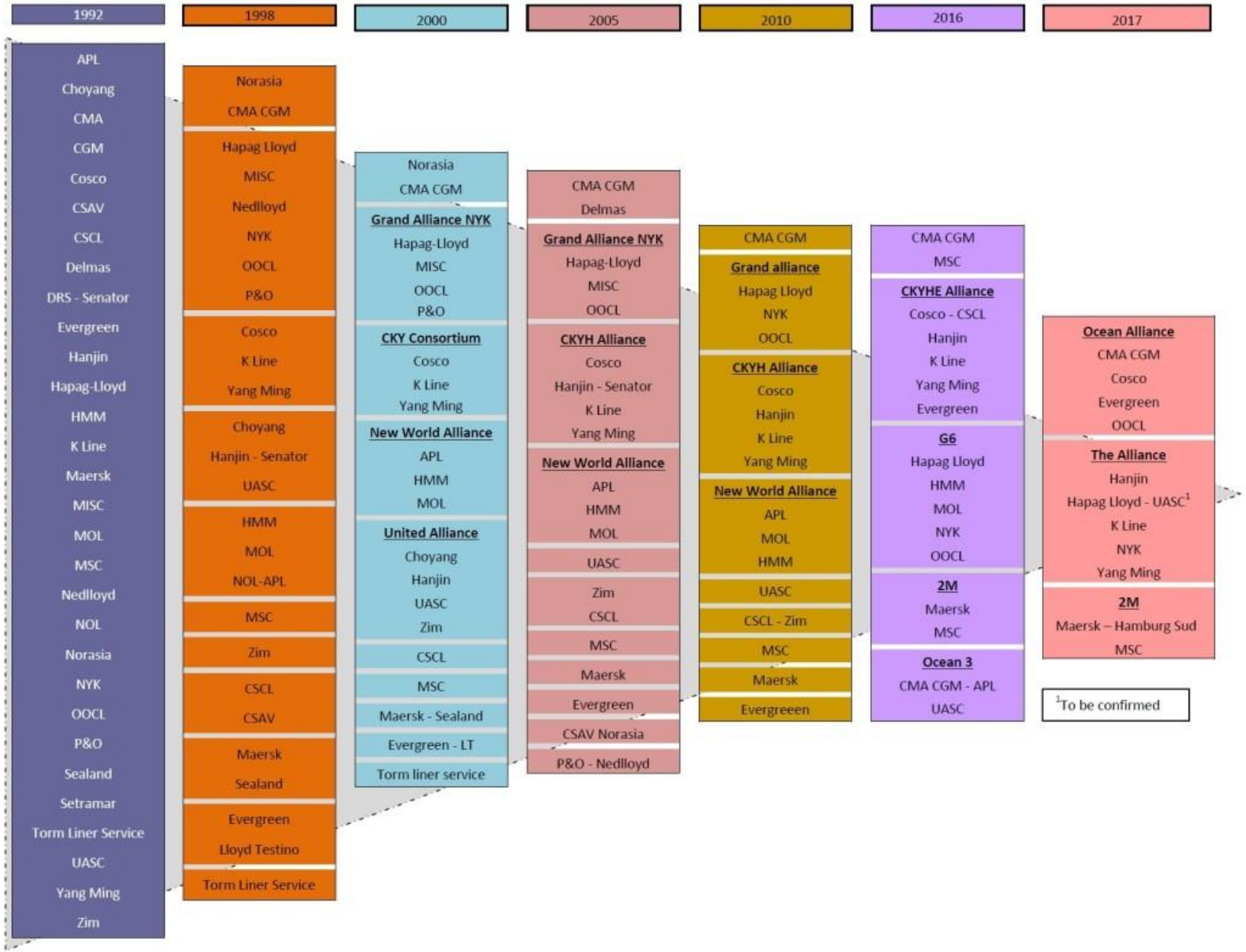
The ships are bigger and faster nowadays especially those used in the deep sea voyage (long haul). Those rated below 20 knots are commonly used in the short sea voyage (short haul. .

Some rated 24 Knots have a carrying capacity of 4000 to 4.900 TEUs and load to 75000 metric tons and more

TRANSPORT COST

- Sea freight
  - Alliances
- Freight calculation
  - Bulk
  - Container
- Road transport cost
- Asking for a quotation




1992
APL
Choyang
CMA
CGM
Cosco
CSAV
CSCL
Delmas
DRS - Senator
Evergreen
Hanjin
Hapag-Lloyd
HMM
K Line
Maersk
MISC
MOL
MSC
Nedlloyd
NOL
Norasia
NYK
OOCL
P&O
Sealand
Setramar
Torm Liner Service
UASC
Yang Ming
Zim
1998
Norasia
CMA CGM
Hapag Lloyd
MISC
Nedlloyd
NYK
OOCL
P&O
Cosco
K Line
Yang Ming
Choyang
Hanjin - Senator
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HMM
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MSC
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CSCL
CSAV
Maersk
Sealand
Evergreen
Lloyd Testino
Torm Liner Service
2000
Norasia
CMA CGM
Grand Alliance NYK
Hapag-Lloyd
MISC
OOCL
P&O
CKY Consortium
Cosco
K Line
Yang Ming
New World Alliance
APL
HMM
MOL
United Alliance
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Hanjin
UASC
Zim
CSCL
MSC
Maersk - Sealand
Evergreen - LT
Torm liner service
2005
CMA CGM
Delmas
Grand Alliance NYK
Hapag-Lloyd
MISC
OOCL
CKYH Alliance
Cosco
Hanjin - Senator
K Line
Yang Ming
New World Alliance
APL
HMM
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CSAV Norasia
P&O - Nedlloyd
2010
CMA CGM
Grand alliance
Hapag Lloyd
NYK
OOCL
CKYH Alliance
Cosco
Hanjin
K Line
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New World Alliance
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2016
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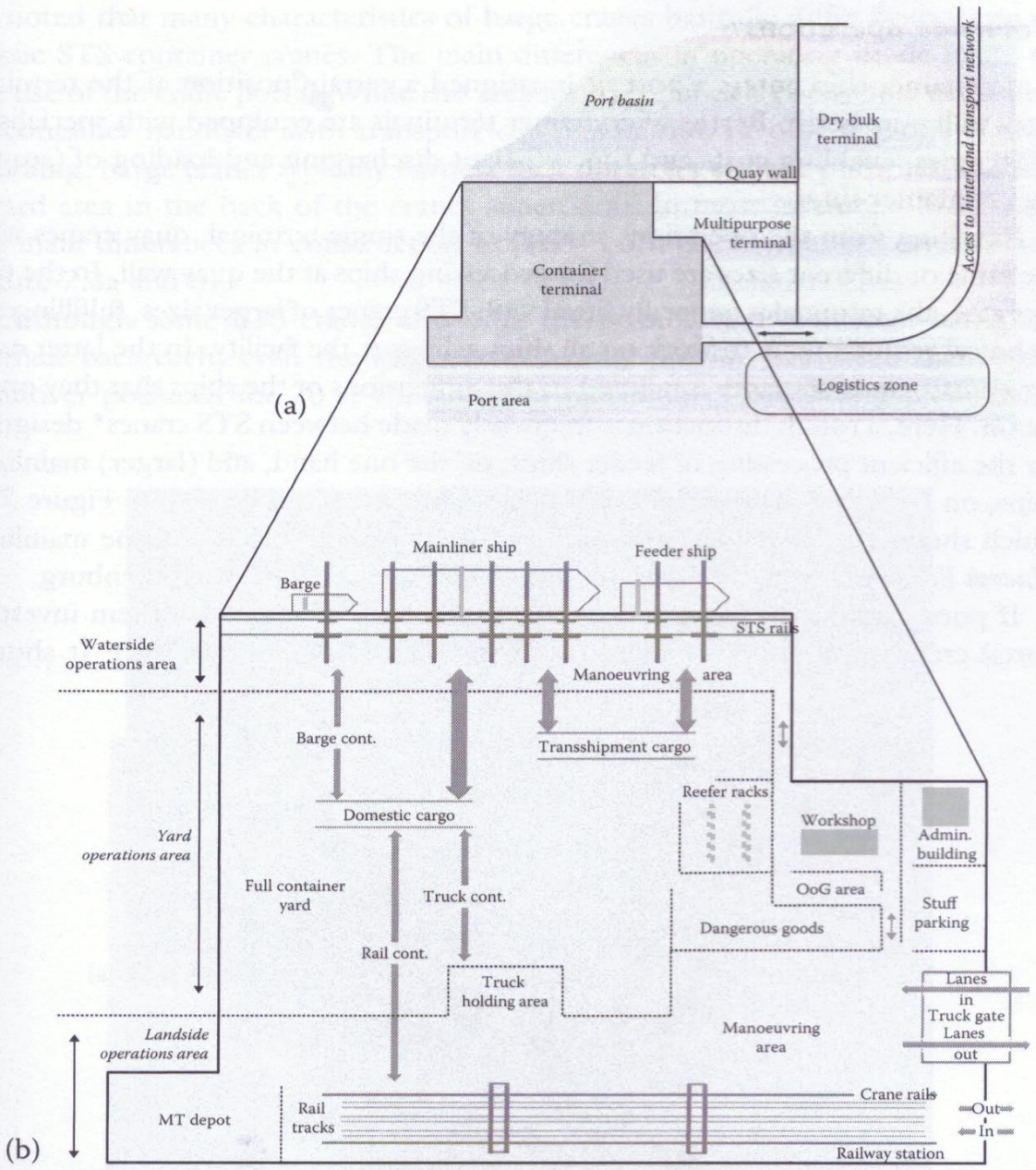
Hanjin
K Line
Yang Ming
Evergreen
G6
Hapag Lloyd
HMM
MOL
NYK
OOCL
2M
Maersk
MSC
Ocean 3
CMA CGM - APL
UASC
2017
Ocean Alliance
CMA CGM
Cosco
Evergreen
OOCL
The Alliance
Hanjin
Hapag Lloyd - UASC[1]
K Line
NYK
Yang Ming
2M
Maersk – Hamburg Sud
MSC
[1]To be confirmed

Suez max

Suezmax is a naval architecture term for the largest ships capable of transiting the Suez Canal fully loaded, and is **almost exclusively used in reference to tankers**.

The current channel depth of the canal allows for a maximum of 16 m (53 ft) of draft to 22m, meaning many fully laden supertankers are too deep to fit through, and either **have to unload part of their cargo to other ships ('transhipment')** or to a pipeline terminal before passing through, or alternatively avoid the Suez Canal and travel around the Cape of Good Hope instead. Currently, the canal is being deepened to 18–20 m.

The typical deadweight of a Suezmax ship is about 150,000 tons and typically has a beam (width) of 46 m (151 ft). Also of note is the maximum head room **- 'air draft' - limitation of 68 meters**



Container terminal


SCHELDE
SAFTINGENDOK
PSA - HNN
DEURGANCKDOK
ANTWERP GATEWAY

Table 7.2 Key figures for selected container ports

Characteristic	Port of Singapore[a]	Port of Shenzen[b]	Port of Hamburg[c]	Port of Los Angeles[d]	Port of Klaipeda[e]	Port of Riga[f]
# terminals	7	4	4	8	2	2
# berths[g]	57	58	25	31	6	2
quay length	17.350 m	17.505 m	7.570 m	9.336 m	1.908 m	645 m
# STS cranes	212	175	80	72	9[h]	7[i]
terminal area	700 ha	792 ha	440 ha	684 ha	54 ha	125 ha
mio TEU (2014)[j]	33,87	24,03	9,73	8,33	0,49	0,39
Transhipment share	85% (2013)[k]	50% (2013)[k]	36% (2015)[l]	<10% (to date)[m]	<10% (to date)[m]	<10% (to date)[m]

a PSA Singapore, 2016.
b Zheng and Park, 2016.
c Hamburg Port Authority, 2016.
d Port of Los Angeles, Container, https://www.portoflosangeles.org/, 2016.
e Drungilas, 2015.
f Freeport of Riga Authority, 2009.
g Berth length: about 300m
h Thereof 4 mobile cranes.
i Thereof 1 mobile crane.
j World Shipping Council, Top 50 world container ports, http://www.worldshipping.org/about-the-industry/global-trade/top-50-world-container-ports, 2016.
k Marine Information Service, 2015.
l Hafen Hamburg Marketing, 2016.
m Rodrigue, J.P., The geography of transport systems: Levels of transshipment incidence, https://people.hofstra.edu/geotrans/eng/ch4en/conc4en/transshipment_incidence.html, 2016.

Key figures for selected container ports

- Bulk sea freight services
  - Liquid / non liquid freight


APL
HYUNDAI
APL TOURMALINE
SINGAPORE
1040

3-road freight

- Cross border deliveries
- Road freight
- Transit distance
- Cartage
- Drayage
- Inland freight

Cross border deliveries

the delivery of export goods between mainland European countries and between north American countries.

About 50 to 80% of cross border deliveries are completed using **road freight**.

Generally a **transit distance** within 100 kilometers using road freight is competitive compared to rail and air freight.

The delivery charge is called the **cartage** or trucking fee.

The hauling charge for transporting the ocean freight container on land, normally not including the loading and unloading of the cargo, is called **drayage.**

Together with waterway freight and rail freight they are known as **inland freight**.

4- RORO vessels

Trucks can drive onto built in ramps and roll off at destination.

The cargo on a trailer may be **accompanied** by a driver who completes the trip to the final destination,

or another driver continues the journey with the same trailer at certain juncture to the final destination,

or a subsequent carrier collects the cargo and trailer or the cargo only and continues the transit to the final destination such as in the case of a transshipment.

5- Rail freight

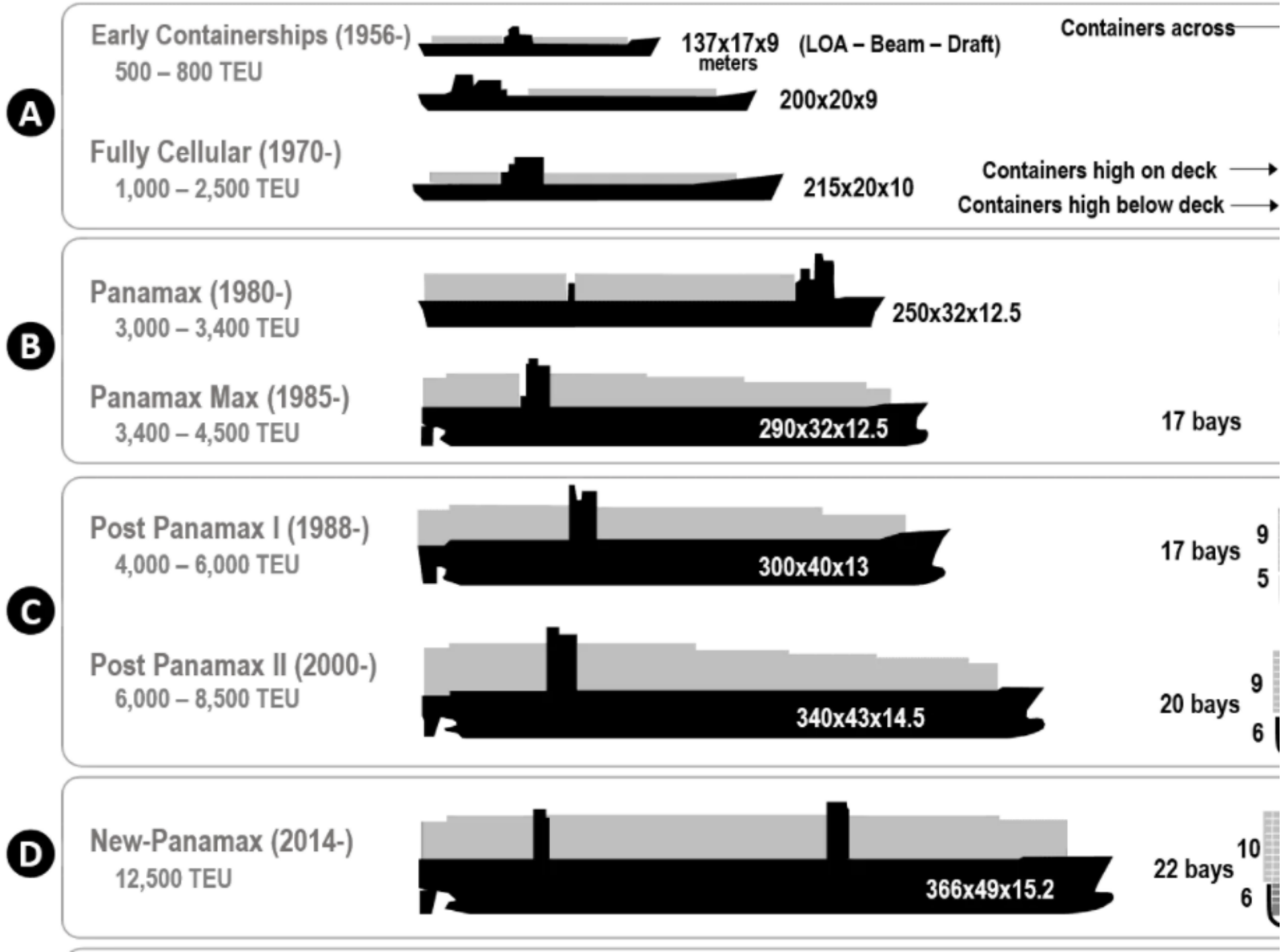
- Rail cars
- TOFC
- COFC
- Double stack train system
- Rail sidings

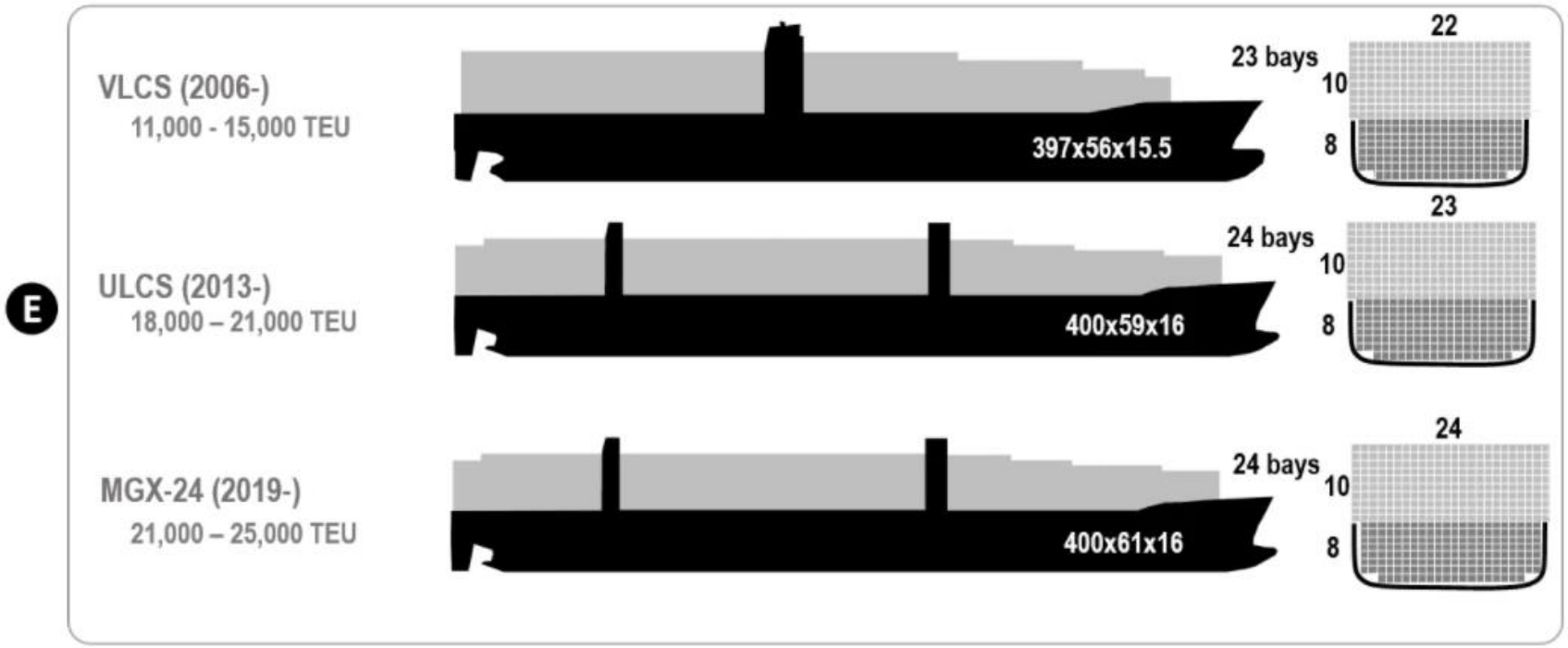
Rail freight

- Flat cars can be 40’ to 89’ long and trains can run at 120 kms. per hour.
- Some rail cars are specially designed to carry road trailers in a road rail service or **TOFC** (trailer on flat car) service, which is often referred to as the piggyback.
- In a **COFC** (container on a flat car) service for example using 50 flat cars each with a 60 ton capacity, the combined flat cars may carry loads weighing up to 3000metric tons, which is far more than a truck or an airplane can carry.
- The USA Canada and other countries have a **double stack train system** that moves more freight. The 80’ feet and longer container flat cars may carry 8 TEUs when the ocean containers are double stacked.
- Large shippers who have **rail sidings** at their facility, may arrange directly with the rail carrier to have the rail cars moved to their facility for loading.

Shipper's choice

- Pre and post carriage conditions
- Transshipment
- Transit time
- Frequency
- Security and safety
- Available lines


A
Early Containerships (1956-)
500 – 800 TEU
137x17x9
meters
(LOA – Beam – Draft)
Containers across
200x20x9
Fully Cellular (1970-)
1,000 – 2,500 TEU
215x20x10
Containers high on deck
Containers high below deck
B
Panamax (1980-)
3,000 – 3,400 TEU
250x32x12.5
Panamax Max (1985-)
3,400 – 4,500 TEU
290x32x12.5
17 bays
C
Post Panamax I (1988-)
4,000 – 6,000 TEU
300x40x13
17 bays
9
5
Post Panamax II (2000-)
6,000 – 8,500 TEU
340x43x14.5
20 bays
9
6
D
New-Panamax (2014-)
12,500 TEU
366x49x15.2
22 bays
10
6



Geography of transport systems Jean-Paul Rodrigue

Charter contract

- Related products
- Utilization rate
- Charter party

Charter

- tramp
- Time period
- Bareboat charter contract

Ship owning charges	Salaries of crew members
	Supplies
	Insurance
Ship choice	A compromise
	Ship rent
	Offer and demand
	Size, capacity, speed
	Cargo gear for handling on board
	Useful and maximum capacity

Vessel stability parameters

consumption

Pavillion

Fuel choice

- Heavy fuel oil and diesel oil
- Quality charter of supplies

Contract deal

RE : M/V VESSEL NAME

WE ARE PLEASE TO OFFER FIRM ON THE ABOVE MENTIONED VESSEL FOR REPLY HERE DEC 31ST -1.00 HRS AM FRENCH TIME
-NEGOCIATIONS TO BE KEPT STRICTLY PRIVATE AND CONFIDENTIAL NOT TO BE DISCLOSED TO ANY THIRD PARTY
-DELIVERY : APS FOS SUR MER ATDNSHINC
-LAYCAN : 27-28TH JANUARY 1997-00.00/24.00HRS
-TC PERIOD : 6 MOS IN CHARTERS OPTION 6 ADD MOS, 15 DAYS MOLCHOPT ON
FINAL PERIOD.
OPT FOR 6ADD MOS TO BE DECLARED 5 MOS AFTER ACTUAL DELY.
-TRADING : FULL MED INCL ADRIATIC, BLACK SEA, RED SEA ALWAYS WITHIN IWL VIA SAFE PORT(S) SAFE BERTH(S).
INTENTION WITHOUT COMMITMENT FOS SUR MER / BARCELONA /
VALENCE / GENOA / ALGIERS / ORAN AND MAYBE MAROCCO.
-REDELIVERY : DOP ONE SAFE PORT FULL MED OR BLACK SEA OR RED SEA IN CHOPT.
-HIRE : USD 6 100 -PDPRINCLOT
-LESS : 3.5 PCT ADDCOM (PLS ADVISE TTL COM)
-SUB DETAILS BASED ON CHRS ASBATIME EXECUTED PROFORMA
-SUB CHRS BOD TO BE LIFTED 2 WORKING TIME DAYS AFTER FIXING MAIN TERMS END OF OFFER

COMMENTS
PLS BEAR IN MIND 'PRIM VIVID ' REPORTED ON THE MARKET FIXED FOR 6+6 MOS AT 6100 USD HAVING A MUCH LOWER SPEED OF 14.5 KN .THEREFORE ABOVE RATE IS MARKET LEVEL.

BETS REGARDS

contre-offre est la suivante :

Citation :
RE : M/V VESSEL NAME

THANKS TO YOUR OFFER TO WHICH OWNERS NOW REVERTING AS FOLLOWS:
WE COUNTE RAS FOLOWS FOR RPLY 10.30 HRS
ACC/EXC
M/V SUZANN -DETAILS AS BELOW-
-LAYCAN 20/28 JAN
-PERIOD 8 MOS-OPT FOR 6 ADD MOS TO BE DECLARED 4 MOS AFTER ACTUAL DELY
-REDELIVERY -DOP ONE SAFE PORT FULL MED
-HIRE : USD 6550-1ST PERIOD -USD 6650 2ND PERIOD
-SUB ALL FURTHER DETS.

LATEST POSITION -ETS SKIKDA ARND 13/14 JAN

COMMENTS :
IN ORDER TO SPEED UP DID VERY BEST TO MEET CHRTS BEST POSSIBLE
THE SHIP SAILED CAEN LAST NITE FOR DISCH 4 PORTS ALGER -
SO PLS DE BEST AND OBTAIN THE ABV REQUIRED LAYCAN AND RVT
BEST CLOSEST POSSIBLE-
DETAILS M/V SUZANNE HAS BEEN SENT BY PREVIOUS FAX.
Fin de citation

Sea freight

W/M weight or measure	Comparative relation
Charge basis	Metric ton
Units of weight or measure used in the freight cost calculation	Mode of transportation • Weight - measure

Weight or measure

- The freight rate on export goods is often based on **W/M weight or measure** that is based on the weight or the volume of cargo (cube or measurement of cargo).
- The rate uses the **comparative relation** between weight and volume of cargo.
  - A cargo that is large in relation to its weight is charged according to its total cube, while a cargo that is heavy in relation to its size is charged according to its gross weight.
- The unit of ton being used in freight cost calculation may differ among carriers.
  - A **metric ton** (2204.6 lbs or 1000 kgs),
  - A short ton (2000 lbs or 907 kg)
  - Or a long ton (2240 lbs or 1016 kg)

Weight or measure 2

Mode of transportation	**weight**	**measure**
Ocean freight	1 MT 1000 kg	1 CBM 35.3 CU FT
AIR FREIGHT	1 MT 1 KG 1 LB	6 CBM 6000 CU CMS 166 CU INS
ROAD AND RAIL FREIGHT	1 MT 1 KG 1 LB	3.3 CBM 3300 CU CMS 91.3 CU INS

Measure unit

- MT metric ton
- Kg kilogram
- Lb pound
- Cbm cubic meter
- Cu cms cubic
- Cu ft cubic feet
- Cu ins cubic inches

Sea freight

- Attractive freight rates to fill their ships
- World service
- Pools
- consortiums

- **POOLS**
- considering huge investments needed to build and to run big ships like container ships or tanker ships, some companies buy together these kinds of ship.
- **CONSORTIUMS :** COMPANIES CREATING A POOL, GO FURTHER AND CREATE A COMMON COMMERCIAL SERVICE TO FIND FREIGHT : FOR INSTANCE SCANDUTCH OR TRIO …
- Strategic alliances are powerful (except MSC) but unstable

Freight calculation

- Volume of freight on a given route
- Kind of cargo
- Bulk transport cost
- Case sample
- Container transport cost
  - Flat rate
  - Positoning cost
  - Loading cost
  - FCL versus LCL
  - Full payload

THE FREIGHT RATE IS OFTEN INFLUENCED BY THE **VOLUME OF TRAFFIC ON A GIVEN ROUTE**.

WHEN AN EXPORTER CONTACTS THE CARRIER FOR THE FREIGHT RATE THE INFORMATION NORMALLY REQUIRED OF AN EXPORTER IS THE **KIND OF CARGO** AND ITS INTENDED DESTINATION.

BULK TRANSPORT COST

COMMODITIES NOT SHIPPED THROUGH A CONTAINER ARE CONCERNED.

CONSIDERING VOLUME AND WEIGHT OF A SHIP, THE FOLLOWING EQUIVALENCE IS ACCEPTED : 1 CBM = 1 TON

THE HIGHEST WILL BE KEPT TO CALCULATE FREIGHT COST.

FOR INSTANCE, A SPRAYING DEVICE IS MEASURED BY : 7 CBM AND 3 TONS. WHAT WOULD BE THE UNIT KEPT FOR THE CALCULATION ?

- **CONTAINER TRANSPORT COST**
- a **flat rate** is calculated for each container, taken into consideration :
  - the link,
  - nature of the goods,
  - offer and demand situation (by instance Singapore).
  - We will not fail to add the **positioning cost** (transport from the container pool to the shipping place), transport to the shipping port, surest Aries (if the container needs more than 4 hours to be loaded and to clear the goods),
  - **loading cost** at the port of departure, disloading cost at the port of arrival.
  - In case you have different kinds of goods in the container, a bulk tarification will be applied.

Freight calculation

- LCL freight rate
- Carrier’s container freight rate
- Container freight station
- Example
- Risk of damage and loss
- CY versus CFS
  - Company yard
  - Container freight station – premises – legal limitation
- CY/CY-CY/CFS- CFS/CY-CFS/CFS
- Turn over rate of containers
  - 24-48 hours – demurrage-substatial amount of business

FCL the whole container is intended for the consignee.

The FCL means the load reaches it allowable maximum of full weight or measurement.

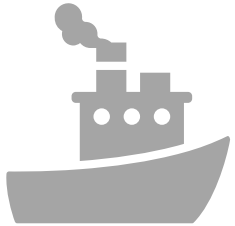
However the FCL in the ocean freight does not always mean packing a container to its **full payload** or full capacity.

- **CY versus CFS**
- The **company yard** is the delivery or receipt of a whole container from or at shipper’s or the forwarder’s or the consignee cargo yard or premises.
- The **Container freight station** is operated by the carrier for the receipt, forwarding, and assembling or disassembling of cargo :
- The kind of cargo and quantity does not warrant the use of a whole container
- The shipper’s or the consignee’s **premises** are inaccessible by container due to poor road conditions or
- The overall load of vehicle exceeds the **legal limitation**
- **CY/CY** : door to door or house to house container service
- **CY/CFS** : door to port container service
- **CFS / CY** : port to door container service
- **CFS / CFS** : port to port container service or pier to pier container service

- **Turn-over rate of containers**
- The carrier allows the shipper to retain (hold) the container at their premises normally for **24-48 hours** only, in order to maximize the turn rate of the container.
- An overtime use charge, know as **demurrage,** is collected on overstayed containers.
- In special cases such as when the shipper or consignee is doing a **substantial amount of business** with the carrier, some carriers may allow a longer time without charging demurrage.

Freight calculation

In roll on roll off shipment



Adjustments

BAF – CAF

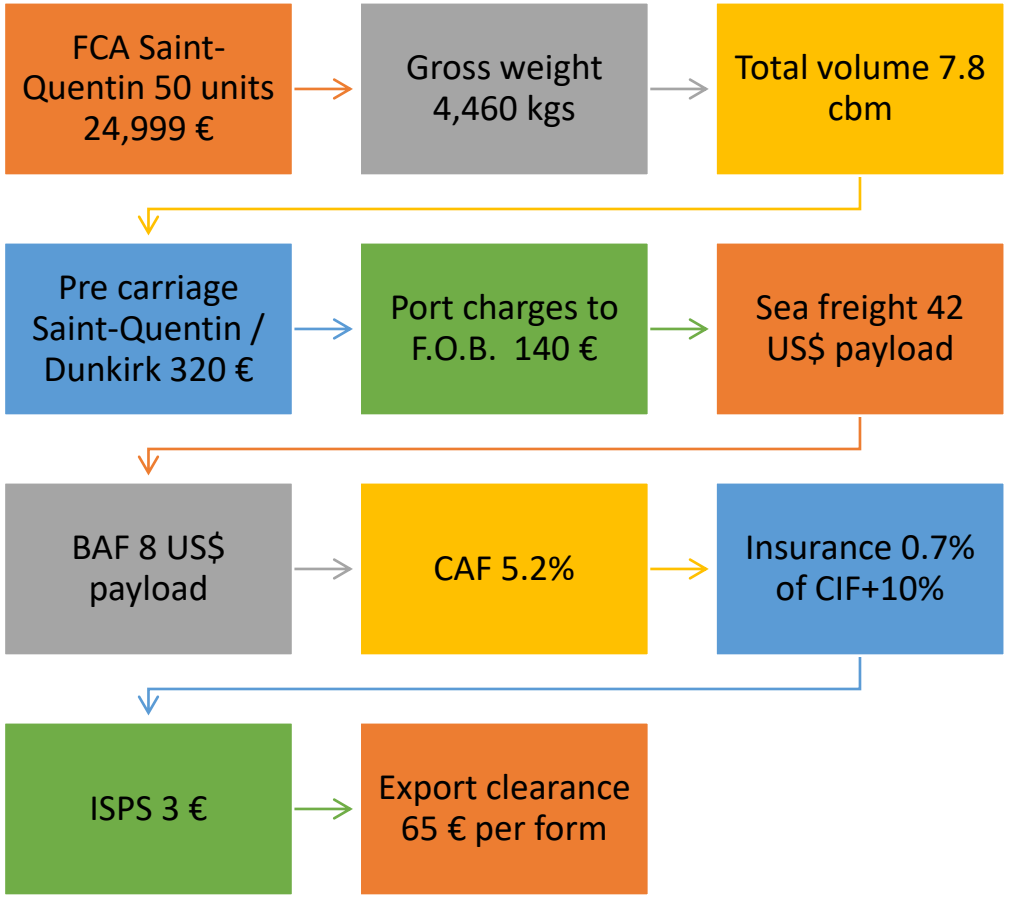
Sea freight basis

Possible rebate

- Fidelity – promise

- **In roll on Roll off shipment** (you load the trailer directly in the ship)
    - A METER COST WILL BE APPLIED.
- **Adjustments**
- **B.A.F**. : BUNKER ADJUSTMENT FACTOR WILL BE APPLIED BY INSTANCE IF OIL PRICE INCREASED DRASTICALLY,
- **C.A.F.:** CURRENCY ADJUSTMENT FACTOR WILL BE APPLIED FOR INSTANCE IN CASE OF DROP OF US DOLLAR AGAINST EURO …
- THESE ADJUSTMENTS ARE CALCULATED ON **SEA FREIGHT BASIS**.
- **Possible rebate**
- YOU CAN BENEFIT OF **FIDELITY REBATE** WITH MOST OF CONFERENCE SERVICE FROM 8 TO 9.5% OF FREIGHT COST.
- ANOTHER REBATE CAN BE MADE AVAILABLE FOR **A PROMISE** TO USE A COMPANY OR A SERVICE. THE RESULT IS TO GET REDUCED FREIGHT RATES HOWEVER VOLUME NEEDS TO BE SIGNIFICANT.

Freight calculation CIF Kaoshiung



Seaway quiz

QuizMaritime.pdf