

The container ship market in 2015

ultra-large box vessels:
scaling effects in the container trade

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part 1:
a look today's fleet and order book

container fleet snapshot: April 2015

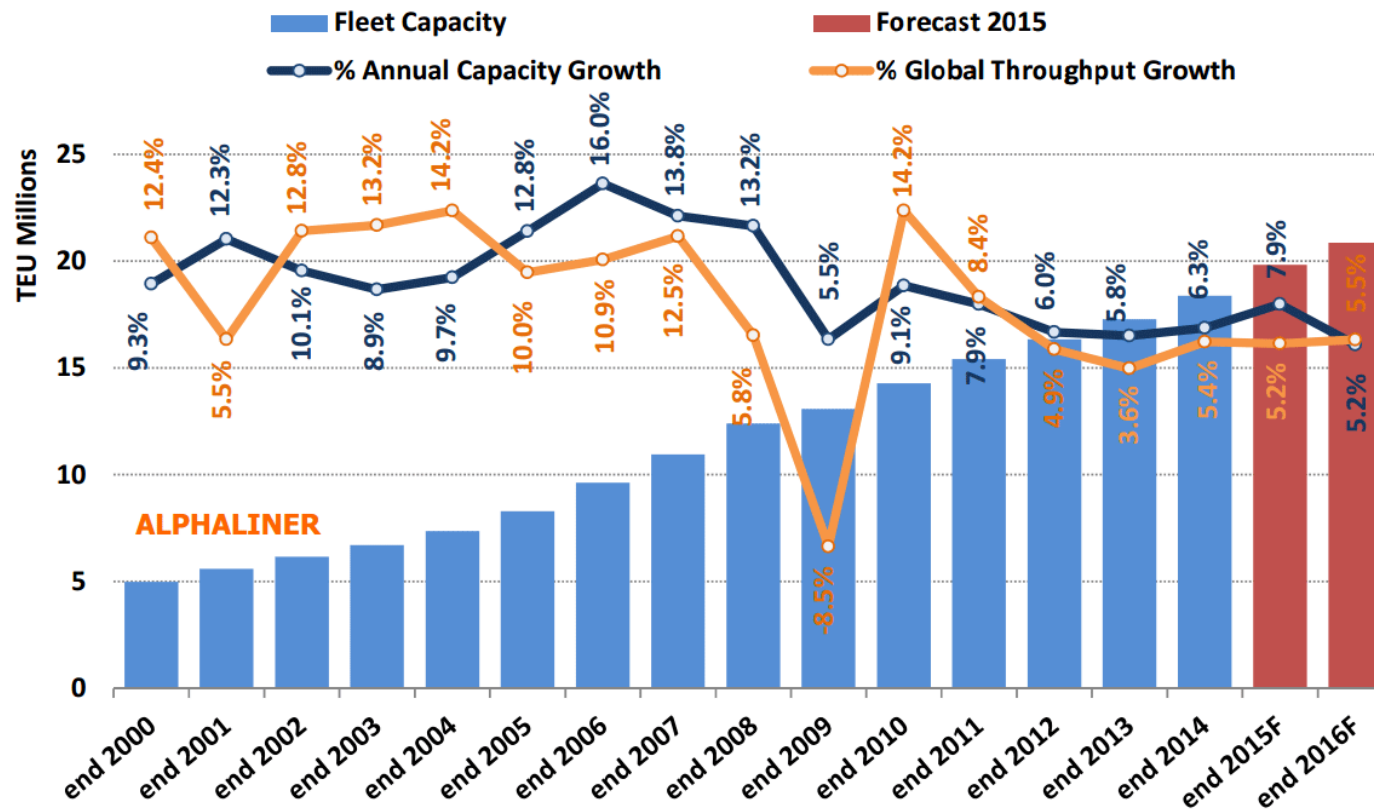
no. of cellular ships:	5,059 units
total capacity:	19.194 Mteu
year-on-year increase vs. March 2014:	7.2%
percentage of idle ships:	1.5%
vessel order book size:	3.590 Mteu
order book as % of current fleet:	19.1%

Average age of the cellular fleet:

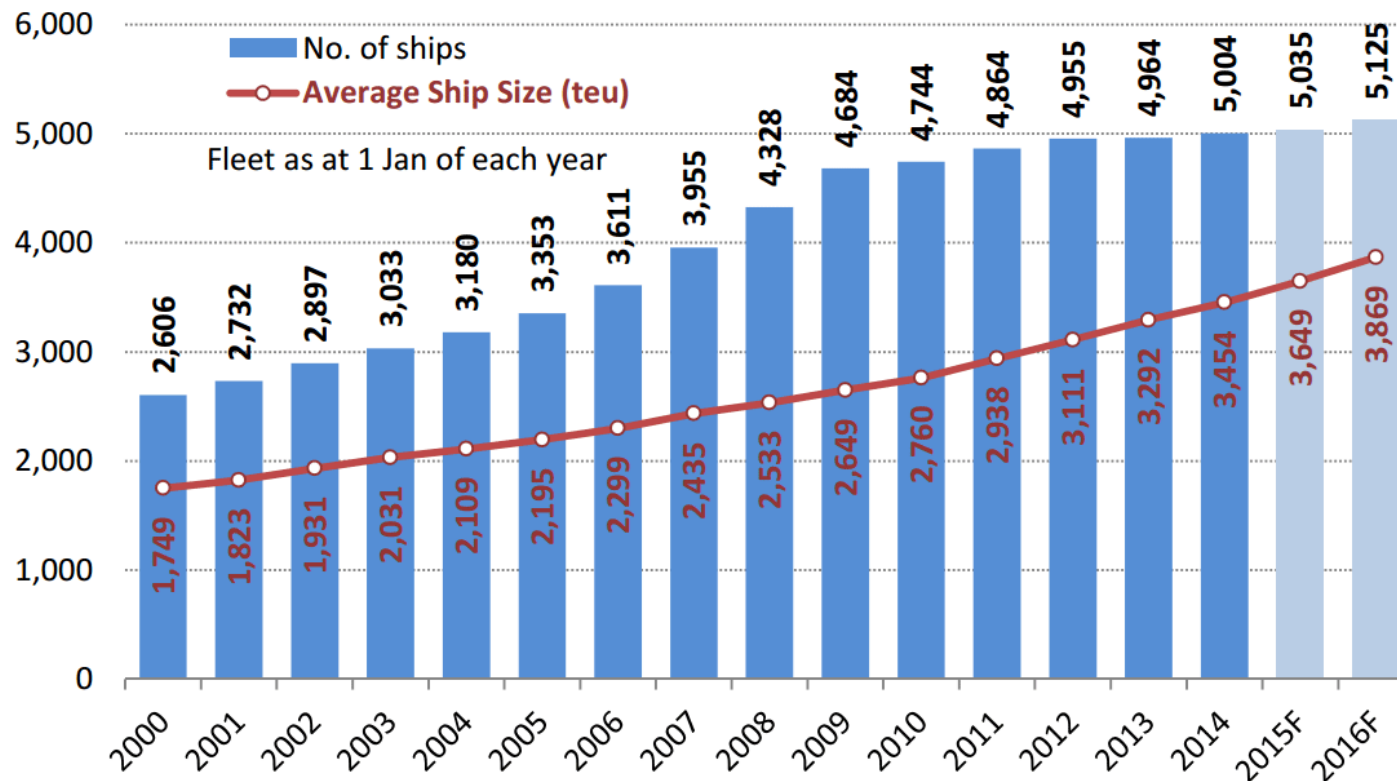
gross: 10.8 years

teu weighted: 8.4 years

overall container fleet growth 2000 - 2015

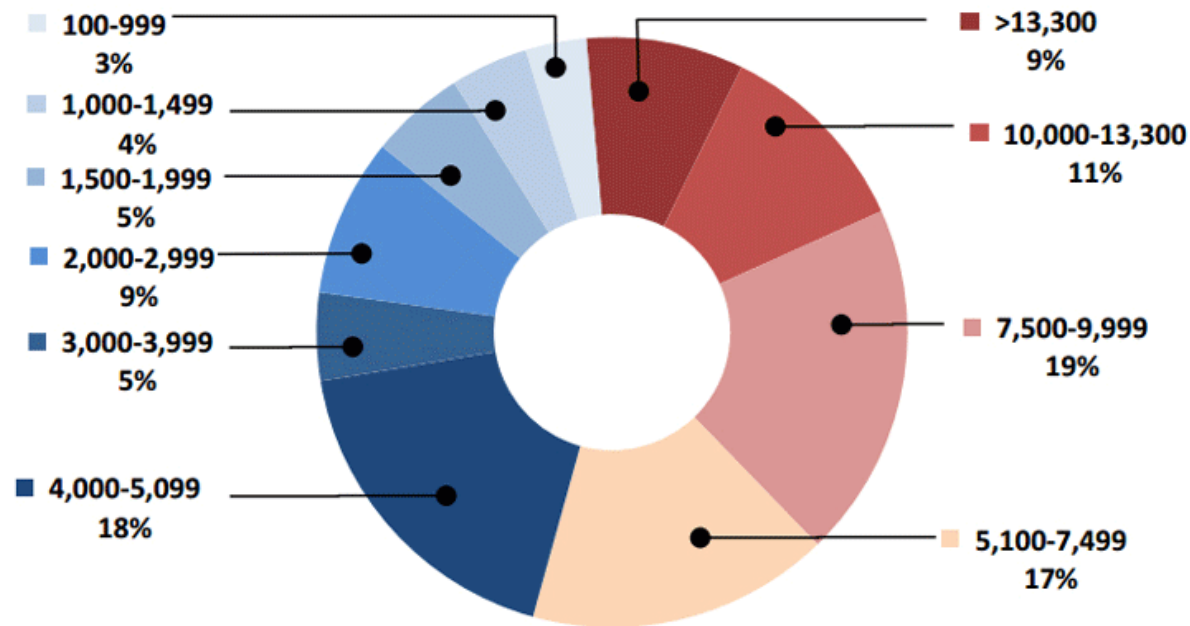


vessel size since 2000 and forecast



- In spite of a more mature market (the total number of vessels does not increase as much anymore), the trend to ever-larger ships continues.
- The vessel size cascade is still in place, with the Asia to Europe trade at the top of the market.
- Secondary and tertiary trade lanes increasingly (have to) absorb large vessels.

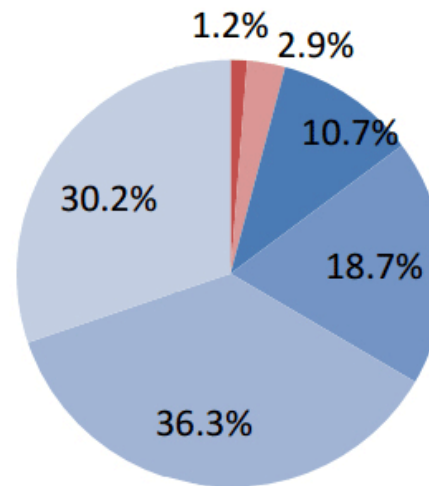
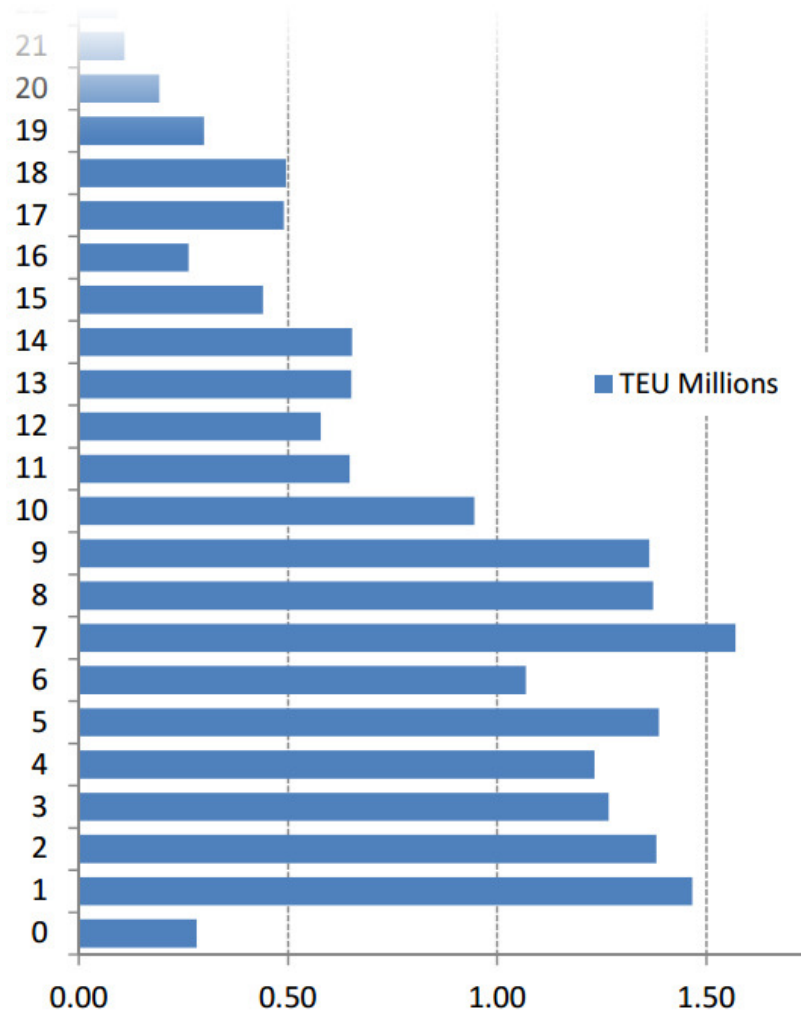
Fleet Capacity Breakdown by TEU size range



the container fleet
by vessel size

- Today, the 'middle of the main line fleet' is in the 4,000 teu 10,000 teu range.
- About 66% of the global fleet capacity now falls to ships within these size categories.

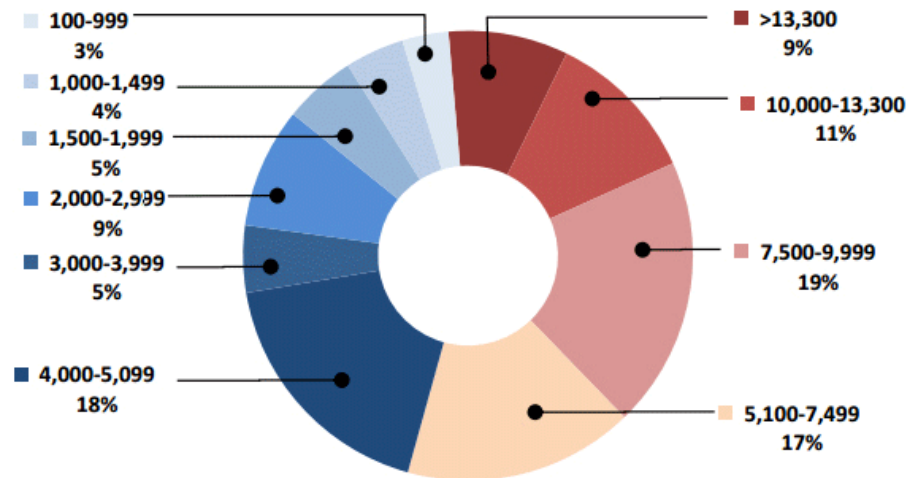
Size Range TEU	All cellular ships		Of which chartered		
	Units	TEU	Units	TEU	% Chrt
18,000-21,000	21	389,468	2	38,448	5.5%
13,300-17,999	86	1,224,969	21	297,674	23.8%
10,000-13,299	174	2,072,286	77	921,882	45.8%



the container fleet by vessel age

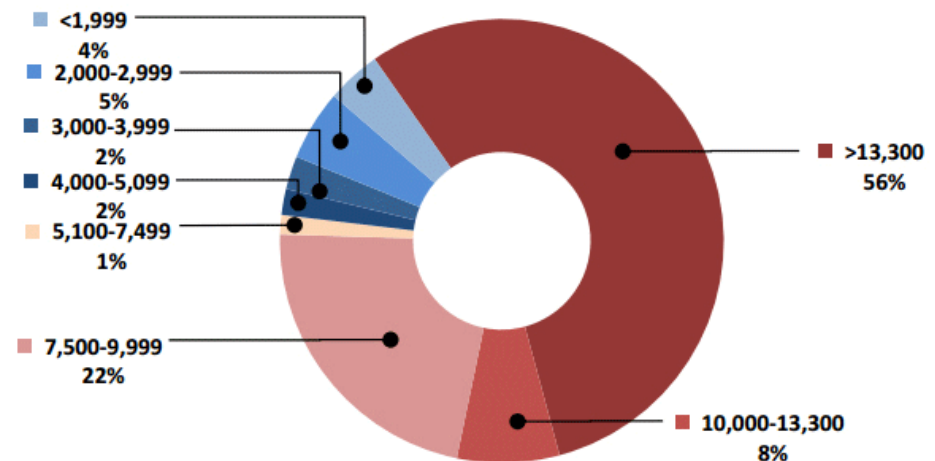
- At the past five years' average rate of vessel delivery, and assuming zero fleet growth, it would take ca. 14 years to roll over the current fleet of 18.62 Mteu.
- At 3.59 Mteu (19.1% of world fleet), the current orderbook is fairly large, but it stretches out five years into the future.
- Assuming a moderate fleet growth, the current order book is large, but not necessarily out of proportion.

Fleet Capacity Breakdown by TEU size range



fleet vs order book by
vessel size class

Orderbook Fleet Capacity Breakdown by TEU size range

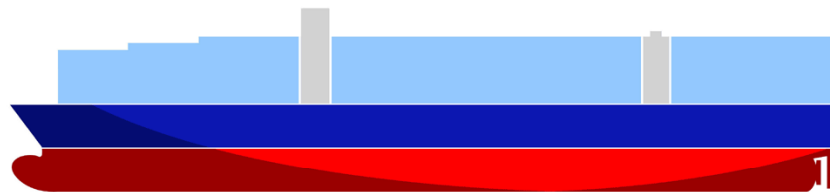


- Two size classes are particularly popular.
- We see the boom of the next-gen ULCS of +18,000 teu and of the 'Bosphorus-Max' compact wide-beam ships of about 9,500 teu.

two very popular standard types of the recent past

Bosphorus-Max vessel
(aka compact neo-panamax vessel)

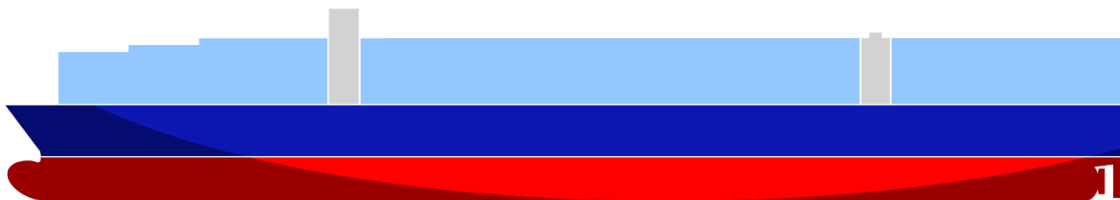
ca. 2012
299 x 49 m
9,500 teu



draft: 14.50 m
dwt: 110,000

next-generation ULCS - 18K class

ca. 2013
399 x 59m
18,500 teu

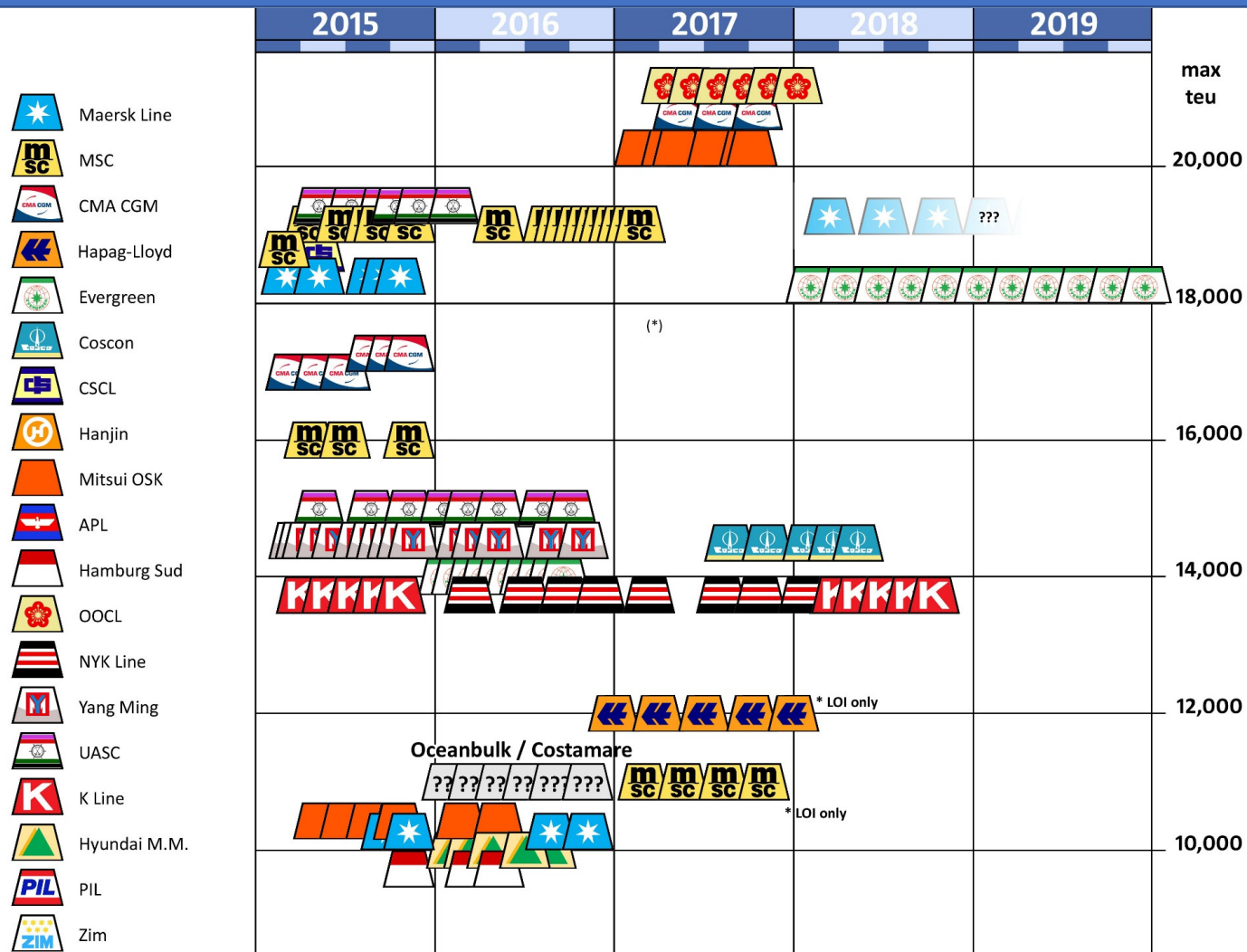


draft: 15-16 m
dwt: 190,000

jumbo vessels: 10,000 teu or larger

- 150 (177*) large container vessels on order, with a total slot capacity of 2.28 Mteu (2.68 Mteu*)
- Deliveries stretch out as far as 2019
- Currently, 14 (15*) carriers have ships of +10,000 teu in the pipeline
- Compared to today, the pool of jumbo container vessels will grow by at least 97% (116%*).

*is including known letters of intent and options



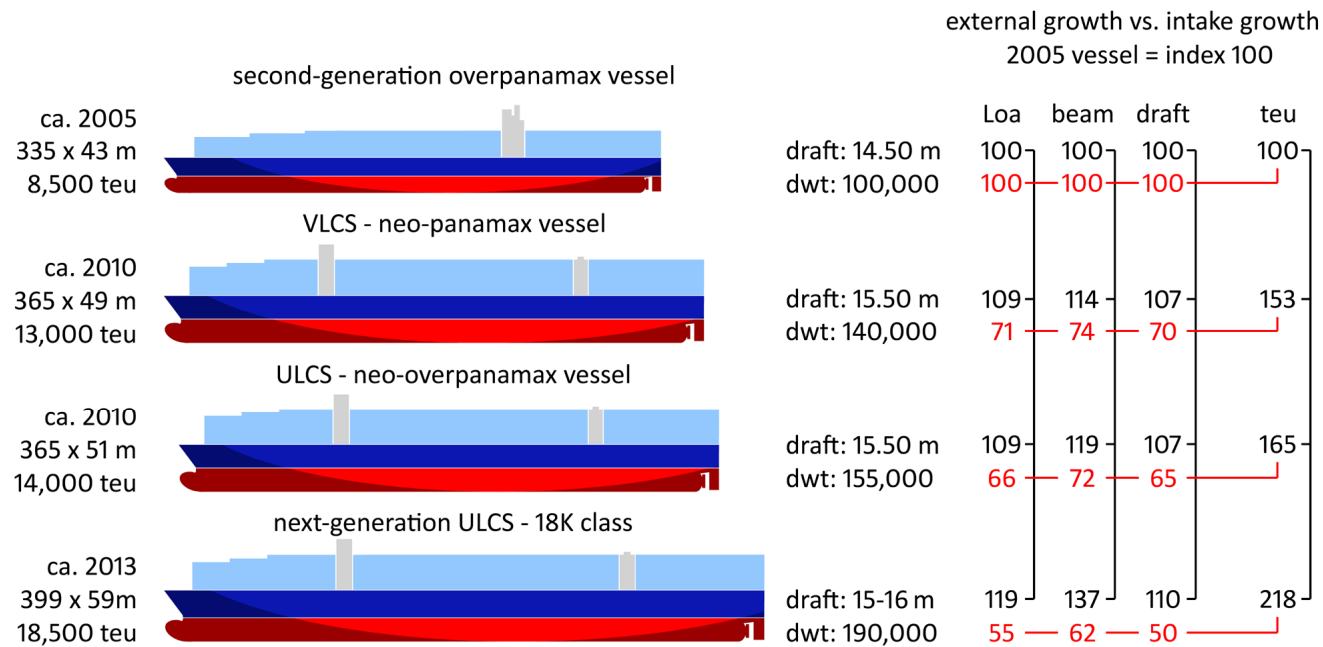
Side note: are the nominal teu capacities of today's ships artificially inflated?

vessel class	delivery	footprint (m)	advertised capacity
EMMA MAERSK	2006	397.00 x 56.40	11,000 teu
		later revised to...	15,500 teu
MAERSK McKINNEY MØLLER	2013	399.90 x 59.00	18,340 teu
CSCL GLOBE	2014	399.67 x 58.60	18,980 teu
MSC OSCAR	2015	395.40 x 58.60	19,224 teu
tbn. MOL series	2017	400.00 x 58.80	20,150 teu
tbn. CMA CGM series	2017	400.00 x 59.00	20,600 teu
tbn. OOCL series	2017	400.00 x 58.80	21,100 teu

- Vessel capacities were oftentimes understated in the past.
- Vessel capacities tend to be overstated today.
- Today's route specific container stowage (RSCS) somewhat distorts capacity timelines.

Compared to the teu intake, which has more than doubled,
container ship dimensions have grown more moderately.

container vessel growth ca. 2005-2015



ELEONORA MAERSK

394.40 m x 56.40 m
15,550 teu
158,200 dwt

+ 18% teu, similar dimensions

+ 23% dwt increase

MAJESTIC MAERSK

399.90m x 59.00 m
18,340 teu
194,700 dwt



Photo taken at Hamburg on 10 June 2014



Photo taken at Rotterdam on 23 August 2014

CMA CGM MARCO POLO

394.40 m x 53.60 m
16,020 teu
186,470 dwt

+ 10% teu on same dimensions

almost zero dwt increase

CMA CGM KERGUELEN

398.00m x 54.00 m
17,722 teu
186,745 dwt



Photo taken at Hamburg on 20 June 2014



Photo taken at Hamburg on 15 May 2015

fleet and order book : findings

- The current vessel order book is huge, but, considering that it stretches far out, it is not out of proportion – further orders will follow.
- Mainline carriers take advantage of low newbuilding prices to build capacity and/or renew their fleets.
- Newly-ordered ULCS help reduce per-teu cost through a) lower capital cost, b) lower installed engine power per slot, c) overall economies of scale
- Ship sizes will continue to grow, but not necessarily as much at the top of the market (is there a 20K teu ceiling?).
- Infrastructure developments (new terminals, Panama Canal expansion), will increasingly open up second- and third-tier trades to VLCS and even ULCS.
- Some fairly young ships will struggle in the market: Outdated designs, awkward sizes, low-quality ships.

jumbo vessel size: findings

- Ten years ago, the maximum size of container vessels was restricted in two ways:
 - maximum power rating of available main engines
 - equipment size and berth depth at main container terminals
- Today, the above restrictions no longer apply:
 - slow steaming has dramatically decreased the required engine power
 - all (most) main ports along mainline trades have ULCS-capable terminals
- Today's restrictions as toward ship size are:
 - vessel handling in port and available docks at shipyards
 - slower growth on mainlines and less scope for further route consolidation
 - decreasing returns to scale from vessel size effects
 - increasing scale cost on the landside (terminal equipment, etc.)
 - for very big ships, added risk might outweigh scale advantages

The end of vessel growth?

Alphaliner believes that few, if any, vessels will go beyond the scale of the 400 x 60 metre 'box' into which the current jumbo vessels fit.

Future cost savings in the liner trade will not primarily come from increased vessel size but:

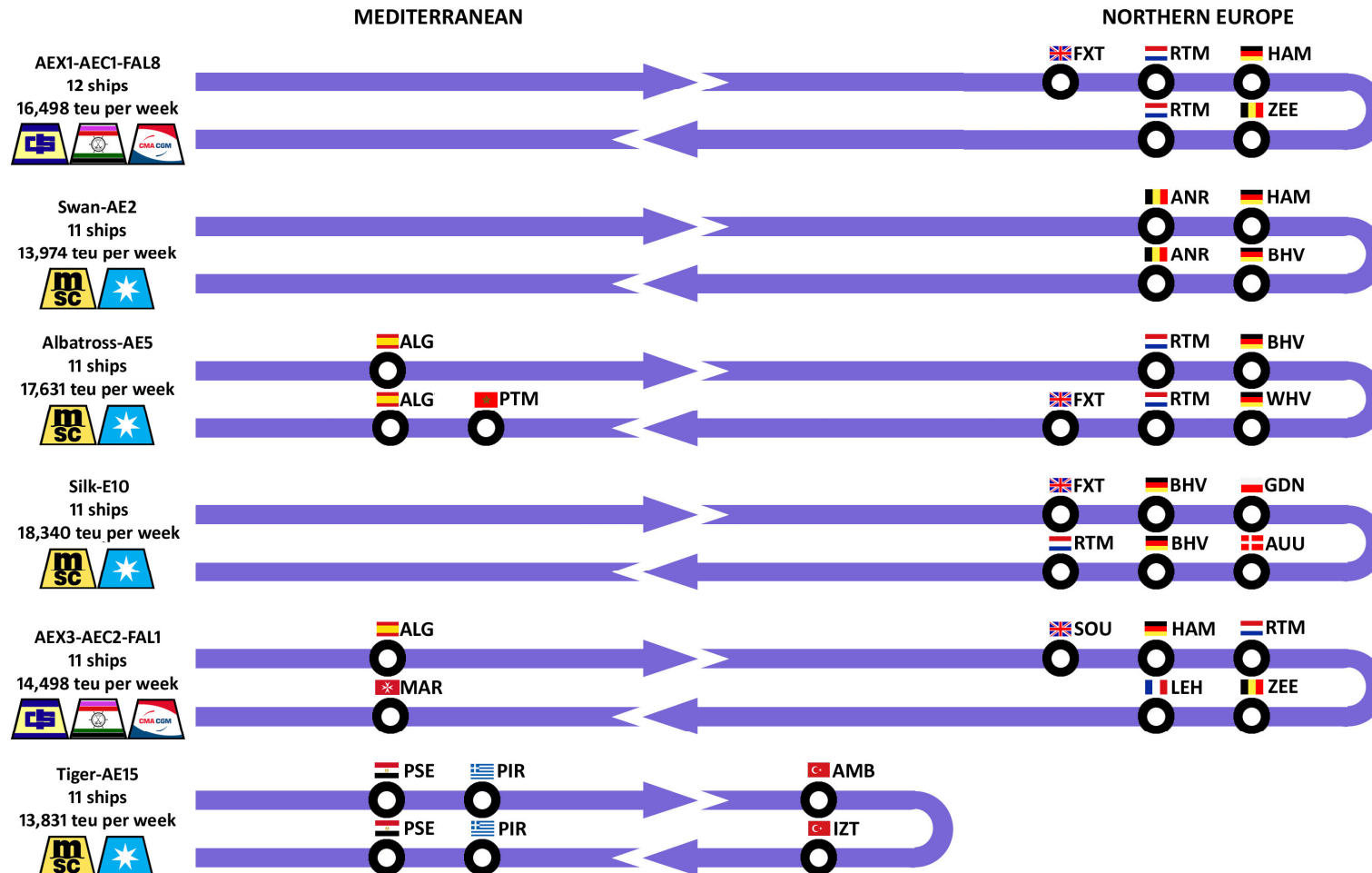
- consolidated and optimized (alliance) networks
- joint logistics and hinterland operations
- ship utilization optimization
- performance optimization (bunker saving, etc.)
- capital cost savings (vessel procurement, etc.)

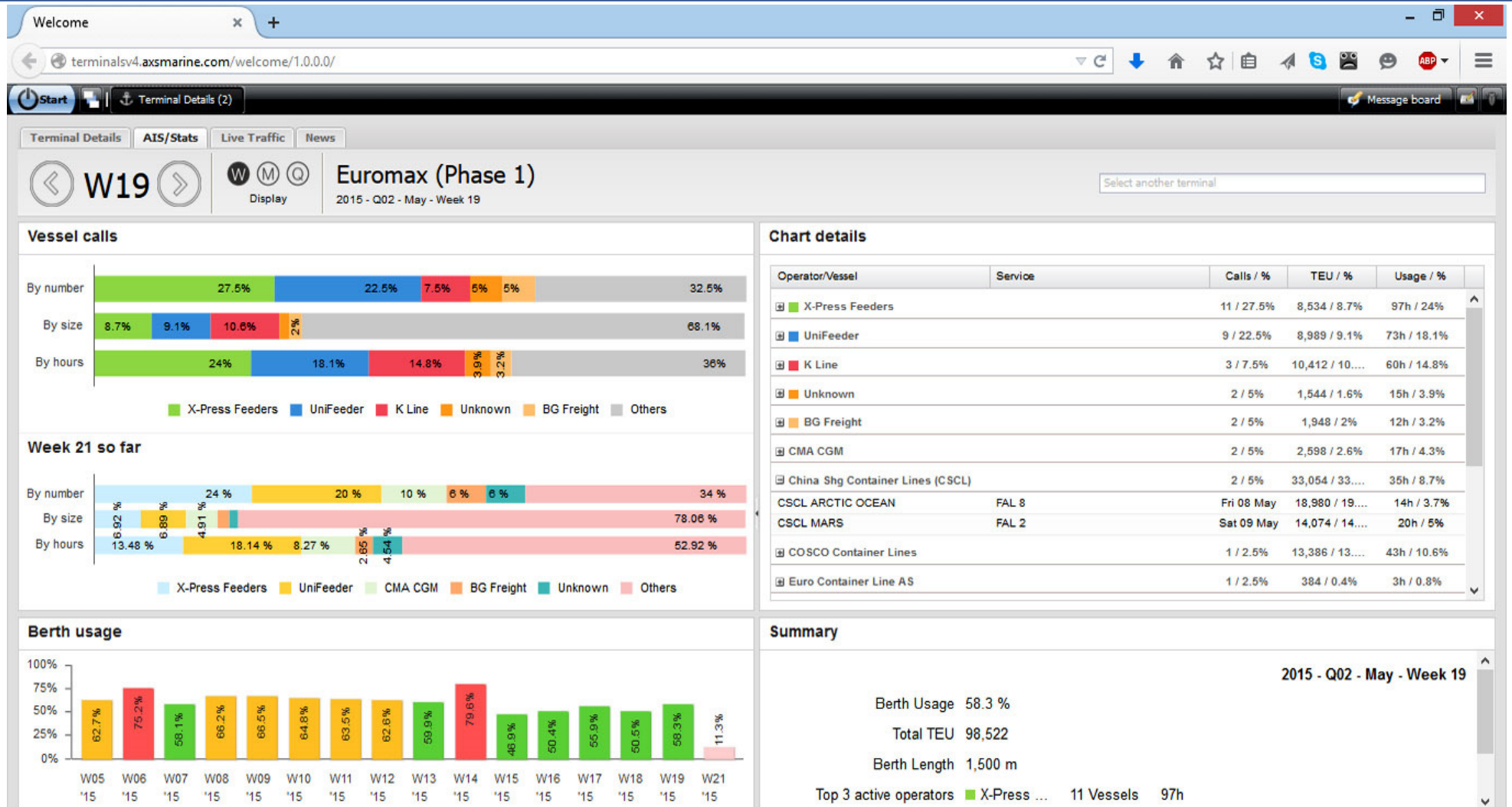
part 2: routes and vessel deployment

Next generation ULCS in service today

- The term refers to ships of about 400 metres in length, with beams of 54 to 59 metres (21 to 23 rows of containers across deck).
- Depending on vessel design, these dimensions result in a carrying capacity of some 15,500 to 21,000 teu.
- Currently there are 41 next-generation ULCS in services.
- Currently these ships trade on five (six*) weekly mainline services.
- All 41 units are deployed on the Asia to Europe (and Mediterranean*) trade lane.
- A further 59 ships of the class are still on order and further units will be ordered.
- Another six Asia to Europe strings are expected to be upgraded from ships of 13,000 / 14,000 teu to vessels of 16,000 / 18,000 teu.

container services that deploy ships of 15,000 teu or larger





Berth window examples : AEX1 / AEC1 / FAL 8 service at RTM, FXT, HAM and ZEE

week	13	14	15	16	17	18	19
Rotterdam Euromax Terminal	21 hours 18K	no data no data	16 hours 14K	17 hours 14K	24 hours 18K	26 hours 14K	14 hours 18K
Felixstowe South Terminal	41 hours 18K	no data no data	58 hours 14K	no data no data	35 hours 18K	44 hours 14K	40 hours 18K
week	14	15	16	17	18	19	20
Hamburg Eurogate Terminal	66 hours 18K	no data no data	36 hours 14K	34 hours 14K	no data no data	48 hours 14K	no data no data
Zeebrugge APMT Terminal	42 hours 19K	no data no data	62 hours 14K	49 hours 14K	64 hours 18K	50 hours 14k	67 hours 18K

- So far, there is no discernable difference in berth window between ships of 14,000 teu and next-generation ULCS of 18,000 teu
- While there is still some correlation between vessel size and berth window of course, this is outweighed by individual requirements of a certain service.
- An increasing number of mainline services features dedicated import- and export calls at European main ports (Rotterdam, to a lesser degree Antwerp).

routes and vessel deployment: findings

- For the foreseeable future, the deployment of next-gen ULCS will be restricted to the trade between Asia and Europe. Thereafter to Asia-Med and possibly Suez-routed Asia-USEC loops.
- Taking into account some limitations (draft at river ports), there is a sufficiently large amount of ports and terminals to cater to next-gen ULCS on the main lines.
- The challenge will be on second-tier services, to which ships of 10,000 teu to 15,000 teu will be cascaded in large numbers. This includes Asia-WAF, Asia-ECSA, Asia-WCSA, Europe-ECSA and Asia-USEC.
 - maximum power rating of available main engines
 - equipment size and berth depth at main container terminals
- In the main ports, challenges will arise from increased hinterland traffic, which puts stress on rail and road infrastructure.

An aerial photograph of a port area during sunset. The sky is a mix of orange, yellow, and blue. In the foreground, a large, dark, modern building with a grid-like facade is visible on the right. To the left, a large ship is docked with the name 'GROSSE FREIHEIT' visible on its side. The water is calm, and several cranes and other ships are visible in the background.

thank you

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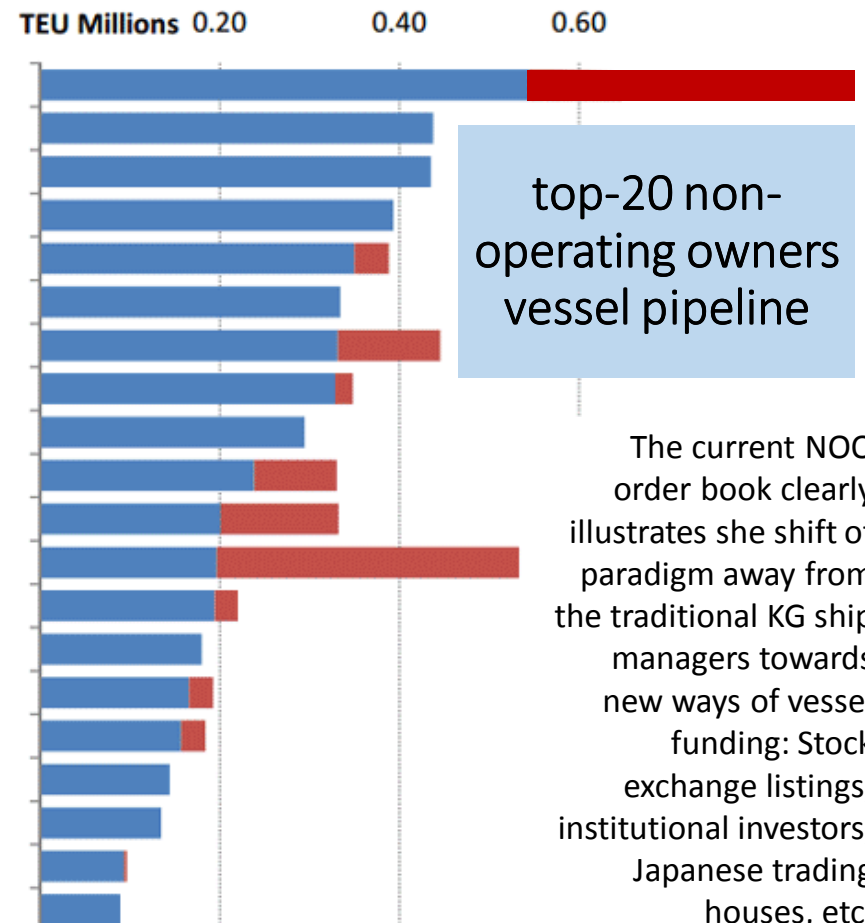
part 3:

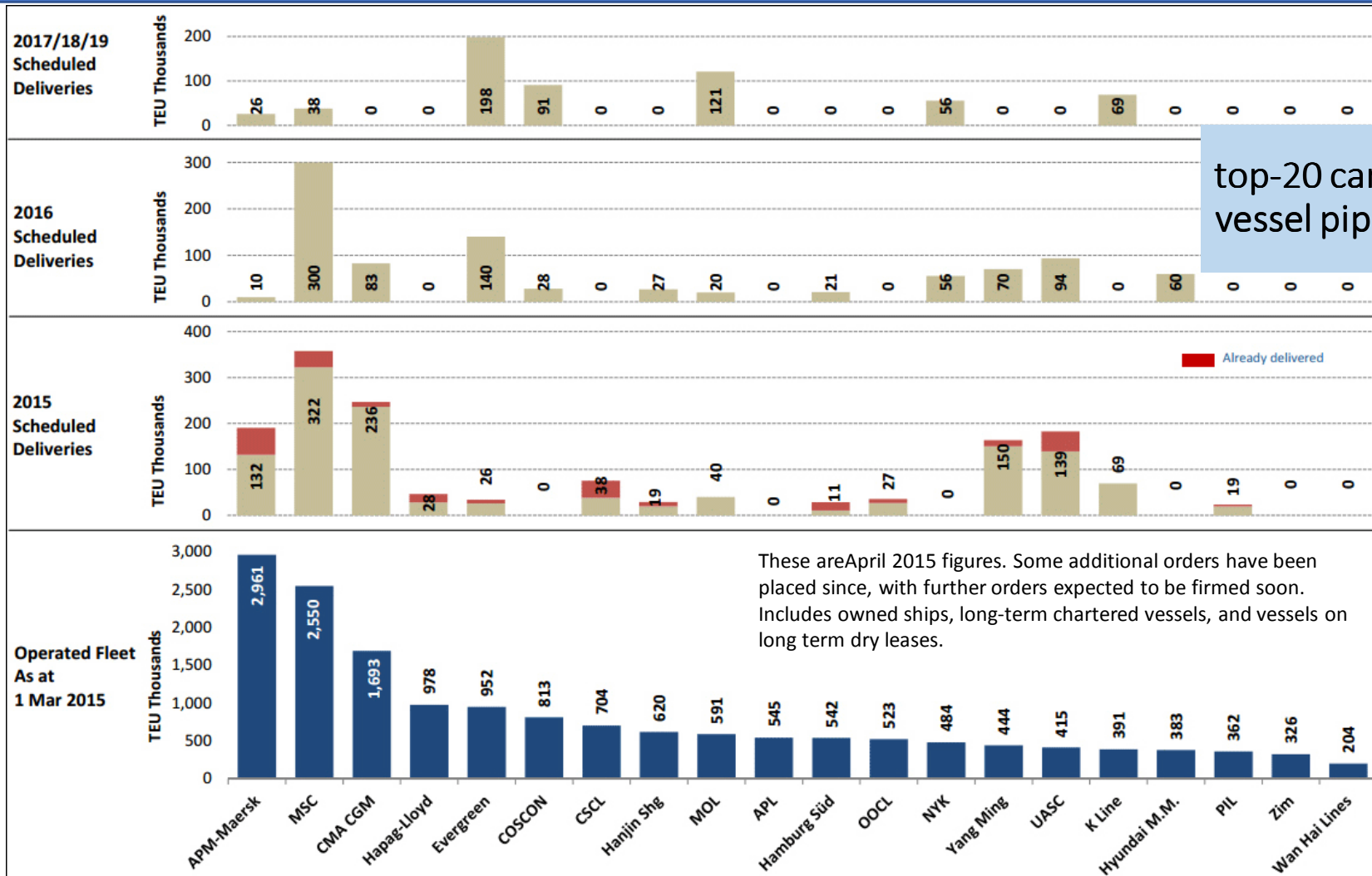
additional graphs and stats:
(time permitting)

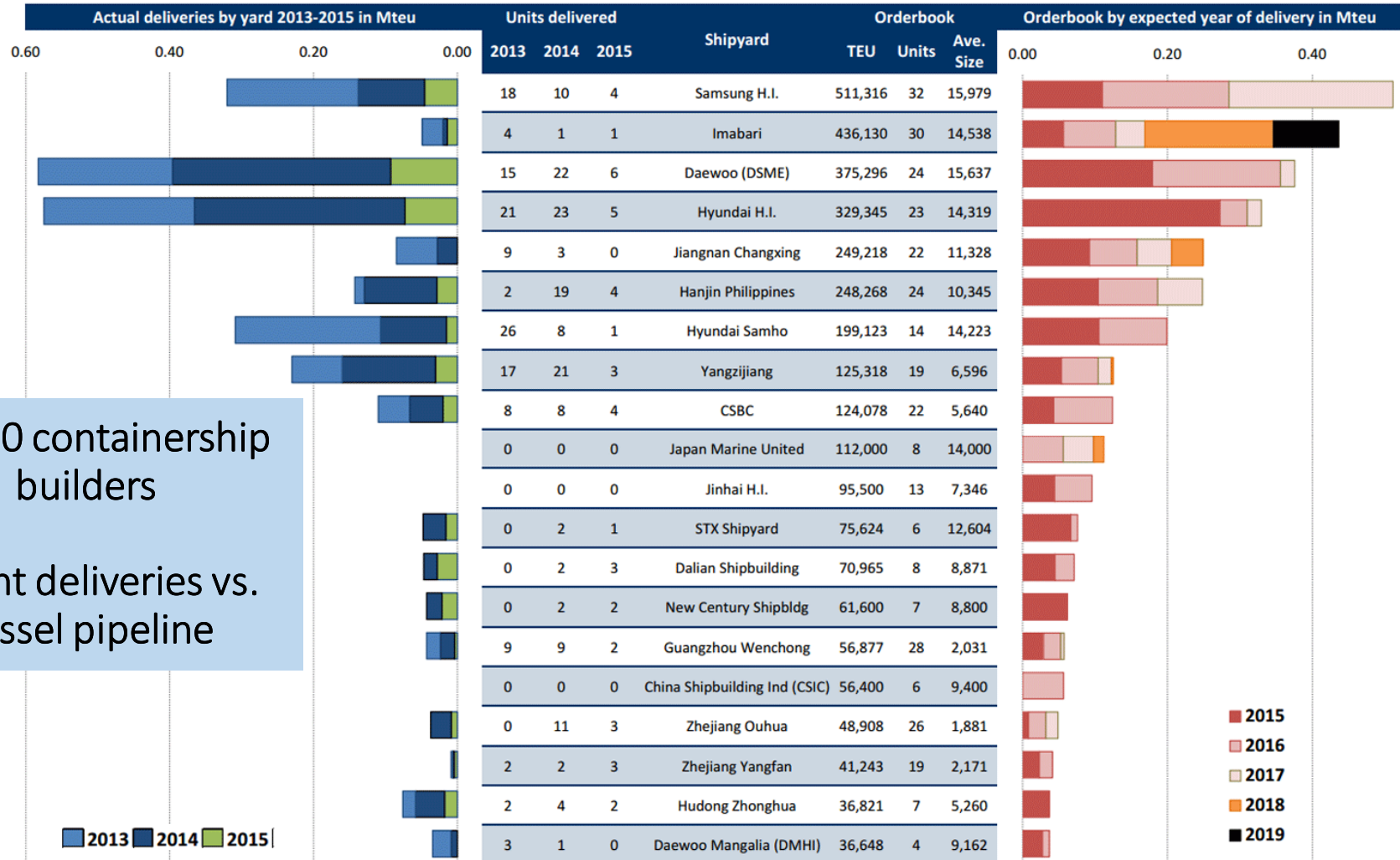
jumbo vessels – some quick bullet points

- More and more shipyards are capable of building VLCS and ULCS.
- Initially limited to South Korean shipyards (not to forget the new-defunct Odense Shipyard), ULCS can now also be ordered in Japan, China and the Philippines.
- Newcomer shipyards are very competitive on price: ca USD 10M advantage per vessel (ca USD 500 per nominal teu slot).
- Vessels of 20,000 teu will be the top-tier mainline workhorses in 2020.
- As long as vessel dimensions do not exceed the 400 x 59 x 16 m footprint, a sufficient number of ports is already capable of handling such ships.
- Slow-steaming has 'eliminated' the main engine problem of the pre-crisis years.
- Doubtful whether ships much larger than 20,000 teu will create further economies of scale. Middle of the market vessel growth appears more promising.

Rank	Managing Owner	existing	orderbook	O/E %	Ave. Ship Size		Market Share
		TEU	TEU		Current	On Order	
1	Seaspan	544,297	321,310	59%	6,403	12,358	5.9%
2	Offen, Claus Peter	437,460		0%	6,529		4.7%
3	Peter Döhle/Hammonia	435,056	0	0%	3,955		4.7%
4	E.R. Schiffahrt	393,358		0%	5,785		4.2%
5	Rickmers Group	349,602	38,832	11%	4,370	7,766	3.8%
6	Danaos Shg	334,174		0%	5,967		3.6%
7	Costamare Shg	331,206	114,040	34%	5,614	12,671	3.6%
8	Niederelbe (NSB)	328,234	20,000	6%	5,758	5,000	3.5%
9	Norddeutsche Ree. H. Schuldt	294,585		0%	4,603		3.2%
10	Zodiac Maritime	238,375	91,816	39%	7,011	11,477	2.6%
11	Eastern Pacific Shg (EPS)	201,113	130,832	65%	6,704	18,690	2.2%
12	Shoei Kisen	196,890	336,040	171%	5,181	16,802	2.1%
13	Schulte Group	194,282	25,927	13%	4,518	2,357	2.1%
14	Enesel SA	180,080		0%	12,863		1.9%
15	Technomar Shg	165,572	27,000	16%	4,245	9,000	1.8%
16	NSC Schiffahrt	156,903	27,090	17%	4,483	9,030	1.7%
17	Hansa Shipping	144,313		0%	3,356		1.6%
18	Ahrenkiel Steamship	135,006		0%	2,755		1.5%
19	Thomas Schulte	93,329	3,421	4%	3,218	3,421	1.0%
20	Nissen Kaiun	89,605		0%	4,978		1.0%







Top-20 containership
builders

recent deliveries vs.
vessel pipeline