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VESSEL SIZE & MAXIMISING SHIPPER BENEFITS IN A COMPETITIVE ECONOMY

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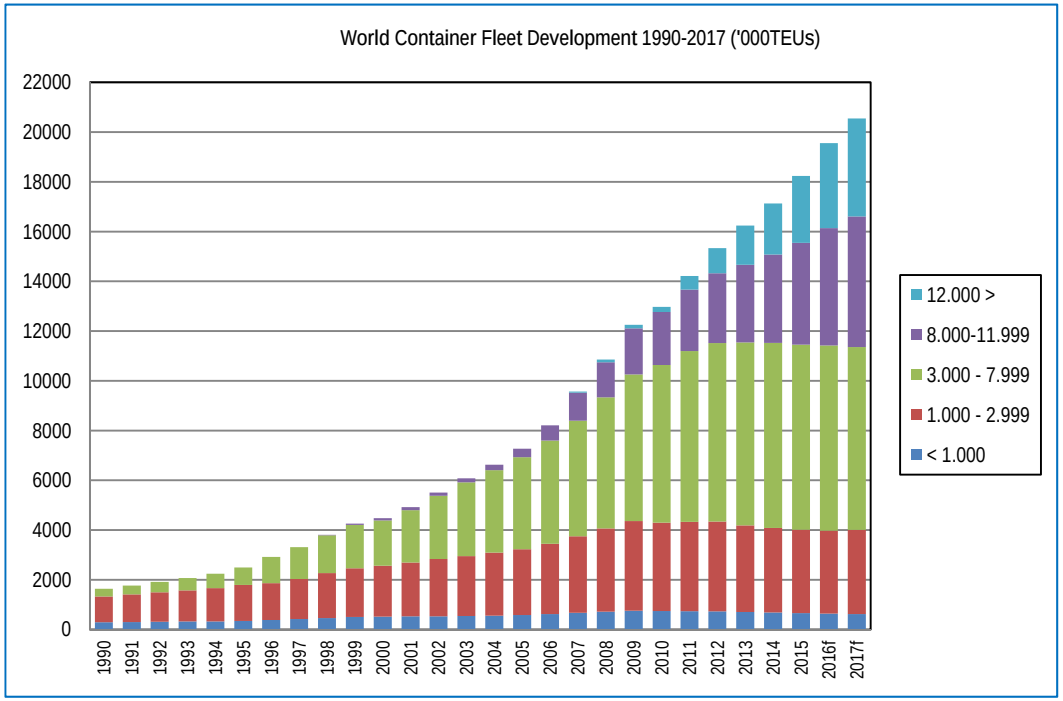
Far-reaching changes are underway – globally & regionally

- A ship size-based revolution is underway in the container trades.
- Why has this happened?
- How will this develop in the next few years?
- What will be the manifestation of this on the Australian trades?
- What will be the implications for port development?

Ship Size Revolution - I

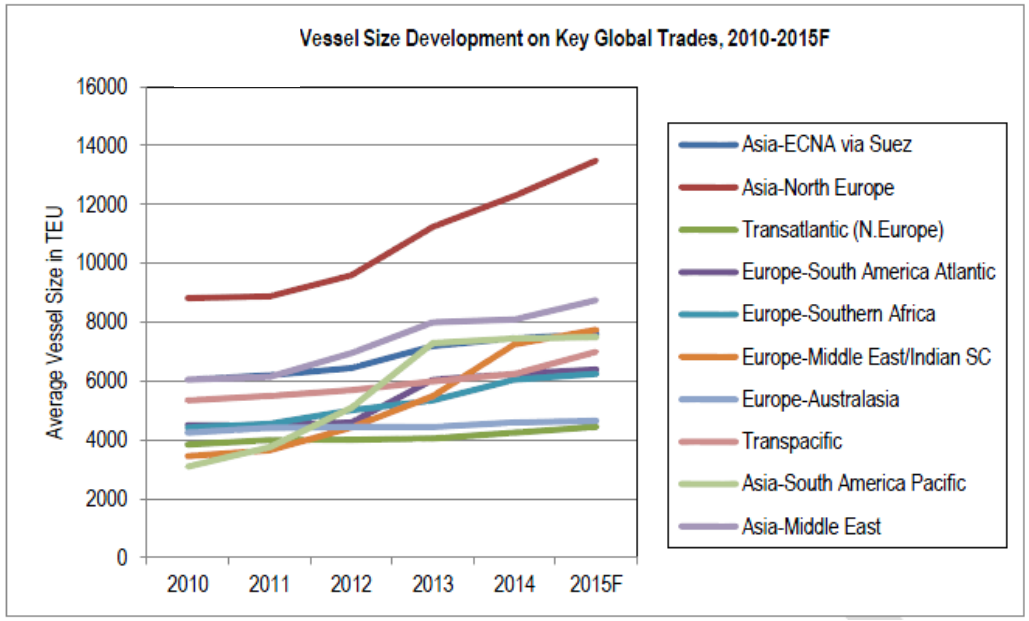
- The box fleet has been transformed in the past five years as **much larger vessels** dominate the trades.
- This still has further to run with a danger of **even larger** vessels being introduced into the Asia-Europe trades.
- A sensible decision for a particular line but collectively has generated a crisis.
- Demand – even before the current slowdown – was insufficient to meet supply.



The result has been a miss-match in supply and demand and a collapse in freight rates. This has forced much larger vessels that were previously dominant onto other trades. The position will worsen and there are major port issues.

The ‘Cascading Effect’ is well underway

- Much larger vessels on ‘Primary’ trades and **also larger vessels deployed on ‘Secondary’ deepsea** trades – where port capacity permits.
- This is driven by an **excess of vessels** displaced from primary deepsea trades ‘cascading’ to the secondary trades.
- Actual demand at present **seldom justifies** these much larger vessels – but it’s a ‘fact of life.’
- With ongoing orders of ever larger vessels **the cascading effect will continue.**



It is important to note that although pressures are mounting, ship sizes on the Australian trades are lagging behind.

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Why? – Scale economies & shipping costs I

- Scale economies have been the central driver.
- Shifts to larger vessels generate major savings.
- Fuel savings are also significant, with much larger vessels slow steaming.

Deep-Sea Containership Capital and Operating Costs 2015

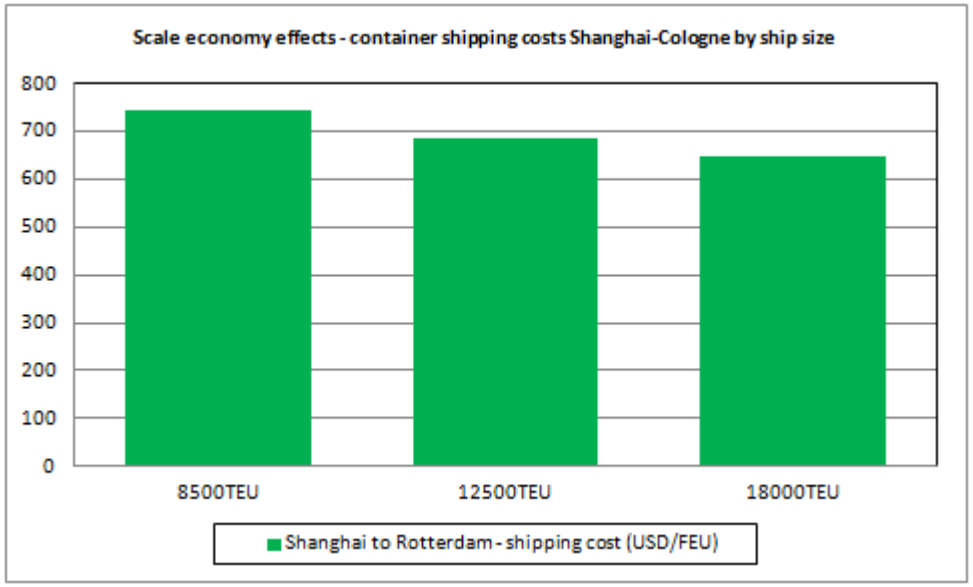
	2000TEU	3500TEU	4500TEU	6800TEU	8500TEU	10800TEU	12500TEU	14500TEU	18270TEU	22000TEU	24000TEU
Capacity - TEUs	2000	3500	4500	6800	8500	10800	12500	14500	18270	22000	24000
Capital Costs											
Newbuild Price - mUS$	25.0	35.5	40.0	62.5	76.5	90.0	112.0	130.0	162.0	178.0	190.0
Daily Capital Charge - $	*10,307*	*14,636*	*16,491*	*25,767*	*31,539*	*37,104*	*46,174*	*53,595*	*66,788*	*73,384*	*78,331*
Operating Costs											
Manning - US$/day	3,200	3,650	3,650	3,650	3,650	3,650	3,650	3,800	4,100	3,650	3,650
Repair & Maintenance - US$/day	1,096	1,568	1,734	2,456	2,903	3,238	3,573	3,948	4,353	6,284	6,635
Insurance - US$/day	655	936	1,035	1,466	1,733	1,933	2,133	2,350	3,100	3,751	3,961
Admin/Other Charges* - US$/day	1,000	1,100	1,100	1,200	1,200	1,200	1,300	1,475	1,650	1,300	1,300
Total	*5,951*	*7,253*	*7,519*	*8,773*	*9,486*	*10,021*	*10,656*	*11,573*	*13,203*	*14,986*	*15,546*
TOTAL	16,258	21,889	24,010	34,539	41,025	47,125	56,830	65,168	79,991	88,370	93,877
$/TEU	8.13	6.25	5.34	5.08	4.83	4.36	4.55	4.49	4.38	4.02	3.91

Source: Ocean Shipping Consultants

Ports have generally accommodated these developments as the increases were incremental. The next size of container vessels will result in significant capacity redundancies. These are important savings for regional shippers.

Why? – Scale economies & shipping costs II

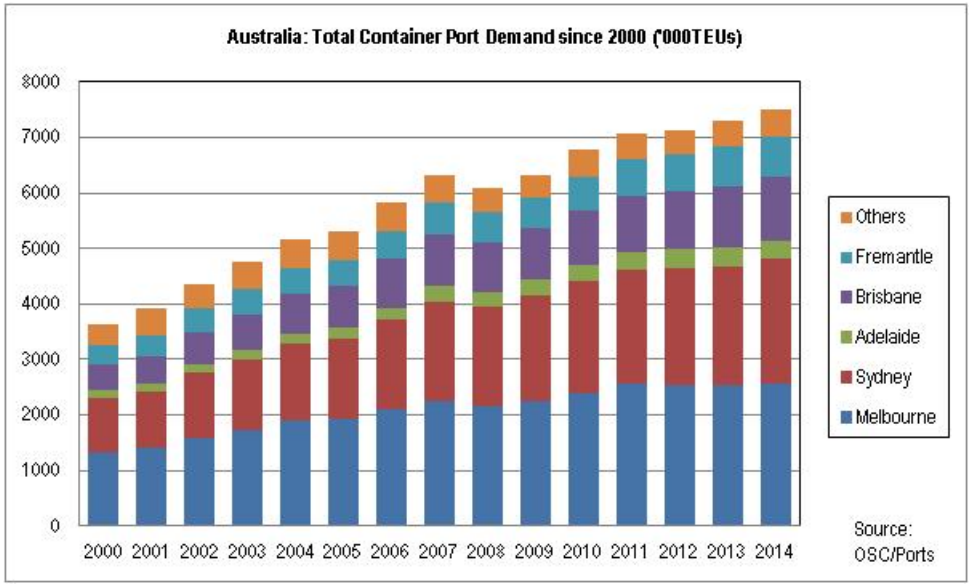
- The ability to berth the largest vessels on a particular trade is critical.
- For example, there is a current shipping cost saving of around USD96/FEU by switching from 12,500TEU to 18,000TEU+ vessels on the Asia-N Europe trades.
- This saving goes straight to the bottom line.



Provision of deepwater and competitive infrastructure is central to competitive position. These issues are becoming ever more important and have direct relevance here.

A quick look at Australian demand....

- Relatively strong demand growth is underway, despite economic slowdown.
- Although gradient of growth will vary, long term projections confirm rapid expansion in coming years.
- Strong demand growth is anticipated – dependent upon macro- conditions.



The three port structure will remain, but there will be increasing pressures to concentrate demand – especially for transit cargoes. Facilities with maximised vessel capacities and intermodal reach will win out. This means a requirement to berth at least two of the larger vessels simultaneously. This is a trend that ports globally are facing.

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.....and Australian ship size development

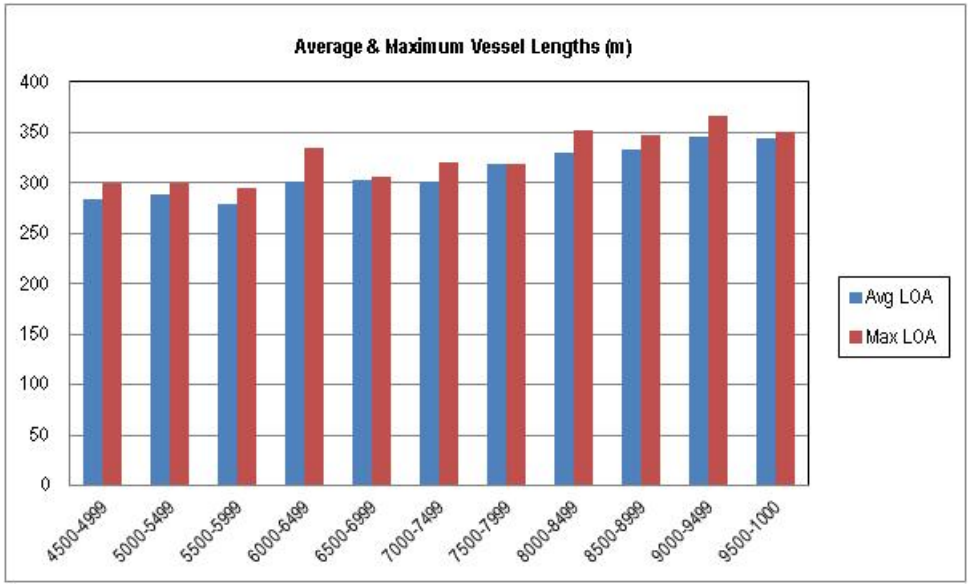
Operator/grouping	Operation	Australian Port Rotation	Largest Ship 2013	(TEUs) 2015
Largest Ships in Australia-North Asia Sailing Schedules				
CSCL/OOCL	AUS1/AEA1	SYD, MEL, BNE	4,578	5,888
AAUS (Hamburg Süd/ Hapag-Lloyd/APL/HMM)	Southern loop/ AAS/CAS/FA2	MEL, SYD, BNE	4,672	5,018
Cosco/Hamburg Süd/MOL/ NYK	JKN/ANZL/CNZ/ NZJ	BNE	4,298	4,785
Maersk Line/MSC	Boomerang (AU1/Wallaby)	BNE, SYD, MEL, SYD, BNE	5,041	5,380
NEAX (MOL/NYK/K Line/ Evergreen/OOCL)	ANA2/AU2/ ESACO/NEAX/ AEA3	MEL, SYD, BNE	5,014	5,014
ANL (CMA CGM)/CSCL/OOCL	AANA/AUS2/ AEA2	MEL, SYD, BNE	4,578	4,578
Cosco/PIL	SAS	SYD, MEL, BNE	4,253	5,816
Largest Ships in Australia-South East Asia Sailing Schedules				
AAA grouping (OOCL, MOL)	Bight loop	MEL, ADL	5,087	5,087
AAA grouping (OOCL, PIL, MOL)	Torres loop	BNE, SYD, MEL	4,578	5,087
AAX grouping (ANL, APL, NYK)	AAX	alt.FRE, alt.BNE, SYD, MEL, ADL	4,330	6,574
ASA grouping (RCL, Hanjin, OOCL)	ASA	BNE, SYD, MEL	2,732	2,800
Maersk Line	Northern Star/ Southern Star	BNE	3,267	4,258
PIL/MOL/NYK/OOCL	NZS/NZX	BNE	4,578	5,047
MSC	Capricorn service	ADL, MEL, SYD, BNE	4,056	3,535

Source: Ocean Shipping Consultants

Strong pressures are already noted with regard to deployed vessel sizes. The largest vessels on the three-port rotation has typically increased from 4600TEU to 5200TEU – despite port limitations. At present Melbourne is the weakest link with regard to limitations on berthing longer vessels.

What does this mean for port development?

- Larger vessels will be introduced even if they are deployed part-laden – as is now noted on other trades.
- Although draught will be an issue, the critical factor will be length and – in the case of Melbourne – air draught.
- Melbourne will remain a 'must call' port for local cargoes, but is in danger of losing out if it cannot berth the largest vessels that will arrive in sufficient numbers.



It is likely that Melbourne will be berthing multiple vessels in the 7000TEU+ range. Max size is not clear but it is possible that vessels of up to 9000TEU – or larger – could seek to call. These ships cannot access Swanson and Webb Dock will only be able to handle a single unit. This is a major risk.

Cost implications for and ship size development

- A series of analyses of deepsea shipping costs from Asia to Australian ports have been defined.
- Adelaide does not have the volumes to justify the deployment of larger vessels.
- The scale economy picture for both Sydney and Melbourne is very similar, with significant gains noted in switching to larger vessels of around 6800TEU capacity.

Deepsea Shipping Costs from Asia to Australian Ports
- US$ per 40' container

	Constrained by Melbourne Draught		Unconstrained	
	Singapore	Shanghai	Singapore	Shanghai
Adelaide				
3500	438.82	575.40	438.82	575.40
4500	374.72	503.46	374.72	503.46
Melbourne				
4500	366.09	456.48	366.09	456.48
6800	331.35	413.38	331.35	413.38
8500	334.56	416.62	322.75	401.91
10800	330.07	408.72	305.62	378.44
Sydney				
4500	397.28	416.53	397.28	416.53
6800	364.90	381.67	359.58	377.20
8500	368.43	384.66	350.25	366.74
10800	363.49	377.37	331.66	345.32
Brisbane				
2000	500.28	538.76	500.28	538.76
3500	467.76	501.08	467.76	501.08
4500	398.52	425.92	398.52	425.92

Source: Ocean Shipping Consultants

Melbourne's deepsea shipping costs for the Asian trades is seen to be somewhat lower than for Sydney. Even with part-loading there are worthwhile deepsea savings at Melbourne.

What happens if a port fails to keep up with larger ships?

The port will face marginalisation. This is a well established trend at the global level. There are numerous cases, but here are some notable examples:

- Tilbury's business has migrated to Felixstowe and London Gateway as a direct result of ship size developments.
- Hamburg is under increasing threat from failure to provide access to the largest vessels – with increased competition from Poland and Dutch ports
- Bangkok – direct loss of business to Laem Chabang.
- In Port Klang – a switch from Northport to Westport due to ship size issues.
- Portland in Oregon has seen market share fall due to marine constraints.
- Loss of transshipment to ports offering water depth for the largest mother vessels

Flexibility and modernisation of plans to accommodate changing shipping patterns and demands is critical.

Things do not stand still and there are increasing risks in these situations.

What about Melbourne?

- Partial data is available concerning Melbourne container distribution.
- It will always be cheaper to serve the Metro area via the port. However, remote parts of the State and transit cargoes to NSW and SA are highly sensitive to built-up cost differences.
- Transshipment is also vulnerable. If larger vessels can call in competing ports, Melbourne's transshipment business will be severely limited.

Melbourne: Current Distribution of Full Containers by Region

- '000TEIs

	Export		Import		Total	
Melbourne metropolitan	355.4	54.0%	918.2	87.0%	1273.6	74.3%
Regional Victoria	151.4	23.0%	30.6	2.9%	182.0	10.6%
South Australia	79.0	12.0%	61.2	5.8%	140.2	8.2%
New South Wales	72.3	11.0%	27.5	2.6%	99.8	5.8%
Others/unspecified	0.0	0.0%	17.9	1.7%	17.9	1.0%
Total	**658.1**	**100.0%**	**1055.4**	**100.0%**	**1713.5**	**100.0%**

Source: Derived from PoMC Container Logistic Study / Ocean Shipping Consultants

If multiple larger vessels (+335m) cannot be handled, then demand will not be maximised. Local containers will incur rates c.USD40-50/FEU higher.

Some points to take away....

- There are overriding cost drivers for larger vessels and these units are now a fact of life.
- Larger vessels will dominate the Australian trades, with cost benefits to lines and shippers.
- Melbourne needs more capacity to berth these vessels or its role and importance will decline.
- Specifically, transit and transshipment business will be lost.

Facing this difficulty is essential to the future of the port – reconfiguring the Web Dock design presents a low cost solution to this need.

Thank You

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