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## TRENDS IN INTERNATIONAL SHIPPING—IMPLICATIONS FOR TRADE PROTECTION

Maritime trade comprises approximately 90% of global trade and is driven by a variety of economic, technological and security trends. This paper seeks to identify the most significant of these trends and to explore their implications for maritime trade protection.

### A Changing World Fleet

#### (a) Container Trade

Container ships are increasing in size. In the mid 1990s the largest containerships in service had a capacity of around 6,000TEUs. In late 2006 the Maersk Line deployed on the Europe-Asia trade the *Emma Maersk*, the flagship of a new class of eight Suezmax container vessels each with a capacity of 15,200 TEUs.

In 2008, CMA-CGM broke the 10,000 TEU barrier by deploying eight 11,400 TEU carriers in the Europe-Asia trade then, in 2009, MSC deployed 14 Suezmax vessels. Each of these vessels can carry 14,000TEUs.

The current world full cellular containership fleet possesses a slot capacity of 15 million TEUs. Over 50% of this capacity is comprised of post-Panamax vessels. This compares with a capacity of 2.9million slots in 1996 (of which only 36% were carried by post-Panamax ships).<sup>[1]</sup>



**Figure-1** Emma Maersk requires gantry cranes capable of handling movements over 23 TEU rows. Source: [www.gcaptain.com](http://www.gcaptain.com)

#### (b) Bulk Carriers

The typical vessel sizes in the dry bulk trades are currently:-

- Capesize: 150,000 dwt; 280m LOA; 47m beam; 16m max draught.
- Panamax: 75,000 dwt; 225m LOA; 32 m beam; 12.5 m max draught.
- Handymax: 55,000 dwt; 190m LOA; 30 m beam; 12m max.draught.
- Handysize: 32,000 dwt; 185m LOA; 27m beam;

10.3 m max draught

The size of Cape ships is increasing with current demands for ships of 185,000 dwt. Shipping analysts predict that the Handysize bulk carrier will largely become redundant, being deployed only in specialized markets, while the Handymax will continue to dominate the smaller parcel trade.<sup>[2]</sup>The Panamax workhorse will be revised up to an 80,000dwt class.

#### (c) Tankers

Chemical and product tankers are generally not increasing in size. In the crude trade, ULCC's are have largely been replaced by double hulled VLCCs of about 300,000 dwt. VLCCs are expected to remain the main carriers on the long haul routes. The medium haul routes will continue to be served by Aframax or Cape size vessels.

There has been a gradual shift to Cape size in the Australian crude trade. This will consolidate once the Port of Melbourne's channel-deepening project is completed.

#### (d) Revised Panamax Dimensions

Changes to the Panama Canal are expected to accelerate the demand for box ships in the 12,000 TEU size range. In turn, the existing class of 4,000-4,500 TEU Panamax containerships and 60-70,000 dwt bulk carriers are likely to cascade down to minor trades.<sup>[3]</sup>

Vessels that can currently transit the Canal have a 32m beam, 294m LOA and a draught of 12m. The new locks, which are scheduled to open in 2015, will cater for box ships with up to 12,000TEU capacity and bulk carriers of 170,000 dwt. After 2015 the revised Panamax vessel will have a 49m beam, 366m LOA and a draught of 15m.

#### (e) Ship Propulsion

Despite rising fuel prices, the service speeds of containerships have increased from 21-23 knots in 1995 to 25-26knots. Increased fuel costs have been more than off-set by the increased carrying capacity which has permitted liner operators to deploy fewer vessels in their service loops.

In the next 20 years global warming and the decline in fossil fuels are likely to impact on vessel design. To meet these challenges, Wallenius Wilhelmsen Line has designed a car carrier propelled by wave, wind, and solar energy. The first of the design, the *Orcelle*, is scheduled to enter service in 2025 (see Fig. 2 below). Ship designers are also experimenting with other forms of wind and solar assistance, together with bio-fuels. The utility of these visionary designs remains to be seen.

#### Consolidation of Ship & Port Operators

Ownership in liner shipping has concentrated over recent years. The acquisition of the Australian National Line (ANL) by CMA-CGM, of P&O Nedlloyd by Maersk Line and of CP Ships (owners of Contship, Lykes and ANZDL lines) by Tui AG, the parent company of Hapag Lloyd, has significantly altered liner shipping services to Australia. It has brought about both the dissolution and re-alignment of several large shipping conferences and operat-



ing consortia.

These take-overs represent only three of a large number of mergers and acquisitions that have seen containership capacity controlled by the top twenty container lines increase from about 40% in 1990 to more than 90% today.<sup>[4]</sup> At the same time, the major liner operators have increased their ownership of terminals and storage and distribution points. Maersk (AP Moller), NYK and APL are now major global players in land-side logistics while MSC, CMA-CGM, COSCO and Evergreen have also expanded their stakes in terminal operations.

The form of collaboration between the shipping lines has changed with traditional liner conferences giving way to global operating alliances and discussion agreements (although in Australia discussion agreements are prohibited under the *Trade Practices Act 1974*).

Predictions made in the 1990's that the deployment of larger container ships would transform liner shipping into a singular network of hub and feeder ports have not exactly eventuated. While transshipment of TEUs from regional hubs has increased, more ports now receive calls from major liner services. In the Australian context, shuttle services to Singapore have certainly increased in the carriage of trade from Fremantle, however, the ports of Melbourne, Botany and Brisbane have benefited from a network of direct services. Despite this, transshipment is likely to increase, with Singapore becoming an increasingly important hub port for Australian trade.

Ownership in the bulk shipping sector remains relatively diverse with operators deploying their vessels in accordance with movements on the spot and time charter markets. The immediate future seems to hold little change for these operations.

Ownership in the stevedoring sector, however, has matched the trend for concentration evident in the liner sector. This concentration has produced a top-tier of third party stevedores namely, PSA International, Hutchison Port Holdings and DP World. In the Australian market, P&O Ports has been acquired by DP World and Patricks by Asciano (owner of Pacific National). This concentration is linked to a rationalization of operations in major transshipment hubs and container terminals. Essentially, shippers, carriers and stevedores are now more closely integrated while cargo carriage and handling has become standardised through the use of common intermodal logistic systems.



Figure 2 – ES Orcele. Source: [www.ens-newswire.com](http://www.ens-newswire.com)

### Ship & Port Security

The trend toward systemised data-flow dependency has been consolidated by new security initiatives. In late 2002 the Container Security Initiative (CSI) was implemented by US Customs & Border Protection (CBP). Its purpose is to identify and to inspect high risk containers in overseas ports before they

reach their destination in the US. One critical feature of the CSI is the '24-hour rule'. This rule requires 14 data elements to be reported on cargoes travelling to the US 24 hours prior to being loaded onto a vessel.<sup>[5]</sup>

The CSI has produced a flow-on effect with similar rules now applying in Europe. Shippers must provide EU customs authorities with detailed information before cargoes are loaded.

The Customs Trade Partnership Against Terrorism (C-TPAT) program, also sponsored by the US, seeks the co-operation of importers, carriers, consolidators, licensed customs brokers and manufacturers to achieve its goal of providing standardised information to CBP. Participants in C-TPAT are rewarded through less burdensome customs procedures. Approximately 12,000 companies have registered with C-TPAT. This program has been picked up by the World Customs Organisation (WCO) which has promulgated international standards to secure and facilitate international trade. These standards require shippers to use automated trade information technologies to pass standardised data to customs authorities for all cargo movements. Australia, as a member of the WCO, has adopted these standards.<sup>[6]</sup>

Increased cargo security measures have caused little disruption to the logistics chain. These disruptions have been alleviated in large measure by the use of hi-speed X-ray scanners and intelligent profiling soft-ware. 'Smart' technologies (intelligent radio identification container seals, incorporating bar-coded cargo details, linked to terminal tracking stations) have further minimised these disruptions and have the potential to assist cargo security by providing real time alerts and risk profiles.

### Implications for Trade Protection

The concentration of ownership in the liner trade combined with the horizontal integration of these companies in landside logistics and the emergence of a small number of large, third-party stevedores, has accelerated the assimilation of shipping into a global, intermodal transport system. Trade is increasingly being conducted between regional hub ports by ever-larger vessels, while goods are increasingly being transhipped by feeder or relay vessels (which are also increasing in size). Higher value cargoes are concentrated in fewer hulls in an interlocking web with intermodal connections. Crucially, the 'system' is dependant on both the free and predictable flow of shipping and the free flow of data.

The implications for trade protection are enormous. The RAN has moved away from a doctrine centred on the protection of national and allied flagged vessels to a doctrine centred on the protection of trading hulls. It is likely that future doctrinal developments will see a greater emphasis placed on the protection of the system as a whole, including the tracing and reporting of especially hazardous cargoes within the system. This will require the Navy to develop a greater interconnectivity with commercial and government participants, not merely ship operators, shipping agents and port authorities but consignors, consolidators, customs agents, insurers and the Office of Transport Security to name just a few.

Moreover, as the system may be attacked at any point along the chain, interoperability with foreign trade protection agencies and data handlers will be crucial. In this regard, it is worth noting that trade protection operations have already pulled defence engagement beyond Australia's immediate geographic region with the MTO Branch providing shipping information for multi-national operations in the Mediterranean, Red Sea, Horn of Africa and Arabian Gulf. RAN fleet units have also been actively engaged in trade protection and interdiction



duties in some of these areas.

Not surprisingly, Professor Till has concluded that - 'Navies have a substantial role to play in the defence of the [trade] system as a whole.'<sup>17</sup> That being said, trade protection doctrine must develop a global, system-centred approach to both meet and exploit these emerging trends.

#### End Notes

1. International and Domestic Shipping and Ports Study: Final Report – Prepared by Meyrick & Associates 1 May 2007.
2. Drewery Shipping Consultants Quarterly Report May 2009.
3. Meyrick op cit.
4. Ibid.
5. US Border and Customs web-site: [www.cpb.gov](http://www.cpb.gov)
6. World Customs Organisation web-site: [www.wcoomd.org](http://www.wcoomd.org)
7. Till, Geoffrey 'A Changing Focus for the Protection of Shipping' p. 17 in The Strategic Importance of Seaborne Trade and Shipping: Papers in Australian Maritime Affairs No 10, A. Forbes (ed) Canberra (2002)



**Figure—3.** Higher value cargoes are being carried in fewer hulls. In turn, this requires specialised handling facilities in major hub ports. Source: [www.freewebs.com](http://www.freewebs.com)

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