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Inquiry into **National Freight**
and **Supply Chain Priorities**



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Contents

1. INTRODUCTION 3

2. MARITIME FREIGHT TRANSPORT 4

Maritime freight market and service types 4

Impacts of international shipping patterns on Australia 5

3. THE ROLE OF PORTS..... 7

4. MARITIME FREIGHT TRANSPORT 9

Bulk shipping 9

Container shipping 10

5. FUTURE TRENDS AND DEVELOPMENTS..... 11

Growing ship sizes 11

Industry consolidation 12

Coastal shipping – potential to grow the share of transport 13

Single national maritime regulator – its role in productivity 13

The role of the International Maritime Organization (IMO) – the impacts of environmental, safety and security treaties on productivity 14

6. STAKEHOLDER PRIORITIES..... 15



Maritime freight key facts

Over 90 per cent of Australia's exports depend on sea transport.

The combined value of Australia's seagoing international imports and exports was over \$400 billion in 2015-16 — equal to 25 per cent of Australia's gross domestic product.

Australia has the fifth largest shipping task in the world, dominated by bulk resource exports.

Australian ports have forecast that they have sufficient capacity to handle the growth in ship sizes, although concerns exist over the adequacy of landside capacity. Shipping lines are introducing larger ships with the intention of reducing unit costs by achieving economies of scale.

Overcapacity in container shipping has led to a downturn in freight rates, but is also leading to greater consolidation in liner shipping, with less competition likely to result in increasing rates.

With a relaxation of cabotage restrictions and/or the introduction of autonomous ships, coastal shipping could offer an attractive option for inter- or intra- state logistics.

Shipping plays a vital role in Australia's freight transport, moving around 15 per cent of Australia's domestic freight by volume (down from 27 per cent in 2002).



1. Introduction

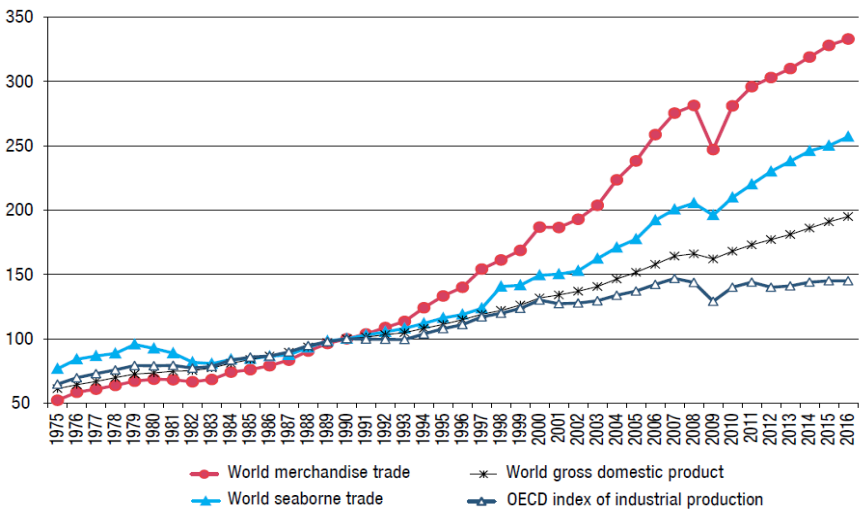
The maritime sector plays a significant role in the global economy, and is critical to Australia as an island economy. This paper describes key concepts of maritime trade and Australia's integration with an industry described as the lifeblood of globalisation.

According to the United Nations Conference on Trade and Development, around 80 per cent of global trade by volume and over 70 per cent of global trade by value is carried by sea and handled by ports worldwide.¹

World merchandise trade has grown significantly since the 1980s (see Figure 1). Strong demand for raw materials, particularly demand from China and India for energy and mineral resources, has led to increasing volumes being transported by sea across the globe. The movement of manufactured goods by sea has also significantly expanded in tandem with the rise of global value chains transforming the nature of production activities such as outsourcing, offshoring and just-in-time inventory management, and international trade in general. This has stimulated the logistics environment and created ways to reduce transaction costs.

Figure 1 – Organisation for Economic Cooperation and Development index of industrial production and world indices: Gross domestic product, merchandise trade and seaborne shipments 1975-2016

Figure 1.1. Organization for Economic Cooperation and Development index of industrial production and world indices: Gross domestic product, merchandise trade and seaborne shipments, 1975–2016 (1990 = 100)



Sources: UNCTAD secretariat calculations, based on data from OECD, 2017; United Nations, 2017; UNCTAD *Review of Maritime Transport*, various issues; World Trade Organization, 2012.

Note: Index calculations are based on GDP and merchandise trade in dollars, and seaborne trade in metric tons.

¹ United Nations 2017, Review of Maritime Transport 2017, United Nations Conference on Trade and Development, Geneva



Over 90 per cent of Australia's exports by volume depend on sea transport. The combined value of our seagoing international imports and exports was over \$400 billion in 2015-16 (against GDP of \$1.66 trillion).² Australia's shipping task is the fifth largest in the world.³ It is the world leader in coal⁴ and iron ore⁵ exports, and the second largest exporter of liquefied natural gas.⁶

In 2015-16, 1,597 million tonnes of cargo moved across Australian wharves. This represented a 3.1 per cent increase on the previous financial year.⁷

2. Maritime freight transport

Maritime freight market and service types

Australia's international and domestic shipping task is served by a range of trading vessels including **dry bulk carriers** that transport commodities such as iron ore, coal, and grain; **liquid bulk carriers** such as tankers that ship crude oil, chemicals, natural gas and petroleum products; **container ships**; **general cargo ships**; and **roll on-roll off (RORO) vessels** that transport wheeled cargo such as cars, trucks and trains. This industry offers two major types of services.⁸

- **Charter services** (also known as **Tramp**) whereby ships are rented for specific purposes, commonly between a specific port of origin and destination. This type of service is notably used for bulk cargo, such as petroleum, iron ore, grain or coal.
- **Liner services** have fixed sequences of ports of call and fixed schedules, i.e. arrival and departure times at each port of call, and are announced in advance to attract potential customers. Liner shipping has existed since the mid-1800's and now predominantly covers the transportation of containerised cargo.

The market structures of these two sectors are quite distinct. Charter services resemble a taxi service. The contractual relation between passenger and driver (cargo and/or ship owner) expires upon the completion of the trip/s. Liner container services are, in principle, open to everyone with some cargo to ship, resembling a public transport service.⁹

The market for liner shipping has also been characterised by high levels of inter-firm collaboration. The principal form of economic organisation has been conference agreements between carriers

² ABS 2016, Customised report based on International Merchandise Trade data and ABS National Accounts

³ PricewaterhouseCoopers Australia (PwC) 2015, The economic contribution of the Australian maritime industry, Report prepared by PwC from publicly available material and from discussions held with the Australian Shipowners Association

⁴ Australian Government, Australia's major export commodities - Coal, December 2016

<https://industry.gov.au/resource/Mining/AustralianMineralCommodities/Documents/Australias-major-export-commodities-coal-fact-sheet.pdf> (Accessed 4/12/2017)

⁵ Australian Government, Australia's major export commodities – Iron Ore, December 2016,

<https://industry.gov.au/resource/Mining/AustralianMineralCommodities/Documents/Australias-major-export-commodities-iron-ore-fact-sheet.pdf> (Accessed 4/12/2017)

⁶ United States Energy Information Administration, Australian domestic natural gas prices increase as LNG exports rise, 20/10/2017

<https://www.eia.gov/todayinenergy/detail.php?id=33412> (Accessed 4/12/2017)

⁷ Lloyd's List Intelligence (LLI), 2017. Australian ship movements (unpublished data). London

⁸ Jean-Paul Rodrigue (2017), *The Geography of Transport Systems* 4th Ed., New York: Routledge

⁹ Haralambides, H.E. (2007), Structure and operations in the liner shipping industry, Center for Maritime Economics and Logistics, Erasmus University, Rotterdam (Chapter 40 in Hensher, D.A. & K.J. Button (2007) *Handbook of Transport Modelling*, Elsevier



which enable them to fix freight rates on a particular route or routes. Although viewed as anti-competitive, governments have exempted these agreements because they are seen as a mechanism to stabilise rates in an industry that is inherently unstable. By fixing rates shippers are given protection from swings in prices and are guaranteed a regular level of service provision.¹⁰

More recently the advent of containerisation has seen carriers establish alliances. Unlike conference agreements, alliances do not set rates, instead they enable their members to pool their capacity to mitigate risks stemming from fluctuations in demand for shipping services.¹¹ Similar to codeshare agreements in the aviation industry, carriers within an alliance cooperate on setting schedules and ports of call, but maintain individual marketing and commercial identities. Alliances are a pragmatic decision by carriers to offer more sailings with fewer vessels, allowing them to expand their service offering and displace unused capacity onto other routes.

Horizontal and vertical integration of liner shipping and associated services, such as terminal operation and stevedoring, have also resulted from containerisation as well as the need to increase returns on fixed capital by capturing sufficient volumes of the global market.

The maritime transport industry continues to innovate in areas such as insurance, cargo booking, port operations, ship design, logistics, automation, navigation, communications, shipyards and owning and managing ships to compete more effectively in the marketplace.

Shipping markets display cyclical behaviour. Charter rates for bulk and liner shipping are set by the market mechanism of supply and demand, and are most closely correlated with fleet utilisation. (Rates rise sharply when utilisation exceeds 95 per cent).¹² Shipping capacity is often driven by ordering and scrapping decisions, or by regulatory events such as the double hull standard. Demand (i.e. trade volume) on the other hand, is driven by national and global business cycles, economic development, international trade policies, and trade disruptions such as war/ conflict and oil price shocks. New vessel deliveries typically lag orders by one to two years. Excessive ordering of new vessels in times of high freight rates eventually leads to overcapacity and a downturn in rates which tend to remain low until utilisation is improved through fleet contraction or trade growth, and the cycle repeats.

Impacts of international shipping patterns on Australia

The global pattern of trade as illustrated at Figure 2 is dominated by east-west flows which affect the availability of services to Australia. This pattern of trade flows from diverse locations of raw materials, production sites and consumption areas of cargoes in world trade.

The geographical fragmentation of production sites, mainly located in emerging markets in Asia, has added additional complexity. Australia's location limits its access to core shipping routes, which impacts our economy in two key ways. First, through a lower frequency of liner services.

¹⁰ Jean-Paul Rodrigue (2017), *The Geography of Transport Systems* 4th Ed., New York: Routledge

¹¹ Premti, A (2016) *Liner Shipping: Is there a way for more competition?*, United Nations Commission on Trade and Development, United Nations, New York and Geneva

¹² J. Steele et al., eds., *Encyclopedia of Marine Science*, Academic Press, 2001



Figure 2 – Main maritime shipping routes¹³



Secondly, through the higher amount of imports and exports transiting through transshipment hubs, where delays, particularly in peak periods, may place additional costs on Australian import/export supply chains.

Transshipment occurs across all cargo types, but is particularly important for liner shipping. In 2012 the share of transshipment reached 28 per cent of all the TEUs handled by ports around the world, double of what it was 20 years earlier.¹⁴

Five of the world's top 10 transshipment ports — Singapore, Hong Kong, Shanghai, Busan and Dubai — are also among the world's top 10 busiest container ports.

¹³ Jean-Paul Rodrigue (2017), *The Geography of Transport Systems* 4th Ed., New York: Routledge

¹⁴ Rodrigue, J-P (2015) Transshipment hubs: connecting global and regional maritime shipping networks, <http://www.porteconomics.eu/2015/09/17/transshipment-hubs-connecting-global-and-regional-maritime-shipping-networks/> Accessed 2/11/2017



3. The role of ports

Major ports are established as gateways of continental distribution systems and have access to high capacity inland freight distribution corridors. Just as the marine transportation system employs a network of specialised vessels, the ports visited have evolved to provide a mix of facilities designed to meet the trade of the regions they serve. In developed regions with large tertiary sectors the port volumes are often more diversified and include more high-value-added goods, transported via containers. Agricultural and industrial regions are usually more specialised in bulk traffic.

In Australia, major ports and related infrastructure provide the key locations for supply chain activities servicing a wide range of cargo types. Although there are over 60 gazetted¹⁵ ports across Australia, the Bureau of Infrastructure, Transport and Regional Economics (BITRE) has identified 17 nationally significant ports¹⁶ based on activity measures, namely ship calls or visits, throughput, and international sea trade values (the sum of inbound and outbound trade). These ports vary in their scale of operation and characteristics, and can be grouped into two types:

- Specialised Bulk Ports with activity principally handling bulk cargo, often including mining and manufacturing activities on site.
- Mixed Ports with a range of activities including servicing containerised, break-bulk or non-containerised cargo and sometimes also passenger ships.

In terms of throughput, preliminary data shows 5,540 uniquely identified cargo ships made a total of 30,056 port calls at Australian ports in 2015-16. These included 5,439 cargo ships which made 16,528 voyages to Australian waters from overseas ports. Over the five years to 2015-16, preliminary data shows the total port calls by cargo ships increased by 3.9 per cent per annum, while port calls by cargo ships from overseas increased by 6.8 per cent per annum.

The total number of unique cargo ships calling at Australian ports increased by 3.8 per cent per annum¹⁷ from 2010-11 to 2015-16. The number of unique cargo ships calling at Australian ports from overseas, increased by 3.9 per cent per annum from 2010-11 to 2015-16.¹⁸

Australian ports are generally managed by a port authority in which the public authorities may or may not be a stakeholder. The core functions of the port authority can be broadly classified into three areas:

- Regulatory functions: providing maritime services (e.g. harbour control, pilotage) and emergency pollution response; providing for customs and quarantine requirements; maintaining maritime safety and promoting general efficiency of the port.
- Landowner functions: providing port planning and development; navigational aids; breakwaters; entrance channels and maintaining basic port infrastructure such as wharves and berths.

¹⁵ 'Gazetted' means a notice published in the Australian Government *Government Notices Gazette*.

¹⁶ Bureau of Infrastructure, Transport and Regional Economics (2014) *Ports: job generation in the context of regional development*, Information Sheet 56, BITRE Canberra ACT

¹⁷ Average annual per cent change estimated by fitting an exponential curve through recent five years' data using the Excel function LOGEST. The resulting trend line represents a constant annual per cent change over the period of five years.

¹⁸ Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2018, unpublished



- Operator functions: providing cargo handling services and other value-adding functions such as warehousing, storage and towage.

Since the early 1990s a number of countries, including Australia, have implemented reforms to improve port efficiency and reduce the financial burden placed on governments of supporting such a capital intensive industry. The 'landlord' model of port management is a reform common in medium to large mixed use ports. Under this model, the port authority may act as both regulatory body and landlord, while operational functions (especially cargo handling) are carried out by private companies. However, with increasing privatisation, governments typically retain the regulatory function and all other functions are managed by the private 'landlord' operator.

Privatisation of Australia's ports remains an area of contention for a range of sectors within the business community. In most cases, the transfer of ownership of Australian ports has provided opportunities for improvement in economic efficiency and overall operational performance. However, ports display natural monopoly characteristics raising the need to maintain adequate regulatory frameworks to clarify service goals and protect consumer interests.¹⁹

¹⁹ Worldwide Experiences of Port Reform (PDF Download Available). Available from: https://www.researchgate.net/publication/295402006_Worldwide_Experiences_of_Port_Reform [accessed Nov 13 2017].



4. Maritime freight transport

Australia's population is highly urbanised with 89 per cent of Australians living in urban areas and two-thirds of the population living in the five large port cities. Hence, a large proportion of the Australian population is easily and efficiently reached by ocean shipping. The concentration of the population in the large port cities provides consumers with a wide choice of products, facilitating lively competition between products, their supply chains and supporting landside logistics providers.

Bulk shipping

Australia's maritime trade is dominated by the export of mining and agricultural products shipped in bulk. Australia is in the top five exporters in the world for bauxite, alumina, iron ore, zinc, coal and liquefied natural gas and contributes roughly 20 per cent of the world's dry bulk trade through iron ore and coal exports.

Australia also exports an average of 25 million metric tonnes (mmt) of bulk grain per year, including 17 mmt of wheat. As opposed to resources that are shipped in relatively even amounts across the year, grain shipments are concentrated in a 'shipping window' from December to May, when supply from Northern hemisphere producers is waning.

Australia's bulk shipments are also assisted by significant shipping freight time advantages. Our major iron ore ports are close to the largest iron ore importers in Asia, reducing shipping costs relative to competitors. Spot freight rates from Western Australia to China and Japan for 2015 averaged US\$4.91 a tonne, 56 per cent lower than the freight rate from Brazil (US\$11.18 a tonne²⁰).

Australia also has a significant freight advantage over its competitors when shipping grain into North and South-East Asia. The sea transit time to Indonesia is 6.5 days from south west WA and 13.5 days from NSW. This equates to 25-50 per cent of the transit time from the US, Canadian and European ports to Indonesia. As a result Australian freight rates are a third to half those from the Americas.²¹

Australia's key bulk resources ports have witnessed extraordinary growth in the last decade, with tonnage rising by over 100 per cent. Bulk port facilities have been expanded greatly, with Port Hedland now the world's largest bulk export port and Newcastle the world's largest coal export port. Central to this growth has been enhanced infrastructure and increasing efficiency in commodity logistics chains.

With bulk commodities accounting for 87 per cent²² of Australia's coastal trading market, bulk ports are also integral to domestic activities, such as for handling the importing, exporting and domestic distribution of crude and refined-oil around the country; for handling cement materials and for

²⁰ Government of Western Australia, Western Australia Iron Ore Industry Profile July 2017, <http://www.itsi.wa.gov.au/docs/default-source/default-document-library/wa-iron-ore-profile-0717.pdf?sfvrsn=8> Accessed 8/11/2017

²¹ Stretch, T., Carter, C. and R. Kingwell (2014) *The cost of Australia's bulk grain export supply chains*, Version 2014.3, Australian Export Grain Innovation Centre, Perth, WA

²² Bureau of Infrastructure, Transport and Regional Economics (BITRE) 2017, Australian sea freight 2014–15, Canberra, ACT

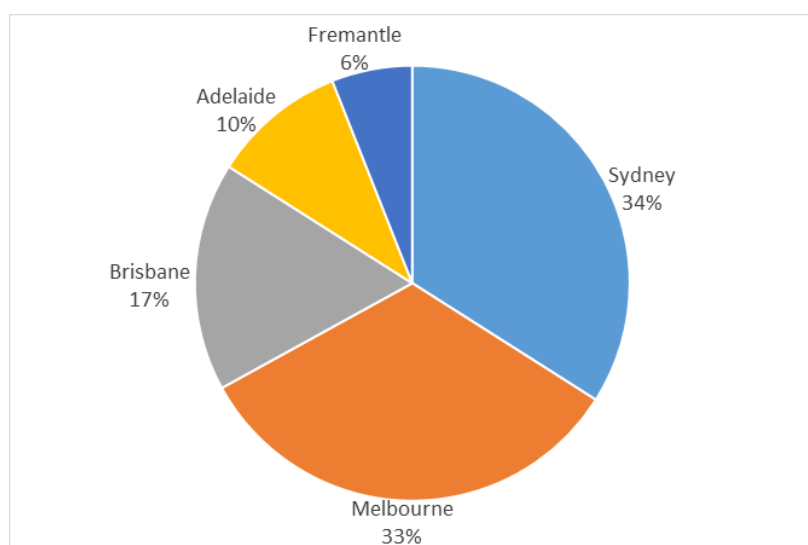


shifting bauxite-based commodities between mining areas, refineries and smelters.

Container shipping

Australia's share of global container traffic is relatively small, with various estimates settling at about 1.5 per cent.²³ Container throughput is concentrated in the ports of Botany, Melbourne, Brisbane, Fremantle and Adelaide (Figure 3). In 2016 these ports handled 6,994,200 TEU, which amounts to 4,623,000 individual containers.²⁴

Figure 3 – Container volume per Australian port, 2016²⁵



Another feature of Australia's container trade is that more containerised goods are imported than exported. This means that shipping firms facing lower utilisation rates on northbound trades are often forced to reposition empty containers to other markets because cargo cannot be found for a return leg. This has often worked to Australia's advantage as shipping lines may offer cheap rates to attract cargo just to cover the cost of shipping empty containers back to Asian hubs.

Many of Australia's key liner shipping exports i.e. grain, meat and dairy products, are considered dense cargoes. That is, they have a relatively high weight to volume ratio and are more suited and more affordable to pack in food grade 20 foot containers, with increasing demand for refrigerated containers.

However, imports such as white goods and electronic equipment, tend to be less dense than exports and typically use 'dry' 40 foot containers leading to an imbalance. With an increasing amount of agricultural exports being shipped out by containers, this imbalance can lead to acute shortages of food grade 20 foot containers during periods of high demand, as was experienced following Australia's record 2016-17 grain harvest.

²³ World Shipping Council 2014, <http://www.worldshipping.org/about-the-industry/global-trade/trade-statistics> (accessed 5/12/2017)

²⁴ Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2017, Waterline 60, Statistical Report, BITRE, Canberra ACT

²⁵ Source: BITRE Waterline 60



5. Future trends and developments

Growing ship sizes

The shipping industry is an extremely competitive industry with thin financial margins. Shipping rates are under constant market pressure. Increasing the economies of scale through the use of larger ships and reducing fuel costs are two tools that ocean carriers can consider to improve margins, and both have contributed to the new, large-vessel building programs in recent years.

Increasing vessel size has been a continuous trend since shipping was invented. In recent times the size of container ships is capturing a lot of attention. The press calls them ‘megaships’ and much of the focus has been on the issues they will create for ports, terminals, communities and regions where they operate.

Some of Australia’s key bulk ports such as Port Hedland and Hay Point are already facing the challenge of growing ship sizes as they regularly handle ships with draughts exceeding 18 metres, much deeper than the largest container ships. A key issue has been on what the new dimensions of these ships will mean for their ability to access ports, in particular their draft. Concerns have been raised that existing ports with draught restrictions might face a degree of obsolescence.

The international panama standard of 12 metres draught of a decade ago is obsolete²⁶; the new Neo-Panamax requirement is 15.2 metres plus. Many international container ports consider 16 metres the minimum to offer customers. Bulk ports often requiring draughts in excess of 19 metres. Another key consideration for ports is the growth in the width (beam) of ships. Perhaps cognisant of depth restrictions, ship designers have opted to increase container capacity by prioritising growth in beam over other dimensions. This is reflected in the new Panama Canal locks, which have increased 26 per cent in depth and length, and over 50 per cent in beam.²⁷ So in addition to deeper waters and longer berths, container ports need wider channels and gantry cranes. Dredging capacity, adequate turning circles and height restrictions will also become increasingly important to port access.

On the quayside, increase in terminal handling productivity to match the growth in ship dimensions is not easily achieved. A terminal that is used to handling 4,500 TEU Panamax ships could face a 133 per cent increase in containers per hatch when an 18,000 TEU megaship shows up²⁸. Another significant issue for port authorities and stevedores will be recouping the cost of providing services to bigger ships, when there is no commensurate increase in throughput.

Although Australia has no globally significant hub ports, container shipping is efficient and getting more so as the size of container ships visiting Australian ports continues to grow. According to the Australian Competition and Consumer Commission²⁹ (ACCC) shipping lines are launching their largest new ships on the big freight routes between Europe, Asia and North America, with a cascading effect on smaller routes such as those to Australia.

²⁶ Brooks, M.R., Pallis, T & S. Perkins (2014) *Port Investment and Container Shipping Markets*, Discussion Paper No. 2014-03, International Transport Forum

²⁷ Wikipedia, Panamax, https://en.wikipedia.org/wiki/Panamax#New_Panamax (Accessed 12/12/2017)

²⁸ United States Department of Transport, Federal Highway Administration, Talking Freight May 2017, *Understanding the impact of megaships* https://www.fhwa.dot.gov/Planning/freight_planning/talking_freight/may_2017/index.cfm Accessed 06/11/2017.

²⁹ ACCC (2017), Container stevedoring monitoring report 2016-17, Australian Competition and Consumer Commission, Canberra



In spite of growing shipping sizes, Australia's container port authorities consider they have sufficient entrance channels, and quayside and terminal capacity to handle the forecast ship fleet over the next 20 years. Of greater concern to the port authorities is congestion on surrounding landside transport linkages. That could present significant challenges as larger ships seek to offload larger batches of containers within existing or similar timeframes.

Most of Australia's bulk port facilities have been expanded greatly since 2000 to increase export capacity. To handle bigger vessels, ports have deepened channels, provided additional quay infrastructure and implemented new technology such as Dynamic Under Keel Clearance®.³⁰

All key Australian bulk resources ports can now load Capesize vessels. Port Hedland loads ships up to 260,000 tonne dwt capacity. Although larger dry bulk carriers are in service, namely the Valemax (400,000 tonne dwt) iron ore carriers servicing the Brazil to China route, Australia's competitive advantage for freight into Asia is likely to ensure Australia's bulk ports have adequate capacity over the next 20 years.

Industry consolidation

Since the early 1990s liner shipping firms have sought to consolidate via mergers and takeovers. A record downturn³¹ in the container rates in early 2016 contributed to further consolidation. By November 2016 there were just sixteen big competitors dominating the global shipping industry, down from twenty-five in 2011.

Since the global financial crisis, demand for container shipping has been slow to pick up and there has been an influx of new, often larger, ships ordered during the preceding boom. This has caused an oversupply of slot capacity and placed downward pressure on freight rates. The downturn and overcapacity within the industry has led to significantly cheaper rates for Australian shippers seeking to transport goods overseas.

These benefits may lessen over time if consolidation within the industry results in less competition and international maritime trade growth picks up and increases demand for liner shipping services.

Consolidation within the shipping industry also affects stevedores. The top tier of carriers increasingly represent the greater proportion of a port's total container trade: increasing their bargaining power in the negotiation of new stevedoring contracts. The ACCC³² also understands that as newly merged entities negotiate contracts, it is common for all shipping lines within the group to receive what had previously been the lowest rate amongst them. This means that stevedores are likely losing some of their higher margin contracts with smaller shipping lines.

The recent consolidation process can also be illustrated in the reduction in the number of major container shipping alliances. In 1998, there were six alliances, which represented 50 per cent of the worldwide fleet (in TEUs).

³⁰ Dynamic Under Keel Clearance is a registered trademark of OMC International.

³¹ Drewry, <https://www.drewry.co.uk/news/news/global-spot-container-rates-hit-record-lows> Accessed 06/11/2017

³² ACCC (2017), Container stevedoring monitoring report 2016-17, Australian Competition and Consumer Commission, Canberra



By 2017, only three main alliances are expected to operate, representing at least 77.2 per cent of the operational market.³³ With alliances tendering their combined stevedoring task on a particular trade – as the A3 alliance (ANL, COSCO and OOCL) did in Australia in 2016³⁴ – there is likely to be further pressure placed on stevedores to attract throughput.

Coastal shipping – potential to grow the share of transport

Shipping plays a vital role in Australia's freight transport, moving around 15 per cent of Australia's domestic freight by volume (down from 27 per cent in 2002). Coastal shipping currently serves specific supply chains, for example, transshipment between the Port of Melbourne and Tasmania, iron ore from Port Hedland to Port Kembla, bauxite from Weipa to Gladstone and product oil to 55 product oil terminals around the Australian coast.

Despite Australia being the fifth largest user of shipping services in the world, the Australian registered trading fleet has been in steady decline over the past decade, from 33 in 2003 to 14 in 2016-17. Successive governments have explored different ways to regulate coastal shipping with the aim of increasing the number of Australian ships in both the international and coastal trading sectors, but foreign ships have always been necessary to satisfy the demand for shipping services, including in the coastal sector.

Coastal shipping has the potential to grow its share of the national transport system in order to meet the growing transport task efficiently, effectively, safely and with the least impact on the environment of all modes of transport.

Stakeholders however consider the current regulation of coastal shipping creates a range of administrative issues for shipping companies and Australian businesses that use coastal shipping, resulting in substantial regulatory burden. These issues raise costs and stifle economic activity in both the Australian maritime sector and industries using shipping for the movement of freight.

If there were a relaxation of cabotage restrictions and/or the introduction of autonomous ships, coastal shipping could offer an attractive option for inter/intrastate logistics. It will maximise the use of available shipping capacity on the Australian coast and consequently grow the share of the freight task.

Single national maritime regulator – its role in productivity

From 1 July 2018, the Australian Maritime Safety Authority (AMSA) will assume full service delivery under the National System for Domestic Commercial Vessel Safety (national system). This will achieve consistent national administration and delivery of maritime safety regulation of vessels and seafarers for the first time for Australia's 27,000 domestic commercial vessels and 66,000 seafarers across domestic passenger, trading, fishing and hire-and-drive operations.

This truly national, unified system will support Australia's economic growth, productivity and competitiveness, particularly in the tourism, transport and fishing sectors. Economic benefits are expected to be generated by improved labour force and vessel mobility, streamlined legislation and

³³ Port Economics, 20/04/2017, The puzzle of shipping alliances in April 2017, <http://www.porteconomics.eu/2017/04/20/the-puzzle-of-shipping-alliances-in-july-2016/> Accessed 30/11/2017

³⁴ Smith, M, DP World battle-ready for Patrick after A3 win, *Australian Financial Review* 21/09/2016, <http://www.afr.com/brand/chanticleer/dp-world-battle-ready-for-patrick-after-a3-win-20160920-grk1xi#ixzz4zxxMiC8T> , Accessed 23/11/2017



standards and reduced regulatory burden for industry.

Better safety outcomes will be supported simultaneously through AMSA's consistent national application of safety regulation and national delivery of risk-based compliance and enforcement activities.

The role of the International Maritime Organization (IMO) – the impacts of environmental, safety and security treaties on productivity

The IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create a regulatory framework for the shipping industry that is effective, universally adopted and universally implemented.

Measures adopted through the IMO cover all aspects of international shipping, including ship design, construction, equipment, manning, operation and disposal. The ever-changing regulatory environment for international shipping can result in significant compliance costs for industry in some cases. However, the creation of a level playing field through the universal adoption of IMO regulations, which aids in preventing ship operators from minimising costs by compromising on safety, security and environmental performance, also encourages innovation and efficiency in the sector.

Maritime transport today is one of the cleanest means of transporting goods per ton-mile. To ensure that shipping remains energy efficient, the IMO continues to progress key initiatives on maritime environmental issues and ship design. Two key pieces of work currently in relation to air emissions from international shipping are:

- Sulphur content limits: from 1 January 2020, all ships and vessels operating anywhere in the world will be required to use fuel which contains a maximum of 0.50 per cent m/m sulphur, as agreed by the IMO in 2016. This is a significant reduction from the current limit of 3.5 per cent. Ships, ports, refineries and fuel suppliers will need to ensure they are ready for the global implementation of this regulation.
- Greenhouse gas emissions reduction strategy: in October 2016, the IMO approved a roadmap for developing a "Comprehensive IMO strategy on reduction of greenhouse gas emissions from ships". This roadmap foresees an initial strategy to be adopted in 2018. It contains a list of activities, including further IMO studies with relevant timelines, and provides for alignment of those new activities with the ongoing work by the IMO on the three-step approach to ship energy efficiency improvements. This alignment provides a way forward to the adoption of a revised strategy in 2023 to include short, mid, and long term further measures, as required, with implementation schedules. Significant work is currently underway at the IMO to ensure the text of an initial strategy is agreed and adopted in early 2018.

In addition, the IMO continues to work to improve the regulatory regime for the safety of ships and seafarers on a global scale, through the Maritime Safety Committee and a number of sub-committees. It does this in various ways, including the adoption of international collision regulations and global standards for seafarers, as well as international conventions and codes relating to search and rescue, load lines, the carriage of dangerous goods and tonnage measurement.



6. Stakeholder priorities

The *Inquiry into National Freight and Supply Chain Priorities* has undertaken extensive consultation with stakeholders and has received a number of suggestions for greater productivity in maritime freight. These include:

- Increase protection of ports and other freight precincts from urban encroachment
- Improve environmental regulatory approaches related to the maintenance of dredging of shipping channels
- Increase capacity of ports near capital cities, such as Port Kembla, is an effective way to support capital city freight nodes
- Review port and terminal pricing regulation
- Assess the relative costs of different freight modes to create a 'level playing field' for sea freight
- Reform coastal shipping to reduce costs and remove disincentives for use of coastal shipping as a freight mode.

