4

PORTS

The importance of well-functioning seaports for industrial activity, merchandise trade, globalized production processes and economic growth cannot be overemphasized. Global ports handle over 80 per cent of global merchandise trade in volume and more than two thirds of its value. As key nodes in global transport chains that provide access to markets, support supply chains, and link consumers and producers, ports are under constant pressure to adapt to changes in the economic, institutional, regulatory and operating landscape.

Growing competitive forces affecting ports emphasize the need for greater performance levels that extend beyond criteria such as the optimization of operations, cost reduction, time efficiency and trade promotion. More and more, ports are expected to improve performance in other areas – security, safety, resource conservation, environmental protection and social inclusion, for example. These factors are relevant to the global sustainability agenda and achievement of the Sustainable Development Goals.

At the same time, several megatrends are affecting the port industry, in particular the container port segment. These trends include the growing concentration and consolidation in the liner shipping market, the growing size of ships and the emergence of mega-alliances. In this context, attaining higher port performance levels and enabling the participation of the private sector in container port operations, in particular through public–private partnerships and port concessions, have become key considerations.

Section A addresses developments in container port traffic at the country and container port levels. Section B considers potential implications of the heightened concentration and consolidation in the liner shipping market, as well as the establishment of mega-alliances and the upsizing of ships. The importance of port performance in the face of growing competitive pressure is also addressed. Section C highlights the potential of public–private partnerships and port concessions as favoured mechanisms for private sector participation in ports. Section D concludes with an overall outlook and some policy implications.

TRENDS IN WORLD CONTAINER PORTS

Cybersecurity

Consolidation and concentration

Mega-ships

Mega-alliances

"The" Alliance | Ocean Alliance | 2M

secondary routes

WORLD CONTAINER PORT VOLUMES BY REGION

Asia	64%
Europe	16%
North America	8%
Developing America	6%
Africa	4%
Oceania	2%

TYPE OF TRAFFIC

76% of total volumes handled accounted for by full containers

24% empty containers

A. WORLD CONTAINER PORT DEVELOPMENTS

Despite modest improvement in world seaborne trade volumes in 2016, weaker world economic growth, dwindling merchandise trade volumes and rising cost pressures continued to weigh on the performance of world seaports. While these trends affect all ports, container ports are affected the most.

Throughout 2016 and until mid-2017, world container ports continued to deal with the deployment of ever larger ships, cascading of vessels from main trade lanes to secondary routes, growing concentration in liner shipping, heightened consolidation activity, a reshuffling of liner shipping alliances and growing cybersecurity threats.

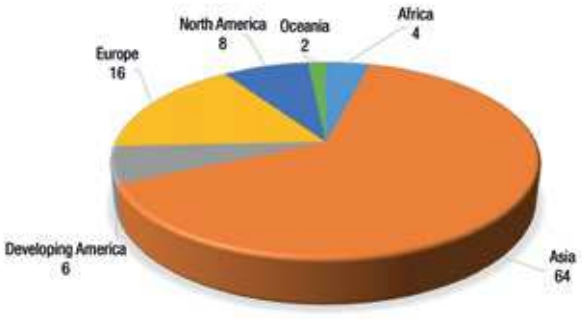
1. World container port handling and throughput

As shown in table 4.1, UNCTAD estimates that world container port throughput increased by 1.7 per cent in 2015, with total volumes reaching 686.8 million TEUs. This is less than half the growth recorded in 2014, reflecting the difficulties experienced by world containerized trade flows in 2015.

For 2016, preliminary UNCTAD figures indicate that world container port throughput increased by 1.9 per cent, with volumes totalling 699.7 million TEUs. According to data from Clarksons Research, 76 per cent of total volumes handled in 2016 were accounted for by full containers, and 24 per cent, by empty containers. (Drewry Maritime Research, 2017a). Trans-shipment incidence was estimated at 26 per cent, although a marginal drop in absolute TEU figures handled was observed in 2016.

Regional shares of world port container traffic for 2016 are illustrated in figure 4.1. Asia accounted for 64 per cent of world container port throughput, with Eastern and South-East Asia being the key players. Remaining container cargo flows were handled by ports in Europe (16 per cent), North America (8 per cent), Developing America (6 per cent), Africa (4 per cent) and Oceania (2 per cent).

Figure 4.1. World container port volumes by region, 2016 (Percentage shares)



Source: UNCTAD secretariat calculations, based on data from table 4.1.

In 2015 and 2016, container port-handling growth rates remained below the historical trends of the 1980–2016 period. They are also among the lowest growth rates recorded between 2000 and 2016, with the exception of 2009, when volumes fell by 8.1 per cent (Drewry Maritime Research, 2016a). As shown in figure 4.2, volumes handled by container ports in Asia increased by 2.6 per cent, with handling activity in Southern Asian ports expanding at a rate of 11.2 per cent. Selected ports in India, such as Cochin, Kolkata and Krishnapatnam, performed particularly well. Elsewhere in Europe and North America, port-handling volumes expanded by 2.4 per cent and 1.3 per cent, respectively. In addition, a decline in port volumes handled in some regions hindered overall container port throughput expansion. Contractions were recorded in Africa (-0.7 per cent), developing America (-1.2 per cent) and Western Asia (-0.7 per cent).

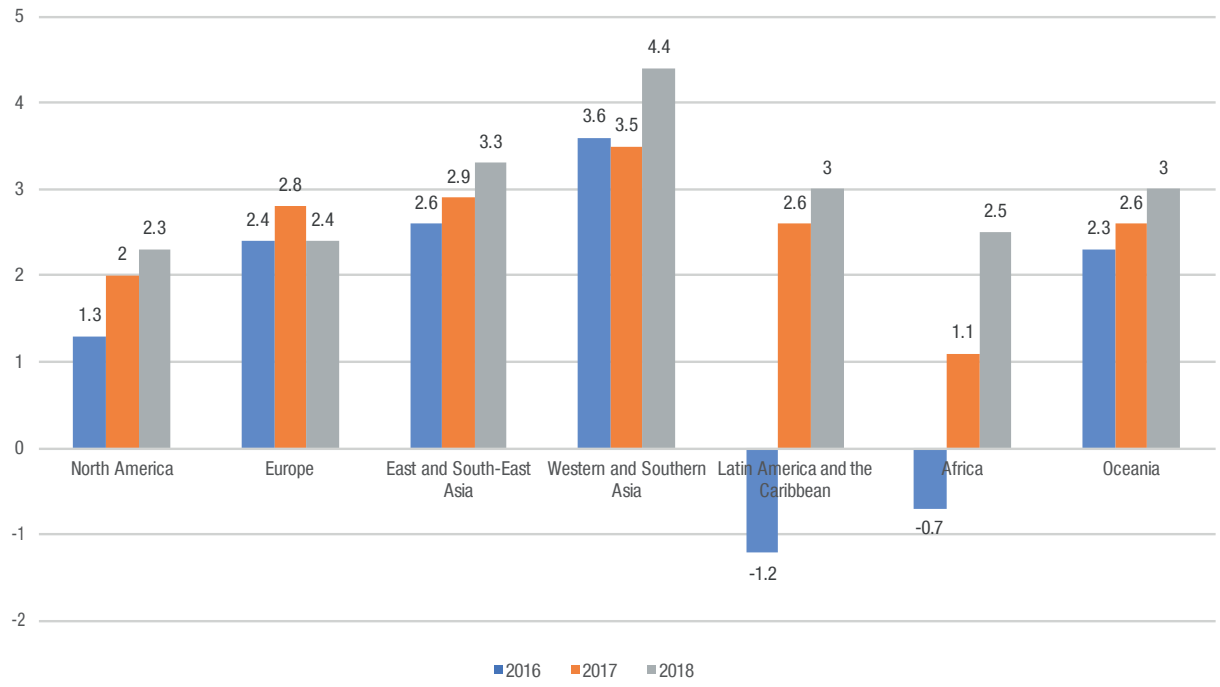
Table 4.1. World container port throughput by region, 2014 and 2015) (Twenty-foot equivalent units and annual percentage change)

	2014	2015	2016
Africa	28 027 967	28 122 893	27 909 132
Asia	429 641 660	439 573 985	446 813 796
Developing America	45 615 876	45 804 387	45 915 853
Europe	109 018 957	108 359 396	113 831 821
North America	51 659 185	53 689 663	54 120 207
Oceania	11 017 084	11 139 239	11 112 739
Total	**674 980 729**	**686 689 563**	**699 703 546**
Annual percentage change	**5.7**	**1.7**	**1.9**

Sources: UNCTAD secretariat calculations, based on data from various sources, including Lloyd's List Intelligence, Hofstra University, Dynamar B.V., Drewry Maritime Research, *Containerization International* (up to 2014) and information published on websites of port authorities and container port terminals.

Note: Data are reported in the format available. Where current-year figures are not available, estimates are made based on averages and extrapolations from data of previous years. Country totals may conceal the fact that minor ports may not be included; therefore, in some cases, the actual figures may be different from the totals reported in the present table. Individual country data and relevant updates are available at *http://unctadstat.unctad.org* under "maritime transport".

Figure 4.2. Container port volume growth, 2016–2018



Source: Drewry Maritime Research, 2017.
Note: Data for 2017 and 2018 are projected figures.

Volumes in Jebel Ali, for example, fell by 5.3 per cent, partly because more and more liner services in the region were eschewing trans-shipment services altogether, given excess ship capacity and low bunker costs. Also, the removal of sanctions that had been levied against the Islamic Republic of Iran diverted some business away to Bandar Abbas. Today, the medium- to longer-term growth prospects of Jebel Ali remain uncertain as the situation of neighbouring ports, such as Bandar Abbas, Karachi and ports on the Indian West Coast, continues to improve.

2. Leading world container port terminals

Table 4.2 ranks the top 40 container ports by volumes handled. Together, these ports handled a total of 415.9 million TEUs, nearly 60 per cent of the world total. The 10 leading ports, mainly in Asia, accounted for about one third of the market. Only 21 ports increased volumes handled by more than 1 per cent; the largest increases were recorded by Piraeus (14.1 per cent); Kelang (10.7 per cent), which overtook Rotterdam as the eleventh leading port worldwide; Colombo (10.6 per cent); and Cat Lai (Ho Chi Minh City) (10 per cent).

Despite the recent slowdown in China of container port volumes, which reflects the rebalancing of its economy away from a growth path focused on exports and investment, the country continues to dominate the container port sector: seven of the top 10 container ports are in China. Nearly half of the volumes handled by the top 40 rankings in 2016 were attributed to container ports in China. Only the ports of Hong Kong (China) and Shenzhen recorded a contraction in volumes, while other major players such as Guangzhou and Ningbo–Zhoushan reported positive performances. Dalian improved its handling volumes over 2015 and is involved in projects aimed at boosting hinterland demand, such as sea-to-rail intermodal transportation and cross-border trains (Lloyd's Loading List, 2017a).

According to some reports, port congestion at key hub terminals in China could affect other Asian ports and disrupt feeder operations in the region. The ports of Shanghai, Qingdao and Ningbo have been struggling with congestion caused by the increased volumes, as well as by liner alliance networks, poor weather, strong demand and the deployment of larger vessels by carriers (Lloyd's Loading List, 2017b).

In 2016, the Port of Singapore improved its position over the previous year but continued on a downward trend, with volumes falling by 0.1 per cent. Ranked sixth, Busan exchanged places with the Port of Hong Kong (China), which moved back one rank. Volumes in Tanjung Pelepas declined by 8.8 per cent. Positive trends in the Philippines, Thailand and Viet Nam helped offset the impact of slower growth in the Chinese manufacturing sector (Lloyd's Loading List, 2017a). Meanwhile, Colombo continued to record throughput growth following the opening of a third terminal, the only deep-water terminal in Southern Asia capable of handling ships with a capacity of 18,000 TEUs and above (Lloyd's Loading List, 2017a).

Table 4.2. Container port volumes handled at top 40 container terminals, 2015 and 2016 (Twenty-foot equivalent units, percentage shares and rank)

Port	Country	2016 (Throughput)	2015 (Throughput)	2015–2016 (Percentage change)	2016 (Rank)
Shanghai	China	37 135 000	36 537 000	1.6	1
Singapore	Singapore	30 930 000	30 962 000	-0.1	2
Shenzhen	China	23 980 000	24 204 000	-0.9	3
Ningbo	China	21 565 000	20 593 000	4.7	4
Hong Kong	Hong Kong (China)	19 580 000	20 114 000	-2.7	5
Busan	Republic of Korea	19 378 000	19 296 000	0.4	6
Guangzhou	China	18 859 000	17 457 000	8.0	7
Qingdao	China	18 050 000	17 465 000	3.3	8
Dubai	United Arab Emirates	14 772 000	15 592 000	-5.3	9
Tianjin	China	14 523 000	14 109 000	2.9	10
Port Kelang	Malaysia	13 167 000	11 891 000	10.7	11
Rotterdam	Netherlands	12 385 000	12 235 000	1.2	12
Kaohsiung	Taiwan Province of China	10 460 000	10 264 000	1.9	13
Antwerp	Belgium	10 037 000	9 650 000	4.0	14
Xiamen	China	9 614 000	9 179 000	4.7	15
Dalian	China	9 584 000	9 449 000	1.4	16
Hamburg	Germany	8 900 000	8 825 000	0.8	17
Los Angeles	United States	8 857 000	8 160 000	8.5	18
Tanjung Pelepas	Malaysia	8 029 000	8 799 000	-8.8	19
Cat Lai	Viet Nam	7 547 000	6 863 000	10.0	20
Laem Chabang	Thailand	7 227 000	6 821 000	6.0	21
Long Beach	United States	6 775 000	7 192 000	-5.8	22
New York	United States	6 250 000	6 372 000	-1.9	23
Yingkou	China	6 087 000	5 921 000	2.8	24
Colombo	Sri Lanka	5 735 000	5 185 000	10.6	25
Tanjung Priok	Indonesia	5 515 000	5 201 000	6.0	26
Bremerhaven	Germany	5 489 000	5 546 000	-1.0	27
Suzhou	China	5 479 000	5 102 000	7.4	28
Lianyungang	China	4 829 000	5 009 000	-3.6	29
Algeciras	Spain	4 745 000	4 511 000	5.2	30
Valencia	Spain	4 660 000	4 668 000	-0.2	31
Tokyo	Japan	4 653 000	4 623 000	0.6	32
Jawaharlal Nehru	India	4 475 000	4 468 000	0.2	33
Manila	Philippines	4 427 000	4 135 000	7.1	34
Jeddah	Saudi Arabia	3 997 000	4 188 000	-4.6	35
Piraeus	Greece	3 750 000	3 287 000	14.1	36
Felixtowe	United Kingdom	3 745 000	4 043 000	-7.4	37
Savannah	United States	3 645 000	3 737 000	-2.5	38
Seattle	United States	3 529 000	3 529 000	0.0	39
Santos	Brazil	3 564 000	3 774 000	-5.6	40
Total		**415 928 000**	**408 956 000**	**1.7**	

Source: UNCTAD secretariat calculations, based on data from Drewry Maritime Research, 2016a.

In Northern Europe, Antwerp reported 4.0 per cent growth, while volumes in Rotterdam increased by 1.2 per cent. The Port of Hamburg continued to experience the negative impacts of growth in direct services heading for Baltic and Scandinavian ports, resulting in reduced demand for services to these regions. Partly supported by trade with China and an improving trade situation in the Russian Federation, the Port of Hamburg recorded an increase of 0.8 per cent (Lloyd's Loading List, 2017a).

Algeciras ranked first in the Mediterranean, with a volume increase of 5.2 per cent. In comparison, volumes in Valencia Port declined by 0.2 per cent. Performance of both ports was affected by labour disputes. However, recent labour disruptions in Piraeus seem to have ceased with its privatization. The port reported a 14.1 per cent increase in volumes, owing to the presence of China Ocean Shipping (Group) Company. The impact of carriers' growing preference for ships making more direct calls seems to be affecting trans-shipment ports in the Mediterranean and in Northern Europe. Reflecting this trend, volumes handled in 2016 by the top nine trans-shipment ports remained static, at about 125 million TEUs. Together, slow steaming, low bunker prices and cascaded ships have contributed to creating more direct port pairs, taking away some business from the hub ports.

Performance of North American ports was mixed. Volumes increased by 8.5 per cent in Los Angeles, owing to the improved economic situation and consumer confidence in the United States. Growth in North American port volumes also reflected rising Asian import demand, which was supported by a favourable exchange rate. In contrast, throughput in the Port of Long Beach contracted by 5.8 per cent, owing to the collapse of Hanjin Shipping. Yet the expansion of the Panama Canal does not seem to have supported growth in Atlantic Ocean ports such as Charleston and Virginia.

3. Global and international terminal operators

World container port volumes, including in the context of the top 40 container ports, are largely handled by global and international terminal operators. In 2015, terminals owned in full or in part by global and international terminal operators accounted for 65 per cent of global throughput; the remaining shares were handled by other private interests (18 per cent) and the State (19 per cent). The share of global and international terminal operators grew slightly with the arrival of a new member (Yildirim Group) in 2015. The top 10 global and international terminal operators are listed in table 4.3.

In 2015, global and international terminal operators accounted for about 60 per cent of world capacity, up from 57 per cent in 2014. About 20 per cent of capacity was represented by other private operators; if all global and international terminal operators were to be considered private operators, about 80 per cent of global capacity would be in the hands of the private sector. The remaining balance is controlled by the State.

4. Trends in capacity expansion

Against a backdrop of weaker global demand, terminal operators and investors have been reconsidering their capacity expansion plans, in particular longer-term projects that have not been committed or initiated. Drewry Maritime Research estimates that overall growth in confirmed capacity will outpace demand projections, which may require cancelling capacity expansion plans in the future. Nevertheless, some regional variations remain, with projected demand expected to surpass planned capacity growth in some regions (e.g. East Coast of North America, China and Oceania). In contrast, capacity expansion is expected to outweigh demand growth elsewhere, for example, in Northern and Western Africa, Southern Asia and the Gulf Coast of North America (Drewry Maritime Research, 2016b).

Assuming all planned projects are implemented, it is likely that capacity growth in Africa and Southern Asia will be significant. In Western Africa, for example, a sharp increase in port development projects is being observed, fuelled mostly by Chinese investment in African infrastructure projects. Several projects are under way, and others are in the pipeline. Dredging works are in progress at ports such as Abidjan, while ground and soil improvements are being carried out in Lomé. In some cases, new greenfield sites have been selected to boost capacity, as illustrated by the $1.5 billion project in the Port of Lekki, Nigeria. The expansion project of Tema Port, estimated at $1.5 billion, is expected to reach completion by the end of 2019, while the Takoradi Port expansion project of $197 million is well under way. Similarly, the Ghana liquefied natural gas import terminal project ($500 million) and the Atuabo Freeport project ($700 million) are in the final stages of construction. A $690 million expansion project is being implemented in Dar es Salaam Port (Port Development West Africa, 2017). Other important developments include the Mombasa–Nairobi Standard Gauge Railway, which opened in May 2017, and the Lamu Port–South Sudan–Ethiopia Transport Corridor project. However, many projects are uncertain, given the overall economic situation and obstacles to container trade growth. While some projects are likely to go through, others may require further backing, especially from carriers (Drewry Maritime Research, 2017b).

Port project developments are also a prominent feature of the One Belt One Road Initiative. Several Asian countries, including Malaysia, Myanmar, Pakistan and Sri Lanka, have been at the forefront of these plans. Greece has also been a notable case, while developments and relevant port expansion discussions are under way in Georgia, Indonesia and Viet Nam. The feasibility of a new canal across the Kra Isthmus in Thailand is also being investigated (Richard, 2017).

Table 4.3. Top 10 global and international terminal operators, 2015

Rank		Milllion 20-foot equivalent units	Share in world container port volumes (Percentage)	2014–2015 (Annual percentage change)
1	PSA International	53	7.7	-3.7
2	Hutchison Port Holdings	47	6.9	-0.1
3	DP World	37	5.4	3.3
4	APM Terminals	36	5.2	-3.0
5	China Merchants Port Holdings	26	3.8	2.0
6	China Ocean Shipping (Group)	20	3.0	1.8
7	Terminal Investment	18	2.7	9.2
8	China Shipping Terminal Development	9	1.3	13.5
9	Evergreen	8	1.1	-3.8
10	Eurogate	7	1.0	0.9

Source: UNCTAD secretariat calculations, based on data from Drewry Maritime Research, 2016a.

Note: Figures include total annual throughput for all terminals in which shareholdings held on 31 December 2015 were adjusted according to the extent of equity held in each terminal. Figures cover 2015, when China Ocean Shipping Liner (Group) Company and China Shipping Terminal Development were still separate companies (they merged in 2016).