In 2019, newbuilding orders were placed at a monthly rate of about 5 to 6 million tons deadweight, similar to that which prevailed in the second half of 2018, compared to about 10 million tons deadweight in the first half of 2018. The reduced pace of ordering had several causes. Firstly, the widening disparity between newbuilding prices and earnings resulting from price increases that prevailed in 2017 and 2018. Secondly, growing uncertainty within the shipping industry as it prepared for the introduction of the global 0.5% sulphur cap on marine fuels. Thirdly, geopolitical instability and fear of a further escalation in the trade dispute between China and USA. Persistent financing challenges and the difficulty to raise equity or obtain long term employment in a world lacking visibility constituted another cause, along with nagging questions concerning the shipping industry’s capability to ever generate profits.

Uncertainty and consolidation in the shipbuilding industry
KEY POINTS OF 2019

In consequence, newbuilding orders declined significantly from 93.8 million tons deadweight (1,026 ships) in 2018 to 73.2 million tons deadweight (1,026 ships) in 2019. Demand for bulkers, container carriers and special ships followed this global downward trend and receded sharply. However, demand for tankers increased substantially, thanks to a much better freight market, especially during the second half of the year. It is always interesting to note how quickly the shipping market commits to huge investments that will lead a generation, based on a temporary change of sentiment in the freight market.

In spite of lower global demand, newbuilding prices hardly diminished (by about 5%), with yards considering prices to be already depressed enough given increased building costs driven by higher steel prices, new regulations and renewed pressure from marine equipment suppliers that they had to contend with. Prices softened less in the tanker segment and more in the bulker and container carrier segments.

The three Asian shipbuilding giants, representing more than 95% of the global orderbook by deadweight, continued to fight fiercely in a poor market. In 2019, China improved its existing top position with a further increase to 45.4% of market share. In second place, Korea maintained its market share at 28.1%, while Japan’s market share in third place slipped back to 22%. The “rest of the world” (RoW) and Europe registered a 2.6% and 1.9% share of the global market, respectively.

After having declined in 2018 to 79.2 million deadweight as a result of the reduction in newbuilding orders in 2016 (32.6 m dwt), newbuilding deliveries rebounded in 2019 to 97.6 million deadweight, reflecting the dynamism in newbuilding orders seen in 2017 and 2018 (79m dwt and 93.8m dwt). As a consequence of the imbalance between deliveries and newbuilding orders, the global orderbook decreased from 225.7 million deadweight end of 2018 to 201.2 million deadweight end of 2019. Meanwhile, the world fleet continued to increase uninterrupted since 1993, growing in 2019 from 1,852 million dwt to 1,934 million dwt (5.8% growth). As a consequence of the imbalance between deliveries and newbuilding orders, the global orderbook decreased from 225.7 million deadweight end of 2018 to 201.2 million deadweight end of 2019. Meanwhile, the world fleet continued to increase uninterrupted since 1993, growing in 2019 from 1,852 million dwt to 1,934 million dwt (5.8% growth). If shipowners shifted away from shipbuilders last year, the second-hand market followed the same trend as 2018 in respect of deadweight exchanged, with 146.6 billion deadweight in sales in 2019 versus 146.2 billion deadweight in 2018. Sales slightly decreased in term of number of ships sold (2,780 vs 2,863) however.
World Economy
Global economic growth slowed back to 3.2% in 2019 against 3.6% in 2018 according to the IMF. This was the slowest pace since the financial crisis of 2009. Amongst the reasons given by the IMF were: the uncertainties linked to Brexit, the imposition of sanctions on a growing list of countries, and trade tensions between the world’s two largest economic powers: China and the United States, which led to an increase in customs tariffs. All this, damaged the confidence of companies and their capacity to invest.

Unfortunately, this had a negative impact on global trade and world GDP growth. Seaborne trade growth remained remarkably flat over 2018 and 2019, averaging 1.7% in 2018 and 2019.

Maritime Trade
Dry bulk trade growth dropped to 1.3% in 2019, in contrast to 3.9% in 2017 and 2.6% in 2018. The deceleration in tanker trade growth was stepped as it accelerated slightly in 2019 to 0.8% from 0.6% in 2018. However, growth remained significantly lower than over 2017 and 2016 when it hit 4% and 2.7% respectively. Finally, container throughput growth fell to 2.3% in 2019, down from 5.5% in 2017 and 4.4% in 2018.

Freight Rates
Dry bulk
We all remember that 2016 was an extremely difficult year in which the Baltic Exchange Dry Index (BDI) logged a record low of 295, the lowest since it started in 1985. On the other hand 2019 was marked by the largest drop in the BDI since 2009, in the wake of the January trade dam collapse in Brazil which potentially reduced iron ore exports by 80 million tons and the 350 million tons exported annually.

The most extreme downward movement of the BDI over a five-day period happened in October 2008 when a 35% fall was recorded. Removing 2008 from the database, the biggest 5-day decline in the BDI was registered between 25 and 31 January 2019 as it plummeted by 26.2% from 905 to 668.

The dry bulk market was thus characterized by large fluctuations throughout 2019 with the BDI starting at 2,095 to 668. The biggest 5-day decline in the BDI was registered between 25 and 31 January 2019 as it plummeted by 26.2% from 905 to 668.

Container
In the clean segment, the Baltic Exchange Clean Tanker Index (BCTI) began 2019 at 666 and ended at 958, and averaged 607 over the year, compared with 579 in 2018.

Average 1-year Time Charter rates were as follows:
- MR2 between $13,703 in 2018 and $14,439 in 2019
- LR1 between $13,308 in 2018 and $14,072 in 2019
- LCT between $14,421 in 2018 and $20,311 in 2019

During 2019, 1-year Time Charter rates fluctuated within the following bands:
- MR2 between $13,750 and $16,000 per day
- LR1 between $15,000 and $18,000 per day
- LCT between $18,000 and $26,000 per day

In the crude segment, the Baltic Exchange Dirty Tanker Index (BDTI) started the year at 1009 and ended at 1597, with an overall average of 855 in 2019 versus 798 in 2018.

Average Time Charter rates were:
- Aframax between $14,395 in 2018 and $20,694 in 2019
- Suezmax between $16,372 in 2018 and $26,356 in 2019
- VLCC between $22,186 in 2018 and $34,856 in 2019

During 2019, 1-year Time Charter rates fluctuated within the following bands:
- Aframax between $17,500 and $26,000 per day
- Suezmax between $22,000 and $40,000 per day
- VLCC between $28,000 and $60,000 per day

Time Charter rates for VLCCs started the year at $31,000, dropped to a low of $26,000 in April before ending the year at $48,000.

The tanker market, especially the crude oil tanker segment benefited from the wave of scrubber retrofitting, which took more than 10 million deadweight capacity out of service at the end of 2019. The market was also subject to several jobs in the wake of the attacks carried out on tankers in the Gulf of Oman during May and June and the drone attacks on two major Saudi oil installations in September. But the scrubber retrofitting wave, which took more than 10 million ton capacity out of service at end-2019 countered to some extent the negative effects from the reduction in seaborne transportation growth.

Charter rates for cellular ships (6-12 month fixtures)

<p>|</p>
<table>
<thead>
<tr>
<th>Size</th>
<th>2016 avg $/day</th>
<th>2017 avg $/day</th>
<th>2018 avg $/day</th>
<th>Change 2018/2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,500 bpd</td>
<td>8,667</td>
<td>13,196</td>
<td>15,538</td>
<td>31.2%</td>
</tr>
<tr>
<td>5,600 bpd</td>
<td>6,129</td>
<td>12,083</td>
<td>13,708</td>
<td>63.8%</td>
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<tr>
<td>(Panamax)</td>
<td>5,120</td>
<td>7,533</td>
<td>11,182</td>
<td>42.4%</td>
</tr>
<tr>
<td>2,500 bpd</td>
<td>5,975</td>
<td>8,179</td>
<td>10,792</td>
<td>5%</td>
</tr>
<tr>
<td>1,700 bpd</td>
<td>6,983</td>
<td>7,404</td>
<td>9,646</td>
<td>11%</td>
</tr>
<tr>
<td>1,000 bpd</td>
<td>6,595</td>
<td>6,375</td>
<td>7,242</td>
<td>-2%</td>
</tr>
<tr>
<td>(Alphaliner</td>
<td>43.2</td>
<td>54.6</td>
<td>68.1</td>
<td>72.3%</td>
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</table>
New orders for standard vessels per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Million dwt</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>11.7m dwt</td>
</tr>
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<td>2011</td>
<td>13.9m dwt</td>
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<tr>
<td>2012</td>
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<td>2017</td>
<td>13.2m dwt</td>
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<tr>
<td>2018</td>
<td>12.9m dwt</td>
</tr>
<tr>
<td>2019</td>
<td>11.9m dwt</td>
</tr>
</tbody>
</table>

**ORDERS AND ORDERBOOKS**

Orders and orderbooks for standard vessels

Newbuilding orders decreased by 22% in 2019 to reach 73 million deadweight. 2019 figure is the first loss over the last 10 years and well below the average of 90 million deadweight posted over the same period. While orders for bulkers and container carriers decreased last year by a half and a third respectively, those for tankers increased by about a fifth.

Bulkers were halved from 46.4 million deadweight in 2018 to 24.6 million deadweight in 2019, a level well below the 2010-19 average of 44.5 million deadweight.

A total of 41.1 million deadweight was delivered in 2019 versus 28.2 million deadweight in 2018. The reducing effect of less orders and more deliveries meant the dry bulk orderbook dropped to 91.8 million deadweight whereas the dry bulk active fleet continued to grow from 83.5 million deadweight to 86.8 million deadweight.

Torznos on order represented 10.6% of the active bulk fleet at end 2019, broken down as follows:

- Handysize
  - Handymax: orderbook 6.1m dwt, fleet 122.1m dwt, ratio 5.0%
  - Supramax and ultramax: orderbook 15.0m dwt, fleet 175.5m dwt, ratio 8.6%
  - Panamax and Kamsarmax: orderbook 18.5m dwt, fleet 176.2m dwt, ratio 10.5%
- Post-Panamax and bulkers: orderbook 5.6m dwt, fleet 65.6m dwt, ratio 11.6%
- Capesize and Newacmadam: orderbook 31.5m dwt, fleet 265.4m dwt, ratio 12.4%
- VLCC: orderbook 14.5m dwt, fleet 207.7m dwt, ratio 18.7%

China shipbuilders once more consolidated their share of the dry bulk market at 31.5% in 2019, while Japan's market share was maintained at 29.8% and Korea's decreased to 4.0%.

Tanker orders increased in 2019 to 29.9 million deadweight (24.4m dwt in 2018) above the average of the last ten years (23.1m dwt).

This was notably the case for suxamines, where contracted volumes doubled and for the aframax/LR2 segment where contracted volumes almost tripled. For the aframax/LR2 segment, the contracted volumes doubled.

Bulker orders decreased by 22% in 2019 to reach 73 million deadweight. 2019 figure is the first loss over the last 10 years and well below the average of 90 million deadweight posted over the same period. While orders for bulkers and container carriers decreased last year by a half and a third respectively, those for tankers increased by about a fifth.

Orders and orderbooks for standard vessels

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New orders for specialised vessels per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Chemical carriers</th>
<th>LNG carriers</th>
<th>LPG carriers</th>
<th>Bulk Carriers</th>
<th>Carriers</th>
<th>Cruise vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2,025,084</td>
<td>2,048,546</td>
<td>4,077,339</td>
<td>2,816,109</td>
<td>4,170,072</td>
<td>2,223,684</td>
</tr>
</tbody>
</table>

As a result of the drop or increase in demolition in each segment, the average age of vessels demolished climbed in 2019 for tankers to 27.3 (23 in 2018) and fell for bulkers to 29 (30 in 2018) for remaining steady at 23 for container carriers. The long-awaited surge in scrapping which would bring some relief to the shipping market did not materialize. It was initially anticipated, given the costly implementation of the upcoming rules and regulations related to the Ballast Water Treatment System (BWTS) and the 2020 sulphur cap.

December 2019 saw this entry into force of the Ball Amendment and index certification of the Hong Kong Convention. The Ball Amendment turns the export of hazardous waste, including ships, from OECD to non-OECD countries, index assignment to the Hong Kong Convention a major milestone. All international yards will now need Hong Kong Convention certification to operate, as per The Recycling of Ships Bill 2019. The Bill requires all ships entering a port terminal or recycling facilities in India to carry IMO documentation and proves inspections to ensure compliance. Every ship recycler must ensure safe and environmentally sound removal and management of hazardous materials from a ship and comply with the specified environmental regulations.

<table>
<thead>
<tr>
<th>Year</th>
<th>Orders</th>
<th>Cancellations</th>
<th>Demolition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>9,459,212</td>
<td>36</td>
<td>29</td>
</tr>
<tr>
<td>2011</td>
<td>11,110,014</td>
<td>25</td>
<td>31</td>
</tr>
<tr>
<td>2012</td>
<td>7,469,846</td>
<td>27</td>
<td>36</td>
</tr>
<tr>
<td>2013</td>
<td>4,170,072</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>2014</td>
<td>2,934,074</td>
<td>66</td>
<td>43</td>
</tr>
<tr>
<td>2015</td>
<td>1,972,148</td>
<td>72</td>
<td>49</td>
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<tr>
<td>2016</td>
<td>1,654,705</td>
<td>75</td>
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<tr>
<td>2017</td>
<td>1,535,328</td>
<td>72</td>
<td>58</td>
</tr>
<tr>
<td>2018</td>
<td>1,427,411</td>
<td>70</td>
<td>56</td>
</tr>
<tr>
<td>2019</td>
<td>1,234,375</td>
<td>72</td>
<td>54</td>
</tr>
</tbody>
</table>

As of 2019, the order book of the shipbuilding industry after 2008 fell to their lowest level since 2017 at 1.7 million deadweight. This trend was very much accentuated in the tanker segment which had seen a ten-year demolition record in 2018 at 20.2 million deadweight in 2018 (it fell to 4.4 million deadweight, the third lowest over the last ten years). There was a rebound of demolition activity in the bulk (from 4.8m dwt to 7.9m dwt) and container carrier (from 1.4m dwt to 2.7m dwt) markets, but it is important to remember that in 2016 activity in these markets plummeted from 14.4 million deadweight to 4.8 million deadweight, and from 5.7 million deadweight to 1.4 million deadweight, respectively.

Demolish prices that had risen sharply in 2018 in the Indian subcontinent to reach an average of $420/dwt for bulkers and $435/dwt for tankers ($375 in 2018) and container carriers ($545/dwt versus $375/dwt in 2017), softened in 2019 to $384/dwt, $395/dwt and $398/dt for bulkers, tankers and container ships, respectively.

In the future, the main challenge for the shipbuilding industry will be to have a strong and sustainable technology base to meet global demand. The regional growth in the industry will likely continue, but the productivity and efficiency gains will need to be accompanied by strong environmental and social performance credentials to achieve this.

As a result, the order book of the shipbuilding industry after 2008 fell to their lowest level since 2017 at 1.7 million deadweight.
Sharp reduction in the number of active building facilities from a peak of 684 in 2007. Down to 281 in 2019

Total deliveries increased to 97.6 million deadweight in 2019, compared with 79.2 million deadweight in 2018. This was divided into 41.1 million deadweight of bulk carriers (28.2 m dwt in 2018), 36.6 million deadweight of tankers (29.3 m dwt in 2018) and 11.2 million deadweight of container ships (14.2 m dwt in 2018).

In China, annual shipbuilding production which increased by about 440% between 2006 and 2011 from 12.7 million deadweight in 2006 to 34.7 million deadweight in 2018. In Japan, annual output which increased by 10% between 2006 and 2011 from 28.9 to 31.9 million deadweight bounced back from 20.1 million deadweight in 2017 to 24.5 million deadweight in 2019.

In South Korea, annual production which more than doubled between 2006 and 2011 from 30.8 million deadweight in 2011 to 36.2 million deadweight in 2018. This was divided into 41.1 million deadweight of bulk carriers (28.2 m dwt in 2018), 36.6 million deadweight of tankers (29.3 m dwt in 2018) and 11.2 million deadweight of container ships (14.2 m dwt in 2018).


deliveries exceeded orders, NB prices start to fall

Historical Building Facilities per year & main areas (Excluding offshore)

Active building facilities per year & region (excluding offshore)

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It is notable that the number of active building facilities (yards that either won new contracts and/or delivered tonnage during a given year) dropped from 684 in 2007. Down to 330 in 2018 to 281 in 2019, significantly lower than its peak of 684 in 2007.

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Newbuilding prices (million $)

<table>
<thead>
<tr>
<th>Year</th>
<th>VLCC</th>
<th>Handymax</th>
<th>Supramax</th>
<th>U.S. $</th>
<th>Aframax (A)</th>
<th>L2R</th>
<th>Capesize</th>
<th>Panamax (P)</th>
<th>MR1</th>
<th>MR2 IMO 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>34.7</td>
<td>33.5</td>
<td>27</td>
<td>31.5</td>
<td>32.5</td>
<td>27</td>
<td>31.1</td>
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<td>2018</td>
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Newbuilding prices evolution during 2019 for 5 year old vessels (million $)

- VLCC: 30.5 vs 34.7
- Handymax: 30.5 vs 33.5
- Supramax: 30.5 vs 27
- Aframax: 30.5 vs 31.1
- Capesize: 30.5 vs 26.5
- Panamax: 30.5 vs 39
- MR1: 30.5 vs 39
- MR2 IMO 3: 30.5 vs 39

Second hand price evolution during 2019 for 5 year old vessels (million $)

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<tr>
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** SHIPBUILDING IN THE WORLD **

**China**

China retained its position as the world’s leading shipbuilder in 2019, ranking first across the board with the largest orderbook of 91.4 million tons deadweight (45.4% share), the greatest number of newbuilding orders at 30.5 million tons deadweight (a 42% share), and the largest number of deliveries at 36.2 million tons deadweight (a 37% share).

In the dry bulk segment, China maintained its lead with 15.5 million tons deadweight of new orders about 63% of the global bulk new orders. In the tanker and containership segments, it had to settle for second place behind South Korea, with 32.9 million tons deadweight and 36.4 million tons deadweight respectively, of world orders.

However, new orders placed at Chinese yards were down by about 21% in 2019 (30.5 million tons deadweight versus 38.7 million tons deadweight), part of a global drop in newbuilding orders for bulkers (15.5 million vs. 30.3 million tons deadweight) despite the container carrier segment being on par with 2018 (3.2 million vs. 3.3 million tons deadweight) and the comparative bullishness of the tanker segment (5.9 million vs 4.1 million tons deadweight).

Chinese shipbuilding output grew in 2019 producing 36.2 million tons deadweight compared to 34.7 million tons deadweight in 2018. However, the orderbook/yearly output ratio slightly declined from 2.8 at the end of 2018 to 2.5 at the close of 2019.

**Rise of the new giants**

The Chinese shipbuilding landscape was significantly reshaped in 2019. Two new giants, CSSC and CSIC, were created by the central government with the aim of rationalizing China’s shipbuilding industry and as a countermeasure to the difficult newbuilding market, plagued with overcapacity and perpetually loss-making companies. It appears that the Chinese authorities have suddenly become more concerned with the industry’s profitability than by conquest of new market share.

Twenty years after their demerger which aimed to enhance competition, CSSC and CSIC groups finally re-merged on 25th October 2019 creating a new state-owned company named CSSC (China State Shipbuilding Corporation) re-grouping in total 12 groups of shipyards. In parallel with this high-level merger, some yards have also been reorganized under common management in spite of their differing geographical locations, for example Dalian, Tianhanguan and Bohai. At the end of 2019, the new group represents 50.6% of the Chinese orderbook and 23.2% of the world orderbook. It has instantly become the largest shipbuilding company in the world.
At the end of 2019, the four Chinese shipbuilding groups CHI, it is interesting to mention that NTS and Yangzijiang Ranking respectively number 3 and number 4 behind shipyard group in the world.

10.9% of the Chinese orderbook. It has become the second Guangdong,… At the end of 2019, the group represented and DACKS. Joint-ventures with Japanese yard Kawasaki already merged to create China COSCO Heavy Industry. Back in 2016, COSCO Group and China Shipping Group groups and at the end of 2019 representing 0.9% of the Chinese orderbook. Some newsworthy events of the year

**Shipbuilding in Japan**

Japan maintained its position as the third largest shipbuilder in 2019, ranking third overall for its 44.1 million tons deadweight orderbook (22% market share), its 13.7 million tons deadweight of newbuilding orders (18% market share) and its tonnage output of 24.5 million tons deadweight (25%). The loss of newbuilding orders was particularly acute in Japan in 2019 compared to the global worldwide trend with about 48 fewer new orders in 2019 (13.7 million/deadweight) compared to 2018 (22.1 million tons deadweight). This reduction hit all segments including the bulk segment. Japan’s main center of excellence.

**Some newsworthy events of the year**

- **Imabari Shipbuilding and Japan Marine United (JMU)** are in discussion to build a strong alliance with Imabari taking a 30% stake in JMU. The intention is to combine forces when it comes to design for various types of ships and improve efficiency in vessel construction systems.

- **Mitsubishi Heavy Industries** plans to turn its Nagasaki shipbuilding facility into a cruise ship construction and repair yard following the planned sale of its nearby Koyagi Shipyard to Oshima Shipbuilding. The decision in selling Koyagi yard was taken as the group does not see a future in the construction of gas carriers, containerships, tankers and bulkers.

- **Sino-Japanese joint ventures** NACKSand DACKS are seeking to enter the LNG sector. At the same time, Kawasaki Shipbuilding Heavy Industries, one of the shareholders of NACKS and DACKS is shifting down 30% of capacity at its main shipyard in Sakaide, Japan, with the closure of a dock.

**Some significant orders of the year**

- **Oshima and Namura** will build the first 95,000 deadweight LNG-fueled panamax bulkers. NYK contracted one unit at Oshima and MOL one unit at Namura. Both ships will be used exclusively to carry coal to coal-fired power plants in Japan and service a long-term contract with Kyushu Electric Power Co (Kyuden).

- **Mitsubishi Shipbuilding** will build 2x17,300 dwt LMG (LNG at cargo and main propulsion) containership for NYK. The new owners are expected to gather the experience of the operation of the new Sorcerer ECO Publ’ssund, Sunflower Sunflower when they are delivered in 2022 and 2023.

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**Market share**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
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</tr>
</thead>
<tbody>
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<td>21.9%</td>
</tr>
<tr>
<td>Bulk</td>
<td>33.9%</td>
<td>27.5%</td>
</tr>
<tr>
<td>Tanker</td>
<td>12.9%</td>
<td>10.5%</td>
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<tr>
<td>Container</td>
<td>5.6%</td>
<td>4.6%</td>
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<tr>
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**Shipbuilding in China**

After the purchase of CSC group in 2018, CMHI group (China Merchants Heavy Industry) is the third largest shipbuilding company in China. CMHI owns 3 shipyards including NACKS and DACKS. Joint-ventures with Japanese yard Kawasaki already merged to create China COSCO Heavy Industry. Back in 2016, COSCO Group and China Shipping Group groups and at the end of 2019 representing 0.9% of the Chinese orderbook. Some newsworthy events of the year

- Newbuilding orders with dual-fuel propulsion (based on either LNG or LPG or methane together with diesel) 2019 proved to be a turning point for orders of dual-Fuel propelled vessels in China. 42 ships were ordered based on O5 dual-fuel designs (12 bulk carriers, 18 tankers, 6 containerships, 16 others). Among the most notable orders, we can quote:

- Eastern Pacific Shipping signed 2 newbuilds with dual fuel (LNG/diesel) propulsion with SWS and 2 suzukim tankers with dual fuel (LNG/diesel) propulsion with GSI.

Hudong Zhonghua HD2 won the world’s most advanced LNG bunkering ship order. It is the second LNG bunkering ship ordered by MOL or KHI to be chartered by Total. This ship will be equipped with a mark ii membrane provided by GTT and deployed in Marseille, France, to provide LNG bunkering for ships in the Mediterranean area.

Jangsan delivered the first ultra large container carrier with dual fuel (LNG/diesel propulsion, MV Jacques Saadé). 23,000 tou for DAA CMG. The container giant also ordered 15 containerships of about 15,000 teu with LNG propulsion. Jangsan in addition received an order for 2 ethane carriers of 50,386 cbm for Pacific Gas.

Stena ordered 2 methanol carriers MR2 with a dual fuel propulsion based this time on methanol and diesel at GS.

- **China Merchants Cruise Shipbuilding** (CMC) Zhong Huan shipyard delivered the first polar exploration cruise vessel for American owner Sunstone. This vessel, named Greg Mortimer, is the first ship of a series of 7 + 3 polar exploration cruise ships that CMHI signed with Sunstone. It is a breakthrough in the history of Chinese shipbuilding, threatening Europe’s monopoly on cruise ship construction and creating a weighty precedent – “a cruise ship made in China”.

- **China Merchants Jinling (Weihai) shipyard** (formerly AVIC Weihai shipyard) delivered the first Ro-Ro ship for Stena Ro-Ro. The ship is the first out of a series on nine ships ordered by Stena for their own needs and others’ needs - Some will be chartered out to other ferry companies. It is the most advanced Ro-Ro/passenger ships ever built in China.

- **Jiangnan in addition received an order for 2 ethane carriers of 98,000 cbm for Zhejiang Zhenghe Shipbuilding** which went bankrupt in 2018 has finally been auctioned to Changhong International.

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Some news about shipyards that ran into difficulties:

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The venture will focus on building all kinds of commercial ships, especially LNG and oil tankers. Engineering. The licence was taken as the group does not see a future in the construction of gas carriers, containerships, tankers and bulkers.

- **Sino-Japanese joint ventures** NACKSand DACKS are seeking to enter the LNG sector. At the same time, Kawasaki Shipbuilding Heavy Industries, one of the shareholders of NACKS and DACKS is shifting down 30% of capacity at its main shipyard in Sakaide, Japan, with the closure of a dock.

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<td>24.5%</td>
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Shipbuilding in South Korea

Korea maintained its position as the second largest shipbuilder in 2019, ranking second overall for its 56.6 million deadweight tonnage (28% market share), its 26.3 million tons deadweight of newbuilding orders (36% market share) and its tonnage output 32.4 million tons deadweight (33%).

In the tanker and container carrier segments, Korea maintained its lead with 15.9 million tons deadweight of new orders (about 26% of the global tanker orderbook) and 4.4 million tons deadweight of new orders (about 16% of the global container orderbook). As for previous years, Korean yards have only a marginal stake in the dry bulk segment, to the benefit of their Chinese and Japanese competitors, but this is largely compensated for by their dominant position in the construction of sophisticated LNG carriers (45 new units out of 58 worldwide in 2019).

In line with the global downturn trend, Korean yards lost new orders in 2019 but only about 13% (26.3 million tons deadweight) compared to 2018 (30.4 million tons deadweight).

A sign of the ongoing consolidation in the country’s shipbuilding industry, 94% of orders in 2019 were secured by the Big Three, with Hyundai Heavy Industries taking 50.4%, DSME 25.9%, and Samsung 17.7%. Korean shipbuilding output increased remarkably from 19 million to 32.4 million tons deadweight, but order to yearly output ratio decreased to dangerous low levels from 3.4 at end 2018 to 1.7 at the end of 2019.

Most newsworthy events of the year

Consolidation, Restructurings and Bankruptcies

The Korean shipbuilding industry has not completely finalized its reorganization. The merger of HHI and DSME is still subject to approval from antitrust regulators in South Korea and other countries. Medium size yards are struggling for their survival.

After the March 2019 acquisition contract signing for Daewoo Shipbuilding & Marine Engineering (DSME) by Hyundai Heavy Industry (HHI), the completion of the merger remains outstanding. Internally, management teams are facing strong resistance from the unions and DSME workers in particular. Externally the deal needs to be approved by antitrust watchdogs in several countries. The resistance of just one country would be enough to revoke the deal. If the merger is finally approved, it will create the second largest shipbuilding group in the world with a current orderbook evaluated at 27.5% of the world orderbook.

Pending approval of the deal, Korea’s shipbuilding industry continues its difficult transformation.

Hyundai Heavy Industries (HHI) secured some 50.4% of new orders placed in Korea in 2019 (64% if we include DSME’s new orders) versus 45.7% in 2018. The group has maintained its sales target for 2020 at the same 2019 level of $15.9 billion, even though it did not meet that goal in 2019, finishing the year with only $12 billion in orders. This can be explained by HHI’s expectation of more new orders created by the proliferation of stricter environmental regulations.

Samsung HI (SHI) almost met their sales target for 2019 with $7.1 billion vs. $7.8 billion in 2018 mainly thanks to an order for 6 mega containerships from Evergreen and an order for 10 LNG-fueled aframax from their compatriot Sinokor.

Daewoo Shipbuilding and Marine Engineering (DSME) secured 25.9% of new orders placed in Korea in 2019 with a total of $4.4 billion achieving about 83% of their annual sales target of 8.3 billion. DSME is aiming for more than $7 billion of orders in 2020.

Hyundai Mipo Dockyard (HMD) continued to dominate the medium size shipyard segment (below kamsarmax size), collecting about 85% of new orders placed at Korean yards in 2019. It won 49 orders in 2019 against 54 in 2018, representing about 70% of its building capacity. Its main product remains the MR tanker and together with its Vistraanship company (HHI), it succeeded in winning about 48% of MR orders placed worldwide.

Daenah Shipbuilding is now focused on the construction of two types of standard tankers (afraMAX/UL2 and suzemax) and secured orders for 6 aframax and 6 suzemax in 2019. They have 20 ships in their orderbook at the beginning of 2020 which puts them in quite a comfortable position for the years to come.

STX Offshore & Shipbuilding (STX) which used to be in 2012 the fourth largest shipbuilding group in the world now concentrates only on MR tankers and secured 6 units in 2019 from three different owners. The yard succeeded in maintaining the same level of orders compared to last year.

Dae Sun Shipbuilding and Engineering secured 5 new orders in 2019 just as in 2018 - 3 handy tankers, 1 small ferry and 1 small UPC. Dae Sun has been selected by its compatriot CS Cubox to build their first LPG carrier (3,500 cbm).

Samkang Shipbuilding & Construction is mainly involved in steel pipe production and the manufacture of ship blocks for domestic yards. It is currently building a 4,000 deadweight chemical tanker for a domestic owner at its existing site.

Sungdong Shipbuilding & Marine Engineering which in the late 1990s was one the 10 largest shipbuilders in the world, finally found a new buyer. Having sought bankruptcy protection nearly two years ago, creditors after the fourth tentative auction attempt gave the green light to a local consortium to take over the facility located in Tongyeong. Sungdong will no longer build ships but will focus on hull block assembly. The yard started out as an equipment manufacturer before becoming a shipbuilder and then fully entered into shipbuilding 15 years ago.

Hanjin’s affiliate in the Philippines Hanjin Subic went bankrupt at the beginning of 2019. Australian shipbuilder Austal and US private equity firm Cerberus have entered into exclusive talks to take over Hanjin Subic. The shipyard collapsed after its South Korean owner parent defaulted on loans. Many parties, including HHI, have been linked to taking over the yard, which at its peak employed more than 300,000 people.

Some significant orders of the year

- In 2019, Korean shipyards secured 18 ships with Dual Fuel Propulsion representing 23% of the total DF ships ordered 19 tankers and 9 gas carriers.
- Samsung secured 10 Aframax with LNG propulsion from Sinokor.
- HHI secured 12 MR tankers from Norwegian Merco Shipping.
- The Big Three secured 83% of the 54 large LNG carriers ordered globally in 2019 (24 units for HHI, 13 for DSME and 8 for Samsung).

<table>
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<th>South Korea</th>
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It is necessary to drop deadweight (SEADWEIGHT) and instead view shipbuilding through the lens of gross tons (GT) to enhance understanding of the relative importance of the European versus Asian shipbuilding industry. This way an improved view of the high-value vessels in question, with a very low deadweight, can be obtained: a cruise ship of about 200,000 GT has a current value of about 1 billion euros, equivalent to the price of 40 ultramariner bulkers, but a deadweight of only 10,000 deadweight versus 250,000 deadweight!

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The collapse of the Philippine shipyard Hanjin Sucat in 2019 had a major impact on Rov Performance as it was a great contributor, representing about 30% of Rovel new orders in 2017. No new order was placed in 2018. CSBC (Taiwan), another great contributor did not manage to secure new orders in 2019 despite accounting for 50% of Rovel new orders in 2018. At the end of 2019, 13 Rovel ships were ordered new orders, with 8% of them placed in just 2 shipyards: Yuzhnoe, Cebu (Philippines) with 56% and Vinashin Vietnam (Vietnam) with 33%. 

Turkey’s shipbuilders secured a number of newbuildings in 2019, all ships below 20,000 dwt including dry cargo vessels, tankers, fishing vessels and small ferries and even small cruise ferries. Turkey can count with shipyards having an international reputation such as Atlas, Cemre, Damar, RMK, Sedef, Torcan. Some have a mix of activities combining shiprepair, conversions and newbuildings. Some yards like Besikteks decided in 2019 to focus on shipsharpen, scrubber retrofitting and conversions. One of the difficulties met by the Turkish shipbuilding industry in 2019 was the greater difficulty in obtaining bank refund guarantees acceptable on the international scene in a context of political uncertainties.

• The Norwegian shipbuilding industry continued to suffer from the continuing effects of deep crisis in its reference market, the oil & gas market, and from the costs incurred by its entry into the cruise shipbuilding market.

• The situation in Croatia became critical in 2019 with the bankruptcy of Ulstein and 3 more shipyards having only 2 shipyards (Kanal and Trgo) remaining active. It looks as though 3MA could restart however.

• Turkey’s shipbuilders secured a number of newbuildings in 2019, all ships below 20,000 dwt including dry cargo vessels, tankers, fishing vessels and small ferries and even small cruise ferries. Turkey can count with shipyards having an international reputation such as Atlas, Cemre, Damar, RMK, Sedef, Torcan. Some have a mix of activities combining shiprepair, conversions and newbuildings. Some yards like Besikteks decided in 2019 to focus on shipsharpen, scrubber retrofitting and conversions. One of the difficulties met by the Turkish shipbuilding industry in 2019 was the greater difficulty in obtaining bank refund guarantees acceptable on the international scene in a context of political uncertainties.

• Spain, which was in third position in 2018 by deadweight ranking, disappeared from the top 10 in 2019 after Navantia delivered its last Supersize to Spanish owner Vasc倜 affairs. Navantia remains one of the world's few able to engineer and execute complex upgrades (tripsa / special tonnages). But Spain can also count with very dynamic yards such as Garlant, Freixe, Metalships, Munitsa, Zamora, that are specialized in fishing, service, offshore vessels. Spanish based in Bilbao that has been under administration since 2010, can engineer and execute complex upgrades (ropax / special tonnages).

• The Philippines remains by far the leader of the Rest of the World shipbuilding group, with 41.6% of the total orderbook, despite the collapse of Hanjin Suct. This compares to 56% in 2017 and 30% in 2016. Its orderbook is split 99% for Typhoon, and 1% for Aural Philippines.

• Vietnam retained its second position in 2019 thanks to Hyundai Vinashin which owned 99.7% of the orderbook.

• Taiwan maintained its third place thanks to orders secured by CSBC back in 2018. In 2019, CSBC did not succeed in locking in any new orders. Evergreen, a competitor containerships’ operator and usually CSBC’s main client, finally secured their 2019 container carrier order in Korea and China thanks to competitive pricing and improved ship quality: 4x1,800 teu at MGM, 6x2,300 teu at Samsung, 2x2,300 teu at Hidong Zhening and 2x2,300 teu at Jiangnan.

• Brazil’s orderbook continues to shrink. No orders have been taken since 2016, and only one shipyard Esha (the only still active).
2019 – a swing year for the shipbuilding industry?

Newbuilding orders fell by about a quarter in 2019 after two years of continuous growth. The main drivers behind the drop of orders are probably to be found in:

- Continuous price increases over 2017-18
- A disconnect between freight rates and newbuilding prices
- Geopolitical uncertainty and trade disputes between China and the US
- Technical uncertainties related to the choice of propulsion: conventional propulsion, conventional propulsion with scrubber, dual fuel propulsion
- Persistent financing challenges

We believe that this trend is cyclical and that newbuilding prices should therefore relevel over the years to come for the following reasons, that are sometimes forgotten by decision makers:

- A new shift between supply and demand: the number of yachts has halved since its peak in 2007, and current building capacity in 2009 is amongst 1,300 ships per year
- This shift is further compounded by the consolidation of the shipbuilding industry across all shipbuilding countries as a response to counter prevailing structural overcapacity in shipbuilding
- The need to replace ships delivered between 2005 and 2010, meaning 1,360 to 2,485 ships per year, exceeding today’s building capacity
- The need to replace non-eco and non-economic vessels which do not meet the latest regulatory requirements (Sox, Nox, CO2, etc.)

Why are shipyards disappearing? Inadequate pricing

Newbuilding prices are determined on one side by yards’ building costs and on the other side by supply & demand. Yards’ building costs are subject to large fluctuations and challenges such as:

- Steel prices
- The exchange rate in a $ market where leading shipbuilders building costs are in other local currencies
- Labour costs
- Regulatory requirements:
  - 2006: CSR (IACS Common Structure Rules)
  - 2006: PSPC (IACS Performance standards for protective coatings)
  - 2010: IMO Tier I (Nox), Main Engine & 2012 IMO Tier II (Nox Main Engine
  - 2012 to 2019: BWTS (Ballast Water Treatment System)
  - 2013: IMO EEDI (Energy Efficiency Design Index)
  - 2015: HCSR (IACS Revised Common Structure Rules)
  - 2016: Tier III Main Engine (SDR for ships with keel laid after 2016, tracking US/Europe)
  - 2018: IMO Marine Environment Protection Committee (MEPC) adopted IMO Initial GES strategy for reduction of GES
  - 2020: Sulphur Cap 0.5%  

Market newbuilding prices are subject to equally large fluctuations and challenges:

- The level of newbuilding orders can swing between extreme figures. For instance container carriers contracting varied between 22,93m dwt in 2011 and 1,6 m dwt in 2016 (see above mentioned table: Ship ordered by Contracting Year)
- Time charter rates and forecasts
- Market sentiment
- Fleet renewal requirements
- Regulatory requirements
- Demolition prices
- Newbuilding versus second-hand opportunities

Are newbuilding prices sufficient to enable sustainable activity?

Looking at the number of yachts that have disappeared since 2007 and at the financial results of the yards, when available, the answer is clearly NO.

What have yachts’ strategies been to counter low prices/lows demands?

- State owned versus private corporate structure
- Government/ naval ship orders
- Mix of activities: industrial, ship repairs, newbuilding
- Specialisation in a niche market, with high levels of expertise and high barriers of entry
- Tax breaks
- Debt waivers
- Soft financing
- Shipping funds
- Programmes for domestic owners
- Demolition bonuses
- Group cross-subsidisation
- Consolidation (HHI/DSME in Korea or CSSC / CSIC in China)
- Bankruptcy: (Main in The Philippines)

Regulatory requirements:

- 2014: PMA (IACS Rules: Permanent Means of Access)
- 2006: CSR (IACS Common Structure Rules)
- 2006: PSPC (IACS Performance standards for protective coatings)
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More than half of the yards across the world have disappeared, but what is at stake in 2020 is a further acceleration of the consolidation of the shipbuilding industry across all main areas of construction:

- In China, there are essentially 3 major state-owned shipbuilding groups today, with CSSC, China Merchant H, CSC and CSIC.
- In Korea, there are basically 2 main shipbuilding companies with Hyundai H.I shipbuilding group comprising HHI Ulsan, HHI Sambho, HMD, HVS and DSME on one side and Samsung H.I on the other side.
- In Japan, the latest rapprochement between the two building Japanese shipbuilders, NIK and Imabari is a further step on the way to integration
- In Europe the take-over by Italian shipyard Fincantieri of Scandinavian based shipbuilder Yard, the take-over by German shipyard Meyer Werft of Finnish shipbuilder in Turku, the purchase by Genting of four German yards to become MW Werft as well as several purchases of small yards in The Netherlands are also further signs of consolidation across the industry.
New challenges ahead
IMO target to cut shipping emissions by 50% between 2008 and 2050. This lofty vision comes just a few years after the IMO projected that, based on business as usual, Green House Gas (GHG) emissions would rise by 50%-250% over 2012-30. In its ‘best case’ scenarios, the IMO predicted an increase of 50% in GHG emissions and is now proposing to cut GHG emissions by 50% over the same period.

Today public opinion has very strong expectations of all industries, wherever they are to reduce pollutants (Sx, Nx, PM) and greenhouse gas (CO2...):• Air transport to reduce GHG emissions by 50% by 2050 (EU 75%)• EU cars by 37.5% by 2030• Cruise companies are also targeted according to certain activists. Carnival Cruise Line’s European fleet would emit nearly ten times more CO2 than all 260 million European cars• Calls for an Emission Control Area (ECA) in the remainder of European waters

There is also a greater awareness amongst shipping players of the negative economic weight of their carbon footprints. With this in mind, and although it is still embryonic, we now see more and more corporate reports featuring a CO2 balance sheet.

Considerable progress has been made on an individual ship basis since 2008 thanks to an “eco-revolution”, with fuel consumption already almost halved (for example a modern eco-PCTC now consumes 46 tons/day of fuel compared with an older, non-EU-CI-Unit consuming 65 tons/day).

However, on an industry-wide basis, what happens if the fleet grows by another 100% or even 200%? The worldwide fleet growth 1990 vs 2019

Active fleet evolution (million dwt)

In order to achieve the objectives set out by regulatory bodies, it will be necessary to use all possible solutions and new technologies such as:

• Better hydrodynamics
• More efficient machinery
• Alternative propulsions = dual fuel, hybrid, electric, sail, solar
• Alternative fuels = LNG, LPG, methanol, electric battery, bio-fuel, bio-gas, ammonia
• Additional hydrodynamic features: air lubrication around the hull
• Better anti-fouling coatings to avoid the erosion of speed/power performance between dry docks

And why not very efficient slow steaming? For example, a 10% reduction in speed equates to a 30% reduction in power and consumption. In percentage terms, this equates to the same reduction of CO2 emissions.

Emissions of pollutants and greenhouse gas represent a serious challenge for shipping. If reduction is not taken seriously, it might simply reduce the reliance on international shipping as a mode of transport and support recent calls for de-globalisation. The shipping community needs to reconquer public opinion which in a self-compounding manner moves the issue further into popular consciousness.

IMO 2020 deadline
Since 1st January 2020, the IMO has imposed a drastic reduction in the sulphur content limit for fuel used by ships, going from 3.5% to 0.5%. The objective was to reduce sulfur oxide emissions which are harmful to health and the environment. Global authorities’ desire to reduce pollution for health issues will continue to grow and thus the legislation regulating all possible pollutants including Sx, Nx and Particulate Matters (PM2.5 and PM10) and greenhouse gas (CO2...) will tighten going forward.

But we clearly see from the above that those welcome measures are far from final solutions to immediately halt global emissions. Indeed, rising emissions continue to have more powerful and disastrous consequences for populations which in a self-compounding manner moves the issue further into popular consciousness.

The IMO and associated organisations might well have preferred to ban heavy fuel oil, as this would have created a level playing field for everybody. The IMO decided nonetheless to address a serious environmental question, triggering an important global debate about heavy fuel oil and its use on board ships. Public opinion already changed in 2018 with the possibility that diesel (the equivalent of marine gasoil) usage by cars will probably be banned in major cities in a similar vein, several local port authorities have decided to ban the use of heavy fuel oil on board ships whilst in port. Shipowners have been at a loss to determine what they should do for their existing fleets or their future newbuildings.

1. Install a scrubber either open loop or hybrid
2. Select a dual fuel propulsion
3. Wait and see.

transportation per ton-mile in terms of energy, while simultaneously acting as a vector of exchanges, better understanding and mutual cooperation between countries and people.

So, we are now all waiting for that Copernican revolution in shipping. Let’s be optimistic because if there is something that has no limit, it’s science.

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1. Install a scrubber either open loop or hybrid
2. Select a dual fuel propulsion
3. Wait and see.
On 1st Jan 2020, the vast majority of the fleet had no scrubber

The industry is also struggling to keep a tally of the existing ships which are already or going to be fitted with scrubbers and the ships under construction which might be equipped. According to our own records dated 1st January 2020, about 7.6% of the existing and ships under construction were to be fitted with a scrubber and except for the cruise ship segment (37%) and the container carrier segment (33%), no other segment exceeds 10%. Generally speaking and due to economies of scale, the largest and fastest sizes in each individual segment have been the target for retrofitting. For instance, scrubbers will eventually be fitted on 31.5% of VLCCs, 58.4% of VLUCs and 81.3% of VLUs.

Still, the vast majority of the shipping community has decided to “wait and see” and is therefore to rely on compliant fuel with a sulphur content of 0.5% or less. Early 2020, it seemed like the companies that had bet on a scrubber technology and installed it before 1st January 2020 might recover part or the whole of their investment in view of the large spread between 3.5% HSFO and 0.5% VLSFO prices that quickly reached about $200/tonne in view of the large spread between 3.5% HSFO and 0.5% VLSFO.

On 1st Jan 2020, the vast majority of the fleet had no scrubber

Scrubber-Linked

Active fleet % Scrubbers

Vessels type

Ships

Million dwt

Ships

Million dwt

Ships

Bulk

800

122.9

1,778

667.4

6.6%

Container

705

66.7

5,189

275.9

13.8%

Cruise

131

1.3

354

2.3

27.0%

Dry Cargo

66

0.9

6,199

53.5

1.1%

Ferry

55

0.3

1,084

3.8

5.1%

Gas

93

4.6

1,733

72.8

5.4%

RoRo

5

0.8

505

3.9

1.0%

Boro

115

2.2

1,416

19.3

8.1%

Tanker*

944

134.7

10,198

635.4

9.2%

Total

2,914

335.7

38,449

1,933.8

7.6%

Including Delivered on order and to be retrofitted **including chemical

Scrubbers look to be a temporary fix and cannot be construed as the ultimate solution. They are designed to either use seawater to strip sulphur dioxide from emissions, with the resultant sludge being deposited in an on-board storage tank which has to be periodically emptied in port (closed loop).

There remain unanswered questions regarding the longevity and ability of scrubbers to function properly. Can a mechanical system run and perform consistently 24/7/365 in a highly heated and highly corrosive environment? There is also growing uncertainty over future strategy for national governments (if increasing emissions limits, can shipowners rely on the technology to comply with new stringent regulations? or on the technological choices offered (is LNG a good solution because of current potential for methane slippage that is a more powerful GHG than CO2?).

Scrubber fleet overview at 1st Janvier 2020

PERSPETIVES FOR 2020

“Black swan” coronavirus casts its shadow over the global economy amid other political and economic uncertainties.

At this time of finalising the BRS annual review, it is very difficult to assess the full impact of coronavirus on the shipping and shipbuilding industries. Airlines have suspended many flights, some factories and companies have sent staff home. In China and worldwide, the virus has taken its toll. With the coronavirus outbreak unfolding far beyond its source in China, production is disrupted in the world’s second largest economy and far beyond: it is not impossible that the global economy will stagnate in 2020, also factoring for the many political uncertainties hanging over our heads (trade wars, although the USA and China’s Phase One Agreement helped to ease tensions – BREXIT negotiations, Trump’s election, an extremely tense situation in the middle east, revolution in certain European countries etc.)

New orders

As a consequence of environmental pressure, it is expected that the shipping industry will give priority to eco or super-eco designs going forward. In principle, vessel scrapping should rise in the near future, especially since we hardly saw it over the last years. Meanwhile, slow steaming should increase. Shipowners will probably adopt a cautious attitude in the first half of the year while they await more clarity on the impacts of IMO 2020, the prevailing freight market and the other political and economic uncertainties. As such, we estimate that between 60 and 70m dwt of tonnage could be ordered in 2020. It is also important to remind that in 2009 and 2016, the level of new orders were slightly above 30m dwt.

Deliveries

We believe that there will be relatively little slippage and cancellation, and that deliveries in 2020 could reach a figure between 80m and 90m dwt except if force majeure cases due to the coronavirus epidemic multiply and push deliveries into the cancellation area, as typically understood under conventional shipbuilding contract interpretation.

Cancellations

We expect cancellations to be marginal in 2020 and on a par with the figures recorded in 2019 - between 1 to 2m dwt with the same cancellation caveat as mentioned above.

Demolitions

Although scrapping was lower than initially forecast in 2019 at 15m dwt, several factors should favor a stronger demolition market in 2020, especially in the bulk segment, if the prevailing freight rate environment seen at the beginning of 2020 persists. However, this may be curbed by a potential rise in freight rates in the second half of 2020 stemming from slower speeds and vessels temporarily leaving the market to be retrofitted with BWTS and scrubbers. Accordingly, we estimate that between 20m and 30m dwt of tonnage could be demolished in 2020.