



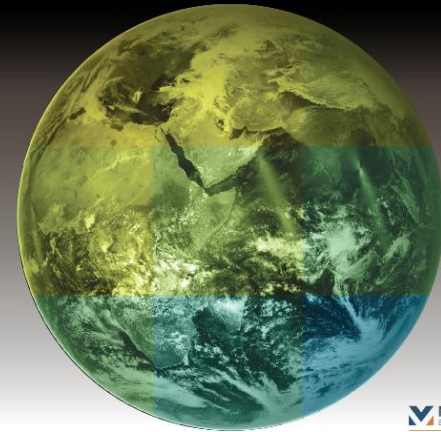
THE LEADING MARITIME NATIONS OF THE WORLD 2018

INTRODUCTION

- Menon Economics and DNV GL are proud to present the *“Leading Maritime Nations of the World” 2018*. The new report follows up the 2017 report by Menon and DNV GL on the Leading Maritime Capitals of the World 2017, but shifts the focus to an extensive review of the maritime industry at the national level.
- The ranking digs deep into a broad range of indicators on maritime capabilities and performance, and the research provides a holistic perspective of countries that influence the shape of the future international maritime activities in the world to stakeholders in the maritime industry.

THE LEADING MARITIME NATIONS OF THE WORLD 2018

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DNV GL

A MESSAGE FROM THE AUTHORS

This study provides an objective analysis of the different countries' global position as maritime nations using a comprehensive benchmarking framework. The results are an indication of the overall development in a country over several decades, and to some extent mirror the economic growth and size of a nation's economy. The presence of several small, high income economies among the top 10 leading maritime nations indicates the importance of policy measures and public institutions, including high investment in R&D, innovation and tertiary education focusing on the maritime sector at a national level. In our view, the leading position of these smaller nations is the most interesting finding of the study, considering that it would be natural to expect large, developed nations to be ranked at the top in correlation with the size of their national economy. Furthermore, there has not been a similar comparative study that illustrates the performance of different nations' maritime status in such a complete manner. We believe that this study will be useful for a multitude of stakeholders in a country to reflect upon, and to use the results of the study as a common baseline to set their own ambitions for the future.

In our previous reports, we have studied the competitiveness and performance of maritime *cities*, since companies are *located* in cities, the workforce *lives* in cities and innovation *is spurred* in cities. We will continue our tradition of publishing reports on the leading maritime capitals in the world. The next edition of this type of report is anticipated to be launched in 2019.

However, this year we wanted to focus on the performance and characteristics of the entire maritime industry at the national (country) level. There are two main reasons for this:

- Firstly, many countries have strong local clusters that are mutually dependent. In Norway for example, the technological center is in Trondheim, the deep-sea center in Bergen, the offshore center in Ålesund and the finance center in Oslo. The United States has various local centers spread out across the country, with New York being a home to ship finance and law, Houston as an offshore capital, a shipping hub in Seattle/Tacoma and the major portion of the Ports and logistics activities centered around the LA/Long Beach area.
- Secondly, the political and institutional framework is mainly on the national, not on the city level.

A MESSAGE FROM THE AUTHORS

You might be asking yourself a question.....

Is being “LEADING” paying off these days?

We see a strong relationship between the success of a country and job creation, profits and GDP contribution. As more people are employed, more profits are generated, which organically entails other benefits for the nation to be perceived as “LEADING”. Although we have not been able to objectively measure such a relationship as yet, it is clearly our ambition to do so in the future.

How do the results from the “Leading Maritime Nations of the World” relate to the “Leading Maritime Capitals of the World” (LMC) results?

Let us take Singapore as an example, where the difference is most striking. While being a clear number 1 maritime capital, Singapore is only number 9 in the “Leading Maritime Nations of the World” ranking. The main reason for this is that Singapore is a city-state, while China and the United States are two economic superpowers with several maritime centers.

Another factor that differentiates this year’s ranking from the LMC ranking is the exclusion of the “attractiveness and competitiveness” indicator as a stand-alone pillar. If we had not excluded it, Singapore would have ranked higher. Hence, the two benchmarks tell different stories – both true and important, but different.

HOW THE STUDY WAS CONDUCTED

The maritime industry is defined as:

- ***All companies that own, operate, design, build, deliver equipment or specialized services to all types of ships and other floating units***

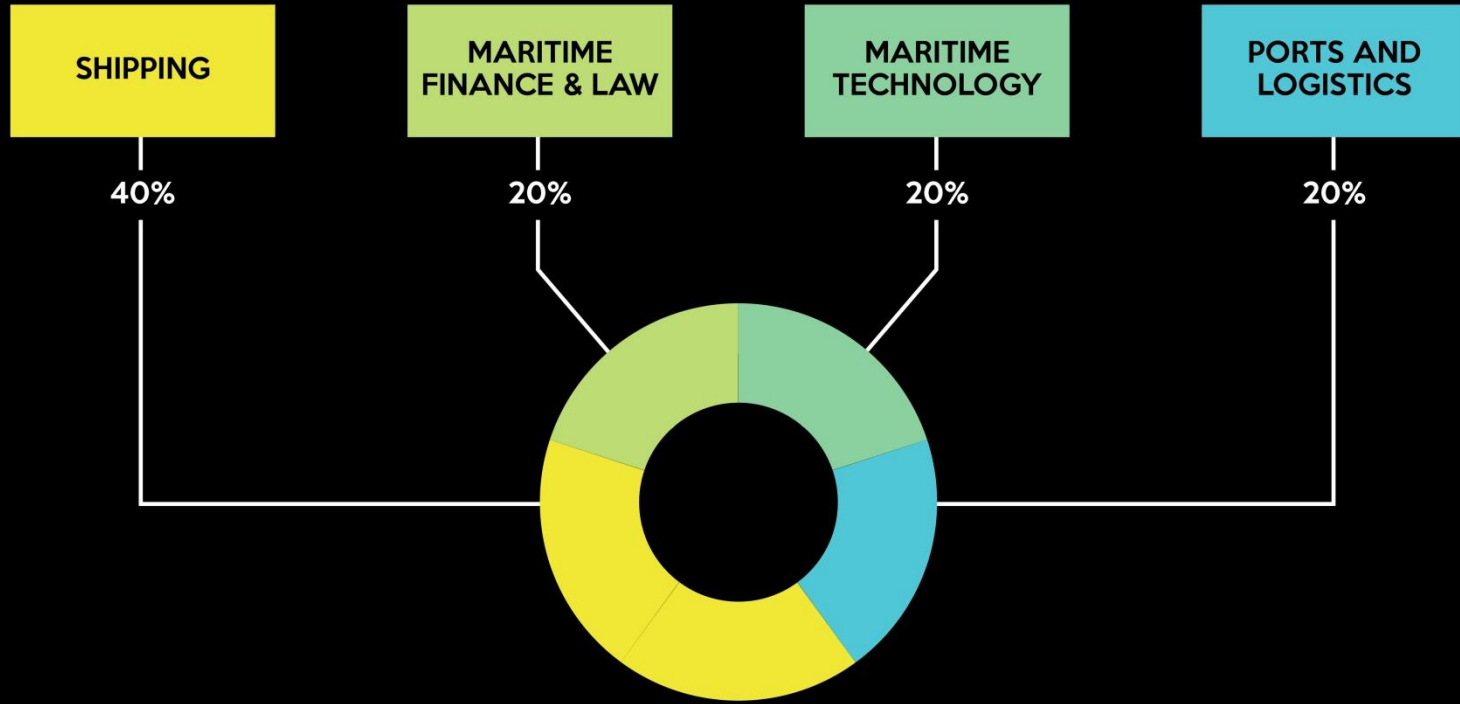
Four main groups

- Shipping
- Maritime finance & law
- Maritime technology
- Ports & logistics

Listed below, in alphabetical order, are the countries included in the benchmarking study. They all hold a strong position as a maritime nation across different factors to a varying degree.

AUSTRALIA	INDIA	SINGAPORE
BELGIUM	INDONESIA	SOUTH KOREA
BRAZIL	ITALY	SPAIN
CANADA	JAPAN	SWEDEN
CHINA INCLUDING HONG KONG	MALAYSIA	SWITZERLAND
DENMARK	NETHERLANDS	TURKEY
FINLAND	NORWAY	U.A.E.
FRANCE	PHILIPPINES	UNITED KINGDOM
GERMANY	RUSSIA	UNITED STATES
GREECE	SAUDI ARABIA	VIETNAM

FOUR PILLARS – SHIPPING HIGHEST WEIGHT



The 30 nations were ranked by size and magnitude on all four key maritime pillars and their sub-groups. Shipping, being the main engine of the entire maritime industry, was given a higher weighting in the calculations.

FOUR PILLARS – 24 INDICATORS

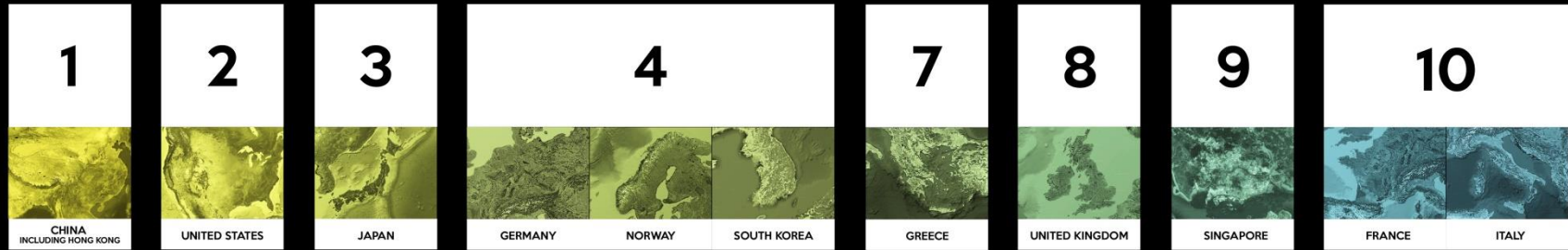


The 30 selected nations were assessed based on objective indicators ONLY

24 INDICATORS

PILLAR	OBJECTIVE INDICATOR	DESCRIPTION	SOURCE
SHIPPING 40%	1. Fleet size - management	CGT and GT by management nationality of the fleet	Clarkson
	2. Fleet size by owner country	CGT by ship-owners registered in country	Clarkson
	3. Fleet value (current and orderbook) by owner country	Aggregated value of current fleet and orderbook based on owner nationality	Clarkson/ Menon
	4. IMO-importance	Combination of Share of world fleet (CGT) registered with Flag State and position in IMO's Executive Council	Clarkson
MARITIME FINANCE & LAW 20%	1. Number of maritime legal experts & legal companies	Legal expertise on country level in terms of number of legal experts and shipping law firms in Score-tab.	Who's Who Legal & World Shipping Register
	2. Insurance premiums	Collected insurance premiums on aggregate nation level, including hull, cargo, P&I, marine liability and offshore energy	The International Union of Marine Insurance (IUMI) and Cifor
	3. Maritime syndicate loan arranger/bookrunner	The value of the loans is allocated to banks which function as the lead arranger or the bookrunner. The value is allocated to cities based on banks' functional maritime headquarter. Reported values are aggregate of bookrunner and lead arranger.	Dealogic
	4. Shipping portfolio	Existing shipping portfolio of top 40 shipping banks	Petrofin Research
	5. Transparency and corruption	The Corruption Perception Index measures the perceived level of public sector corruption.	Transparency International
	6. Market sophistication	Sub-index of the Global Innovation Index aimed towards market sophistications in credit, investment, trade, competition and market scale	Cornell University, INSEAD, and the World Intellectual Property Organization
	7. Amount traded on stock exchanges at country level	Amount traded of IPO/bonds/followons of companies in maritime sectors at stock exchanges. Amount traded is aggregated to national level after location of stock exchanges.	Clarkson
MARTIME TECHNOLOGY 20%	1. Shipyards	Measure of impact of shipyards on a country level in terms of CGT delivery in 2016-2017 and value of their orderbook in 2018.	Clarkson and https://www.cruiseindustrynews.com/cruise-news/cruise-ship-orderbook.html
	2. Classified fleet	Size of fleet classified by classification society.	Clarkson
	3. Production value of marine equipment and export share	Production of maritime equipment and corresponding export value in Score-tab.	TC Balance & Menon
	4. R&D index	Sub-index of the Global Innovation Index aimed towards sophistication in research and development. Input factor.	Cornell University, INSEAD, and the World Intellectual Property Organization
	5. ICT index	Sub-index of the Global Innovation Index aimed towards sophistication in ICTs.	Cornell University, INSEAD, and the World Intellectual Property Organization
	6. Knowledge creation as of patents, publications, PCTs etc.	Sub-index of the Global Innovation Index aimed towards knowledge creation. Output factor.	Cornell University, INSEAD, and the World Intellectual Property Organization
PORTS AND LOGISTICS 20%	1. Port handling – TEU	Volume (TEU) handled in ports by nations in total	UNCTAD
	2. Total cargo handled	Data not available	The American Association of Port Authorities
	3. Port operators – HQ	Volume (TEU) throughput handled by port operator with HQ in city, then allocated to corresponding country.	Drewry
	4. List of busiest cruise ports by passengers	Number of cruise passengers at leading cruise ports. Numbers aggregated for each country.	Menon research - based on port statistics
	5. Port connectivity Index (LCSI)	LCSI is generated from five components: (a) the number of ships; (b) the total container-carrying capacity of those ships; (c) the maximum vessel size; (d) the number of services; and (e) the number of companies that deploy container ships on services from and to a country's ports	UNCTAD
	6. Logistics Performance Index (LPI)	Ranking of top 160 countries in trade logistics generated by six components: (a) Customs; (b) Infrastructure; (c) International shipments; (d) Logistics competence; (e) Tracking & tracing; and (f) Timeliness.	World Bank
	7. Burden of Customs Procedure	The Burden of Customs Procedure Index measures business executives' perceptions of their country's efficiency of customs procedures.	World Bank

EXECUTIVE SUMMARY



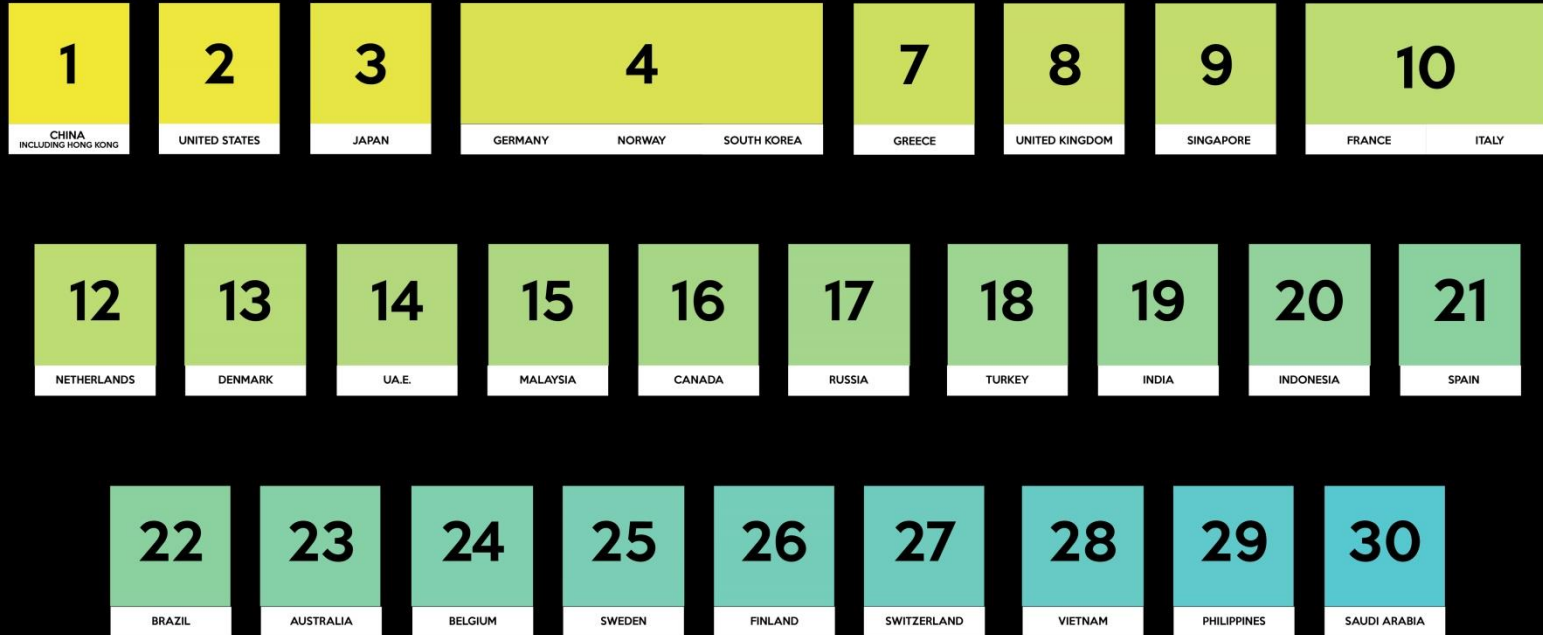
The 2018 report on the “Leading Maritime Nations of the World” ranks China as the world’s leading maritime nation, placed among the top four on all the maritime pillars in the ranking. China’s position is particularly strong in shipping and ports & logistics, mirroring its position as a global manufacturing hub.

The United States is placed second, scoring high on all four dimensions, followed by Japan. Singapore, as a small and young nation, managed to secure its position in the top 10 with a strong showing on ports and logistics (3rd in ranking) as well as in shipping (6th spot).

Germany, Norway and South Korea share the 4th place, as these three countries have an aggregated total score very close to each other. Norway and South Korea’s top rankings reveal that smaller, high income countries that place significant investment in R&D, focusing on technology, innovation and engineering capabilities for the entire marine shipbuilding eco-system, could propel themselves into the top 5.

Greece’s ranking shows that even smaller countries can still have significant influence and importance on a global scale, with the country being placed 7th, due to its shipping business acumen and traditions.

TOTAL RANKING OF THE 30 BENCHMARKED MARITIME NATIONS



TOTAL RANKING OF THE TOP 5 MARITIME NATIONS

RANK	SHIPPING	MARITIME FINANCE & LAW	MARITIME TECHNOLOGY	PORTS AND LOGISTICS	OVERALL
1	CHINA INCLUDING HONG KONG	UNITED STATES	SOUTH KOREA	CHINA INCLUDING HONG KONG	CHINA INCLUDING HONG KONG
2	GREECE	NORWAY	JAPAN	UNITED STATES	UNITED STATES
3	JAPAN	UNITED KINGDOM	CHINA INCLUDING HONG KONG	SINGAPORE	JAPAN
4	UNITED STATES	CHINA INCLUDING HONG KONG	GERMANY	U.A.E.	GERMANY
5	GERMANY	JAPAN	UNITED STATES	GERMANY	NORWAY SOUTH KOREA

Key observations

For the top 3 maritime nations, it can be seen that the study's rankings mirror the size of the countries' national economies.

Overall, China is recognized as the leading maritime nation of the world 2018, scoring particularly strongly within two out of four pillars: 1) Shipping and 2) Ports & Logistics.

The United States demonstrate dominance within Maritime Finance & Law and score highly on Ports & Logistics. The US' dominance in Maritime Finance & Law is a result of its bond market, and the large portion of IPOs, listed companies and private equity firms for the maritime sector.

Japan is ranked as the third leading maritime nation, and also made it to the top 3 in shipping, scoring highly in terms of CGT for ownership registered at the country level and fleet value.

TOTAL RANKING OF THE TOP 5 MARITIME NATIONS

RANK	SHIPPING	MARITIME FINANCE & LAW	MARITIME TECHNOLOGY	PORTS AND LOGISTICS	OVERALL
1	CHINA INCLUDING HONG KONG	UNITED STATES	SOUTH KOREA	CHINA INCLUDING HONG KONG	CHINA INCLUDING HONG KONG
2	GREECE	NORWAY	JAPAN	UNITED STATES	UNITED STATES
3	JAPAN	UNITED KINGDOM	CHINA INCLUDING HONG KONG	SINGAPORE	JAPAN
4	UNITED STATES	CHINA INCLUDING HONG KONG	GERMANY	U.A.E.	GERMANY NORWAY
5	GERMANY	JAPAN	UNITED STATES	GERMANY	SOUTH KOREA

Key observations

In joint fourth position are Germany, Norway and South Korea.

Germany's strength lies in its consistency, with a top 5 spot in three out of four categories. Despite heavy hits during the recent shipping crisis, the country is outperforming others in terms of its shipping portfolio, resulting in an overall ranking as number 7 in Maritime Finance & Law.

Norway has its strongest position within Maritime Finance & Law (placed 2nd) and Maritime Technology (placed 6th).

A strong R&D index, a large marine supply industry and its advanced ship yards put South Korea first among nations in Maritime Technology.

SHIPPING

DEFINITION OF DIMENSIONS

Ship- Owners:

- The owner is any natural or juridical person recorded in the register of ships of the state of registration as an owner of a ship

Ship Managers

- Fully independent companies contracted for the purpose of managing ship(s) on behalf of the owner

Fleet value (current and orderbook) by owner country:

- Aggregated value of current fleet and orderbook based on owner nationality

IMO importance:

- Combination of share of world fleet (CGT) registered with Flag State and their position in IMO's Executive Council

Did you know?

- Currently, seaborne transport accounts for almost 90% of international trade as measured by tonne-miles, more than tripling since 1980. Reportedly, 12.4 billion tonnes have passed the ports in 2017 before being distributed in the hinterland. With this in mind, it is clear that maritime transport is an instrumental engine of global trade and economy and closely follows the nation's GDP growth.
- According to the OECD, the maritime sector contributes USD 1,500 billion to the world economy, in which it is the 2nd largest economic sector, and is expected to be worth USD 3,000 billion by 2030.
- Ocean transportation is also seen as the least polluting mode of transport. Reportedly, it is three times more environmentally friendly than land transport and fifteen times more than aviation. Furthermore, it is seen as the least costly.

TOTAL RANKING OF THE TOP 5

COUNTRY	FLEET SIZE -MANAGEMENT	FLEET SIZE BY OWNER COUNTRY	FLEET VALUE	IMO-IMPORTANCE	OVERALL
CHINA INCLUDING HONG KONG	1	1	2	1	1
GREECE	2	2	4	3	2
JAPAN	5	3	3	2	3
UNITED STATES	7	4	1	6	4
GERMANY	4	5	7	13	5

Key observations

- China is a gold medalist in shipping due to the strong concentration of ship owners and managers based in the country – the nation scores highest in three out of four selected dimensions, but Greece is nipping at its heels.
- Despite recent tough economic times for Greece (mainly between 2010-2015), the nation is coming ever closer to stealing the lead. Greek ship-owners are responsible for the 4.2% increase in the volume of European-owned tonnage in 2017, bringing the growth of the European-owned fleet slightly above the 3.8% growth rate of the Asia/Pacific-owned fleet. The impressive performance of Greek owners has contributed to Europe maintaining its leading global position in ship owning.

TOTAL RANKING OF THE TOP 5

COUNTRY	FLEET SIZE -MANAGEMENT	FLEET SIZE BY OWNER COUNTRY	FLEET VALUE	IMO-IMPORTANCE	OVERALL
CHINA INCLUDING HONG KONG	1	1	2	1	1
GREECE	2	2	4	3	2
JAPAN	5	3	3	2	3
UNITED STATES	7	4	1	6	4
GERMANY	4	5	7	13	5

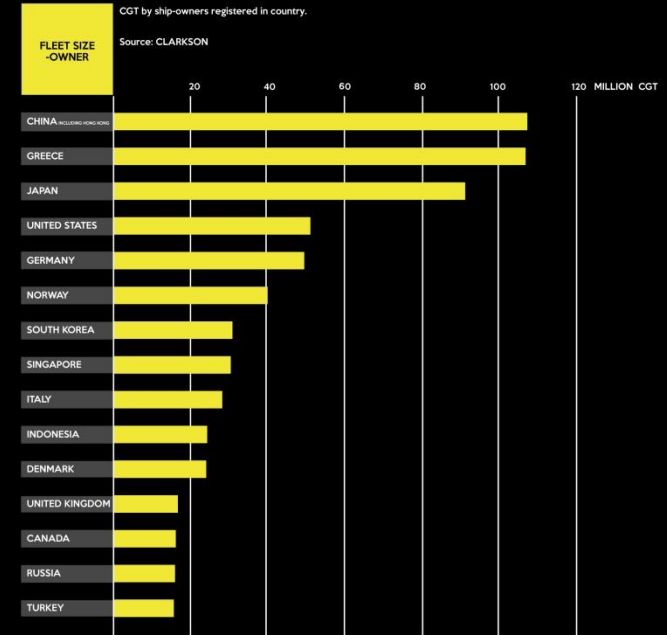
Key observations

- Japan placed third, scoring strongly among other benchmarked nations in terms of IMO importance at the country level.
- The United States is outperforming other nations in terms of fleet value due to having the largest proportion of the world's cruise owners and managers based in the country. China comes second, followed by Japan (3rd) for the same indicator.
- Germany is a top 5 finalist in shipping. Its strong position is due to a large market share in terms of fleet size owned and managed by entities based in Germany. In container shipping, managers registered in Germany hold around 20.73% of all container-carrying capacities worldwide while owners hold around 19.5%, thereby positioning Germany as an international leader on this front.

FLEET SIZE BY SHIP OWNERS REGISTERED IN COUNTRY

Key observations

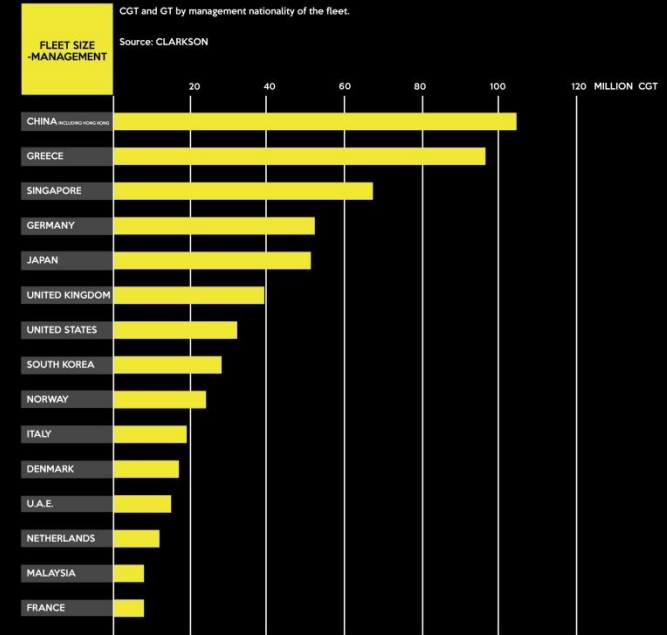
- Ship ownership is a major component in determining the rank of countries in terms of being a leading shipping center. The size of the ship owners' fleet in each country can be attributed to the size of the national economy, or to long shipping traditions as in the case of Greece and Norway.
- According to Clarkson, the top five ship owners in terms of cargo-carrying capacity (dwt) are China (1), Greece (2), Japan (3), the United States (4) and Germany (5). Together, these five countries have a market share of 49.5%. Norway and the United Kingdom have lost their trajectory in recent years.
- When looking in isolation, Japan is a key member in the international trade system ranking third behind China and Greece. Japan's high rank in this segment can be attributed to the strong concentration of ship owners and managers, with three of the largest shipping companies in the world, K Line, Nippon Yusen Kaisha and MOL, being based in the country.
- Ahead of Japan is China, which holds 13.43% (with Hong Kong contributing 3%) of the world fleet market share, and Greece follows with 8.37%.
- In terms of number of vessels, China holds the leading position as the country is reportedly home to 6,738 ships of 1,000 gross tons and above (with 1532 vessels coming from Hong Kong), including many smaller ships deployed in coastal shipping. China is followed by Greece (4199) (Source: Clarkson, 2017).



FLEET SIZE BY SHIP MANAGERS REGISTERED IN COUNTRY

Key observations

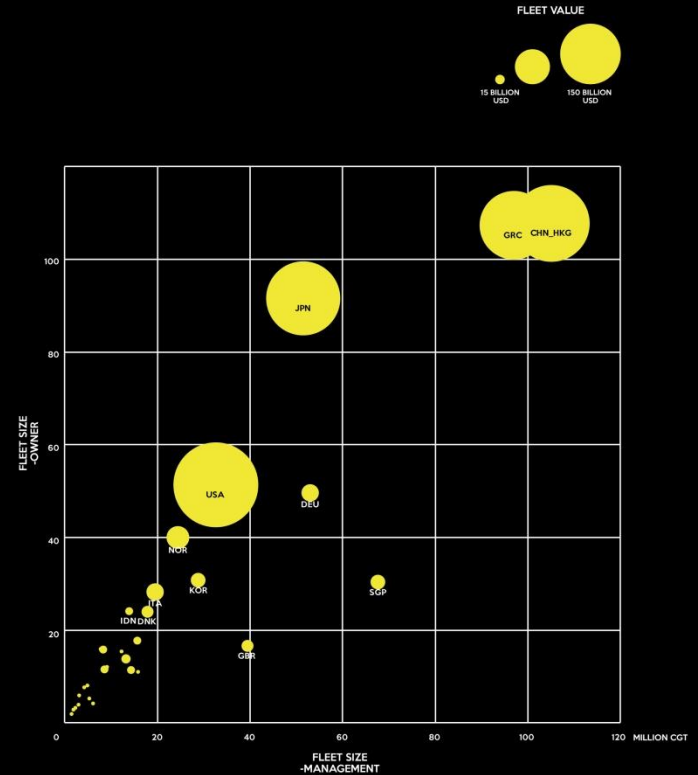
- Ship management is another important component indicating the strength of a maritime nation. Similar to ship-owners, an increase in the fleet under ship managers indicates favorable conditions in the country.
- In terms of ship management, the industry has enjoyed a high growth rate throughout many years, until 2008 when the crisis hit. Ship managers continued to grow, but at a slower rate than in previous years. In fact, the growth rate of ship managers was almost 2% lower than that of ship owners.
- Following the trend for ship owners, ship managers in all countries seem to be maintaining their top positions, except for the United States which lost its position to Singapore. Singapore joins industry leaders like China (1) and Greece (2) by securing the third position. The city-state is a hub to 68 million CGT of fleet size under the ship managers registered in the country. Here, it is worth highlighting that most owners and managers established in Singapore are non-locals who are attracted by the business-friendly environment.
- The industry leader is China. The country is home to almost 105 million CGT of fleet size, of which 5.14% comes from ship managers in Hong Kong. Greece follows with a total of 97 million CGT.



FLEET VALUE BY SHIP OWNERS REGISTERED IN COUNTRY

Key observations

- A similar trend can be seen if the fleet value of the owner is considered based on the current fleet and order book. According to the UNCTAD Review of Maritime Transport 2017, the commercial value of the world fleet accounted for USD 829 billion (as of Q1 2017). Based on ship data from Clarksson and Menon's valuation, the most valuable fleets are controlled by going to the US (USD 151 billion), followed by China (2), Japan (3), Greece (4) and Norway (5).
- However, countries vary when we compare the value of the fleets with the size of the fleets owned and managed in the countries. For example, the Singaporean fleet under management is one of the preferred locations globally for ship managers to register and operate their companies – ranked no 3 – but measured in fleet value, Singapore is no 8.



POSITION OF THE 30 BENCHMARKED COUNTRIES (WITH BREAKDOWN FOR EACH INDICATOR)

INDICATORS	CHINA <small>INCLUDING HONG KONG</small>	GREECE	JAPAN	UNITED STATES	GERMANY	SINGAPORE	NORWAY	SOUTH KOREA	ITALY	UNITED KINGDOM	DENMARK	NETHERLANDS	INDONESIA	CANADA	RUSSIA	FRANCE	MALAYSIA	TURKEY	INDIA	U.A.E.	BRAZIL	BELGIUM	SWEDEN	VIETNAM	SWITZERLAND	SAUDI ARABIA	PHILIPPINES	SPAIN	AUSTRALIA	FINLAND
FLEET SIZE -MANAGEMENT	1	2	5	7	4	3	9	8	10	6	11	15	14	20	19	18	17	16	13	12	22	23	25	24	26	30	21	27	28	29
FLEET SIZE BY OWNER COUNTRY	1	2	3	4	5	8	6	7	9	12	10	16	11	14	13	18	17	15	19	20	24	21	23	22	27	25	26	28	29	30
FLEET VALUE	2	4	3	1	7	8	5	9	6	10	12	11	17	15	18	13	14	19	21	22	16	20	23	27	24	25	-	-	-	-
IMO-IMPORTANCE	1	3	2	6	13	10	4	9	5	7	22	12	21	16	8	14	23	24	11	20	15	26	18	27	30	28	25	17	19	29
OVERALL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Countries that did not make it to the list of 30 are marked with “-”

MARITIME FINANCE & LAW

DEFINITION OF DIMENSIONS

Maritime Finance

- Maritime Finance comprises a wide range of services around debt and equity provision for the maritime industry. This includes companies that provide financing (debt, equity, mezzanine) for the industry, primarily for the sale and purchase of vessels. These companies consist of international banks, investment banks and smaller boutiques, which act as arrangers or introducers of capital, and private equity firms. Commercial banks generate earnings from both margin income and from supplying a range of ancillary services. Investment banks and boutiques also provide financial and advisory services to the industry. Finance for vessels is normally secured through mortgage of the assets. Maritime finance also includes amount traded on stock exchanges at country level.

Marine Insurance

- Marine Insurance covers the loss of or damage to ships, cargo, terminals, the environment and other goods caused by maritime operations. It is designed to protect against four main types of marine exposures: Damages to hull/machinery, damages to cargo, loss of income and liability. Marine Insurance providers provide these services to the maritime stakeholders.

Maritime Law

- Maritime Law includes companies that provide maritime-related legal services, such as dedicated law firms and specialized lawyers in general law firms. Legal services in the maritime sector are routinely required for contentious and non-contentious work relating to a wide range of matters including charter-parties, shipbuilding, finance, commodities, energy, insurance, cargo, collision, salvage, general average and pollution. Maritime lawyers also provide arbitration in addition to litigation services.

Transparency and Corruption

- The Corruption Perceptions Index measures the perceived level of public sector corruption.

Market Sophistication

- Sub-index of the Global Innovation Index aimed towards market sophistication in credit, investment, trade, competition and market scale.

TOTAL RANKING OF THE TOP 5

COUNTRY	LEGAL EXPERTISE	INSURANCE PREMIUMS	LOAN ARRANGERS	SHIPPING PORTFOLIO	TRANSPARENCY AND CORRUPTION	MARKET SOPHISTICATION	STOCK EXCHANGE SIZE	OVERALL
UNITED STATES	1	5	3	6	12	1	2	1
NORWAY	14	4	1	3	2	15	3	2
UNITED KINGDOM	2	1	6	10	8	4	8	3
CHINA INCLUDING HONG KONG	3	3	-	2	17	8	1	4
JAPAN	20	2	4	5	14	8	14	5

Key observations

- The United States is a top performer due to its strong position in ship finance, predominantly for IPOs, and number of listed companies. The country is also home to the second highest number of legal experts and has an outstanding reputation for effective advocacy, fair and cost-efficient dispute resolution, legislation and reliable creditor system protection. The nation also has a strong standing in the market sophistication index.
- Norway placed 2nd overall, scoring highest with respect to the aggregated value of mandated loans as well as outpacing others from the top 5 ranking list in the transparency and corruption index. Its financial position is also largely complemented by the Oslo Stock Exchange – which is the largest securities marketplace for shipping in Europe.

TOTAL RANKING OF THE TOP 5

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Key observations

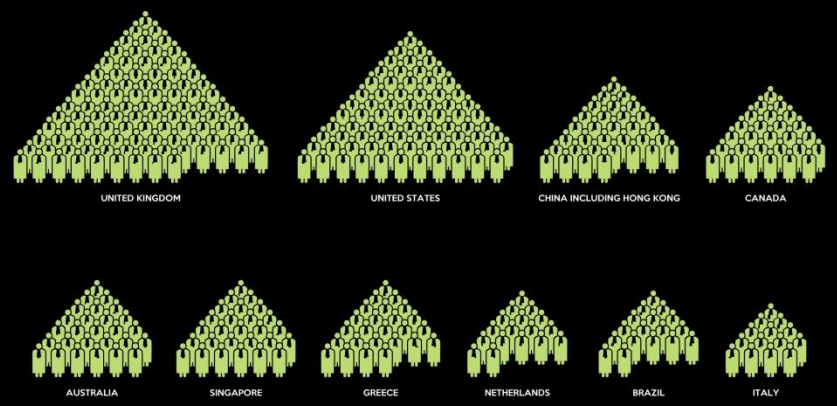
- The United Kingdom is the unrivalled capital of marine insurance with 61% of IG P&I club covered gross tonnage served by UK-based clubs, and 31% of global cargo and H&M premiums collected by insurance companies headquartered in the UK – followed by Japan (2) and China (3).
- China is scoring highest for the amount of bonds, IPO and follow-ons traded in stock exchanges aggregated on country level, followed closely by the United States (2) for the same dimension. Overall, China is placed 4th in Maritime Finance & Law.

NUMBER OF MARITIME LEGAL EXPERTS AT COUNTRY LEVEL

Key observations

- The governing law mechanisms have a huge impact on the enforceability of contracts as well as on how they will be interpreted and construed. Hence it is important to agree that English Law is known as the preferred choice used in the maritime industry. English courts are known for their sophisticated and proven legal process.
- For centuries, UK-based lawyers (mainly in London) have supported ship and cargo owners as well as their business partners in setting up contracts and settling disputes. The UK's strong position can be illustrated by its dominance in the international market. Only 20% of the business in UK maritime law firms comes from UK-based clients, while the rest is induced by international clients. The nation has by far the highest number of dedicated maritime lawyers (~25% of global maritime legal partners) and hosts most headquarters of law firms active in the maritime sector. It is also the preferred place for arbitration (LMAA, ~45 of global maritime arbitration), and experts rate London highly for corporate and maritime law and a well-functioning court system.

Source: Who's Who Legal & World Shipping Register

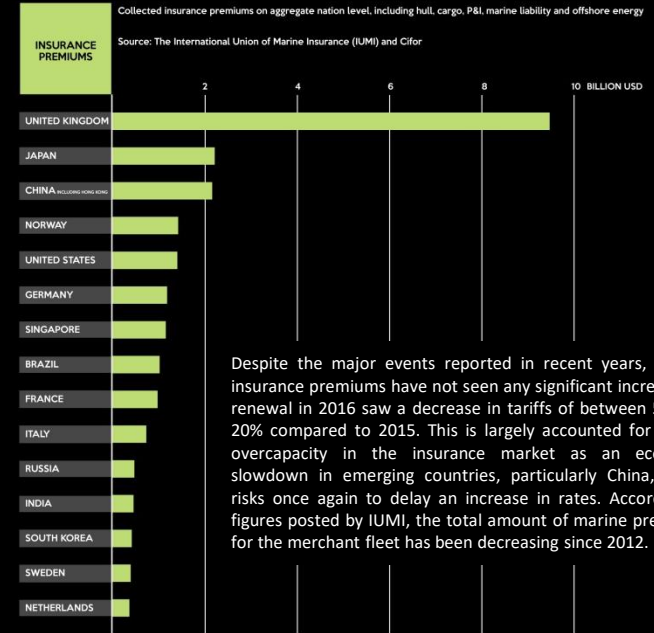


- When looking at the United States, credit goes to New York – home to the second highest number of dedicated law firms and maritime lawyers. In arbitration however, New York plays a subordinate role compared to London, Paris, Singapore and Hong Kong. Singapore is now reaping the results of its investment in positioning itself as a formidable international maritime arbitration centre.

INSURANCE PREMIUMS COLLECTED ON AGGREGATE NATION LEVEL, INCLUDING OFFSHORE ENERGY

Key observations

- The United Kingdom is the unrivaled capital of marine insurance with 61% of IG P&I club covered gross tonnage served by UK-based clubs, 31% of global cargo and H&M premiums collected by UK-headquartered insurance companies headquartered and the highest number of representative offices of all clusters. Lloyd's of London is the traditional marketplace for insurance coverage, complemented by the International Underwriting Association (IUA).
- Japan (2) and China (3) in the runner-up positions are quite different with respect to marine insurance. Both nations have a strong local interest in P&I and cargo, a little less in H&M.
- Norway takes 4th position due to Oslo being home to two P&I clubs, and some cargo and H&M premiums collected by Norwegian insurance companies.
- Singapore is also making attempts to increase its marine insurance activities by introducing its own Singapore War Risk Mutual. Due to the effort from their industry associations (such as the Singapore Shipping Association), the city state placed 7th.



Despite the major events reported in recent years, marine insurance premiums have not seen any significant increase. The renewal in 2016 saw a decrease in tariffs of between 5% and 20% compared to 2015. This is largely accounted for by the overcapacity in the insurance market as an economic slowdown in emerging countries, particularly China, which risks once again to delay an increase in rates. According to figures posted by IUMI, the total amount of marine premiums for the merchant fleet has been decreasing since 2012.

THE VALUE OF MARITIME SYNDICATED LOANS ARRANGED BY BANKS' FUNCTIONAL MARITIME HQ

Key observations

- Norway takes the lead in this dimension, beating traditional ship finance heavyweights such as the United States, the United Kingdom and Germany which have not made it into the top 5.
- Norway benefits from a solid investor base with strong industry knowledge and a higher concentration of local maritime shipping expertise based in the country compared to the United Kingdom and Germany. Norway is also home to DNB Bank – a global leader in providing finance for the shipping and offshore industries.
- Out of Asia, Japan is shining. Japanese lenders provide direct financial support for the local newbuilding projects to quality large Greek owners. Japan also started to expand its spending power in global infrastructure projects with the Japan Bank for International Cooperation (JBIC) the lead lender for emerging markets and third-largest lender in developed countries. The three Japanese megabanks – Mitsubishi UFJ Financial Group (MUFG), Smbc bank and Mizuho – reportedly issued 14.4% of global infrastructure loans in 2016. All three of them are also in the Global Top 10 for loans.

The value of the loans are allocated to banks who function as the lead arranger or the bookrunner.
The value is allocated to cities based on banks functional maritime headquarter.
Reported values are aggregate of bookrunner and lead arranger.
Source: Dealogic

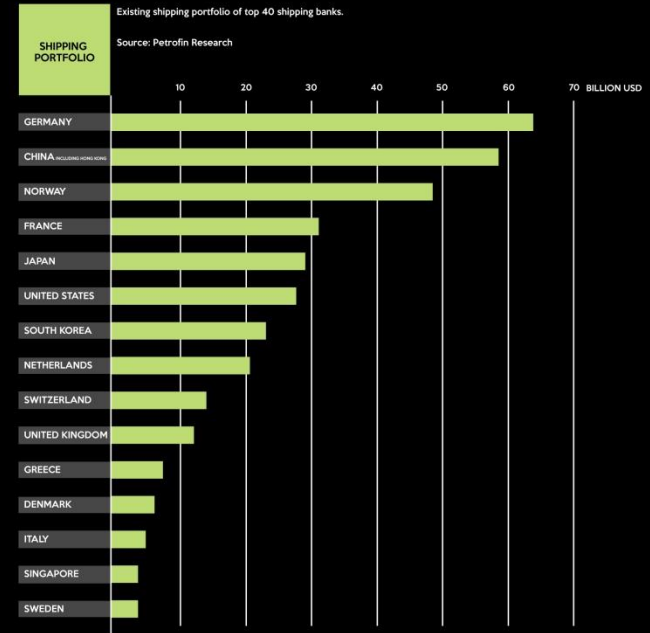


Syndicated loans are the preferred way of financing in the industry, due to the capital intensive nature of shipping. Usually, this involves a mortgage facility, where the ship being financed is the main security for the loan with the interest rate based on LIBOR plus a 2-3% margin based on the credit risk of the borrower. However, the way ships are financed has changed noticeably. Conventional ship financing deals with traditional banks are declining. European banks are one by one announcing their intention to exit shipping by actively selling or re-structuring their shipping portfolios or not wanting to commit to any new deals (particularly as a result of the Basel regulations). They have been replaced by Japanese and Chinese lenders which are becoming increasingly active within the shipping industry offering alternative sources of financing. These are, however, still limited to big players. Activities from the Chinese banks and leasing companies are likely to increase with the development of China's 'Belt & Road' initiative.

EXISTING SHIPPING PORTFOLIO OF TOP 40 SHIPPING BANKS' HQ ON A COUNTRY LEVEL

Key observations

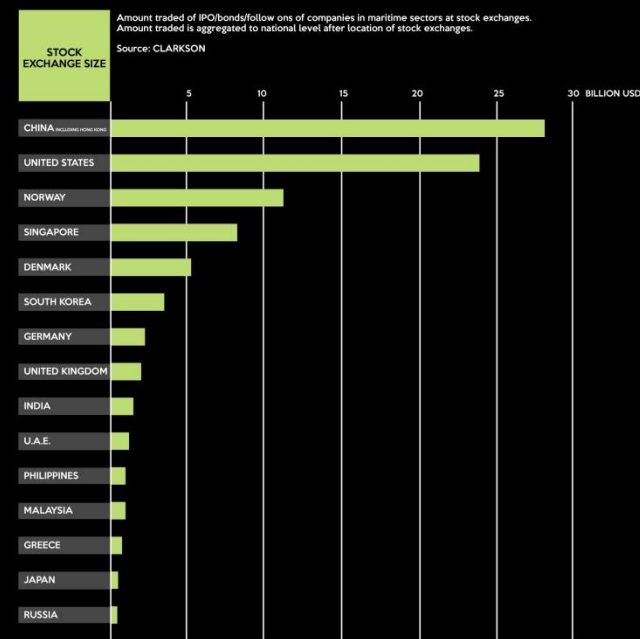
- Despite a recent reduction in activities, Germany is still a top bookrunner in terms of the existing shipping portfolio of the shipping banks based in the country, followed by China.
- Before the global financial crisis, lending to shipping companies was mainly dominated by European banks (esp. German and Scandinavian). Meanwhile, 4 out of the global top 10 shipping lenders are now Asians.
- Chinese shipping lending used to be domestically focused, providing financial support mainly to Chinese shipbuilders and shipping companies. At that time, not a single Chinese bank had a place among the top 15 global shipping lenders (OECD, November 2015). Ten years later, the Bank of China, Export-Import Bank of China (China Eximbank) and China Development Bank (CDB) have not only made it to the top 10 in ship finance 2017, but Eximbank and CDB occupy the global second and third place respectively (Petrofin, July 2017).



AMOUNT TRADED ON STOCK EXCHANGES AT COUNTRY LEVEL

Key observations

- The financial collapse in 2008 brought a need for alternative sources of maritime financing, leading to a rise of bond financing in the industry that peaked 2010-12.
- There is a growing demand for financing in Asia, with China taking the leading position for the amount traded on stock exchanges at country level. One of the Chinese's most prominent financial attractions is the Shanghai Stock Exchange, which holds an important position among stock exchanges worldwide.
- The United States and Norway bond markets remain constant in their ranking and are flexible in terms of how the generated funds are used. However, the market is generally considered expensive compared to the other countries.



POSITION OF THE 30 BENCHMARKED COUNTRIES (WITH BREAKDOWN FOR EACH INDICATOR)

INDICATORS	UNITED STATES	NORWAY	UNITED KINGDOM	CHINA <small>(INCLUDING HONG KONG)</small>	JAPAN	FRANCE	GERMANY	NETHERLANDS	SINGAPORE	SOUTH KOREA	DENMARK	AUSTRALIA	ITALY	GREECE	SWITZERLAND	SWEDEN	CANADA	INDIA	BELGIUM	SPAIN	BRAZIL	U.A.E.	MALAYSIA	RUSSIA	TURKEY	PHILIPPINES	FINLAND	INDONESIA	VIETNAM	SAUDI ARABIA
LEGAL EXPERTISE	1	14	2	3	20	13	11	9	6	24	19	4	10	7	27	23	5	21	16	8	12	15	22	18	17	28	26	29	25	30
INSURANCE PREMIUM	5	4	1	3	2	9	6	15	7	13	29	16	10	28	20	14	22	12	18	17	8	-	19	11	21	26	27	25	24	23
LOAN ARRANGER	3	1	6	-	4	5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHIPPING PORTFOLIO	6	3	10	2	5	4	1	8	14	7	12	16	13	11	9	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRANSPARENCY AND CORRUPTION	12	2	8	17	14	16	10	7	5	19	1	11	20	22	3	6	9	24	13	18	26	15	23	30	25	29	4	27	28	21
MARKET SOPHISTICATION	1	15	4	8	9	10	16	17	3	12	5	6	24	25	7	10	2	21	23	14	29	19	18	27	26	30	13	28	20	22
STOCK EXCHANGE SIZE	2	3	8	1	14	-	7	-	4	6	5	18	20	13	-	21	19	9	17	-	-	10	12	15	-	12	-	16	22	-
OVERALL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Countries that did not make it to the list of 30 are marked with “-”

MARITIME TECHNOLOGY

DEFINITION OF DIMENSIONS

Shipyards

- Includes shipyards that are involved in the building, conversion, repair and maintenance of ships and mobile offshore units.
- The ship building market caters to all ships and mobile offshore units. It includes offshore support vessels (supply vessels, anchor handlers, seismic vessels), harbour tugs, coastal security vessels, yachts and other specialised vessels.
- The conversion market predominantly includes the conversions of tankers to FPSO (Floating production storage and offloading) and FPO (Floating Production Offloading) units, LNG carriers to FSRU (Floating Storage Regasification units) and other smaller conversions to offshore support vessels.
- The ship repair and maintenance market caters to all ship types and mobile offshore units.

Maritime Equipment

- Production value of marine equipment and export share

Classification

- Classification societies are organizations that establish and maintain technical standards for the construction and entire lifetime operation of ships and offshore structures. Classification follows detailed private rules of the society, which include but exceed requirements set out by IMO. They validate that construction is according to these standards and carry out regular surveys in service to ensure compliance with the standards. Furthermore, classification societies provide statutory work on behalf of flag states, which have accredited them for this work as “recognized organizations” (R.O.). Beyond core class and statutory work, leading classification societies provide services such as advisory, training and management system surveys to the maritime industry. Classification societies are private, non-governmental organizations

R&D index

- Sub-index of the Global Innovation Index aimed towards sophistication in research and development. Input factor.

ICT index

- Sub-index of the Global Innovation Index aimed towards sophistication in ICTs.

Knowledge Creation index

- Sub-index of the Global Innovation Index aimed towards knowledge creation. Output factor.

TOTAL RANKING OF THE TOP 5

COUNTRY	SHIPYARDS	CLASSIFIED FLEET	MARINE SUPPLY INDUSTRY	R&D INDEX	ICT INDEX	INFORMATION TECHNOLOGY INDEX	OVERALL
SOUTH KOREA	2	8	1	1	2	3	1
JAPAN	3	1	2	4	4	9	2
CHINA INCLUDING HONG KONG	1	6	6	17	18	12	3
GERMANY	5	7	3	7	14	4	4
UNITED STATES	11	2	4	3	7	5	5

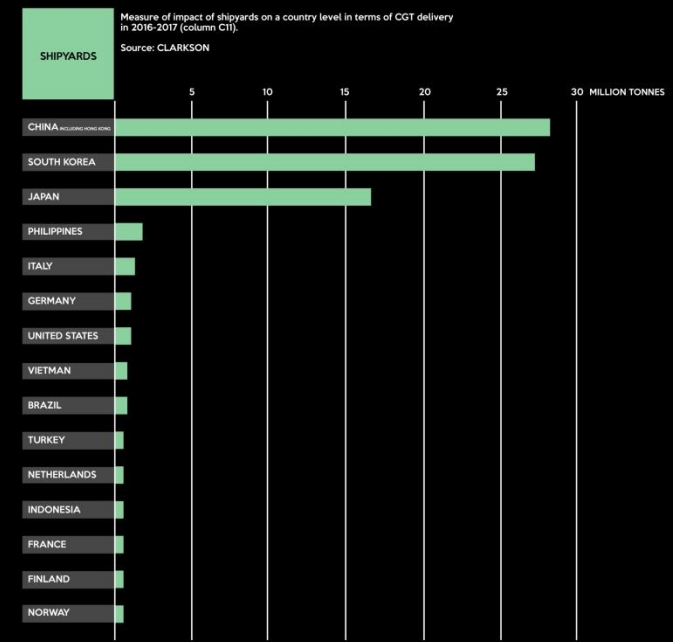
Key observations

- Overall in a global arena, there are three countries that control the major share of shipbuilding (in gross tonnage) activities in the world: China (1), South Korea (2) and Japan (3). The three countries together stand for 91.8% of world gross tonnage, with South Korea having the second largest share after China.
- South Korea placed first among other nations in Maritime Technology due to its strong performance in the marine supply industry and R&D index. It also scores second highest in terms of order book value and CGT delivered.
- Out of Europe, Germany is in the list of the top 5, scoring strongly on the R&D index – overall, the nation is taking the fourth place.
- The United States is among the top 5 in this group, scoring strongly in terms of the classified fleet located in the country with Houston being home to American Bureau of Shipping (ABS) – which has the biggest share of the global tanker fleet under its purview.

MEASURE OF IMPACT OF THE SHIPYARDS ON A COUNTRY LEVEL IN TERMS OF CGT DELIVERY

Key observations

- In a development starting in 2010, China had gained nearly 44% of the global shipbuilding market surpassing other major competitors in Europe and Asia (which primarily includes Japanese and South Korean yards).
- The shipbuilding industry in China transformed from defence-focused into a commercial enterprise, starting from smaller container ships, bulk cargo carriers, crude oil tankers and slowly moving into high value and sophisticated vessels as well. It is now supported by strong enterprises and offers a complete range of services at perhaps the best value to be had. China's emerging economy and strong support by the state in combination with the country's huge human potential have been the largest engines in accelerating the development of China's shipbuilding industry. A number of joint ventures and small private shipbuilding enterprises are actively connected with foreign companies to accelerate the growth of the shipbuilding cluster.



MEASURE OF IMPACT OF THE SHIPYARDS ON A COUNTRY LEVEL IN TERMS OF CGT DELIVERY

Key observations

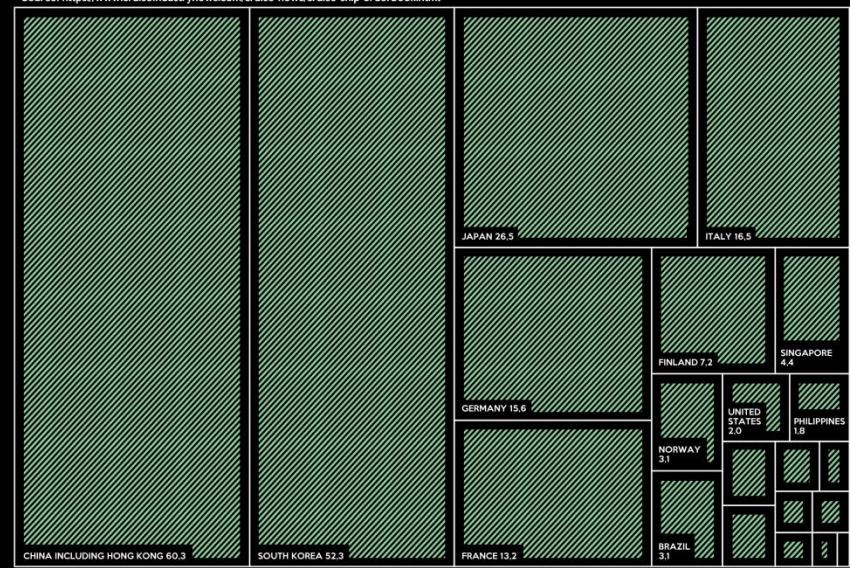
China, South Korea and Japan are major contributors to the global shipbuilding market. Shipbuilding has been at the heart of these countries' economic development over the past few decades and makes an important contribution to their economic output and employment.

In contrast to this, the European shipbuilding industry is a relatively small component of each nation's economy as a whole compared to its competitors in Asia. Most of the enterprises are small and family-owned in comparison to state-owned Asian yards or conglomerates that are part of big shipyard corporations. However, Europe still plays a crucial role in terms of producing cruise vessels (very high value per ship basis).

Comparing to its size, the United States' commercial shipyards performance is rather low (newbuilding for the defense sector has not been included).

Orderbook Value in \$bn.

Source: <https://www.cruiseindustrynews.com/cruise-news/cruise-ship-orderbook.html>



POSITION OF THE 30 BENCHMARKED COUNTRIES (WITH BREAKDOWN FOR EACH INDICATOR)

INDICATORS	SOUTH KOREA	JAPAN	CHINA <small>(including Hong Kong)</small>	GERMANY	UNITED STATES	NORWAY	FRANCE	ITALY	UNITED KINGDOM	FINLAND	NETHERLANDS	SINGAPORE	DENMARK	BRAZIL	SPAIN	RUSSIA	SWEDEN	TURKEY	SWITZERLAND	BELGIUM	INDIA	CANADA	AUSTRALIA	MALAYSIA	GREECE	PHILIPPINES	INDONESIA	VIETNAM	SAUDI ARABIA	U.A.E.
SHIPYARDS	2	3	1	5	11	12	6	4	25	7	14	9	24	10	17	18	-	15	-	-	20	26	22	20	23	8	16	13	-	21
CLASSIFIED FLEET	8	1	6	7	2	4	5	9	3	19	-	16	-	17	-	11	-	14	-	-	12	-	-	18	15	-	10	13	-	-
MARINE SUPPLY INDUSTRY	1	2	6	3	4	5	11	9	10	12	7	13	8	14	15	23	18	16	-	20	-	-	-	17	21	19	-	-	-	-
R&D INDEX	1	4	17	6	3	16	12	19	10	8	11	9	7	22	18	21	5	26	2	15	24	14	13	23	25	29	28	30	20	27
ICT INDEX	2	5	18	14	8	15	6	17	1	10	3	7	13	24	11	21	12	26	19	20	29	9	4	22	25	27	30	28	23	16
INFORMATION TECHNOLOGY INDEX	3	9	12	4	5	14	15	17	8	7	6	19	10	23	20	18	2	21	1	11	24	13	16	27	22	25	30	28	26	29
OVERALL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Countries that did not make it to the list of 30 are marked with “-”

PORTS & LOGISTICS

DEFINITION OF DIMENSIONS

PORTS & LOGISTICS

By definition, Ports & Logistics is a set of interdependent firms engaged in port-related activities, located within the same port region, with common or similar strategies that lead to a competitive advantage over external competition.

- The port sub-cluster consists of a group of companies engaged in port-related activities to provide services to the ports' customers that eventually improve the ports' competitive advantage.
- Cargo/passenger loading/unloading is the main activity in a port that is typically undertaken by port operators or port authority depending on their administration model. They also offer marine and value added services to the customers. Nautical operations and safety typically fall under the port authority's responsibility.

Port operations/ HQ

- Typical activities in container ports are loading/unloading containers, stuffing/stripping containers. In cruise terminals, the main activity is loading/unloading passengers.

Port connectivity Index (LCSI)

- LSCI is generated from five components: (a) the number of ships; (b) the total container-carrying capacity of those ships; (c) the maximum vessel size; (d) the number of services; and (e) the number of companies that deploy container ships on services from and to a country's ports.

Logistics Performance Index (LPI)

- Ranking of top 160 countries in trade logistics generated by six components: (a) Customs; (b) Infrastructure; (c) International shipments; (d) Logistics competence; (e) Tracking & tracing; and (f) Timeliness.

TOTAL RANKING OF THE TOP 5

COUNTRY	PORT HANDLING	TOTAL CARGO HANDLED	PORT OPERATORS -HQ	BUSIEST CRUISE PORTS BY PASSENGERS	PORT CONNECTIVITY INDEX	LOGISTICS PERFORMANCE INDEX	BURDEN OF CUSTOMS PROCEDURE	OVERALL
CHINA INCLUDING HONG KONG	1	1	1	4	1	15	10	1
UNITED STATES	2	2	7	1	6	12	6	2
SINGAPORE	3	6	4	8	2	6	1	3
U.A.E.	6	18	3	15	11	10	3	4
GERMANY	8	15	6	10	7	1	9	5

Key observations

- With seven of the ten largest ports in the world and as the top container exporter, China is the undisputed leader in ports & logistics. The nation scores highest in four out of a selected seven indicators and shows strong performance predominantly in the following areas:
 - Absolute performer in Port handling / TEU and total cargo handled
 - Having the best container shipping connectivity in the world – more than six times above the global average and ranked as the leader in this category followed by Singapore (2), Korea (3) and the United States (6)

TOTAL RANKING OF THE TOP 5

COUNTRY	PORT HANDLING	TOTAL CARGO HANDLED	PORT OPERATORS -HQ	BUSIEST CRUISE PORTS BY PASSENGERS	PORT CONNECTIVITY INDEX	LOGISTICS PERFORMANCE INDEX	BURDEN OF CUSTOMS PROCEDURE	OVERALL
CHINA INCLUDING HONG KONG	1	1	1	4	1	15	10	1
UNITED STATES	2	2	7	1	6	12	6	2
SINGAPORE	3	6	4	8	2	6	1	3
U.A.E.	6	18	3	15	11	10	3	4
GERMANY	8	15	6	10	7	1	9	5

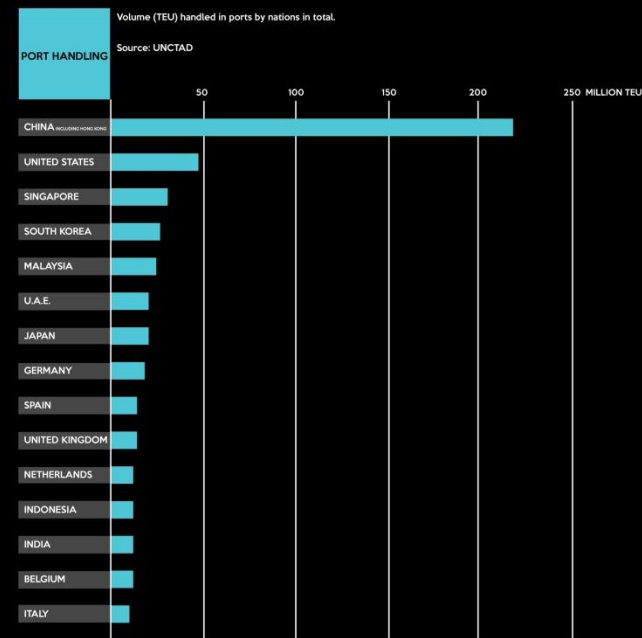
Key observations

- The United States is outperforming other countries in terms of number of cruise passengers and also recognized for its strong performance in ports & cargo handling capacity; overall, it is placed 2nd followed by Singapore.
- Strategic location, huge investment in port automation, Terminal Joint Ventures, business friendly policies and overall comprehensive maritime infrastructure are some of the key drivers that help Singapore to become number 3 in Port & Logistics.
- Although the UAE has not made it to the top 10 on the overall ranking of the leading maritime nations, the country ranked as number four on Ports & logistics. Thanks to DP World, the 4th largest terminal operator globally, and JAFZA, the largest free zone in the world is HQ in Dubai.

THE TOTAL TEU VOLUME HANDLED IN PORTS BY THE BENCHMARKED NATIONS

Key observations

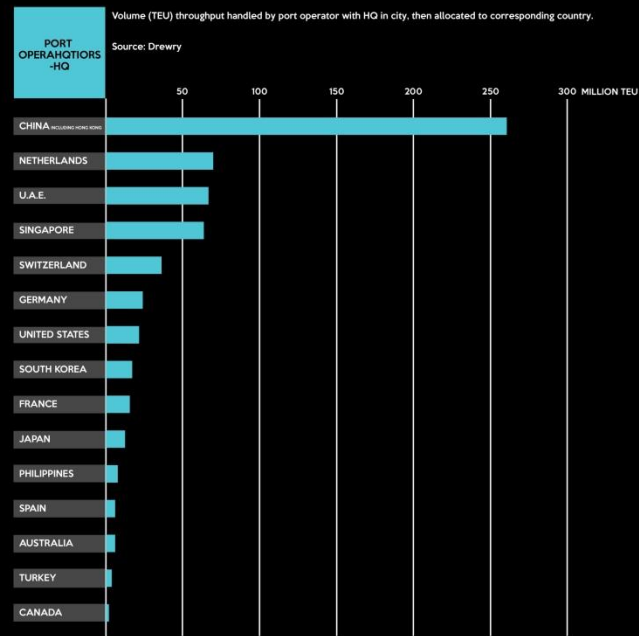
- With seven out of the top 10 largest ports in the world located in China, the power nation also tops the list in terms of total TEU handled. In 2017, growth through the top Chinese ports (such as Shanghai ports, Ningbo Zhousahn) has reportedly doubled to 7.1%, pushing the volume handled to almost 200.3 million TEU. The top eight Chinese ports that handle a majority of international container trade volume all alone, has jumped by almost 11% in Q1 of 2017 compared to the same period last year. The positive development can be linked to the growth in the United State’s imports from Asia. Currently, China is the world’s top exporter, followed by the United States. However, the effects of a possible US-China trade war are yet to be seen.
- The dominant container transport routes are seen between Asia, Europe, and the United States.



VOLUME (TEU) HANDLED IN PORTS MEASURED BY PORT OPERATORS' HQ LOCATION ON A COUNTRY LEVEL

Key observations

- China (including Hong Kong) dominates port operation globally. The nation is home to four out of the top 10 global players in equity TEU. Among them, Hutchison Ports HQ based in Hong Kong and China COSCO Shipping based in China, with a combined estimated global market share of almost 24% as of 2016.
- The Netherlands score second, being home to APM Terminals – a global terminal operator with throughput of 50+ million TEU. The entity operates 72 port facilities and employs a total of 20,000+ people. It holds an estimated global market share (based on throughput) of 10.2% as of 2016.
- Singapore placed fourth due to the presence of PSA International –the world’s largest terminal operator with 16 terminals and employing over 30,000 people.
- Geneva being a home to “Mediterranean Shipping Company” (MSC) – the world's second-largest shipping line in terms of container vessel capacity with JVs in several terminal facilities worldwide –helps Switzerland to make it to the top 5 for this indicator.



TOTAL TEU VOLUME HANDLED IN PORTS BY THE BENCHMARKED NATIONS

Key observations

- China has the best container shipping connectivity in the world – more than six times above the global average and ranked as the leader in this category, followed by Singapore (2), Korea (3) and the United States (6).
- Singapore’s high ranking can be attributed to its strategic location and advanced port and terminal infrastructure, together with its role as the world largest transshipment hub.
- Korea’s strong position is a positive reflection of its export dominant economy, which combined with Pusan’s position as a transshipment hub for North Asia further strengthens Korea’s position.

LSCI is generated from five components:
 (a) the number of ships;
 (b) the total container-carrying capacity of those ships;
 (c) the maximum vessel size;
 (d) the number of services; and
 (e) the number of companies that deploy container ships on services from and to a country's ports

Source: UNCTAD



POSITION OF THE 30 BENCHMARKED COUNTRIES (WITH BREAKDOWN FOR EACH INDICATOR)

INDICATORS	CHINA <small>(INCLUDING HONG KONG)</small>	UNITED STATES	SINGAPORE	U.A.E.	GERMANY	SPAIN	NETHERLANDS	SOUTH KOREA	FRANCE	AUSTRALIA	JAPAN	MALAYSIA	ITALY	UNITED KINGDOM	CANADA	BELGIUM	TURKEY	INDIA	RUSSIA	BRAZIL	SAUDI ARABIA	GREECE	VIETNAM	PHILIPPINES	INDONESIA	DENMARK	SWEDEN	FINLAND	NORWAY	SWITZERLAND
PORT HANDLING	1	2	3	6	8	9	11	4	22	20	7	5	15	10	23	14	17	13	25	16	19	24	18	21	12	27	28	26	29	30
TOTAL CARGO HANDLED	1	2	6	18	15	13	8	4	12	3	5	9	20	21	19	14	16	10	11	7	17	-	22	23	24	-	-	-	-	-
PORT OPERATORS -HQ	1	7	4	3	6	14	2	8	9	13	11	-	-	-	16	-	-	-	-	-	-	-	-	12	-	-	-	-	-	5
BUSIEST CRUISE PORTS BY PASSANGERS	4	1	8	15	10	3	-	-	5	9	-	11	2	6	12	-	-	-	16	-	-	7	-	-	-	13	-	17	14	-
PORT CONNECTIVITY INDEX	1	6	2	11	7	10	5	3	12	26	13	4	14	9	22	8	17	20	25	24	16	21	15	27	23	19	18	28	29	30
LOGISTICS PERFORMANCE INDEX	15	12	6	10	1	14	5	20	13	16	4	22	17	7	18	3	25	24	30	28	27	23	21	29	26	8	2	9	19	11
BURDEN OF CUSTOMS PROCEDURE	10	6	1	3	9	20	4	21	18	17	16	15	23	7	13	11	27	22	26	29	19	25	28	30	24	12	5	1	14	8
OVERALL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

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THE LEADING MARITIME NATIONS OF THE WORLD 2018

Menon Economics:

Menon is Norway's leading economic analysis company, and the leading provider of analyses of the maritime industry. We have closely followed developments in the industry during the 2000s. We conduct annual surveys of the industry's growth, productivity and profitability and provide annual estimates of the market value of the global shipping fleet. Every second year, Menon publishes its report *The Leading Maritime Capitals of the World*, to broad international acclaim. We have also carried out a series of analyses of the international competitiveness of Norway's maritime industry clusters and individual industry segments.

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DNV GL is the world's leading classification society and a recognized independent advisor for the maritime industry. We enhance safety, quality, energy efficiency and environmental performance of the global shipping industry – across all vessel types and offshore structures. We invest heavily in research and development to find solutions, together with the industry, that address strategic, operational or regulatory challenges.