Shipping in the Mediterranean

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Port and shipping services handle more than 80% of global trade volumes, and this share is even higher for most developing countries. Despite the growing eCommerce – in fact invigorated by it – the physical movement of goods across oceans remains at the core of trade driven development. To participate in global value chains, Mediterranean countries **depend on** well-connected ports and cost-effective shipping services.

Beyond being users of port and shipping services, Mediterranean countries also generate some income by **providing** services and hosting maritime businesses themselves. Some countries of the region are important players in ship owning, registration, and transshipment services.

In recent years, the issue of **climate change** as emerged as major challenge to those who use and provide maritime transport services. Mediterranean countries need to adapt to the impacts of climate change, including rising sea levels and more frequent extreme weather events that affect ports. As the industry moves towards decarbonization, Mediterranean countries also need to assess and mitigate the potential effects that decarbonization measures may have on transport costs and connectivity.

In order to help countries, assess options for their maritime policies, this article looks at the maritime profiles, port performance, and shipping connectivity of 12 countries in Southern Europe and Northern Africa.

Maritime connectivity

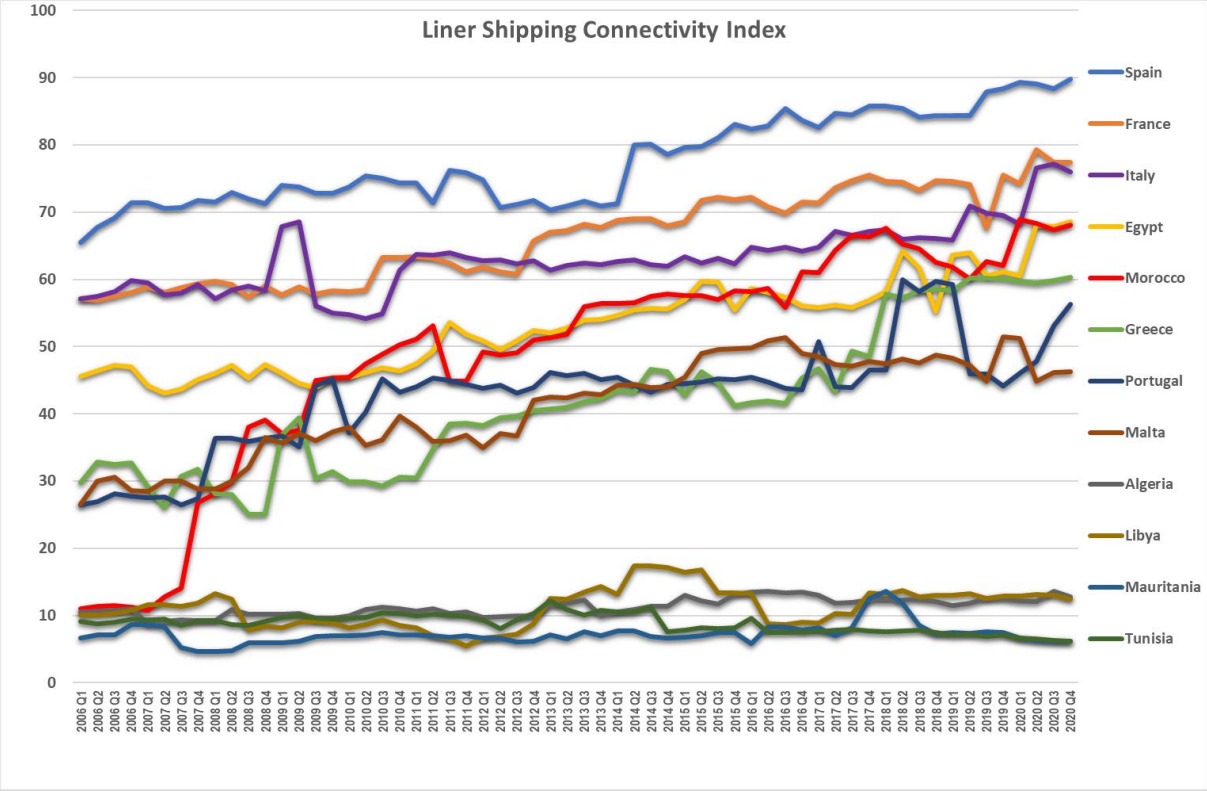
In terms of their maritime transport connectivity, the twelve countries covered in the present article can be arranged into three groups.

- First, in Europe (from West to East), Portugal, Spain, France, Italy and Greece have national markets and hinterland connections. The maritime services through which they are connected to overseas suppliers and markets tend to serve a combination of domestic demand, a wider hinterland, as well as transhipment services in the case of Spain, Italy and Greece.
- Second, Morocco, Malta and Egypt have some national cargo volumes, but above all benefit from their geographic position, providing transshipment services in the global liner shipping network. Morocco and Egypt are the two African countries with the highest liner shipping connectivity. The third highest liner shipping connectivity for African countries is recorded in South Africa, i.e. the three best connected countries are those in the geographical corners of the continent.

- Third, Mauritania, Algeria, Tunisia and Libya connect mostly through RoRo and passenger services to European countries. Algeria and Libya are also important exporters of oil and thus receive a large number of tankers.

UNCTAD publishes a quarterly Liner Shipping Connectivity Index (LSCI) on the country- and port-levels. The index is generated in collaboration and with data from MDS Transmodal on the deployment of container ships. The underlying six components include hard data on the number of ships, their container carrying capacity in TEU (Twenty foot Equivalent Units), their size, the number of companies the number of services, and the number of countries or ports that can be reached without transshipment. The index provides a useful indication of each country's and each port's position in the global liner shipping network.

Figure 1. Liner Shipping Connectivity Index of countries, quarterly, Q1 2006 to Q4 2020



Source: *UNCTAD, based on data provided by* MDS Transmodal.
Data for all countries is available under http://stats.unctad.org/maritime.

The best-connected country in the Mediterranean is Spain, followed by France and Italy. The three countries benefit from both, their geographical location and their domestic markets and hinterlands. Algeria, Libya, Mauritania, and Tunisia, on the other hand, have very low liner shipping connectivity. Their LSCI has not increased since 2006. Morocco initially had the same low connectivity as Algeria, Libya, Mauritania, and Tunisia, but thanks to the private sector investment in Tanger Med now counts on a state-of-the art transhipment hub and has the fifth highest LSCI of the region (Figure 1).

In addition to allowing for comparisons at the country level, the Liner Shipping Connectivity Bilateral Index (LSBCI) depicts the level of connectivity between countries (Table 1). The highest bi-lateral connectivity among the 10 Mediterranean economies analysed for this chapter is recorded between Spain and Italy, and between Spain and Morocco; followed by the bilateral connectivity between France and Italy, and between France and Spain. The lowest bilateral connectivity is between Tunisia and Greece, and between Tunisia and Egypt.

Table 1: Bilateral connectivity index, 2019

	Algeria	Egypt	France	Greece	Italy	Libya	Malta	Morocco	Spain	Tunisia
Algeria		0.18	0.19	0.17	0.19	0.16	0.18	0.17	0.21	0.16
Egypt	0.18		0.32	0.42	0.47	0.20	0.27	0.36	0.46	0.13
France	0.19	0.32		0.38	0.51	0.20	0.45	0.46	0.51	0.15
Greece	0.17	0.42	0.38		0.40	0.18	0.26	0.28	0.38	0.13
Italy	0.19	0.47	0.51	0.40		0.21	0.38	0.39	0.57	0.16
Libya	0.16	0.20	0.20	0.18	0.21		0.19	0.17	0.21	0.16
Malta	0.18	0.27	0.45	0.26	0.38	0.19		0.29	0.38	0.15
Morocco	0.17	0.36	0.46	0.28	0.39	0.17	0.29		0.57	0.16
Spain	0.21	0.46	0.51	0.38	0.57	0.21	0.38	0.57		0.16
Tunisia	0.16	0.13	0.15	0.13	0.16	0.16	0.15	0.16	0.16	

Source: *UNCTAD, based on data provided by* MDS Transmodal.
Data for all countries is available under http://stats.unctad.org/maritime.

Port performance

Thanks to Automatic Identification System (AIS) data, provided by MarineTraffic, we have detailed information about how many ships and what type of ships call in each country's ports. Annual and semi-annual reports about port calls and the time spent in port are available on UNCTAD-stat. The same data set also allows us to see the median time ships spent in port, as well as their average age and the average and maximum cargo carrying capacity. Table 2 provides two illustrative examples.

The highest total number of ship calls in 2019 among the 12 countries covered in this article were recorded in Italy, with 233 081 arrivals, followed by Greece (159 583) and Spain (142 773). Most of the ship calls in these three countries were passenger ships, including ferries and cruise ships.

The lowest number of vessel calls were recorded in Mauritania (806), Libya (2 772), Tunisia (4 068) and Algeria (6 188). In these Northern African countries, a high share of the vessel calls are general cargo dry break bulk carriers. These ships are used for all types of cargo; they are used more often when cargo volumes are low and there is less incentive to deploy more specialized ships. Liquid bulk carriers are the most important vessel type only in Libya

Table 2: Vessel arrivals and time spent in port, 2019. Examples of Algeria and Spain

Algeria

	Number of arrivals	Median time in port (days)	Avg age of vessels	Avg size (GT) of vessels	Avg cargo carrying capacity (DWT) per vessel	Avg container carrying capacity (TEU) per container ship	Maximum size (GT) of vessels
All ships	6 188	2.44	16	17 942	26 545	1 115	156 919
Liquid bulk carriers	1 041	1.59	13	25 743	44 673	..	156 919
Liquefied petroleum gas carriers	459	1.50	11	18 661	20 960	..	48 963
Liquefied natural gas carriers	196	1.07	12	77 133	61 085	..	137 000
Dry bulk carriers	777	7.06	11	24 740	41 174	..	70 933
Dry breakbulk carriers	1 763	2.48	17	6 702	8 942	..	38 910
Roll-on/ roll-off ships	167	..	29	11 600	6 123	..	66 802
Container ships	1 119	3.22	16	11 817	..	1 115	26 061
Passenger ships	666	..	28	21 537	..	..	47 842

Spain

	Number of arrivals	Median time in port (days)	Avg age of vessels	Avg size (GT) of vessels	Avg cargo carrying capacity (DWT) per vessel	Avg container carrying capacity (TEU) per container ship	Maximum size (GT) of vessels
All ships	142 773	0.88	17	16 226	13 971	3 235	232 618
Liquid bulk carriers	16 042	0.90	11	11 074	18 168	..	160 457
Liquefied petroleum gas carriers	1 486	0.96	11	7 631	8 761	..	48 963
Liquefied natural gas carriers	362	1.04	10	92 790	73 120	..	163 922
Dry bulk carriers	3 279	1.90	16	22 414	38 830	..	151 915
Dry breakbulk carriers	13 374	1.17	15	5 127	7 197	..	71 543
Roll-on/ roll-off ships	11 529	..	17	22 418	7 733	..	77 000
Container ships	15 137	0.65	14	35 592	..	3 235	232 618
Passenger ships	81 564	..	19	14 158	..	..	225 282

***Source**: UNCTAD, based on data provided by MarineTraffic.*
Data for all countries is available under http://stats.unctad.org/maritime.

The fastest turnaround times for container ships in 2019 are recorded in Spain (0.65 days per ship in port), followed by Portugal (0.69), France (0.75) and Morocco (0.78). Container ships spent longest in the ports of Algeria (3.22 days per ship in port), Tunisia (3.12), Libya (2.32) and Mauritania (1.97) (Table 2).

Everything else equal, it should actually be expected that time in port would be longer in those countries with more container traffic, given that each ship has to load and unload more containers. However, there is also a causality going in the opposite direction: More efficient ports are more attractive for shippers and carriers and, thus, shorter time in port is a positive indicator of a port's efficiency and trade competitiveness.

With limited gateway cargo, there are fewer outside trucks causing congestion in the yards, and with cargo arriving and departing in large batches, potentially planned days ahead, transhipment ports have some fundamental advantages. Last and not least, most are operated by global terminal operators, and many are set-up as cost centres or joint ventures with the ship operators.

On average, 75-85 per cent of port call time of container ships is consumed by container operations, i.e. the time between the first and last container lifts, while the remaining time may be due to pilotage,

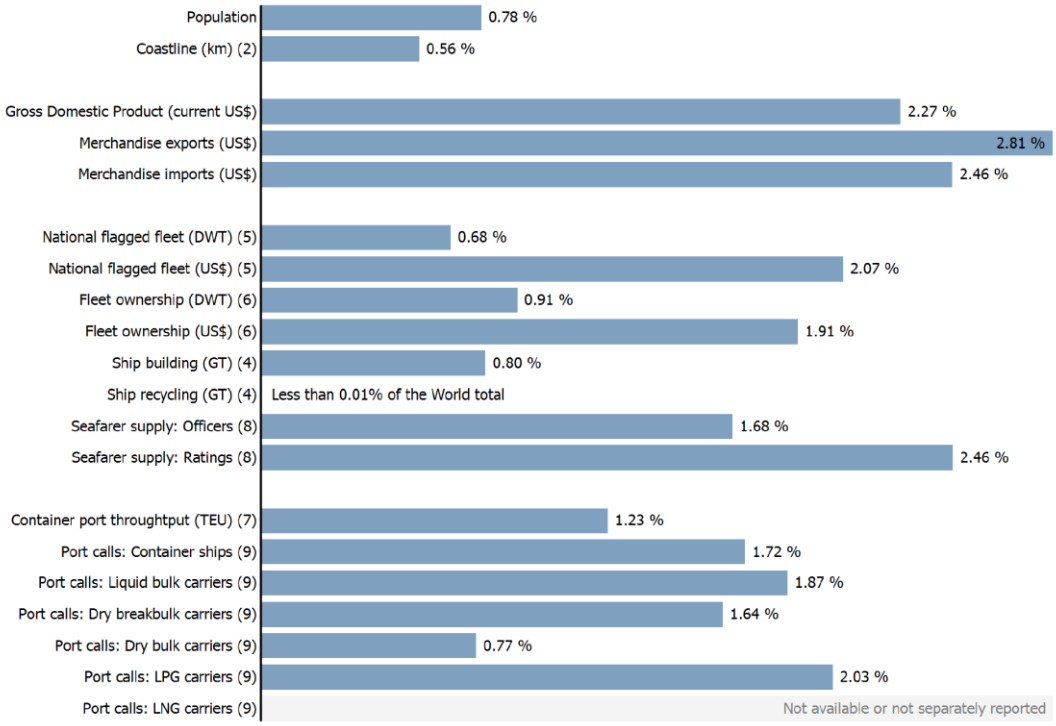
mooring, possibly Customs formalities and other operational or procedural requirements. There exists a huge spread in average port times, and this should be seen as an opportunity for improvement.

Maritime profiles

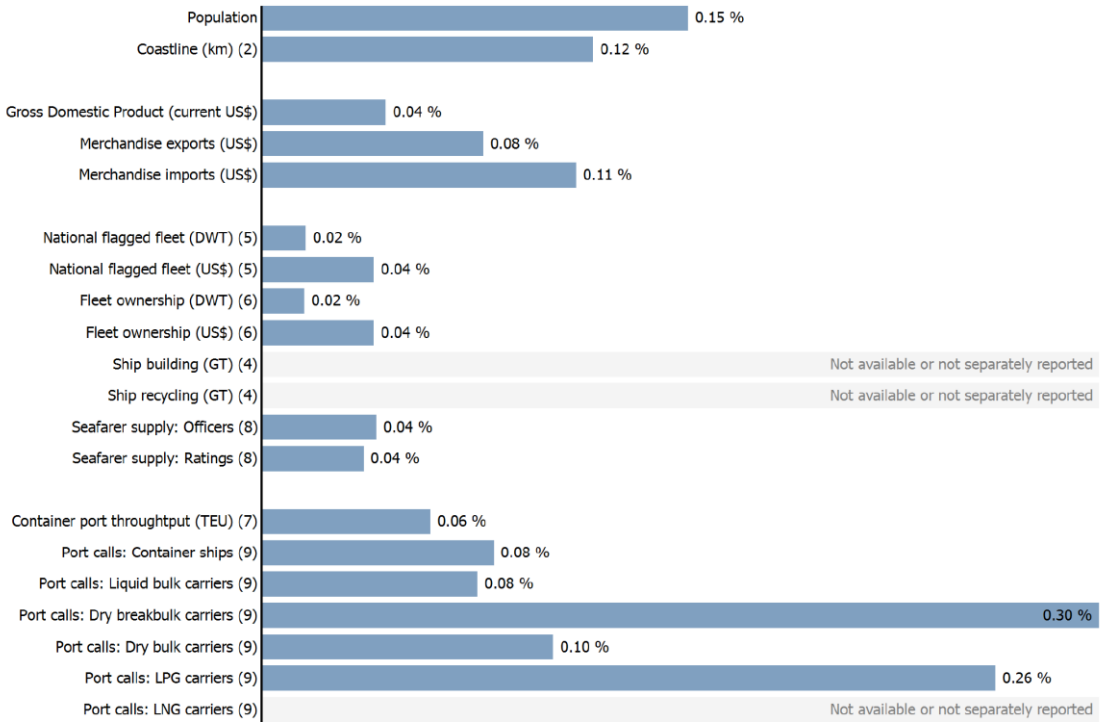
The UNCTAD Maritime Country Profiles show each country's participation in maritime businesses. Figure 2 provides the example of Morocco. It is interesting to see how some countries are important providers of some shipping segments, notably ship owning (Greece) and ship registration (Malta). However, most countries of the region are predominantly users of maritime transport services (reflected in their share of vessel calls) than providers.

Figure 2: Market shares from maritime country profiles, 2019. Examples of Italy and Tunisia

Italy



Tunisia



***Source**: UNCTAD,* https://unctadstat.unctad.org/CountryProfile/MaritimeProfile/en-GB/380/index.html

The impact of covid-19

In all countries, during the first semester of 2020, port calls in most vessel types declined significantly. Globally, in 2020, port calls of container shipswere 2.8% lower than in 2019; this sector saw the earliest recovery. Port calls by general cargo ships went down by 7.8%, while calls by dry bulkers and tankers declined by 4.1% and 4.9%, respectively. The highest declines were recorded for Ro/Ro vessels (minus 12.8%) and Passenger ships (minus 18.3%) (Table 3). Thus, cargo carrying ships fared better than ships that carry people.

Table 3: Port calls in 2020, and change over 2019

	All ships		Break bulk		Container		Dry bulk		LNG carriers	
Country	2020 total	Change 2020/19	2020 total	Change 2020/19	2020 total	Change 2020/19	2020 total	Change 2020/19	2020 total	Change 2020/19
Algeria	5 703	-5.2%	1 050	-13.2%	1 190	2.8%	905	0.9%	341	24.9%
Egypt	27 328	-7.3%	2 322	-13.5%	8 091	-8.4%	7 081	2.8%	673	-11.8%
France	36 456	-22.1%	1 991	-6.4%	3 755	-15.5%	1 485	-13.0%	290	-10.2%
Greece	46 364	-16.1%	892	-22.7%	3 933	-1.0%	1 798	-0.7%	140	15.7%
Italy	68 924	-20.8%	3 041	-18.0%	7 906	-3.7%	1 841	-10.5%	212	-12.0%
Libya	2 669	-7.6%	415	21.0%	936	18.0%	208	-1.9%	80	-27.9%
Malta	7 527	-15.2%	587	-2.3%	1 619	-9.9%	1 028	-5.6%	0	n/a
Mauritania	1 215	3.2%	270	-12.3%	315	3.6%	294	5.4%	0	n/a
Morocco	15 098	-26.5%	1 004	-7.3%	4 608	5.8%	1 552	2.6%	0	n/a
Portugal	7 340	-17.0%	1 255	-6.8%	3 392	-4.0%	344	-21.8%	74	-2.6%
Spain	80 347	-24.8%	4 914	-13.1%	14 565	-5.0%	4 784	-8.4%	492	-5.7%
Tunisia	2 734	-15.8%	450	-18.8%	380	7.3%	294	-2.6%	0	n/a
World	2 247 806	-9.6%	162 592	-7.8%	471 282	-2.8%	346 065	-4.1%	17 080	-0.2%

	All ships		LPG carriers		Passenger ships		Ro/Ro		Tanker	
Country	2020 total	Change 2020/19	2020 total	Change 2020/19	2020 total	Change 2020/19	2020 total	Change 2020/19	2020 total	Change 2020/19
Algeria	5 703	-5.2%	787	24.1%	150	-77.4%	111	-36.9%	1 169	16.8%
Egypt	27 328	-7.3%	837	0.7%	686	-35.4%	1 288	-26.1%	6 350	-5.1%
France	36 456	-22.1%	680	-11.1%	21 975	-27.5%	1 566	-22.3%	4 714	-7.5%
Greece	46 364	-16.1%	560	9.2%	32 687	-22.3%	2 937	14.2%	3 417	13.2%
Italy	68 924	-20.8%	729	-14.5%	40 018	-27.8%	8 835	-7.0%	6 342	-10.0%
Libya	2 669	-7.6%	201	12.9%	1	n/a	327	11.6%	581	-45.8%
Malta	7 527	-15.2%	299	-25.3%	575	-42.2%	452	8.4%	2 887	-16.7%
Mauritania	1 215	3.2%	25	-7.4%	0	n/a	13	-35.0%	298	24.7%
Morocco	15 098	-26.5%	436	11.2%	5 178	-49.3%	1 295	-32.7%	1 025	-4.2%
Portugal	7 340	-17.0%	205	-22.3%	177	-79.4%	884	-22.5%	1 009	-14.6%
Spain	80 347	-24.8%	875	-14.0%	37 132	-34.8%	7 885	-33.6%	9 700	-5.4%
Tunisia	2 734	-15.8%	151	-6.2%	386	-35.0%	731	-18.0%	342	-12.5%
World	2 247 806	-9.6%	36 705	-3.1%	698 681	-18.3%	150 087	-12.8%	365 314	-4.8%

Source: *UNCTAD, based on data provided by* MarineTraffic.
Note: In this table, only ships of 5000 GT and above are considered.
Additional data is available under http://stats.unctad.org/maritime

Among the 12 countries covered in this chapter, Morocco (-26.5%), Spain (-24.8%), France (-22.1%) and Italy (-20.8%) saw the largest decline in port calls throughout the pandemic. These countries also have a high share of passenger and Ro/Ro traffic, which are the two markets most heavily affected by

the pandemic. Mauritania is the only country that recorded an increase in port calls in 2020, albeit starting from the lowest base, and benefitting from growing arrivals of tankers.

Conclusions and policy implications

The countries in the sub-region are above all users of maritime transport services. They are not ship building countries (most ship building takes place in China, Japan, and Korea), nor – with the exception of Greece – ship owning countries. Only Portugal and Malta have significant ship registries, i.e. foreign-owned ships fly the flag of these countries.

The main interest of the Mediterranean region countries lies in port calls and traffic. And here there are large differences in in the performance, as measured for example in the liner shipping connectivity index and the time ships spend in port.

Building on the UNCTAD *Review of Maritime Transport 2020*, there are six priority areas for policy action to be taken in response to the COVID-19 pandemic and the persistent challenges facing the maritime transport and trade.

- First, Mediterranean countries need to continue their support to trade so it can effectively sustain growth and development. Protectionism or export restrictions, particularly for essential goods in times of crisis, bring economic and social costs.
- Second, carefully analyse the options to improve the resilience of supply chains. For example, a shortening of supply chains through re-shoring or near shoring may reduce transport costs and fuel consumption, but it does not necessarily future-proof supply chains against disruptions that could take place, regardless of the location. Diversification may be more important and multi-sourcing approaches may guarantee greater resilience than approaches that concentrate production in a single location, whether at home or abroad. Especially for smaller economies, including most of those covered in this article, would benefit more from stronger regional integration rather than aiming at reducing foreign trade.
- Third, harness data for monitoring and policy responses. The use of fast-evolving data capabilities can support efforts to forecast growth and monitor recovery trends. New sources of data and enhanced possibilities emanating from digitalization provide ample opportunities to analyse and improve policies. The pandemic has highlighted the potential for real-time data on ship movement and port traffic, as well as information on shipping schedules to generate early warning systems for economic growth and seaborne trade.
- Fourth, enable agile and resilient maritime transport systems. There is a need to invest in risk management and emergency response preparedness beyond pandemics. Future-proofing the maritime supply chain and managing risks requires greater visibility of door-to-door transport operations.

- Fifth, maintain the momentum on sustainability, climate-change adaptation and resilience-building. The International Maritime Organization (IMO) has embarked on a programme aimed at the decarbonization of shipping. According to the fourth Green-House-Gas Study of the IMO, the share of shipping emissions in global anthropogenic emissions has increased from 2.76% in 2012 to 2.89% in 2018. The goal of the IMO is, however, to reduce the emissions, and eventually to achieve zero-carbon shipping. The resulting energy transition in shipping is the most important challenge for maritime transport in many decades, comparable to the shift from wind to steam ships, or from steam ships to oil-fuelled ships. The transition will impact the ships and port operations, as well as the cargo carried, as currently about 40% of seaborne trade consists of energy products (oil, coal, gas). Especially some of the Northern African countries could become important future providers of alternative fuels for the future world fleet.
- Sixth, the COVID-19 pandemic has led to a further push towards trade facilitation, especially solutions that require digitalization. In their responses to the crisis, governments and port authorities are pushing for reforms that aim at keeping trade flowing while still protecting populations, transport workers, and officers working at the ports. It would be wrong to think that there is a kind of trade-off between trade facilitation and controls, or that governments would have to strike a balance. The contrary is true: Practically all trade facilitation measures that are included, for example, in the Trade Facilitation Agreement of the World Trade Organization help achieve both: faster and more transparent trade procedures, and at the same time better protection of public interests. For example: By dematerializing processes, data can be transmitted faster and physical "social" contact can be reduced. Accepting digital copies instead of paper originals, pre-arrival processing, electronic payments, Customs automation, applying risk-management techniques, and the cooperation among agencies (within the same country, and with trading partners), all help speed up the processes of international trade. At the same time, all these measures also help agencies such as Customs, ministry of health, bureau of standards or the border police do an even better job at detecting unwanted activities. Our Policy Brief with a 10-point action plan puts it as follows: "Facilitating trade and the transport of goods has become more important than ever, to avoid logistics obstacles that lead to shortages of necessary supplies. The concrete measures proposed in this policy brief help to facilitate transport and trade and to protect the population from COVID-19." As governments and regional organizations have enhanced international cooperation and invested in further trade facilitation reforms and digitalization during the covid-19 crisis, the progress achieved should also help revive international trade. It will be important to assess what worked and what didn't, so that we can lock-in the progress made during lockdown.

Resources

The statistical information included in the article is largely drawn from the UNCTAD on-line statistics, available under http://stats.unctad.org/maritime. The statistics are regularly updated as new information becomes available. The underlying raw data comes from a wide range of national and international sources, including Clarksons Research (https://sin.clarksons.net) for the fleet data, MarineTraffic (https://www.marinetraffic.com) for the port calls and time in port statistics, and MDS Transmodal (https://www.mdst.co.uk) for the container ship fleet deployment liner shipping connectivity indices.

The maritime profiles for 230 economies are available on-line https://unctadstat.unctad.org/CountryProfile/MaritimeProfile/en-GB/012/index.html . They are updated annually.

For further discussion of the performance indicators, country profiles, and the impact of the covid-19 pandemic, see UNCTAD, Review of Maritime Transport 2020, Geneva: http://unctad.org/RMT.