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JUNE / 2019



ŞADAN KAPTANOĞLU:
THE NEW PRESIDENT OF
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Editorial Board Man.: BAŞARAN BAYRAK

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ADMINISTRATION

**İMEAK DTO: Meclis-i Mebusan Cd. No: 22 Salıpazarı 34427 Beyoğlu
İSTANBUL-TURKİYE**

T: +90 212 252 01 30 (8 hat / lines) +90 212 243 54 95 (3 hat / lines)

F: +90 212 293 79 35 dto@denizticaretodasi.org.tr

www.denizticaretodasi.org.tr

PUBLISHER

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T: +90 216 339 13 40 F: +90 216 339 43 50

info@tayfajans.com

Editor-in-Chief: HAKKI ŞEN / hakkisen@tayfajans.com

General Coordinator: AYŞE OLCAY / ayseolcay@tayfajans.com

**Advertising Manager: ZEYNEP USTA HÜSEYİNOĞLU
reklam@tayfajans.com Tel: +90 216 339 13 40/41**

Editor: KEMAL CAN KAYAR / editor@tayfajans.com

Graphic Designer: FATMA BAŞ / fatmabas@tayfajans.com

Representative in Germany: HASAN KARAKAŞ

Contributors: SEVİM TARHAN ATASOY

Translation: *URARTU

Print: ÖZGÜN OFSET

eşilce Mah. Aytekin Sok. No: 21 34418 4. Levent / İstanbul

Tel: + 90 212 280 00 09 • Faks: +90 212 264 74 33

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Our route is directed towards North Europe



TAMER KIRAN

CHAIRMAN OF THE TURKISH CHAMBER OF SHIPPING / İMEAK

When we took office we had said that we would attach importance to the introduction of the Turkish maritime industry at the international level. We are now putting this promise into practice step by step. We participate in the international expos, congresses, conferences and corporate meetings to the largest extent possible. This is both important for the introduction of our country at the international level and a strategic step for the Turkish maritime industry to take its place at the global dimension together with the seafarers of the world on the same platform. Because maritime industry is a global industry and consequently we must carry out all these activities.

This time we switched our route towards Norway, a North European country because, big trade agreements and very special, specific projects are materialized between

the Turkish and Norwegian seafarers. For that reason Norway is a very important country for us. Nor-Shipping Expo has been a very important channel for Turkish seafarers for long years; it is an organization that we always attach importance to. And for that reason our companies take part in this expo with a very wide participation.

Another importance of this expo for us is that it is the first expo organization we are participating in after my colleague Şadan Kaptanoğlu, Deputy Chairman of Chamber of Shipping and also the President of TURMEPA took over the periodical chairmanship of BIMCO.

It is a source of pride to see a woman from the Turkish maritime industry in the pilothouse of the world maritime industry. I wish success to Mrs. Şadan Kaptanoğlu who is the first Turkish and female president in

the history of BIMCO. I want to express once more that we will always stand by her and not spare our support from her.

The products belonging to our Norwegian friends built in Turkish shipyards are not only sea vehicles for us. We develop innovations at the same time and also materialize new technologies and ideas. A significant part of the joint projects realized by the Turkish and Norwegian seafarers have opened new horizons in the world maritime industry. We continue these joint activities smoothly for years.

Nobody must doubt that we will carry these efforts forward to a higher dimension, if we can manage to overcome financial problems that clip our wings. Our efforts in that direction are also continuing. Sea vehicles like Mine Hunting Ships, Milgem, Coast Guard Security Search and Rescue Ships, Amphibious Ship (LST), Multi-purpose Amphibious Assault Ships (LHD), Logistical Support Ships (LDG), Rapid Amphibious Ships (LCT), Underwater Rescue Main Ship (MOSHIP), Rescue and Towage (KURYED), Seismic Survey Ships, New Type Patrol Boats (YTKB), 25 tons Coast Guard Boat, Underwater Transfer Boat for Assault Team Operations (SAT Boat) are built in our shipyards. These ships built with a contribution share of over 60% of the domestic industry are now being exported to abroad as well. These issues are covered in the pages of our magazine as you will see. İsmail Demir, Head of Defense Industry Administration shared information about these issues, particularly R&D activities.

As Turkish seafarers we will actively participate in Nor-Shipping. We will follow new developments, conferences and presentations. We wish a successful expo experience to all participants of the expo. On this occasion we invite the seafarers of the world to our country for entering into cooperation and realize joint projects with the Turkish seafarers. Let your bow be clear and your wind easy.



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// SHIPREPAIR IN TURKEY

IMEAK CHAMBER OF SHIPPING



TAMER KIRAN - Chairman of the Board

Istanbul and Marmara, Aegean, Mediterranean and Black Sea Regions Chamber of Shipping (A.k.a. the Chamber of Shipping) is an important professional organization of the Turkish shipping industry with its seat in Istanbul.

It has branches in İzmir, Aliğa, Bodrum, Marmaris, Antalya, İskenderun, Fethiye, Karadeniz Ereğlisi (Western Black Sea Region) and Kocaeli. In addition, it has a Liaison Office in Ankara, Turkey, and representative offices in all coastal provinces and districts.

IMEAK Chamber of Shipping was first established as Istanbul Chamber of Shipping on August 26, 1982. In the course of time, it has expanded its services to include the Marmara Sea Region, Turkey's Aegean coast and Mediterranean coastal regions and eventually the Black Sea coast. The number of its members is approximately 10,000. The Chairman of the IMEAK Chamber of Shipping is Tamer Kiran

and Head of the Assembly is Salih Zeki Çakır. The vice chairs are Şadan Kaptanoğlu and Recep Düzgit.

The members of the Board of Directors are Ömer Faruk Miras, Adnan Naiboğlu, Timur Taylan Kalkavan, İbrahim Tamer Haşımoğlu, Burak Akartaş, Uğur Sina Şen, Başaran Bayrak, and Mustafa Can.

OBJECTIVES

The most important objectives of the Chamber of Shipping are protecting interests of its members, meeting the common needs of seafarers, ensuring the development of maritime profession, facilitating professional activities, setting the shared rules, advising to the relevant authorities on maritime issues, while preserving its discipline, ethics and solidarity.

ACTIVITIES

The Chamber's main activities include determining the rules and practices related to shipping, conducting research, collecting information about shipping, ensuring development of shipping in accordance with the national transportation policy, informing foreign organizations about the possibilities and tariffs of Turkish ports, becoming a member of international maritime organizations, monitoring their activities, and performing other tasks specified in the laws.

MEMBERS

The members of the IMEAK Chamber of Shipping include ship owners, ship operators, ship agents, ship brokers, shipping agents (forwarders), companies engaged in loading, unloading and stowing (stevedores), companies doing timekeeping in loading and unloading, ship classification organizations, ship



Chamber of Shipping



SALİH ZEKİ ÇAKIR - President of the Assembly

insurance companies, insurers and their agents, ship surveyors and experts, and those offering services such as rescue, guidance, screening of seabed, yachting, marina operator, and ship supplies.

The Chamber of Shipping is a member of the following bodies: The Union of Chambers and Commodity Exchanges of Turkey (TOBB), International Chamber of Commerce – Turkey

National Committee (ICC Turkey), International Chamber of Shipping (ICS), International Chamber of Commerce-International Maritime Bureau (ICC- IMB), Federation of National Associations of Ship Brokers and Agents (FONASBA), European Community Association of Ship Brokers and Agents (ECASBA), Baltic and International Maritime Council (BIMCO), Turkish – American Chamber of Commerce and Industry (TACCI),

The Yacht Harbours Association (TYHA), European Boating Association (EBA), International Bunker Industry Association (IBIA), European Shortsea Network (ESN), and Turkish-German Chamber of Commerce and Industry (TD-IHK).

MISSION

Cooperating with the public and the private sector to encourage development of the Turkish maritime industry in a free and competitive environment, increasing its international competitiveness, and contributing to the development of the country; providing accurate and timely service and information to its members with a service improving every day; and eliminating domestic and international legal barriers before shipping.

VISION

“Seafarer Nation, Seafarer Country”

CORE VALUES

Quality Service; Member & Employee Satisfaction; Meeting Stakeholders' Expectations; Reputation & Reliability; Impartiality & Transparency; Active Participation; Continuous Improvement; Principles of Collaboration, Tolerance and Respect; Social Responsibility; and Environmental Responsibility



Executive Board of the Chamber of Shipping

TURKISH MERCHANT FLEET (1000 GT and over)

Turkish Merchant Fleet consists of 544 ships, 282 ships (5,8 million DWT) have been acquired by importation and 262 ships (1.4 million DWT) have been built in Turkey.

Distribution of 544 ships by their types ; 29,79 % dry cargo ships, 11,40 % bulk carriers, 9,93 % chemical tankers, 10,48 % containers and 7,17 service ships, 31,23 % other types of ships.

Distribution of the fleet by DWT (7,3 Million) ; 38,21 % bulk carriers, 19,44 % oil tankers, % 11,65 dry cargo ships, %16,49 containers, 6,22 % chemical tankers and 7,99 % other types of ships.

The General Examination Of The Turkish Merchant Fleet By National and International Registries (1000 GT and Over)

SHIP TYPES	COUNT				DWT				GT			
	National Reg.	Inter. Reg.	Total	%	National Reg.	Inter. Reg.	Total	%	National Reg.	Inter. Reg.	Total	%
DRY CARGO	9	153	162	29,79	35.162	821.158	856.320	11,65	24.314	540.539	564.853	9,83
BULK CARRIER	7	55	62	11,40	169.296	2.639.655	2.808.951	38,21	107.000	1.509.426	1.616.426	28,15
CONTAINER	8	49	57	10,48	194.610	1.016.704	1.211.314	16,49	154.602	817.203	971.805	16,92
DRY CARGO/CONTAINER	1	12	13	2,39	2.356	97.429	99.785	1,36	1.720	66.821	68.541	1,19
CHEMICAL TANKERS	2	52	54	9,93	9.497	447.899	457.396	6,22	6.441	290.382	296.823	5,17
LPG TANKERS	1	6	7	1,29	4.444	33.803	38.247	0,52	3.983	32.103	36.086	0,63
ASPHALT TANKERS	1	2	3	0,55	2.770	39.896	42.666	0,58	1.900	31.348	33.248	0,58
RO-RO SHIPS	1	21	22	4,04	11.978	230.032	242.010	3,29	32.770	547.055	579.825	10,09
RO-RO FERRY/PASSENGER	3	11	14	2,57	1.500	23.632	25.132	0,34	30.319	50.291	80.610	1,40
FERRY BOATS	1	32	33	6,07	2.314	22.637	24.951	0,34	1.596	65.872	67.468	1,17
TRAIN FERRIES	6	0	6	1,10	2.960	0	2.960	0,04	9.835	0	9.835	0,17
PASSENGER AND CARGO SHIPS	3	5	8	1,47	3.761	1.226	4.987	0,07	17.189	10.865	28.054	0,49
FISHING BOATS	1	1	2	0,37	2.887	569	3.456	0,05	1.892	1.407	3.299	0,06
SCIENTIFIC RESEARCH VESSEL	0	6	6	1,10	0	7.780	7.780	0,11	0	35.832	35.832	0,62
HARBOUR FERRIES	0	1	1	0,18	0	0	0	0	0	1.043	1.043	0,02
HARBOUR CAR FERRIES	0	6	6	1,10	0	1.974	1.974	0,03	0	7.547	7.547	0,13
TUGS	1	0	1	0,18	0	0	0	0	1.565	0	1.565	0,03
SERVICE SHIPS	22	17	39	7,17	19.774	51.892	71.666	0,98	192.039	128.509	320.548	5,58
OIL TANKERS	3	20	23	4,23	10.868	1.417.416	1.428.284	19,44	5.940	758.026	763.966	13,3
TRAIN FERRIES/RO-RO	0	1	1	0,18	0	6.266	6.266	0,09	0	15.195	15.195	0,26
MARINE VEHICLES	9	15	24	4,41	5.686	8.000	13.686	0,19	33.662	208.004	241.666	4,21
TOTAL	79	465	544	100%	479.863	6.867.968	7.347.831	100%	626.767	5.117.468	5.744.235	100%

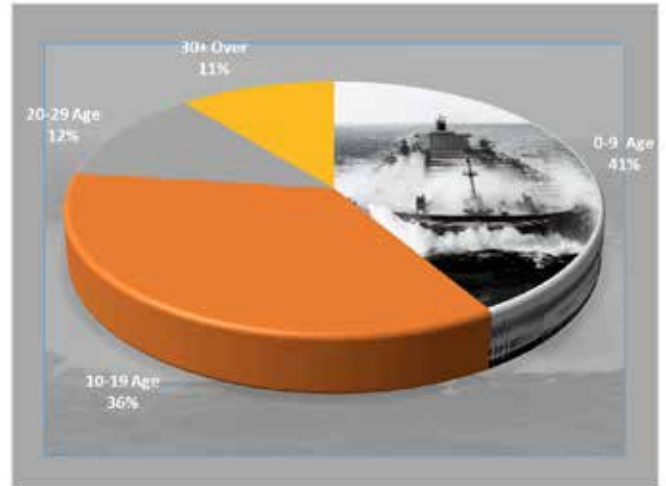
By DWT, 6.53 % of our fleet is registered in National Ship Registry, 93.47 % of fleet is registered in International Ship Registry. By GT, 10.91 % of our fleet is registered in National Ship Registry, 89.09 % of the fleet is registered in International Ship Registry.

Distribution of Turkish Merchant Fleet by Age (1000 GT and over (dwt%))

General Average Age Analysis Of Turkish Merchant Fleet

The Merchant Fleet of 1.000 GT and above comprises of 544 ships. The average age of these ships is 22.29 as of 01.01.2019. Turkish Merchant Fleet consists of 544 ships of 7.347.831 DWT.

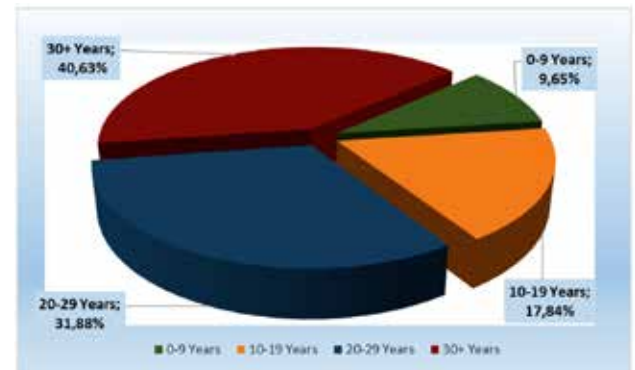
- 103 ships of 3.045.730 DWT are in between 0-9 age range,
- 160 ships of 2.611.583 DWT are in between 10-19 age range,
- 97 ships of 888.887 DWT are in between 20-29 age range,
- 184 ships of 801.630 DWT are in 30 years and over.



DRY CARGO SHIPS

Dry Cargo segment (162 ships) which is 856.320 DWT.

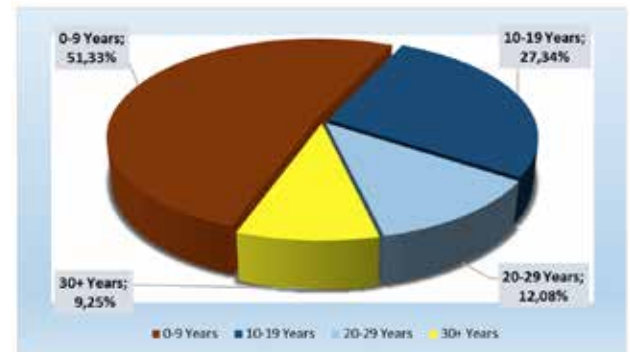
- 13 ships of 82.608 DWT are between 0-9 age range,
- 27 ships of 152.799 DWT are between 10-19 age range,
- 42 ships of 273.005 DWT are between 20-29 age range,
- 80 ships of 347.908 DWT are between 30 and over age range.



BULK CARGO SHIPS

Bulk carrier segment (62 ships) which is 2.808.951 DWT.

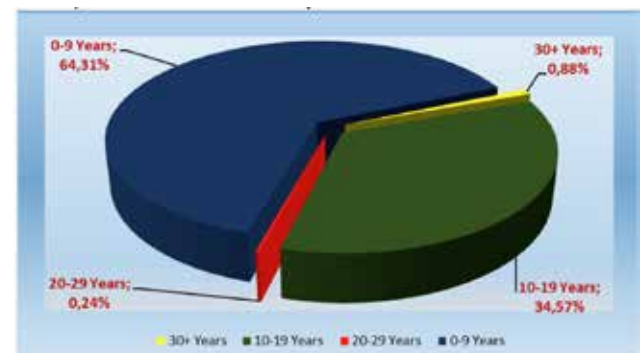
- 24 ships of 1.441.838 DWT are in between 0-9 age range,
- 17 ships of 767.840 DWT are in between 10-19 age range,
- 10 ships of 339.500 DWT are in between 20-29 age range,
- 11 ships of 259.773 DWT are in 30 years and over age range.



OIL TANKERS

Oil tankers segment (23 ships) which is 1.428.284 DWT

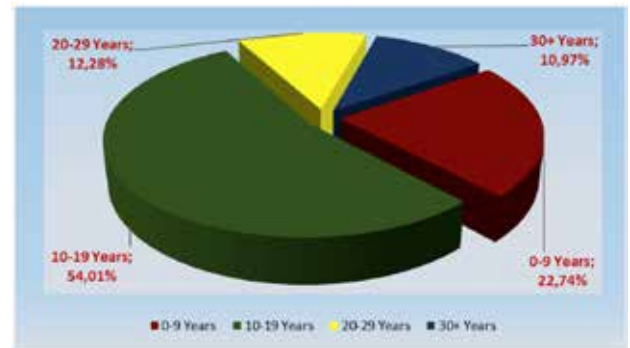
- 8 ships of 918.498 DWT are in between 0-9 age range,
- 10 ships of 493.797 DWT are in between 10-19 age range,
- 1 ships of 3.384 DWT are in between 20-29 age range,
- 4 ships of 12.605 DWT are in 30 years and over.



CHEMICAL TANKERS

Chemical tankers (54 ships) which are 457.396 DWT.

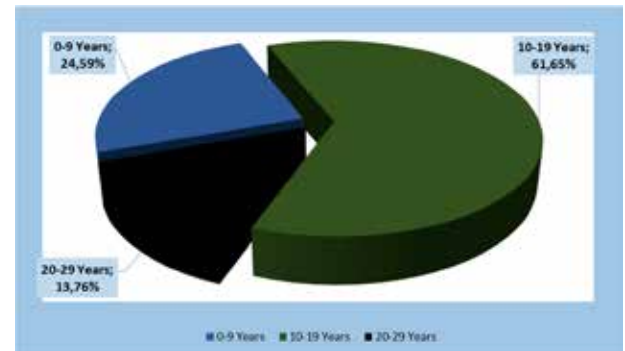
- 6 ships of 104.015 DWT are in between 0-9 age range,
- 30 ships of 247.023 DWT are in between 10-19 age range,
- 9 ships of 56.185 DWT are in between 20-29 age range,
- 9 ships of 50.173 DWT are 30 years and over



CONTAINER SHIPS

Container ships (57 ships) which are 1.211.314 DWT.

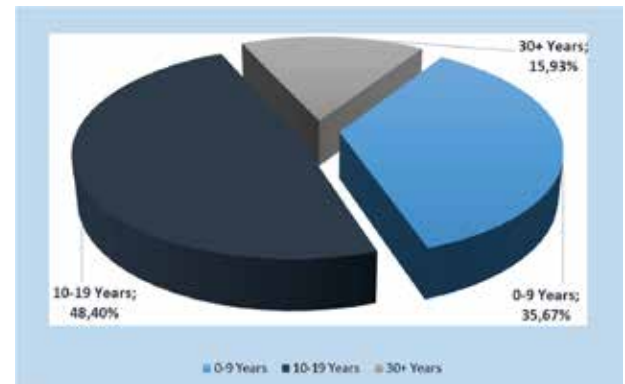
- 9 ships of 297.875 DWT are in between 0-9 age range,
- 35 ships of 746.730 DWT are in between 10-19 age range,
- 13 ships of 166.709 DWT are in between 20-29 age range,



RO-RO SHIPS

Ro-Ro Ships, (22 ships) which are 242.010 DWT.

- 7 ships of 86.341 DWT are in between 0-9 age range,
- 11 ships of 117.124 DWT are in between 10-19 age range,
- 4 ships of 38.545 DWT are 30 years and over.



The Position Of The Turkish Merchant Fleet Within The World Fleet

The World fleet (300 GT and over) is 53.045 ships of 1.883.549.000 DWT based on 158 countries as of 01.01.2018.

The position of Turkish merchant fleet is shown in the Table as being on 27th place in the World ranking.

Panama, having a share of 17,8% is in the first place, Liberia, having a share of 12,5% is in the second place, Marshall Island, having a share of 11.8% is in the third place.



World Merchant Fleet Ranking by Flag as of 1 January 2019 (300 GT and Over)											
DWT Rank 2019	Flag	1 January 2018				1 January 2019				DWT % Share	Years Change %
		No of Ships	1000 GT	1000 DWT	1000 TEU	No of Ships	1000 GT	1000 DWT	1000 TEU		
1	Panama	6.395	212.134	326.118	3.132	6.398	211.917	323.031	3.291	17.2	-0.9
2	Marshall Islands	3.117	140.951	229.735	1.282	3.255	146.245	237.316	1.267	12.6	3.3
3	Liberia	3.160	139.109	218.893	3.798	3.332	149.541	236.874	3.876	12.6	8.2
4	Hong Kong (SAR)	2.462	112.401	180.585	2.932	2.544	124.263	197.725	3.454	10.5	9.5
5	Singapore	2.333	82.723	124.563	2.226	2.326	84.497	126.533	2.345	6.7	1.6
6	Malta	2.036	71.445	107.748	1.519	1.998	73.890	109.635	1.590	5.8	1.8
7	China, PR of	3.224	51.855	80.288	856	3.414	55.194	86.121	893	4.6	7.3
8	Greece	946	41.129	72.201	44	913	39.573	69.099	50	3.7	-4.3
9	Bahamas	1.133	52.571	64.788	177	1.146	54.383	65.727	177	3.5	1.5
10	UK	767	30.671	41.854	816	735	30.755	42.844	826	2.3	2.4
11	Japan	2.640	25.429	36.792	84	2.552	27.083	38.385	159	2.0	4.3
12	S. Cyprus	811	21.544	34.112	446	839	21.801	33.774	461	1.8	-1.0
13	Denmark	480	16.778	18.715	1.180	504	20.310	22.436	1.494	1.2	19.9
14	Indonesia	3.069	13.658	19.161	213	3.267	14.689	20.564	216	1.1	7.3
15	Portugal	474	14.793	19.349	945	517	14.667	19.620	907	1.0	1.4
16	Norway	799	14.990	18.867	60	807	15.099	18.961	62	1.0	0.5
17	India	878	10.284	17.608	50	883	9.746	16.571	58	0.9	-5.9
18	Saudi Arabia	137	7.592	13.451	8	125	7.334	13.054	8	0.7	-3.0
19	Italy	701	15.313	14.489	127	673	14.541	12.904	121	0.7	-10.9
20	Korea, Rep. of	1.028	9.674	13.920	107	1.021	8.763	12.439	110	0.7	-10.6
21	Belgium	83	5.025	8.200	1	92	6.033	10.178	1	0.5	24.1
22	Germany	265	9.011	9.803	721	246	7.664	8.352	600	0.4	-14.8
23	Russia	1.486	6.388	7.999	100	1.515	6.542	8.307	102	0.4	3.9
24	US	363	7.333	8.220	232	364	7.326	8.126	241	0.4	-1.1
25	Bermuda	140	10.306	8.653	39	133	9.973	7.929	39	0.4	-8.4
26	Viet Nam	1.378	4.566	7.475	38	1.370	4.710	7.710	40	0.4	3.2
27	Antigua & Barbuda	810	6.505	8.505	450	744	5.631	7.478	381	0.4	-12.1
28	Turkey	805	5.441	7.638	123	782	5.270	7.303	120	0.4	-4.4
29	France	195	5.534	6.772	199	203	5.777	6.956	220	0.4	2.7
30	Malaysia	418	5.583	7.053	22	417	5.656	6.860	23	0.4	-2.7
31	Cayman Islands	138	4.189	6.020	1	144	4.454	6.611	1	0.4	9.8
32	Netherlands	785	6.124	6.391	249	773	6.138	6.237	246	0.3	-2.4
33	Thailand	556	3.669	6.130	27	565	3.443	5.650	30	0.3	-7.8
34	Taiwan	172	3.188	4.581	142	184	3.820	5.636	160	0.3	23.0
35	Philippines	948	3.860	5.611	56	1.021	3.716	5.362	52	0.3	-4.4
36	Brazil	120	2.462	3.972	52	127	2.651	4.310	54	0.2	8.5
37	Kuwait	45	2.682	4.856	1	40	2.275	4.135	1	0.2	-14.9
38	Iran	361	2.685	4.058	99	375	2.747	4.126	106	0.2	1.7
39	Belize	426	1.872	2.901	17	446	1.955	3.079	17	0.2	6.1
40	New Zealand	218	1.776	2.847	17	219	1.899	3.060	19	0.2	7.5
156	Total	53.045	1.224.375	1.833.549	23.102	53.732	1.261.907	1.881.589	24.285	100	2.6

Source: ISL January-February 2019

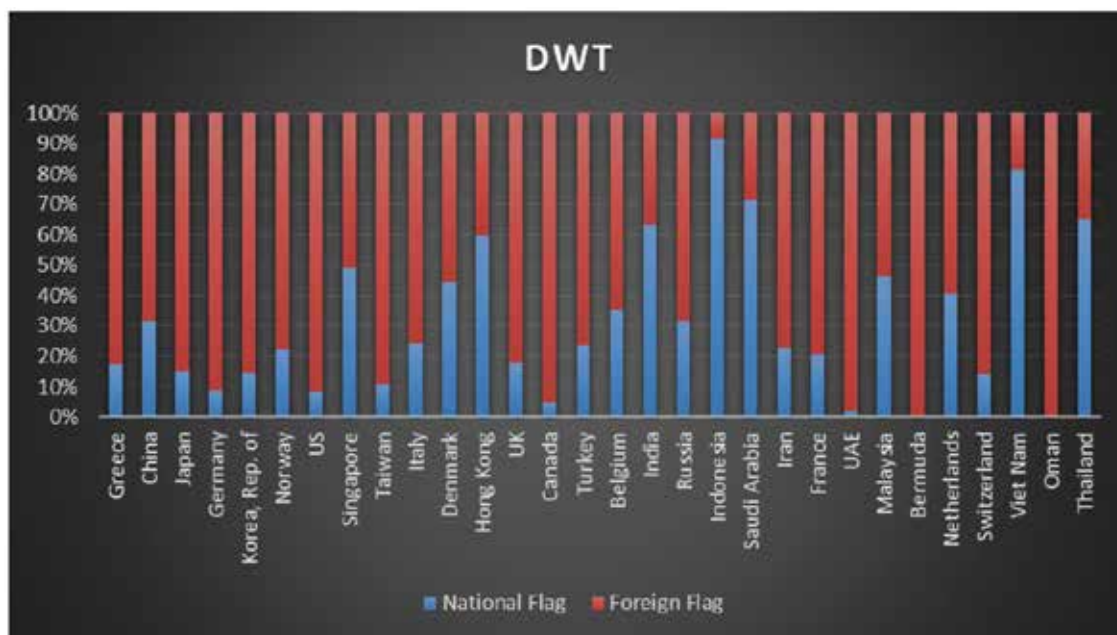
NATIONAL AND FOREIGN FLAGGED SHIPS OF TURKISH SHIPOWNERS

In 2019 our tonnage under foreign flags is 21,8 million DWT, as of 1 January 2019, concerning the ships of 1000 GT and above, the total tonnage of the Turkish ship-owners, both under Turkish flag and foreign flags is 28,6 million DWT. As of the beginning of 2019, regarding the Turkish Ship Owners' ships of 1000 GT and above, 24% percent of these ships are registered under the Turkish flag and 76% are registered under the foreign flags.

Total Fleet of the 30 Countries by National and Foreign Flags (01 January 2019) (1000 GT and Over)															
Country of Control (DWT-Rank 2019)		National Flag				International Flag				Total Fleet				Year Change %	DWT % Share
		No	1000 DWT	1000 TEU	Years	No	1000 DWT	1000 TEU	Years	No	1000 DWT	1000 TEU	Years		
1	Greece	686	65.616	49	14.6	4.164	314.665	2.111	11.2	4.850	380.281	2.161	11.7	4.0	82.7
2	China, PR of	2.987	85.579	881	12.2	2.676	184.601	2.899	11.4	5.663	270.180	3.780	11.8	13.9	68.3
3	Japan	820	35.724	154	11.9	3.280	206.179	1.698	8.2	4.100	241.904	1.852	8.9	-0.8	85.2
4	Germany	187	8.320	600	15.6	2.603	87.191	3.795	11.7	2.790	95.511	4.394	12.0	-9.7	91.3
5	Korea, Rep. of	709	11.374	110	17.9	916	68.143	468	11.2	1.625	79.517	578	14.1	-0.9	85.7
6	Norway	539	16.676	59	15.6	1.197	58.284	466	13.5	1.736	74.960	525	14.1	2.8	77.8
7	US	208	4.975	90	22.2	970	54.570	199	13.8	1.178	59.545	288	15.3	-11.6	91.6
8	Singapore	712	27.055	353	9.4	720	27.768	390	14.3	1.432	54.823	743	11.9	3.3	50.7
9	Taiwan	119	5.485	156	16.3	839	46.054	865	12.5	958	51.539	1.021	13.0	0.0	89.4
10	Italy	437	11.625	75	17.6	663	36.418	1.328	10.8	1.100	48.043	1.403	13.5	-5.2	75.8
11	Denmark	363	20.337	1.419	14.3	564	25.407	1.027	11.1	927	45.745	2.446	12.4	5.4	55.5
12	Hong Kong	422	22.412	28	9.0	510	15.171	48	18.7	932	37.584	77	14.3	-11.7	40.4
13	UK	189	5.737	107	13.2	568	26.251	578	11.8	757	31.987	685	12.2	5.4	82.1
14	Canada	125	1.529	7	25.1	398	30.021	921	10.7	523	31.550	929	14.1	3.2	95.2
15	Turkey	457	6.831	107	21.4	1.027	21.758	222	19.0	1.484	28.589	329	19.8	-0.9	76.1
16	Belgium	82	9.917	1	10.5	165	18.185	79	9.9	247	28.103	80	10.1	30.4	64.7
17	India	627	15.532	20	13.9	143	8.967	7	12.2	770	24.499	27	13.6	-1.4	36.6
18	Russia	1.114	7.144	89	29.0	338	15.373	36	19.5	1.452	22.517	126	26.8	0.8	68.3
19	Indonesia	1.855	18.150	212	23.3	80	1.639	16	19.2	1.935	19.789	228	23.1	4.1	8.3
20	Saudi Arabia	107	12.846	8	14.9	46	5.058	1	18.1	153	17.904	8	15.9	5.6	28.3
21	Iran	145	3.914	105	19.7	57	13.436	-	14.1	202	17.349	105	18.1	-3.2	77.4
22	France	109	3.257	220	14.5	204	12.707	934	10.3	313	15.964	1.154	11.8	7.4	79.6
23	UAE	45	232	3	14.0	492	13.973	121	20.3	537	14.205	125	19.8	-2.1	98.4
24	Malaysia	198	6.400	21	17.4	127	7.449	1	14.4	325	13.848	22	16.2	-3.7	53.8
25	Bermuda	-	-	-	-	67	11.796	0	9.5	67	11.796	0	9.5	12.2	100.0
26	Netherlands	564	4.706	194	12.6	309	6.837	70	13.7	873	11.542	264	13.0	-7.9	59.2
27	Switzerland	30	1.225	4	8.0	165	7.450	7	11.3	195	8.675	10	10.8	-8.3	85.9
28	Viet Nam	809	7.012	40	12.5	115	1.611	4	18.9	924	8.624	44	13.3	-2.4	18.7
29	Oman	5	6	-	12.0	44	7.871	1	8.1	49	7.877	1	8.5	1.1	99.9
30	Thailand	306	4.710	29	25.9	73	2.530	31	15.1	379	7.241	60	23.8	-9.7	34.9
Total 30 Countries		14.956	424.324	5.141	16.5	23.520	1.337.366	18.324	12.2	38.476	1.761.690	23.465	13.8	2.4	75.9
Others		2.264	32.316	222	23.6	2.565	72.958	394	24.7	4.829	105.275	616	24.2	4.0	69.3
Subtotal		17.220	456.640	5.363	17.4	26.085	1.410.324	18.719	13.0	43.305	1.866.964	24.081	14.7	2.5	75.5
Unknown										434	5.852	193	24.2	93.5	
World Total										43.739	1.872.817	24.274	14.8	2.6	

Source: SSMR January / February 2019

The biggest fleets with open registry flags in national and foreign flag vessels Greece is on the 1st row, China is on the 2nd and Japan is on the 3rd row, whereas Turkey is on the 15th row. (1000 GT and over)



The Position of the Turkish Merchant Fleet Among the Fleets of the Neighboring Countries

The capacity of the merchant fleet of Turkey and the neighboring countries are shown on the following Table (19).

Greece is in the 1st place being among the largest merchant fleets of the World. Southern Cyprus is in the 2nd, Russia is in the 3rd and Turkey is in 4th place.

Turkish Merchant Fleet and the Neighbouring Countries (300 GT and Over)					
World DWT Rank	Country	No of Ships	1000 DWT	World %	Change %
8	Greece	913	69.099	3,70%	-4,30%
12	S. Cpyrus	839	33.774	1,80%	-1,00%
23	Russia	1.515	8.307	0,40%	3,90%
28	Turkey	782	7.303	0,40%	-4,40%
38	Iran	375	4.126	0,20%	1,70%
52	Egypt	96	1.383	0,10%	-1,10%
86	Ukraine	102	272	0,00%	-6,20%
95	Bulgaria	31	148	0,00%	43,60%
98	Georgia	20	126	0,00%	109,60%
109	Syria	10	62	0,00%	6,10%
119	Romania	16	41	0,00%	1,00%

Source: ISL January / February 2018

FOREIGN TRADE TRANSPORTATION BY MODES

Turkey is in the Mediterranean Basin, and thus on the focus of the transportation from Europe to the Atlantic, Arab Peninsula, Middle East and Far East with its hinterland at the crossroads in the East-West, North-South lines. Besides, this geographical advantage presents a situation in which sea transportation will be effective in all the areas within the country with the coastline of 4500 sea miles (8333 km).

Turkish Foreign Trade Transportation by Modes (%)

Years	Sea	Rail	Road	Air	Pipeline and Others
2006	87,40	1,10	10,40	0,10	1,00
2007	87,40	1,10	10,00	0,60	0,90
2008	86,50	1,10	10,70	0,70	1,00
2009	85,00	0,80	12,60	0,80	0,80
2010	85,60	0,80	12,50	0,30	0,80
2011	85,80	0,80	11,80	0,40	1,20
2012	87,00	0,60	10,70	0,40	1,40
2013	86,40	0,50	11,40	0,40	1,30
2014	86,20	0,40	11,20	0,50	1,70
2015	87,70	0,50	10,70	0,40	0,70
2016	88,06	0,46	10,76	0,32	0,40
2017	88,47	0,44	10,25	0,32	0,52
2018	88,70	0,44	10,27	0,35	0,24

Source: Turkstat

88,70 % of the Turkey's foreign trade is being realised by maritime transportation. The progress of transportation between the years of 2006-2018 is shown in the Table below by the modes of transportation.

60,97 % of the volume of Turkey's foreign trade transportation has been carried by sea, 21,00 % has been carried by road, 0,50 % has been carried by rail, 10,81 % has been carried by air and 6,72 % has been carried by other transportation modes.

The Number of Incoming Ships to the Turkish Ports

The number of incoming ships to the Turkish ports between the years 2013-2017 is shown below:

- In 2014, the number of incoming vessels decreased by 1,8 % when compared with 2013.
- In 2015, the number of incoming vessels decreased by 1,4 % when compared with 2014.
- In 2016, the number of incoming vessels decreased by 3,3 % when compared with 2015,
- In 2017, the number of incoming vessels increased by 2,9 % when compared with 2016,
- In 2018, the number of incoming vessels decreased by 1,29 % when compared with 2017,

The Number of Incoming Ships to the Turkish Ports

Years	Turkish Flag Number	Foreign Flag Number	Total Number	Change %	TF %	FF %
2006	42.058	33.461	75.519	-	55,69%	44,31%
2007	43.662	35.262	78.924	4,51%	55,32%	44,68%
2008	45.362	36.042	81.404	3,14%	55,72%	44,28%
2009	45.813	34.631	80.444	-1,18%	56,95%	43,05%
2010	37.060	37.055	74.115	-7,87%	50,00%	50,00%
2011	37.234	37.900	75.134	1,37%	49,56%	50,44%
2012	38.333	37.542	75.875	0,99%	50,52%	49,48%
2013	39.835	36.295	76.130	0,34%	52,32%	47,68%
2014	38.685	36.081	74.766	-1,79%	51,74%	48,26%
2015	38.397	35.288	73.685	-1,45%	52,11%	47,89%
2016	37.644	33.576	71.220	-3,35%	52,86%	47,14%
2017	38.263	35.043	73.306	2,90%	52,20%	47,80%
2018	38.219	34.141	72.360	-1,29%	-0,11%	-2,57%

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications



CABOTAGE TRANSPORTATION

According to the Turkish Maritime Cabotage Law No: 815, the maritime transportation carried out by Turkish ships, being loaded at the harbors and seaports of Turkey and discharged at the harbors and seaports of Turkey, is defined as maritime cabotage. The total cabotage transportation in 2018 is 29.550.554 tons, the cabotage transportation increased about 64 % between the years 2007-2018.

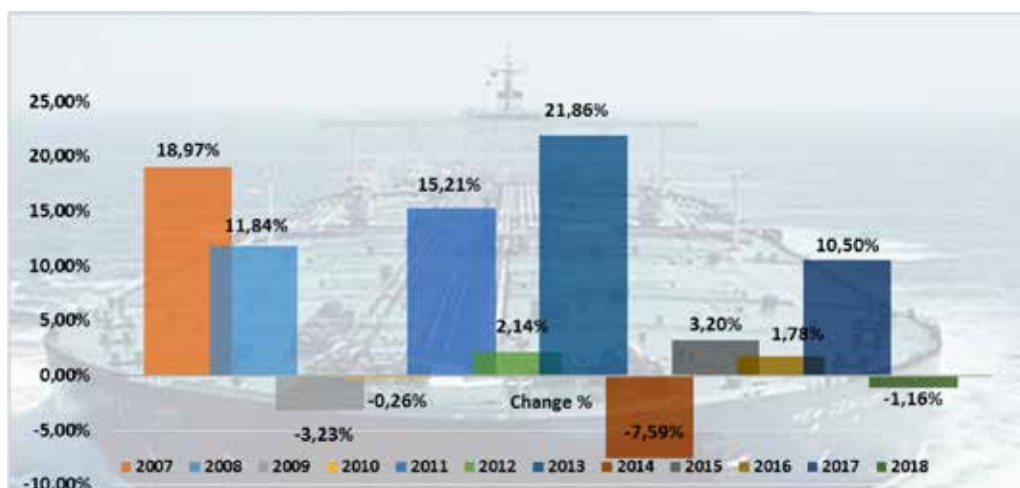
The cabotage transportation by types of cargoes. The first three cargoes are liquid bulk cargo (39 %), dry bulk cargo (30%) general cargo (19%) and container (11%).

In cabotage handling in 2015, Kocaeli Port (20%), Aliğa Port (11%) and Ambarlı Port (8%) took the first three place.

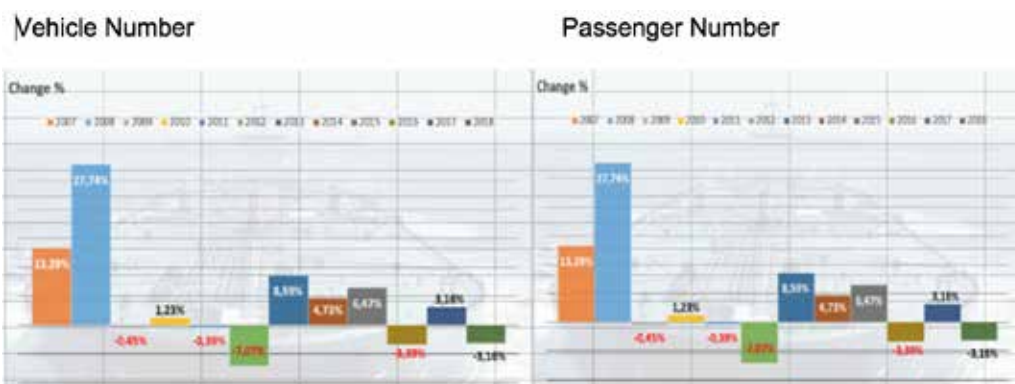
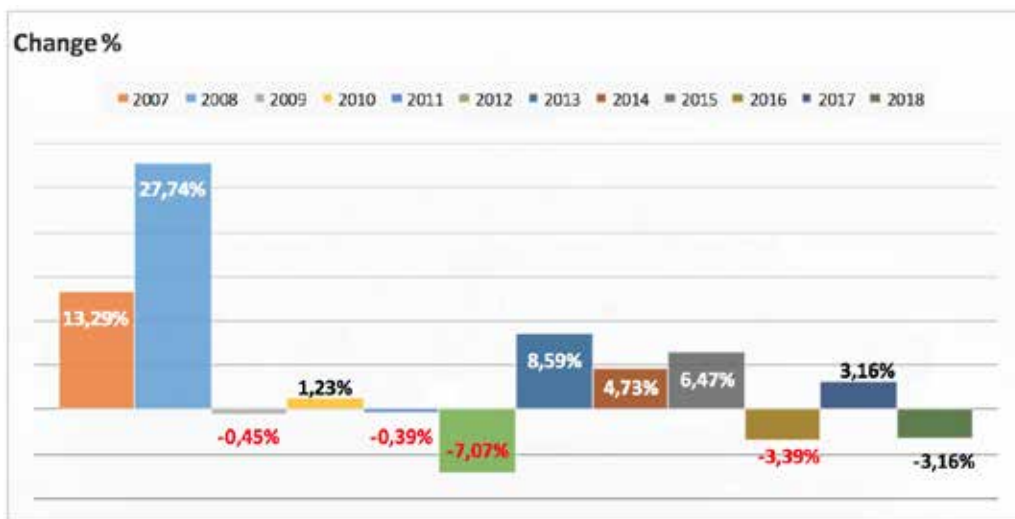
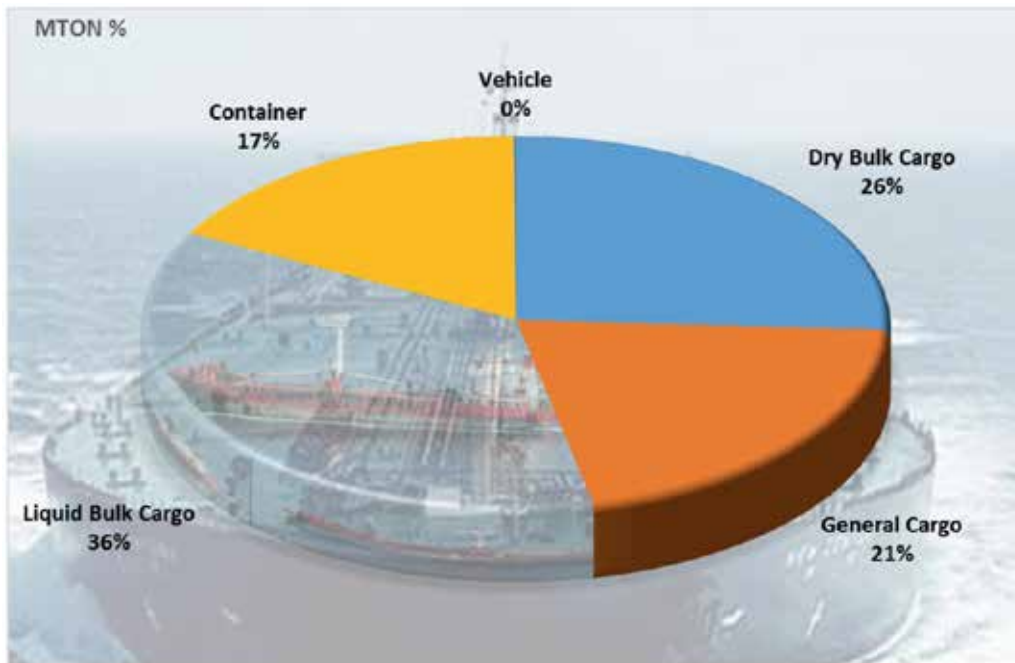
2007-2018 Cabotage Transportation

Year	Cabotage mton	Change %
2007	18.004.619	18,97%
2008	20.136.037	11,84%
2009	19.485.900	-3,23%
2010	19.434.485	-0,26%
2011	22.389.570	15,21%
2012	22.869.458	2,14%
2013	27.868.157	21,86%
2014	25.753.831	-7,59%
2015	26.578.284	3,20%
2016	27.050.225	1,78%
2017	29.898.010	10,50%
2018	29.550.554	-1,16%

Source:
Republic of
Turkey Ministry
of Transport,
Maritime
Affairs and
Communications



2018 Cabotage Transportation (Loading-Unloading) by the Types of Cargoes



SHIPMENTS IN INTERNATIONAL SEA TRANSPORTATION

In 2018 export shipments increased to 110 million tons, import shipments increased to 218 million tons when compared with the previous year. The share of Turkish flag vessels transporting foreign trade cargoes have been realized as 11 % on the average. As a whole, the share of the Turkish flag vessels transporting foreign trade cargoes between 2009-2018 have been realized as 13% on the average.

The transportation of foreign trade cargoes; 9 % of the import transportation totaling 218 million tons have been carried by Turkish flag vessels. 14 % of the export transportation totaling 110 million tons have been carried by Turkish flag vessels.

Development of the Seaborne Trade (2009-2018) Tons

Years	Seaborne Trade Total	Export	Import	Turkish Flag	Turkish Flag %	Foreign Flag %
2009	213.632.353	73.770.263	139.862.090	29.965.566	14	86
2010	246.570.931	83.945.162	162.625.769	40.494.118	16	84
2011	255.334.712	81.779.528	173.555.184	42.396.010	17	83
2012	283.782.414	91.307.486	192.474.928	38.712.247	14	86
2013	277.335.605	89.553.990	187.781.615	34.610.534	12	88
2014	283.316.220	88.544.792	194.771.428	33.624.322	12	88
2015	300.478.930	92.152.622	208.326.308	36.479.586	12	88
2016	309.937.639	94.805.120	215.132.519	38.623.279	12	88
2017	347.348.092	113.692.068	233.656.024	36.815.820	11	89
2018	328.969.455	110.424.635	218.544.820	35.510.231	11	89%

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Development in Foreign Trade Transportation by Types of Cargoes

The major segments of the exports and transit loading goods in 2018, which realized export totally as 110 million tons are % 34 Liquid Bulk Cargo and Container, 16 % dry bulk Cargo, 13 % general cargo, and % 3 vehicle.

By Types Cargo Handling Export And Transit Loading

Cargo Types	Turkish Flag	Foreign Flag	Export	Transit Loading	Total	Export %
Dry Bulk Cargo	3.485.802	23.755.644	27.241.446	33.029	27.274.475	16%
General Cargo	2.177.135	20.389.816	22.566.951	8.533	22.575.484	13%
Liquid Cargo	338.078	6.759.544	7.097.622	52.116.163	59.213.785	34%
Container	5.895.245	42.729.153	48.624.398	10.917.499	59.541.897	34%
Vehicle	3.763.862	1.130.356	4.894.218	5.853	4.900.071	3%
Total	15.660.122	94.764.513	110.424.635	63.081.077	173.505.712	100%

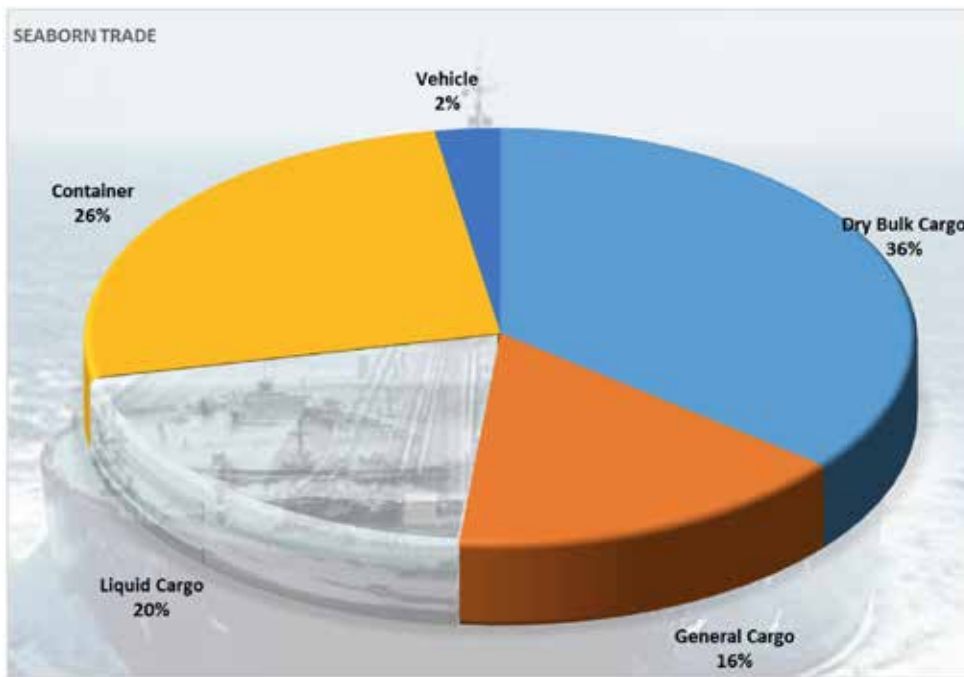
Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Major segments of the imported and transit unloading goods in 2018, which realized import totally as 218 million tons are 42 % dry bulk cargo, 27 % Liquid bulk cargo, 17 % Container, % 13 General Cargo and % 2 vehicle.

By Types Cargo Handling Import And Transit Unloading

Cargo Types	Turkish Flag	Foreign Flag	Import	Transit Unloading	Total	Import %
Dry Bulk Cargo	4.053.065	86.841.735	90.894.800	76.547	90.971.347	42%
General Cargo	2.255.520	26.714.823	28.970.343	27.350	28.997.693	13%
Liquid Cargo	6.248.721	52.478.922	58.727.643	290.684	59.018.327	27%
Container	4.131.778	32.204.828	36.336.606	8.152.088	44.488.694	17%
Vehicle	3.161.025	454.403	3.615.428	514	3.615.942	2%
Total	19.850.109	198.694.711	218.544.820	8.547.183	227.092.003	100%

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications



The Progress in Seaborne Trade by Country Groups

OECD ; In the year 2018, 59 million tons of export and 73 million tons of import, totally (loading-unloading) 132 million tons of transportation have been realized to the OECD countries.

The seaborne trade share of the Turkish flag vessels was 9 % and foreign flag vessels' was 91%.

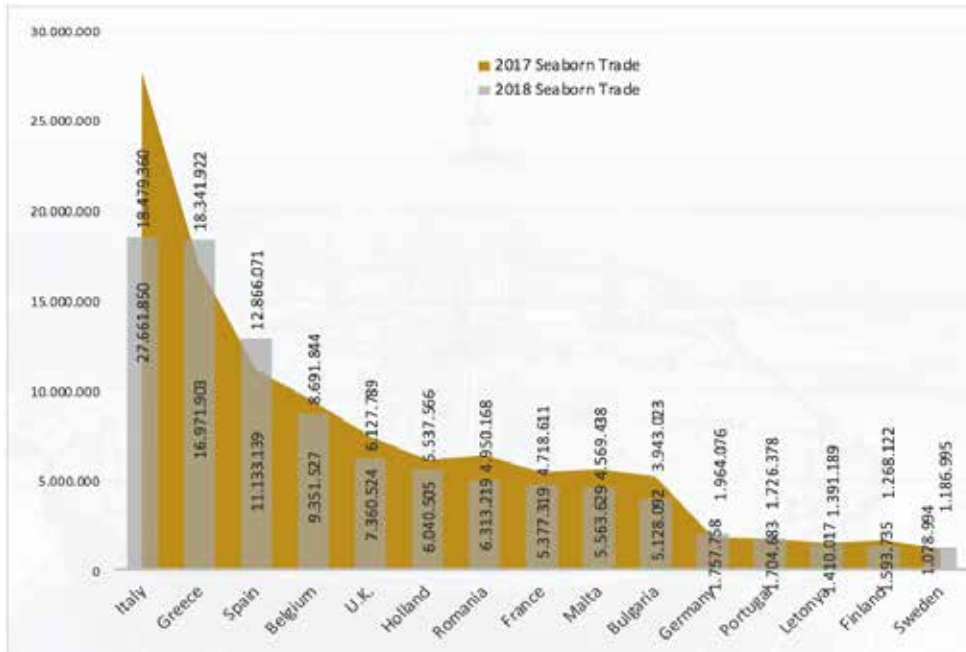
Export-Import-Transit Seaborn Trade to OECD Countries 2018

OECD Country	2018 Seaborn Trade	Transit Loading - Unloading	2018 Loading- Unloading	%
Italy	18.479.360	37.027.982	55.507.342	30,4%
Greece	18.341.922	3.422.134	21.764.056	11,9%
U.S.	20.564.627	652.462	21.217.089	11,6%
Israel	13.340.227	1.045.937	14.386.164	7,9%
Spain	12.866.071	1.514.290	14.380.361	7,9%
Belgium	8.691.844	239.251	8.931.095	4,9%
U.K.	6.127.789	906.854	7.034.643	3,8%
France	4.718.611	1.314.295	6.032.906	3,3%
Holland	5.537.566	161.884	5.699.450	3,1%
Canada	3.880.225	1.371.953	5.252.178	2,9%
Portugal	1.726.378	2.197.629	3.924.007	2,1%
S.Korea	2.703.038	747.499	3.450.537	1,9%
Norway	2.554.564	11.115	2.565.679	1,4%
Australia	2.110.398	161.989	2.272.387	1,2%
Germany	1.964.076	95.394	2.059.470	1,1%
Latvia	1.391.189	624	1.391.813	0,8%
Finland	1.268.122	0	1.268.122	0,7%
Sweden	1.186.995	0	1.186.995	0,6%
Denmark	924.920	3.110	928.030	0,5%
Lithuanian	868.226	0	868.226	0,5%
Poland	545.002	6.510	551.512	0,3%
Estonia	514.181	0	514.181	0,3%
Slovenia	421.700	52.012	473.712	0,3%
Japan	334.047	78.938	412.985	0,2%
Chile	230.888	150	231.038	0,1%
Mexico	211.334	0	211.334	0,1%
Ireland	197.568	176	197.744	0,1%
Iceland	65.800	0	65.800	0,0%
Switzerland	16.995	0	16.995	0,0%
Slovakia	6.977	0	6.977	0,0%
New Zeland	450	0	450	0,0%
Austria	269	0	269	0,0%
Total	131.791.359	51.012.188	182.803.547	100,0%

EU; In the year 2018, 50 million tons of export and 49 million tons of import, totally 99 million tons of seaborne transportation have been realized to the EU countries. The first 3 major countries as Turkey's export & transit loading foreign trade partners among EU countries are Italy with 50,2%, Spain with 11,8%, Greece with 8,5% shares.

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Seaborne Trade to EU Countries Tons (2018)



BSEC In the year 2018, 15 million tons of export and 76 million tons of import, totally 91 million tons seaborne transportation have been realized to the BSEC countries. The first 3 major countries as Turkey's export & transit loading foreign trade partners among BSEC countries are Greece with 36,4 %, Romania with 15,7 %, Russian with 15,1 % shares.

Seaborne Trade to BSEC Countries Foreign Trade



CONTAINER SHIPPING

When the container transportations in 2018 is examined as cabotage, exports, imports and transit cargoes; on the basis of TEU, exports became 4.1 million TEU, imports 4.2 million TEU, cabotage loading-unloading 935.661 TEU and transit 1.4 million TEU.

Transportation volume of Turkey's container transports by sea way was 4.4 million TEU in 2009; in 2018 it became 9.9 million TEU, at the same period imports cargoes increased to 4.2 million TEU from 2.1 million TEU and the exports cargoes increased to 4.1 million TEU when compared with 2.1 million TEU in 2009.

Container Handling 2006-2017 (TEU)

Year	Loading (TEU)			Unloading (TEU)			Seaborne Trade (TEU)			Change %
	Cabotage	Export	Total	Cabotage	Import	Total	Seaborne Trade	Transit Handling	Total	
2009	70.329	2.131.948	2.2.02.277	71.696	2.117.764	2.189.460	4.391.737	12.542	4.404.279	-15,17%
2010	104.278	2.306.587	2.410.865	104.047	2.354.304	2.458.351	4.869.216	874.239	5.743.455	30,41%
2011	154.338	2.690.889	2.845.227	305.256	2.770.190	3.075.446	5.461.079	757.171	6.218.250	8,27%
2012	236.905	2.879.122	3.116.027	235.440	2.942.562	3.178.001	5.821.683	898.368	6.720.051	8,07%
2013	274.589	3.165.653	3.440.242	269.908	3.199.969	3.469.877	6.365.622	989.815	7.355.437	9,46%
2014	266.997	3.488.008	3.755.005	260.067	3.581.811	3.841.878	7.069.819	754.238	7.824.057	6,37%
2015	305.882	3.394.508	3.700.390	300.182	3.454.345	3.754.527	6.848.854	691.481	7.540.335	-3,63%
2016	365.517	3.543.804	3.909.321	372.795	3.607.086	3.979.881	7.150.890	872.772	8.023.662	6,41%
2017	467.384	3.866.874	4.334.258	468.137	3.975.205	4.443.341	7.842.079	1.232.937	9.075.015	13,10%
2018	453.030	4.160.124	4.613.154	482.631	4.259.029	4.741.661	8.419.153	1.489.184	9.908.337	9,18%
2018 Container Handling							10.843.998 TEU			

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Seaborne Trade to BSEC Countries Foreign Trade



THE TURKISH STRAITS

The region consisting of the Turkish Straits, called İstanbul and Çanakkale Straits and the Sea of Marmara, is one of the regions that has the highest concentration of maritime traffic in the World. Turkish Straits consist of the İstanbul Strait 17 nm in length, 110 nm the vessels navigating area in Marmara Sea and Çanakkale Strait in length 37 nm. Total length of the Turkish Straits is 164 nm and it is opened to international maritime vessel traffic under the Turkish governmental control. The number of vessels that passed through the Turkish Straits between the years 2006-2018 are shown in Table below.

Ships Passing Through the Turkish Straits (2006-2018)

Years	ISTANBUL			CANAKKALE		
	Number of Vessel	GT	GT Change %	Number of Vessel	GT	GT Change %
2006	54.880	475.796.880	-	48.915	595.826.240	-
2007	56.606	484.867.696	2%	49.913	611.885.819	3%
2008	54.239	515.639.614	6%	48.978	657.396.892	8%
2009	51.422	514.656.446	0%	49.453	667.412.661	2%
2010	50.871	505.615.881	-2%	46.686	672.843.533	1%
2011	49.798	523.543.509	4%	45.379	705.412.518	5%
2012	48.328	550.526.579	6%	44.613	735.728.537	5%
2013	46.532	551.771.780	0%	43.889	745.567.671	2%
2014	45.529	582.468.334	6%	43.582	761.631.756	3%
2015	43.544	565.216.784	-4%	43.230	777.989.382	3%
2016	42.553	565.282.287	0%	44.035	772.922.682	-1%
2017	42.978	599.324.748	7%	44.615	823.460.636	8%
2018	41.103	613.088.166	3%	43.999	849.140.218	4%

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

In the year 2018, 41.103 ships in total have passed through the İstanbul Strait with a monthly average of 3.425 ships; 43.999 ships in total have passed through the Çanakkale Strait with a monthly average of 3.667 ships. A significant part of the ships passing through the Turkish Straits carries toxic, hazardous and explosive substances (such as crude oil, ammonia, liquefied gas, radioactive substances, hazardous wastes). Especially in the 1990s, parallel to the increase in the oil flow to the ports in the Black Sea, the number of ships carrying dangerous goods and oil from the Turkish Straits also increased.

Dangerous Passing Through The Turkish Straits

Years	Istanbul		Canakkale	
	Total Tankers	Oil and Dangerous Cargoes (ton)	Total Tankers	Oil and Dangerous Cargoes (ton)
2006	10.153	143.452.500	9567	152.726.000
2007	10.054	143.939.500	9271	149.320.000
2008	9303	140.357.500	8758	149.052.000
2009	9299	144.660.000	9567	152.105.500
2010	9274	146.750.500	9252	156.929.000
2011	9103	138.496.500	8818	154.606.000
2012	9027	131.123.000	8998	151.040.000
2013	9006	134.444.000	9299	149.091.000
2014	8745	133.961.000	9250	152.286.000
2015	8633	135.952.000	9524	155.531.000
2016	8703	136.100.000	9481	156.203.000
2017	8832	146.943.000	9478	166.729.000
2018	8587	147.375.459	9251	164.583.997

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

2006-2018 Years of Vessels Passed İstanbul Strait According to Their Length and Pilot Request

Years	Number of Ship	Gross Tonnage	With Pilot	Sp1 Given	Non Call In Vessel	LOA Longer Than 200M	Lower Than 500 GT	Total Tankers			
								TTA	LPG LNG	TCH	Towaged
2006	54.880	475.796.880	26.589	53.324	31.880	3.653	2.176	7.659	814	1.680	111
2007	56.606	484.867.696	26.685	55.132	31.826	3.653	2.138	7.204	800	2.050	105
2008	54.396	515.639.614	27.001	53.232	31.762	3.911	1.800	6.564	764	1.975	119
2009	51.422	514.656.446	24.977	50.712	32.297	3.871	1.128	6.557	866	1.876	122
2010	50.871	505.615.881	26.035	50.020	28.668	3.623	1.377	6.464	1.099	1.711	115
2011	49.798	523.543.509	26.011	49.179	27.938	3.800	1.046	6.216	1.227	1.660	93
2012	48.329	550.526.579	24.812	47.638	27.345	3.866	1.064	5.913	1.336	1.779	98
2013	46.532	551.771.780	24.023	45.616	26.577	3.801	1.192	5.685	1.741	1.580	87
2014	45.529	582.468.334	24.508	44.928	26.212	4.295	928	5.587	1.540	1.618	90
2015	43.544	565.216.784	23.349	43.039	25.243	3.930	879	5.825	1.232	1.576	71
2016	42.553	565.282.287	22.356	42.132	26.050	3.873	522	6.033	989	1.681	73
2017	42.978	599.324.748	24.059	42.700	26.111	4.005	436	6.212	742	1.878	88
2018	41.103	613.088.166	23.565	40.844	25.884	4.106	508	6.014	623	1.950	116

2006-2018 Years of Vessels Passed Çanakkale Strait According to Their Length and Pilot Request

Years	Number of Ship	Gross Tonnage	With Pilot	Sp1 Given	Non Call In Vessel	LOA Longer Than 200M	Lower Than 500 GT	Total Tankers			
								TTA	LPG LNG	TCH	Towaged
2006	48.915	595.626.240	16.871	48.264	32.061	4.845	1.404	7.204	798	1.565	131
2007	49.913	611.885.819	16.885	48.802	31.981	4.945	1.873	6.527	754	1.990	138
2008	48.978	657.396.892	18.334	48.565	31.981	5.223	844	5.990	777	1.991	162
2009	49.453	667.412.661	18.588	49.210	32.559	5.176	615	6.293	842	2.432	146
2010	46.686	672.843.533	18.678	46.469	28.768	5.098	598	6.017	902	2.333	138
2011	45.379	705.412.518	18.920	45.196	27.983	5.494	572	5.661	974	2.183	159
2012	44.613	735.728.537	18.775	44.416	27.418	5.919	519	5.656	1.038	2.304	134
2013	43.889	745.567.671	18.924	43.579	26.534	5.824	448	5.822	1.380	2.097	123
2014	43.582	761.631.756	19.107	43.238	26.257	5.902	512	5.875	1.206	2.169	116
2015	43.230	777.989.382	18.843	42.755	25.220	5.842	581	6.009	1.036	2.479	122
2016	44.035	772.922.682	19.007	43.543	26.071	5.665	661	6.041	881	2.559	139
2017	44.615	823.460.636	19.925	43.888	26.087	6.197	755	6.145	734	2.599	149
2018	43.999	849.140.218	19.958	43.513	25.835	6.612	732	6.187	698	2.366	156

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Passing Through the Turkish Straits by Flag (Istanbul)

FLAG	Number Of Vessels	Total Gross Tonnage	Non Call In Vessels	LOA Shorter Than 200 M	LOA Longer Than 200 M	TTA	LPG-LNG	TCH
LIBERIA	284	8.049.331	223	210	74	70	2	6
MALTA	365	7.037.862	282	317	48	110	0	37
MARSHALL ISLANDS	232	6.501.076	201	198	34	58	10	14
PANAMA	450	6.106.603	285	412	38	14	0	12
GREECE	81	3.805.505	73	37	44	63	0	2
TURKEY	508	3.138.255	136	499	9	37	10	54
HONG KONG, CHINA	58	2.519.032	43	35	23	2	0	2
BAHAMAS	67	2.078.130	61	47	20	19	0	2
SINGAPORE	66	1.787.265	57	53	13	17	8	3
RUSSIA	297	1.183.454	161	296	1	64	0	19
NORWAY	21	803.522	19	12	9	8	3	0
ITALY	29	765.329	21	26	3	22	0	1
BELIZE	63	740.351	54	63	0	0	0	2
PORTUGAL	28	701.958	16	24	4	10	0	0
EGYPT	19	695.174	18	3	16	0	0	0
SIERRA LEONE	73	502.208	54	73	0	0	0	0
NETHERLANDS	35	465.172	25	31	4	0	0	0
COOK ISLANDS	67	447.984	46	67	0	1	0	0
ISLE OF MAN	12	446.577	9	10	2	4	0	0
ANTIGUA & BARBUDA	55	422.361	44	55	0	0	0	0

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Passing Through the Turkish Straits by Flag (Çanakkale)

FLAG	Number Of Vessels	Total Gross Tonnage	Non Call In Vessels	LOA Shorter Than 200 M	LOA Longer Than 200 M	TTA	LPG-LNG	TCH
LIBERIA	339	10.205.413	219	232	107	66	7	9
MALTA	394	9.028.799	275	327	67	114	1	44
PANAMA	457	8.895.410	283	387	70	20	1	16
MARSHALL ISLANDS	252	7.621.445	200	208	44	54	4	14
TURKIYE	632	7.182.223	134	563	69	73	4	53
HONG KONG, CHINA	88	4.315.411	43	51	37	4	0	4
GREECE	88	3.950.678	69	45	43	57	1	2
BAHAMAS	89	3.330.166	60	63	26	19	4	3
SINGAPORE	85	2.344.280	58	70	15	22	8	4
ITALY	73	2.301.385	20	63	10	15	0	7
PORTUGAL	44	1.151.036	17	36	8	8	0	0
NORWAY	27	1.116.536	19	18	9	8	3	4
ALGERIA	11	858.173	4	4	7	0	7	0
ANTIGUA & BARBUDA	102	848.250	42	100	2	0	0	0
BELIZE	57	733.104	54	57	0	0	0	2
RUSSIA	168	691.314	160	167	1	36	0	13
GERMANY	9	686.771	5	5	4	5	0	0
BERMUDA	7	666.903	0	1	6	0	6	1
EGYPT	19	666.787	17	4	15	0	0	0
NETHERLANDS	58	650.810	25	53	5	0	0	0

Source: Republic of Turkey Ministry of Transport, Maritime Affairs and Communications

Deputy Secretary General for Maritime Trade and Shipping
Cengiz ÖZKAN

Prepared by:

-Fleet: Officer, Maritime Trade

Meryem ÇELİK (E-mail: meryem.celik@denizticaretodasi.org.tr)

-Cargoes and Turkish Strait: Manager, Maritime Trade

Nilgün TOK (E-mail: nilgun.tok@denizticaretodasi.org.tr)



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- Deck and Safety Works
- Hatch Cover and Outfitting Repairs
- Electrical, Automation & Navigation Equip.
- Conversion & Refit



NEW BUILDING SHIPYARD FACILITIES

- | | |
|-----------------------------|-----------------------|
| • Total Area | 60.000 m ² |
| • Closed Workshop Area | 12.000 m ² |
| • Steel Processing Capacity | 20.000 t / year |
| • New Building Capacity | 40.000 DWT |
| • Slipways | 150 m x 42 m |
| | 120 m x 20 m |
| | 110 m x 10 m |

REPAIR SHIPYARD FACILITIES

- | | |
|-----------------------------|-----------------------|
| • Total Area | 50.000 m ² |
| • Closed Workshop Area | 6.000 m ² |
| • Steel Processing Capacity | 5.000 t / year |
| • Floating Dock | 184 m x 27,2 m |
| • TLC | 10.000 T |
| • Slipways | 130 m x 33 m |
| • Pier | 200 m x 12 m |

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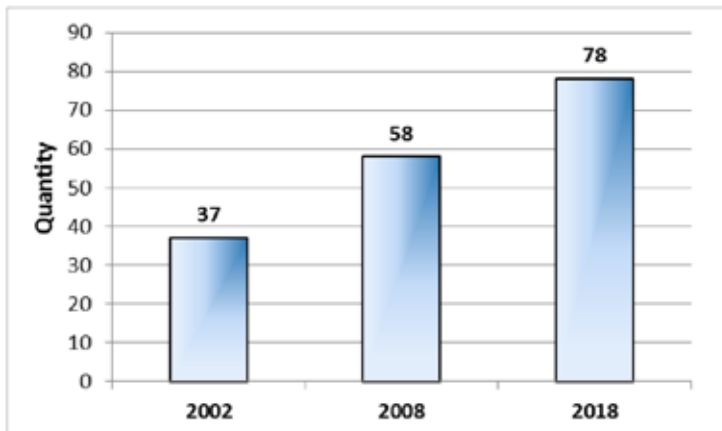
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GENERAL OUTLOOK OF THE TURKISH SHIPBUILDING INDUSTRY

The shipyards, according to the facility definition in the local regulations, the under operation raised up to 78 as of April 2019 while it was only 37 in 2002. The quantity of shipyards under construction are 25 and 15 areas that are defined as shipyard investment areas of the same date mentioned above.

Graph: 2002 / 2018 Shipyards Under Operation



Source: Ministry of Transport and Infrastructure 04/2019

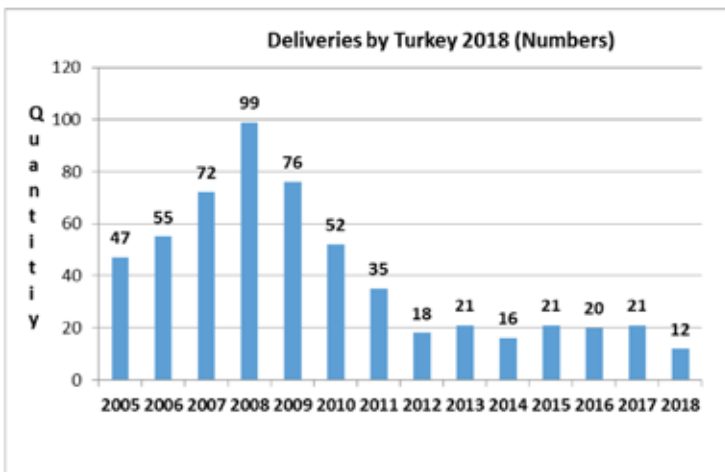
Shipbuilding industry is a branch of heavy industry which provides;

- Progress in sub-industry
- Increase in employment and the population of the neighbourhood
- Rising the standards of quality of sub-industry
- Increase of qualified productive power
- Progress in growth and strength of regional trade
- Rising the living circumstances and the cultural level of labour
- Employment in ratio 1 to 7 including sub-industry.

Turkish Shipyards delivered 166 ships, DWT of 836.000, between 1995-2001. Also, between the years 2002 and 2007, 443 ships with total DWT of 3.051.000 had been delivered.

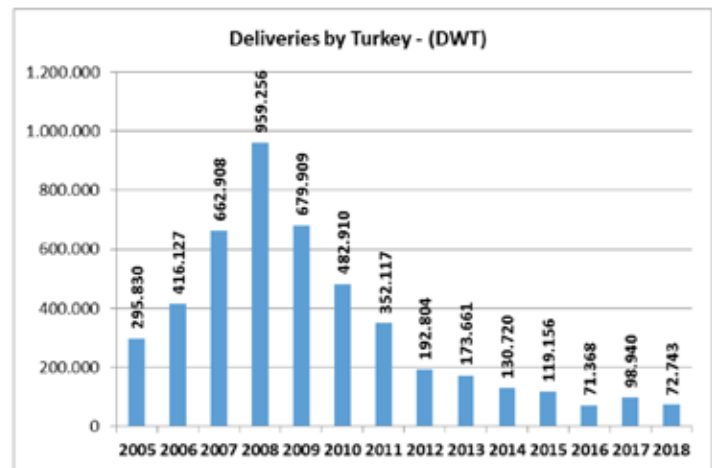
In 2018, 12 ships DWT of 72.743 tons have been delivered.

Graph: Number of Ships Delivered Between 2004-2018



Source: Clarkson Research Services 02/2019

Graph: DWT of Ships Delivered Between 2004-2018

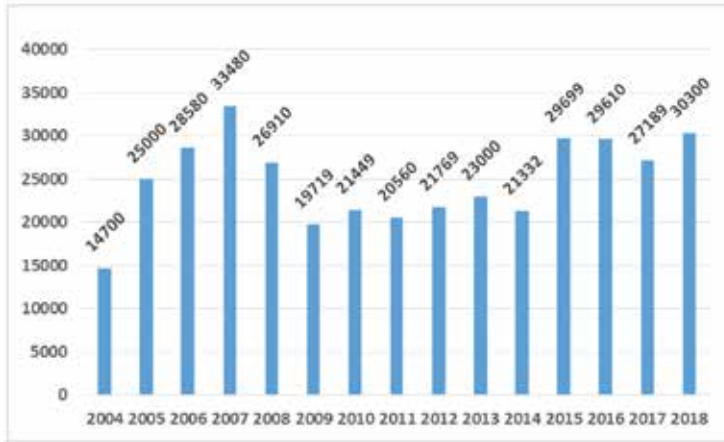


Source: Clarkson Research Services 02/2019

Some of the operative shipyards in Turkey still continue the modernization and extension operations but on the other hand, due to the global economic crisis, some of them suspend or cancel their modernization or extension projects because of the sanctions applied by the banks on the shipyards.

Furthermore, shipyards which are under construction in different cities of Turkey, have been also affected from the global economic crisis.

Graph: Employee Numbers in Turkish Shipyards by 2018



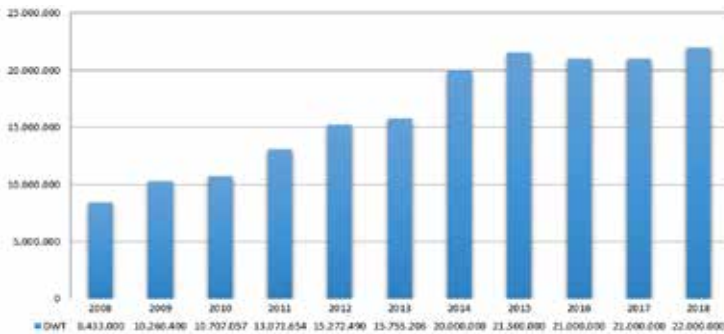
(*2018 data includes harbor launch and manufacture place workers)
Source: Ministry of Transport and Infrastructure 03/2019

Before 2003; maximum tonnage of 16.000 DWT ship orders (as in one piece) could be taken. By 2007, it has raised up to 180.000 DWT but unfortunately the construction did not start due to the economic crisis.

Most of the ships constructed in Turkish shipyards are built for export. Especially between 2002-2009, almost the total amount of these ships were exported to the EU member countries.

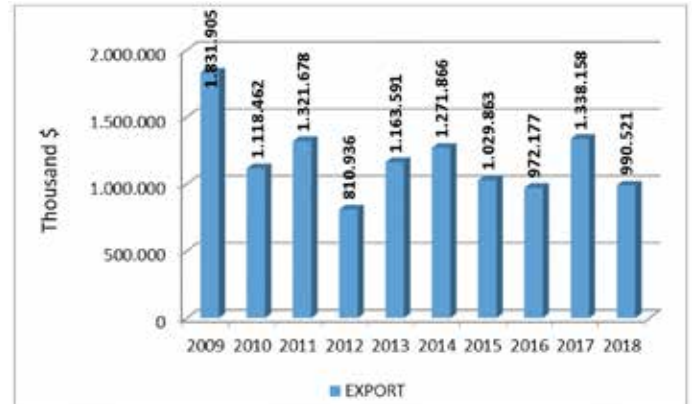
By the end of 2012, orders in our yards was decreased to 0,5 million DWT. Due to the lack of new orders, the shipyards are now mostly concerned, with repair and maintenance facilities. In 2013, in Turkish shipyards 15.755.206 DWT of repair and maintenance had been done. As of 2014, it was approximate 20.000.000 DWT and in 2018 it raised up to 22.000.000 DWT.

Graphv: Repair and Maintenance Facilities According to Years (2018)



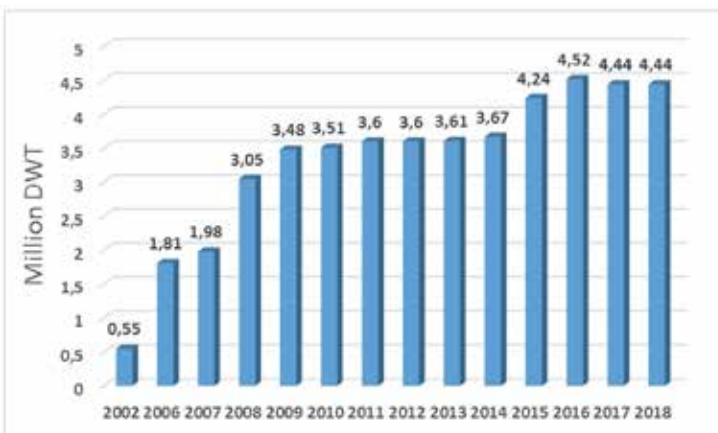
Source: Turkish Shipbuilders' Association (GİSBİR)

Graph: Export Figures of Turkish Shipbuilding Industry (2009-2017)



Source: Ship and Yacht Exporters Association (e-birlik.net)

Graph: Shipyards Project Capacities Between 2002-2018



Source: Ministry of Transport and Infrastructure 03/2019

In 2002, our shipyard's capacity was 550.000 DWT. In 2017 it has reached up to 4,44 million DWT which means a growth more over 6 times than 2002.

As of April 2018, 30 floating docks and 10 dry docks are operative in Turkey.

Table: Floating and Dry Docks in Turkey

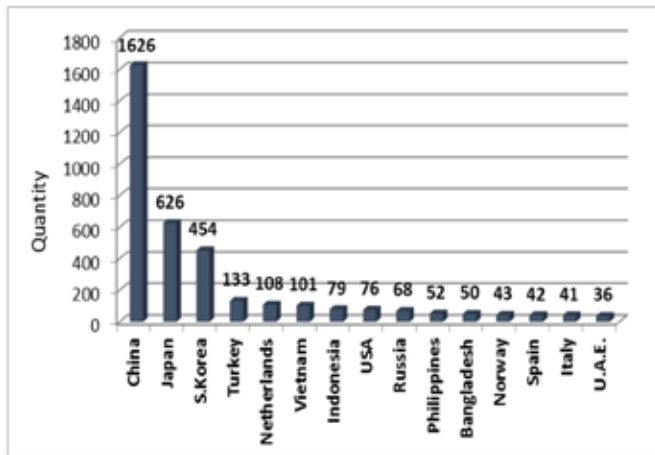
NO	City	Operator	Floating /Dry Dock	Dimensions	Lifting Capacity (Tons)	Built
1	İSTANBUL	DENTAŞ İNŞA ve ONARIM SAN. A.Ş.	Floating Dock	128x30 m	5.000	1991
2	İSTANBUL	GİSAN GEMİ İNŞA SAN. ve A.Ş.	Floating Dock	167x34 m	9.000	2012
3	İSTANBUL	ÇEKŞAN GEMİ İNŞA ÇELİK KONS. SAN. ve TİC. A.Ş.	Floating Dock	130x29 m	7.000	1958
4	İSTANBUL	YARDIMCI GEMİ İNŞA A.Ş.	Floating Dock	155x36 m	8.500	1983
5	İSTANBUL	KUZEYSTAR SHİPYARD	Floating Dock	217,5x14,81 m	80.000	1963
6	İSTANBUL	KUZEYSTAR SHİPYARD	Floating Dock	197x39,6 m	45.000	1960
7	İSTANBUL	TORLAK DENİZCİLİK SAN ve TİC. A.Ş.	Floating Dock	67x28,4 m	7.500	1962
8	İSTANBUL	İSTANBUL DENİZCİLİK GEMİ İNŞA SAN. ve TİC. A.Ş.	Floating Dock	93x28 m	4.200	1969
9	İSTANBUL	SNR GEMİ İNŞA SANAYİ A.Ş.	Floating Dock	129x38 m	8.600	1967
10	İSTANBUL	DESAN DENİZ İNŞAAT SANAYİ A.Ş.	Floating Dock	172x36 m	19.000	1963
11	İSTANBUL	DESAN DENİZ İNŞAAT SANAYİ A.Ş.	Floating Dock	232x52	49.500	1914
12	İSTANBUL	DESAN 5442 NOLU PARSEL	Floating Dock	178x36 m	19.000	1939
13	İSTANBUL	GEMAK GEMİ İNŞAAT SANAYİ ve TİC.A.Ş.	Floating Dock	233x45 m	28.000	1961
14	İSTANBUL	GEMAK GEMİ İNŞAAT SANAYİ ve TİC.A.Ş.	Floating Dock	170x33 m	9.000	1995
15	İSTANBUL	HİDRODİNAMİK GEMİ SAN. ve TİC. A.Ş.	Floating Dock	115x22 m	2.750	1965
16	İSTANBUL	GEMSAN GEMİ ve GEMİ İŞLETMECİLİĞİ SAN. ve TİC. LTD. ŞTİ.	Floating Dock	220x45 m	20.000	1981
17	İSTANBUL	ÇİNDEMİR MAKİNE GEMİ ONARIM ve TERSANECİLİK A.Ş.	Floating Dock	123x28 m	5.000	1964
18	İSTANBUL	ERKAL ULUSLARARASI NAKLİYAT ve TİCARET A.Ş.	Floating Dock	350x80 m	100.000	1998
19	İSTANBUL	TORGEM GEMİ İNŞAAT SAN. VE TİC. A.Ş.	Floating Dock	53x20 m	2.500	1999
20	İSTANBUL	TURQUOISE YAT SAN. AŞ	Floating Dock	66x27 m	2.500	2016
21	İSTANBUL	TERSAN TERSANECİLİK ve TAŞIMACILIK SAN. ve TİC. A.Ş.	Floating Dock	130x30 m	7.100	
22	YALOVA	BEŞİKTAŞ GEMİ	Floating Dock	230x37 m	22.000	2007
23	YALOVA	BEŞİKTAŞ GEMİ	Floating Dock	382x66 m	70.000	1974
24	YALOVA	TERSAN TERSANECİLİK SAN ve TİC AŞ	Floating Dock	178x35 m	9.000	2013
25	YALOVA	DOĞRUYOL TERSANECİLİK SAN. ve TİC. A.Ş.	Floating Dock	123x30 m	5.500	1993
26	YALOVA	HAT-SAN GEMİ İNŞAA BAKIM-ONARIM DEMİR NAK. SAN. ve TİC. A.Ş.	Floating Dock	180x30 m	10.000	2017
27	YALOVA	SANMAR TERSANESİ	Floating Dock	84x34 m	3.500	2015
28	YALOVA	SEFİNE DENİZCİLİK TERSANESİ SAN. ve TİC. A.Ş.	Floating Dock	240x57 m	11.227	1973
29	KOCAELİ	UZMAR GEMİ İNŞ. SAN. ve TİC. A.Ş.	Floating Dock	68x38 m	2.000	1973
30	KASTAMONU	İNEBOLU DENİZCİLİK SAN. ve TİC. A.Ş.	Floating Dock	118x29 m	4.500	1969
TOTAL 30 FLOATING DOCKS, TOTAL CAPACITY 576.877 Tonnes						

NO	City	Operator	Floating / Dry Dock	Dimensions
1	İSTANBUL	İSTANBUL ŞEHİR HATLARI(HALİÇ)	Dry Dock	109x22,5
2	İSTANBUL	İSTANBUL ŞEHİR HATLARI(HALİÇ)	Dry Dock	81,5x17
3	İSTANBUL	İSTANBUL ŞEHİR HATLARI(HALİÇ)	Dry Dock	151x16
4	İSTANBUL	URSA GEMİCİLİK BAKIM ONARIM TERSANECİLİK SAN. TİC. AŞ.	Dry Dock	56x14 m
5	İSTANBUL	İSTANBUL TERSANE KOMUTANLIĞI (PENDİK TERSANESİ)	Dry Dock	300X69
6	İSTANBUL	TUZLA GEMİ ENDÜSTRİSİ AŞ.	Dry Dock	300x53 m
7	İSTANBUL	SEDEF GEMİ İNŞAATI AŞ.	Dry Dock	315x50 m
8	İSTANBUL	DENİZ ENDÜSTRİSİ AŞ.	Dry Dock	210x37 m
9	YALOVA	SEFİNE DENİZCİLİK TERSANECİLİK TURİZM SAN. ve TİC. AŞ.	Dry Dock	240x40 m
10	YALOVA	BEŞİKTAŞ GEMİ (A-10)	Dry Dock	235x40x6,5 m

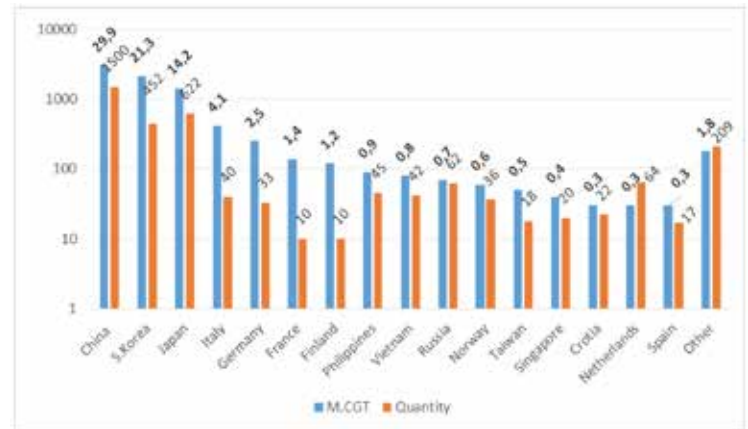
Source: Ministry of Transport and Infrastructure 04/2019

According to quantity, Turkish shipyards are in the 4th place in the world ranking.

Graph: Orderbook by Builder Country
(Quantity-Numbers)



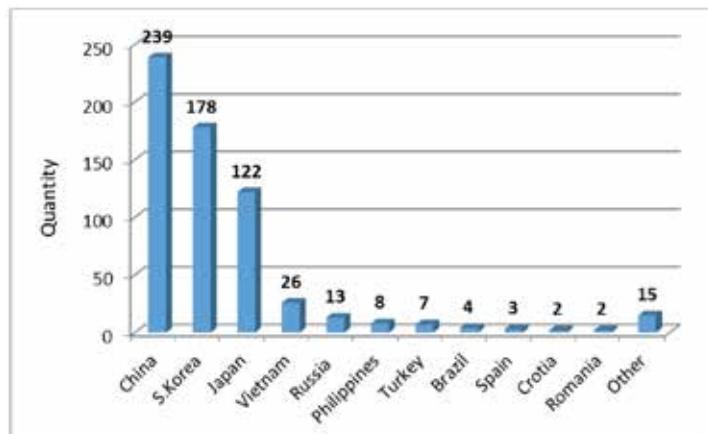
Graph : Orderbook by Builder Country (Quantity/
Tonnage - Million CGT)



Source: Clarkson Research Services 04/2019

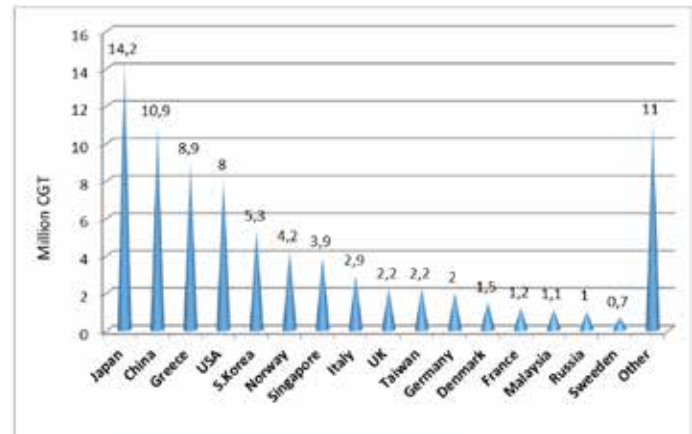
Our shipyards have a good reputation in building of small and medium tonnage chemical tankers. By April 2019, Turkey was in the 7th place according to quantity among the countries which take tanker orders.

Graph: Tanker Orders by Builder Country



Source: Clarkson Research Services 04/2019

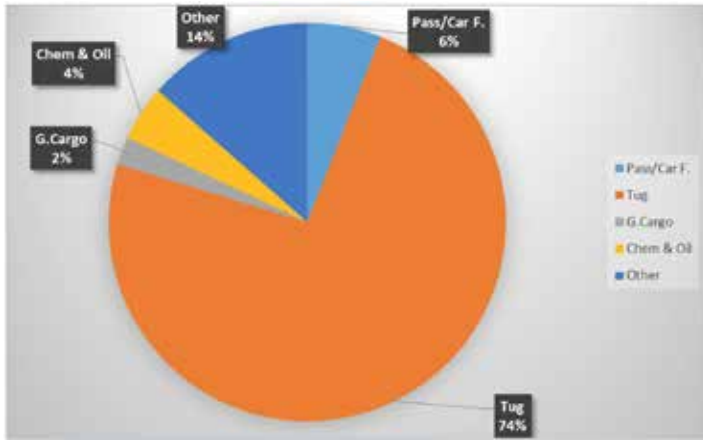
Graph: Orderbook by Owner Country



Source: Clarkson Research Services 04/2019

Turkish shipowners worldwide orders consist of 107 ships about 1,8 million DWT as of April 2019.

Graph: Distribution of Orders According to Shiptype in Turkish Shipyards



Source: Clarkson Research Services 04/2019

Defence Industry Projects

Projects about the defence industry have gained a great acceleration within the last few years. Especially with the significant achievements of the MİLGEM Project, Turkish shipyards have started to take orders from abroad for the naval shipbuilding projects in which high ratio of local industry participation exists. It is known that there are approximately 162 countries which have the naval forces around the World. Turkey is one of the 10 countries which has the ability of designing, building and maintaining a naval ship. The progress in the field of defence industry projects, that was mostly foreign-dependent in the past, can be clearly seen correspondingly with the level that Turkish Shipbuilding industry has been reached now. Today Turkey's naval needs are provided by the Shipyards of its own country. Naval platform projects in the defence industry;

Yacht and Boat Building Industry

Yacht and boat building is one of the most important sectors with its high accretion value, high export ratio and it provides employment. This industry is the combination of the sectors in yards dealing with ironing, painting, electric-electronic, textile, decoration etc.

Yacht and boat building industry is quite different from the shipbuilding because of its concept, scope and technology. In shipbuilding industry long term investments and big coastal areas are needed for production, but in boat & yacht building, relatively less investments, areas and time are needed. Boat&yacht building comparatively does not need very big investments but has a big accretion value.

Turkey; with its beautiful coasts, cultural and historical resources, has a great market potential not only for yachts but also especially for mega-yacht tourism. Inclusion of mega-yacht mooring places to the projects which are planning to be constructed in Ataköy and Zeytinburnu, will be a great prestige and income for our marine tourism.

To summarize the advantages of our boat&yacht building industry, the main positive aspects are;

- Educated and competent labour
- Production quality in accordance with international standards

1. MİLGEM (National Ship)

The Project consist of 8 ships. The first two ships, the TCG-HEYBELIADA and TCG-BÜYÜKADA are currently serving for the Naval Forces Command. The third ship, the TCG-BURGAZADA was launched on 18th June 2016, and the fourth ship, the TCG-KINALI was launched on 3rd July 2017 with test activities in progress.

There are ongoing works to procure the design and building by Istanbul Shipyard Command of the 5. ship, the first of 5-8.ships, that will be, unlike the first four corvette class ships, frigate class and the design and construction by private sector shipyards of the 6-8. ships.

2. Multi-Purpose Amphibious Assault Ship (LHD)

The Multi-Purpose Amphibious Assault Ship is planned to be built with a total/full displacement of 27,436 tons, 231 meters in length and will be the largest naval platform in the inventory of our Armed Forces.

3. Amphibious Ship (LST)

While the construction of the first ship, the TCG-BAYRAKTAR, was realized with 70.68% domestic industry participation, the share of SME's in domestic industry participation was approximately 48%.

The second vessel in the program, the" TCG SANCAKTAR", is planned to be delivered to the Turkish Naval Forces in 2017 upon the completion of sea acceptance tests.

4. Submarine Rescue Mother Ship (MOSHIP)

The building of the TCG ALEMDAR Submarine Rescue Mother Ship (MOSHIP) started in 2011 and it has the most advanced technologies in the world.

5. Coast Guard Search & Rescue Boat

6. New Type Patrol Boat (YTKB)

Within the scope of the Project, preliminary and final deliveries of all sixteen New Type Patrol Boats have been completed. Contracting activities will continue until March 2018.

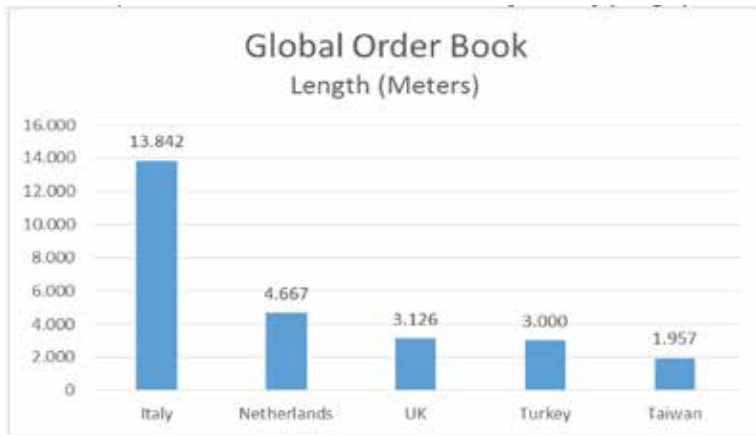
- Reasonable costs
- Adequate sub industry with quality
- Technology basis production
- Closeness to the international markets
- Appropriate climate
- Our country's potential in boat&yacht building

Main disadvantages are;

- Heavy taxes of special consumption, value added and motor vehicle collected from boats.
- Long bureaucratic procedures during the registering operations.

Turkey is keeping the third place in global order book by the total length of 3594 meters at the end of 2017. By the February 2019, Turkey is in the 4th place according to length with 3.000 meters of order and under construction of yachts.

Graph: 24 Meters and Above Yacht Orders by Country (Length)



Source: Boat International Turkey-Global Orderbook Feb.2019

Sub- Industry

In parallel with the improvements of the recent years, the Turkish sub-industry is in progress, but still some of the items are imported by the shipyards due to the lack of production. Sub-industry which is 20% percent of the ship's price, is one of the most important branches in the shipbuilding industry. It has the highest employment value in sub-sectors. Main problem of sub-industry in Turkey is to be made by local and small enterprises which cause problems about standardizing and approving the products.



Turkish sub-industry regarded as one of the best in supplying anchor, chain, bollard, electric cables, and hydraulic units, but in electronic equipment especially in navigational systems, due to their producers are a few worldwide, sector needs to obtain them from the import resources. Steel sheet production in Turkey can also meet only the small amount of the requests.

Turkish Sub-industry is able to produce;

Anchor, chain, bollard, locking equipments - Windlass and equipments - Valves and Central heating Systems - Electric Panels and Tables - Fire Fighting Systems - Pumps - Isolation Equipments - Pipes - Refrigerated Units - Hatch Covers - Diesel generator - Boiler - Carpenter and furnishings.

Main items imported in sub-industry can be summarized as;

Sheet steel/iron and profiles - Holland profiles - Telecommunication systems - Rudder Systems - Bow / Stern thrusters.

Sub-industry creates employment as 1 to 3. In 2002 employment in sub-industry was 30.000 people and it raised to 103.500 but unfortunately due to the global economic crisis it decreased to 57.537 by the end of 2009. By the end of 2017 it had been estimated to be around 81.600 people working in the sub-industry.

**Deputy Secretary General for Maritime Trade and Shipping
Shipbuilding And Technical Affairs Unit**

Cengiz ÖZKAN

Prepared by:

**- Manager, Shipbuilding And Technical Affairs
R. Tansel TİMUR**

(E-mail: tansel.timur@denizticaretodasi.org.tr)

- Supervisor, Shipbuilding

Mustafa YAVUZYILMAZ (E-mail: mustafa.yavuzylmaz@denizticaretodasi.org.tr)

***Based on the information of Presidency of The Republic of Turkey Undersecretariat for Defence Industries web site.
(<https://www.ssm.gov.tr/WebSite/contentlist.aspx?PageID=88&LangID=2>)**

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Cem Gezer - Chairman

Globus is that each customer's expectations, environmental conditions and corporate culture, business partners, our customers have their customers, employees have different demands. All of them have specific needs and

In his speech explaining service policies of the GLOBUS TURKEY, and the labor law as follows:

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maintaining the efficiency and currentness of the service given. 7/24 Audit; to provide the necessary training to the facility employees in order to realize the activities to be established effectively.

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About GLOBUS TURKEY education; to increase the quality of staff with pre-service training, project-specific training programs and practical technique trainings. Career planning; make continuous employee recruitments, to keep staff active with awards and discipline practices.

Reporting; continue to apply all reports in business processes verbal and in writing, and share with facility management.

Professional service and consulting; On crisis management; "Predict all risks which may occur in facility borders, create special scenarios for Project, keeping personnel maintained and getting results with flawless managing capabilities during all crisis. We offer Professional service and consultancy for all operations laying out your main objective" is within the principals of the company.



priorities. In addition, the quality, speed and legality of the specific needs of our customers in the foreground, customer satisfaction is able to make sustainable.

visitors. Another company policy is Innovation; Providing cooperation and integration perspective, modern processes and means, based on



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PORTS INFORMATION IN GENERAL



The coastline of Anatolia is 8333 Km long. Total numbers of ports are 180 along the coastline. 6 ports are operated by Turkish Maritime Administrations and 2 ports are operated by Turkish State Railways.

According to regions determined by Republic of Turkey Ministry of Transport, Maritime Affairs and Communications; Ports are operated by;

GOVERNMENT	20 PORTS
MUNICIPALITY	23 PORTS
PRIVATE	137 PORTS

The major part of international trade is being realized through maritime transportation in Turkey. % 88,47 of goods (import-export) have been maritime transported in 2017.

Existing Theoretical Capacity of Turkish Ports (Acc.to 2015 Backfield of Ports, Road and Railway Connections Master Plan) are as below;

Cargo Type	Theoretical Capacity
Container	25.543.028 TEU
General Cargo + Dry Bulk Cargo	318.246.892 Tons
Liquid Bulk Cargo	254.896.000 Tons
Vehicle	31.471.560 Tons

Turkish ports should go into an expertising process on certain types of cargoes and/or new port projects for container handling so as to become more competitive in the Mediterranean and Black Sea markets. Recently private container terminals increased specially in the Marmara Region.

Turkish ports hold stratejic position within the Eastern Mediterranean and Black Sea Shipping Lines and at the intersection point of East-West and North-South directional international transport corridors. They are in an advantageous position to attract transshipment/transit cargoes. Ports in all regions of Turkey are so located that they can serve to different transportation nets. The Mediterranean and Aegean Sea ports are located with little miss distance and have ability to attract Asian-European main shipping lines' cargoes passing through the Mediterranean. Specially, the Mediterranean ports are in a position to operate as transshipment/transit ports for delivering cargoes coming from main shipping lines to Middle East and Central Asian countries. Meanwhile Ports in the Marmara Region are important in terms of Turkish connection of Trans-European and Pan-European transport corridors formed by EU and extending those corridors to East. As a result of growing trade and transport volume in Black Sea which is the most important means of access for trading among the landlocked Central Asian countries with Europe, the importance of our ports in the area have increased.

460.153.560 tons of cargo is realized at Turkish ports in 2018.

- % 24 of handling is export with 110.434.635 tons.
- % 47,5 of handling is import with 218.544.820 tons.
- % 12,9 of handling is cabotage with 59.555.845 tons.
- % 15,6 of handling is transit with 71.628.260 tons.

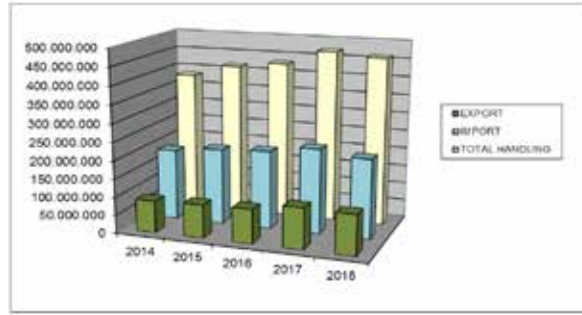
Table below shows total cargo handled at Turkish ports according to type of transportation in the last five years.

Cargo Handling Figures At Turkish Ports (Acc. to Transport Mode)

MODE OF TRANSPORT		2014	2015	2016	2017	2018
EXPORT	TURKISH	12.739.297	13.754.810	15.272.855	15.138.335	15.660.122
	FOREIGN	75.797.517	78.397.812	79.532.265	98.553.733	94.764.513
	TOTAL	88.536.814	92.152.622	94.805.120	113.692.068	110.424.635
IMPORT	TURKISH	20.876.309	22.724.776	23.350.424	21.677.485	19.850.109
	FOREIGN	173.837.477	185.601.532	191.782.095	211.978.539	198.694.711
	TOTAL	194.713.786	208.326.308	215.132.519	233.656.024	218.544.820
CABOTAGE	LOADING	24.982.892	25.894.384	26.249.991	29.898.010	29.550.554
	UNLOADING	25.746.316	26.578.284	27.050.225	30.498.069	30.005.291
	TOTAL	50.729.208	52.472.668	53.300.216	60.396.079	59.555.845
TRANSIT	LOADING	44.278.082	58.597.204	61.436.179	55.544.396	63.081.077
	UNLOADING	4.833.478	4.487.893	5.527.128	7.885.329	8.547.183
	TOTAL	49.111.560	63.085.097	66.963.307	63.429.725	71.628.260
GR.TOTAL	LOADING	157.797.788	176.644.210	182.491.290	199.134.474	203.056.266
	UNLOADING	225.293.580	239.392.485	247.709.872	272.039.422	257.097.294
	TOTAL	383.091.368	416.036.695	430.201.162	471.173.896	460.153.560

Source: Republic of Turkey Ministry of Transport and Infrastructure

Cargo Handling Figures According To Years

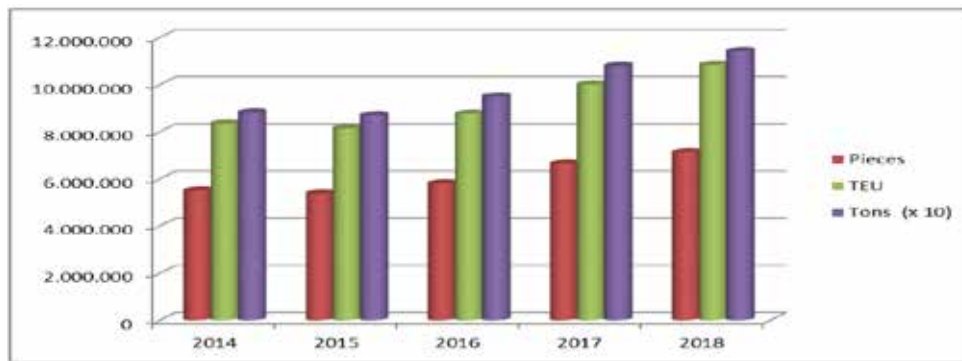


Container Handling Figures At Turkish Ports

MODE OF TRANSPORT		2014	2015	2016	2017	2018
EXPORT	PCS	2.269.118	2.198.508	2.309.172	2.490.272	2.665.729
	TEU	3.487.949	3.394.508	3.543.804	3.866.874	4.160.124
	TONS	39.106.361	38.419.925	41.444.254	44.433.316	48.624.398
IMPORT	PCS	2.335.795	2.248.636	2.352.515	2.580.351	2.751.631
	TEU	3.581.809	3.454.345	3.607.086	3.975.205	4.259.029
	TONS	34.790.524	34.007.962	35.608.597	37.275.863	36.336.606
CABOTAGE	PCS	390.510	454.012	543.526	703.324	689.215
	TEU	526.798	606.064	738.312	935.521	935.661
	TONS	4.934.786	5.869.320	7.032.995	10.059.528	10.200.874
TRANSIT	PCS	513.195	481.454	601.662	870.356	1.026.230
	TEU	754.216	691.481	872.772	1.232.937	1.489.184
	TONS	9.305.368	8.728.650	10.842.751	16.149.201	19.069.587
GRAND TOTAL	PCS	5.508.618	5.382.610	5.806.875	6.644.303	7.132.805
	TEU	8.350.772	8.146.398	8.761.974	10.010.537	10.843.998
	TONS	88.137.039	87.025.857	94.928.597	107.917.908	114.231.465

Source: Republic of Turkey Ministry of Transport and Infrastructure

Container Handling Figures At Turkish Ports



In the first quarter of 2019;

EXPORT	IMPORT	CABOTAGE	TRANSIT	TOTAL (Tonnes)
32.188.186	52.978.603	11.849.493	17.766.301	114.782.583

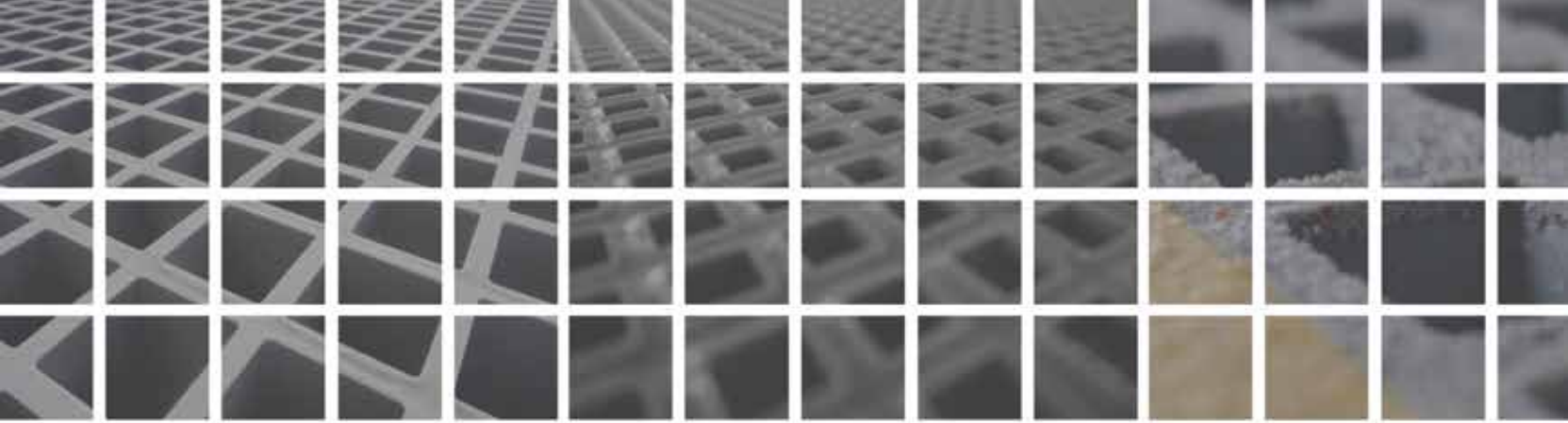
cargo handled.

EXPORT	IMPORT	CABOTAGE	TRANSIT	TOTAL (TEU)
1.060.298	1.087.720	182.544	342.874	2.673.436

containers handled.

Deputy Secretary General for Maritime Trade and Shipping
Cengiz ÖZKAN

General Manager of Maritime Transport
Sertaç Yıldız



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İSMAIL DEMİR Ph. D. *

Undersecretariat of Defense Industry was established under the name of “Defense Industry Development and Support Administration” (SaGeb) subordinated to the Ministry of National Defense in 1985 based on the Law Numbered 3238 in line with the purpose of determining the policies concerning the foundation of the infrastructure of defense industry in our country and putting together the mechanisms authorized to and responsible for the implementation of those policies. The administration was later restructured as the Undersecretary of Defense Industry in 1989. The Undersecretariat was subordinated to the Office of Presidency with a regulation introduced in 2017 and was restructured as the Administration of Defense Industry of the Presidency of Republic of Turkey in 2018.

Fleet Replenishment Ship project for which a contract was signed in 1992 was

the first ship building project launched in line with the goal of our Administration to maximize the utilization of the domestic capabilities and our ship built in Sedef Shipyard, a private sector shipyard, and named TCG Yarbay Kudret Güngör was delivered to the Naval Forces Command in 1996.

After that date, our private shipyards gained experience and were encouraged regarding the building of military ships based on the success achieved in the military ship projects carried out by our Administration. Mine Hunting Ship, Milgem, Coast Guard Search and Rescue Ship, Amphibious Ship (LST), Multi-purpose Amphibious Assault Ship (LHD), Logistical Support Ship (LDG), Speedy Amphibious Ship (LCT), Submarine Rescue Mother Ship (MOSHIP), Rescue and Towing Ship (KURYED), Seismic Exploration Ship, New Type Fast Patrol Boat (YTKB), 25 tons Coast Guard Boat, Transfer Boat for Operations of Underwater Assault Teams (SAT Boat),

Modernization of Sar-33 Boat and New Type Submarine Projects were realized by our Administration or their building is underway in 9 shipyards, 7 of them private and 2 military, up to the present day.

As will be seen from the long list above, project packages where support for design, integration and material was mostly obtained from abroad were executed at home before the foundation of our administration, we became capable of designing, developing and building almost all kinds of surface military ships, ranging from corvette class destroyer platforms, landing ships, patrol ships and other auxiliary ships thanks to the level that we reached today.

“CONTRIBUTION SHARE OF DOMESTIC INDUSTRY IN OUR MARINE PROJECTS IS INCREASING EVERY YEAR”

Furthermore besides the selection of our local shipyards as our main contractors, numerous local subcontractors are also





engaged for the projects under the scope of the goal of maximizing the contribution share of domestic sources which is one of the strategies of our Administration. Our local subcontractors also took part in all sea platform projects carried out by our Administration, ensuring the continuation of the increase of the contribution share of local industry thanks to the experience that they have so far gained. As of today, our candidate contractors undertake an average contribution share of more than 60% of domestic industry. 30%, i.e. at least half of that contribution is realized by local subcontractors which are SME's. We aim at increasing the contribution share of domestic industry even more by providing support for the sub-contractors undertaking the supply of unique products with a high added value in the upcoming period.

“IN ADDITION TO BUILDING PLATFORMS WE ALSO ATTACH A PARTICULAR IMPORTANCE TO TECHNOLOGY AND R&D STUDIES IN THE LAST COUPLE OF YEARS.”

In addition to building of platforms we also attach a particular importance to technology and R&D studies. Projects were completed under this scope including “National Sonar”, “Underwater Telephone”, “Real Time Infrared Trace Management System”, “Degaussing System”, “Reduction of Electromagnetic Compatibility and Interaction” and “Development and Production of Safe Optical Communication System Between Submarine Ship-Helicopter”.

Design and production of divertible fan propeller and shaft, propeller with fixed fan and its shaft was realized in order to gain design and production capability for divertible fan propellers. The project



“Increased Reality Supported Mobile Virtual Maintenance System” has been completed.

“WE EXPECT THE EXPORT OF OUR NEW PLATFORMS WITHIN THIS YEAR”

Based on the significant amount of experience gained in terms of design, production and integration in the private sector shipyards building military ships, our efforts directed at increasing exports are continuing under the scope of providing support for the contractors capable of both designing and modernizing the national products created. Our Administration resolutely follows a roadmap regarding the achievement of the export target that it has set for itself.

Particularly Fleet Replenishment Ship Project for Pakistan and Underwater Modernization Project for Pakistan which were materialized thanks to the experience gained by STM during Milgem



Project are some of the milestones of our export roadmap. Furthermore MILGEM corvette was also exported to abroad as a result of the efforts of our Administration. However exports made by the private sector to various countries ranging from Turkmenistan to Malaysia and from Georgia to Qatar are also important for our sector. Furthermore we also expect the export of our new platforms within this year.

“WE BELIEVE THAT OUR NAVY WILL BE ONE OF THE STRONGEST NAVIES OF THE 21TH CENTURY.”

In conclusion, our administration will, under the scope of activities that it has undertaken, continue to support our companies in the sea vehicle sector as well as those in other sectors with a view to develop a national defense industry compatible with technological novelties and also able to become the source of such novelties with the involvement of private sector at the maximum level, giving particular importance to the national defense needs of our country, based on the evaluation of the existing industrial potential of Turkey. We firmly believe that, thanks to this approach, we will ensure our navy, the blue boy of Turkish Armed Forces, to be one of the most powerful navies in the world in the 21st Century.

PRESIDENCY OF THE REPUBLIC OF TURKEY, PRESIDENT OF DEFENSE INDUSTRIES

ŞADAN KAPTANOĞLU: THE NEW PRESIDENT OF BIMCO



ŞADAN KAPTANOĞLU / THE PRESIDENT OF BIMCO

Şadan Kaptanoğlu has been elected President of BIMCO (The Baltic and International Maritime Council), the world's largest and oldest shipping association. The 114-year-old council consisting of the leading ship owners, brokers and agencies from 123 countries, is steered by a woman as well as a Turk for the first time. Kaptanoğlu took over the President's medal from her Greek colleague Anastasios Papagiannopoulos, also a shipowner, with a magnificent ceremony in Athens. We talked to Şadan Kaptanoğlu about her projects and her goals at the BIMCO in the coming period.

It is a great pride for our country and the Turkish maritime industry that Şadan Kaptanoğlu takes over the chair of the BIMCO. This also means that a Turk, as well as a woman has taken over the management of BIMCO for the first time. It's not easy to come to this point, can you tell your story?

I started at BIMCO very early, at the time of Eşref Cerrahoğlu and I followed his steps. He was the Vice President at

that time, which was very important then. When Mr. Eşref Cerrahoğlu started to work at BIMCO, he employed me at the Documentation Committee. He put me in charge of meetings when he was busy. This gave me considerable experience. I learnt a lot from him, too. I am much honored to say this everywhere. I am grateful for what he has given me. One of the main works of BIMCO is documentation. BIMCO

generates all contracts used in the maritime industry. So this is very important... The representatives of eighty countries gather around a huge table, everyone reaches a consensus, and BIMCO publishes it. Today, all the contracts established in the world have been established in BIMCO. Local contracts are an exception of course. I was right in the middle of all this work. But there is a rule in BIMCO: After a

long time of work, you have to give a break. It is for both renewing you and offering the position to others. Therefore, BIMCO involves young people in the organization and it stays alive by being constantly renewed. After the break, you may go back. I took a break for ten years. After a while, I was again invited to BIMCO. At that time, the positions offered by BIMCO were almost available for me. This time I was invited as both a member of the Board of Directors and the Executive Committee. It was a great honor for me. The subsequent position was the President Designate and the Presidency now.

BIMCO (The Baltic and International Maritime Council) is a roof organization that has pioneered the world's ship owners for 114 years. This means serious work. What sort of an intense work schedule will you have?

I have lived a well-planned life since my childhood and always known my priorities. This is something inherited from the family. You will ask "How come can it be possible in maritime?" but the working culture of the organizations I lead have this culture. It is such a big chance for me that the organizations I work at in Turkey also have this culture. Besides, the teams I work with manage every step they take and their business processes accordingly under my supervision. I trust them all. I mean when there are not decisions which must be particularly made by me, the works become almost completed naturally until the final approval. Therefore, I will distribute my time and follow the schedule in order. I don't think it will be difficult to achieve this with the support of my colleagues and family.

You will represent Turkey abroad with a really important mission. During this period, we need all kinds of promotional activities and lobbying. The mission you undertake is also very important in this sense. What are your targets in this regard?

Turkish maritime has been improving in spite of the difficulties we have been

experiencing for almost 12 years in the industry on a global scale. My biggest aim is to carry the international flag of this improvement. It is necessary to think of maritime as a whole. We, Turkish shipping community are not different from others indeed. The rules of international maritime unions and organizations are the same for everyone. Therefore, anything that would be advantageous for the sector in the international arena would be advantageous to us, too. Turkey is among 20 developed countries in the maritime. Otherwise, they would not have elected a Turkish chair person.

BIMCO is an organization that sets the rules of shipping and has a great impact on contracts. For ship owners, there are important subjects in the forthcoming period, such as water management and the use of low sulfur in vessels, which will enter into force in 2020, and the reduction of ballast water and gas emissions. What activities and goals do you have in mind for this period as the chair person?

Maritime industry is about to enter into a storm of regulation... The rules of ballast water management have been debated for long and now they are at our door. In the next two years, we have to implement ballast water management systems on our ships and we will teach our team the skills to successfully carry out these complex systems.

Low-sulfur regulations will be implemented in the near future. On January 1, 2020, seven months away only and I can't imagine its impact. Will the price difference between low-sulfur fuel and heavy fuel oil be \$100 or \$200 or more? Will there be enough fuel where we need it? Nobody knows for sure.

What is certain is that BIMCO will be there to help our members. BIMCO will help us with the contracts and requirements we need. If our members face problems, BIMCO will talk. It will offer practical solutions to the problems we face.

In fact, the most critical issue is to reduce carbon emissions. In the next decades, ballast water and sulfur debates, which are the most important issues of today, will become distant memories. We need to find new solutions to achieve our goals. There is no quick fix for overall carbonization yet. In my opinion, the most effective way of reducing emissions in the short term is to work with ports to reduce waiting time. If ships can approach their ports "right on time", we can reduce a significant portion of emissions with the existing technology. For this reason, we need closer cooperation with ports.

In addition, we have to maintain the emission savings we have achieved since 2008 by operating our ships at lower speeds. It seems to me that the limits of the ship's power to the propeller are the best way to do this. These equal conditions will maintain the level of competition and encourage innovation. In the long term, the most difficult part of the emission issue is that we do not have the right technical solutions to achieve a 50% reduction in total emissions by 2050. I'm not even talking about a goal like zero emissions by the end of this century. Therefore, I believe that another important duty of me and my council is to find out how to set up a research and development program to coordinate and facilitate the industry's research efforts and to increase the pace of innovation. In addition, we can monitor the existing funds for such investigations released by governments or regional organizations as well as the EU and we can adapt the technologies developed by other industries.

Personally, I believe it is a good thing that the issue of the environment is at the top of the maritime agenda. The environment must be protected. People who have nothing to do with ships, especially the new generation, demand protection of the environment. As the industry, we must listen to them and adopt this agenda. If we don't do what's



needed and what's right for us, others will decide what we must do.

You are the Vice Chairperson of the Chamber of Shipping and the Chairperson of the TURMEPA at the same time. How will BIMCO presidency affect those duties? It won't be easy; you are entering a very intense period of time...

I believe that my duty at BIMCO will be complementary for both. My representation in BIMCO will actually be a part of my job here. You know it is a kind of homeland service for Turkish maritime. The Chairman of the Chamber of Shipping Mr. Tamer Kıran and Vice Chairman Mr. Recep Düzgit have always given full support in this respect. I would like to use this opportunity to thank them. Moreover, at BIMCO, as you guess, I will be setting my own schedule as the President. Other programs will be accorded to me. So I don't think we're going to have a hard time. TURMEPA is a well-established, rooted organization with 25 years of corporate culture like in no other NGO. In our organization, the things that must be done are clear unless there are no significant developments in Turkey and the rest of the world which require very dramatic changes, and the agenda is followed. For example, even now I can tell you in which school training

will be given in the next November, how many hours, and what training will be given, what social media campaign will be held on certain days of September, what target audience will be taken and what message will be given. From which funds we plan to apply for in that year to which public institutions or private sector stakeholders will cooperate with us, everything is set in advance every year. Starting with founding and Honorary President Mr. Rahmi M. Koç, our Executive Board and our Board of Directors never retains their support. With this opportunity, I would like to thank once again for their support. Our colleagues carry out the works as decided in accordance with my directives and develop new projects. So I don't think we will face a challenge at that point, either. I will transfer my experience from one to another, and hopefully I will contribute to Turkish maritime and Turkey's blue future through TURMEPA.

As a woman, have you experienced any difficulties in coming to this point or have you been supported? In fact, you come from a very deep-rooted family of seafarers, what was its impact on your success?

The Kaptanoğlu family comes from an old and established maritime tradition.

Reaching a certain age, one realizes that the roots and experience are infused in the genetics, and thus these things are very important. I think 100 years is enough for getting seafaring into your genes. For more than 100 years, the sea has been the life source of the Kaptanoğlu Family. We've made a living from the sea for 100 years, breathing through the sea. My grandfather's father was a sailor, and my deceased grandfather, Hacı İsmail Kaptanoğlu was not only the founder of Kaptanoğlu Shipping, but also one of the names who wrote the history of contemporary Turkish maritime life.

As you know, my father Mr. Cengiz Kaptanoğlu is either the founder or member of most of the shipping organizations in Turkey. We've been in business since we were kids. Even our Sunday excursions were made to shipyards and ships when we were children. We often used to visit our family office in Karaköy with my siblings. My deceased grandfather let us pick up the phone in turn and secretly paid us small salaries to encourage us to work. Although we weren't given special career plans, my father had expectations. For example, being a university graduate with at least one foreign language, being

productive, honest persons who serve the homeland. At first, I chose to study philosophy. I felt that philosophy fits me very well because it develops my ability to do logical analysis. Even as I wanted to have a skill, I became a teacher of Philosophy, Sociology and Psychology. I was also interpreting for my father, Mr. Cengiz Kaptanoğlu, as I could learn English very well by then. Even though he could speak English, he preferred to use interpreters for speaking perfectly. In this way, as adults we kept visiting the office which we visited as kids. Since I think of my philosophy education as a foundation and I knew that I would be a shareholder of the family company sooner or later, I planned the rest of my education accordingly.

I applied to the City University Business School for finance, maritime and trade and I was accepted. In the meantime, I enrolled for a certificate program at London City College and completed a two-year program in one year and obtained a diploma on maritime. Then I started my graduate education. At the same time with all these, I was also working part time in our companies. The graduate study laid an incredible foundation for maritime and business life for me. After London, I returned to Istanbul and started to work full time in the office. Later, my friends at TUDEV –Başak Akdemir being the first one - convinced me so I started my PhD degree at De Montfort University in Leicester, England. This adventure lasted ten years, and in the meantime, I gave birth to two children. Thus, I completed my PhD in 2014. My mother Atiye and my father are my role models. I'm such a lucky person that I grew up with my grandmother, my grandfather Hacı İsmail Kaptanoğlu on the one side, and my uncles Engin and Gündüz as well as my dear aunt Eser on the other side. They have given me so much support that words are not enough to tell. My biggest chance was my family. However, if you are a woman, you need to separate yourself from your family

and define yourself at some point, because families from the Black Sea region love their daughters very much, but they are also very conservative. As I said before, while making my decisions and practicing them, I always received support and I was lucky. Of course, I owe a lot to my dear husband. He has always held hands with me and stood by my side, never stopping his support for me. As for the difficulty of being a woman in the industry, I can mention working more than anyone and not having the luxury of making mistakes. In a male-dominated sector, you need to work harder to be appreciated no matter if you do the same job as others, even if you do better. How happy I am to have been able to overcome these difficulties with the support of my family.

BIMCO is a very deep-rooted organization and a discipline in fact... What will be the most important work topics in your ahead?

In BIMCO, each president identifies one or several main themes for his/her period of service. The main theme for mine will be the environment. Please don't consider this only for the next 4 years; I'll be the president and then the former president. For decades we all have to identify the main theme as the environment in our work. It's not hard to guess now.

The maritime industry should have a proactive approach to especially environmental regulations. We must propose our own laws and regulations to lawmakers. I would like to remind "the less is not a sufficient criterion" to seafarers who think that we have already less environmental impact than other industries with the new environmental regulations in ours. The politicians faced serious public pressure on the environmental regulations in the automotive industry. Although our sector has become aware of this issue before the others and started to work to this end, we have to constantly search for more environmentally-friendly technologies, find and test their

suitability in all terms, and transfer it to the public in the right way. In the coming period we will pass serious exams in this field. As BIMCO, we will lead the industry in this field.

Turkish maritime sector is a very big family with its shipyards, ports, ship owners, marinas. What message would you like to give to the Turkish maritime industry in this process?

We Turkish shipping community are successful and hard-working, and are members of an industry which has succeeded in branding at international scale. I'm just one of the best examples of this. We will add success to our achievements by specializing and working with determination.

You have a family beyond your own business and all the tasks you undertake. How do you maintain balance? Now you will be abroad for much longer ...

One of my best characteristics is that I can prioritize my duties... My family and my children come first for me... Then my job and industrial responsibilities. When the industrial responsibilities increase, I temporarily reduce the time for myself. I never cut on the time I spend on my family. When one looks, I am 100% a mother and a wife. At the same time, I am a daughter and sister. My daughters are 10 and 14 now. I am so happy that our hobbies are almost the same. We enjoy doing the same things. We are all into arts. Painting is our special interest. We listen to the same types of music on the other hand.

We are from different generations, but it is not a problem. They listen to the current equivalences of what I used to listen at secondary, high school and university. We go to concerts together. We spend all our holidays together on the boat. I think it's in our family's blood. When we are in the sea, we all have a special peace and warmth. This is reflected in the relationship between ourselves as well. I get the energy to work that much from this peace and love that I share with my family.

Ton-Mile Or Ton-Time?



HARUN ŞİŞMANYAZICI *

I – INTRODUCTION

As is well-known, the criterion of ton-mile, in other words seaborne trade volume is used as a measure of demand in seaborne trade. However, as will be explained later in this article, this criterion (or metric) is also used to measure the supply, demand and the effectiveness of the seaborne trade service. Some academicians use ton-mile only for the measurement of the effectiveness of seaborne trade service, while some others use it to measure supply and demand of seaborne trade. However, this criterion involves some difficulties and contains various negligible and overseeable drawbacks and inconsistencies caused by the inherent structure of seaborne trade.

Supply and demand functions in seaborne trade have no similarities with the supply and demand functions in the classical economy. Supply and demand functions in seaborne trade are not balanced in equilibrium in a

reasonable freight acceptable for the carriers. Carriers continue production even in a market in which they incur loss and offer tonnage to the market despite that loss. When the carrier incur lost in a depressive market where freight rates dropped, it will continue production even if it incurs loss by operating the ship as long as that loss is lower than the loss that it would incur when it did not offer the ship to the market by making laid up the ship, in other words operate the vessel until the point it is necessary to lay up the ship. At the point where the freights continue dropping, making it more reasonable to lay up the ship, no tonnage is offered to the market. However, this is not the general situation, as it may be different for each ship, depending on the operating cost of the ships. Since young ships have lower operating costs compared to the older ones, they can continue providing tonnage to the market at that low freight levels, while the old ships are laid up at those freight levels.

Old ships are laid up due to high opex costs. In other words, there is no homogeneity in terms of the supply criteria of the ships. Young vessels are supplied to the market while older ones taken from service at the same low freight levels. On the other hand, in rising markets, short-term increase of supply is ensured by increasing the speed of the ship. There is a lag correlation in respect of Shipbuilding Cycle and freight rate is elastic in a depressive (in crisis) market, but supply of tonnage does not increase after the ship reaches maximum speed regardless of the increase of freight rates. Consequently, the supply curve becomes upright in the form of (j) after a certain level (reaching max speed) and becomes inelastic and even transforms into "O" elasticity. Consequently, the factors affecting the supply and demand in seaborne trade depends on the general variables of microeconomics in this

regard, but is also influenced very much by other external factors and variables.

The ton-mile being a good criterion may vary depending on the economic cycles. Furthermore, ton-mile neglects many important factors as stated above and explained in more detail below. However, despite these shortcomings, it is still a good criterion, together with other criteria, if its shortcomings are eliminated. However, it is never complete and perfect. Accordingly Seaborne Trade Volume (ton-miles) is still a good criterion in respect of the measurement of the operational level of seaborne trade if it is not correlated with the demand or supply of seaborne trade. (1- The Origin and Consistency of Ton –Mile Metric in the Shipping Economics Okan DURU)

However, this depends on your standpoint about this issue. This may be right in an approach from the point of transport. Accordingly, this approach may be right to a certain extent in respect of liner shipping. In contrary to tramp markets, i.e transport made through charter contracts, the service provided is not transport but allocation of the vessel to the order of the charterers. It means allocation of the ship for the disposal and use of the charterer. These contracts are allocation contracts. Thus, the concept of the period of time during which the ship was used comes to the fore rather than the cargo carried and the transport capacity offered to the market and the transport distance in order to measure the demand-and-supply of the seaborne trade. What counts is the length of time during which that capacity is teoretically offered to the market and the length of time for which it is practically demanded and used. And this fact takes us from ton–mile metrics to ton-time (day) metrics.

In the light of the explanations above, this

article aims at putting forward the role and effectiveness of the ton-mile metric for the measurement of the amount and performance of seaborne trade service, its historical development and different measurement models against it.

II- WHAT IS TON-MILE?

In maritime economics, measurement of supply and demand for shipping services is established over the ton-mile metric. Two dimensions of shipping services are thought to be essential: the volume of cargo being carried (ton) and the distance sailed (nautical mile) for the shipment. The product of these dimensions (ton-mile) is globally assumed as the scale of shipping services. (2-Okan DURU) As will be understood from the foregoing explanation, this metric expresses that a cargo of one ton is carried for 1 mile or the weight of the cargo carried per mile in tons. If 200 tons of goods have been carried from point A to point B at a distance of 1,000 miles, the value created by such transport in ton-mile is equal to 200 tons x 1000 mile = 200,000 ton miles.

This means that not only the amount of carried cargo but also the distance of laden leg is important in order to measure the level of the service provided in seaborne trade. For example, if 200 tons is carried for a short voyage as 600 miles, it will be deemed that 200 tons was carried if the distance is neglected and if the cargo is carried to a distance of 5,000 miles, it will be again be deemed as 200 tons. As will be appreciated, these two types of services which are the same in terms of ton are not identical services. The amount of service provided in the second one is more, compared to the first one. For that reason, only the amount of the cargo carried is not sufficient to measure the level and performance of the shipping service provided and even to measure the demand for seaborne trade. Instead, the actual amount of service must be put forward by multiplication of ton and the distance taken with cargo. In the first one, 200 ton x 600 miles =

120.000 ton-miles, while in the second one 1,000,000 ton-mile. The huge difference between these two figures is obvious.

However, it should be noted that the distance taken by the ship as loaded is taken into consideration here. But, the ship sails as ballast from the discharge port of previous voyage being empty to the port of loading. The ship provides service to that charterer beginning from the moment it has departed ballast voyage from the place where it was empty until it discharges the cargo at the port of discharge. The carrier in return determines a freight rate maximizing its profit or minimizing its loss according to the market conditions (compared to empty standby) by determining its cost including the cost of ballast leg. In other words, it provides service to the charterer, i.e. it creates a supply of service which is in turn used by the charterer. It goes without saying that this period of time serving as a basis for calculation of cost also comprises the potential period of time during which it will stay at the port for the purpose of loading and unloading, depending on the terms and conditions of charter party in this respect, and the freight rates is determined accordingly. In short, the cost of laytime and notice time is also included in the calculation of freight rates and a fee is also charged for the periods without any actual transport at sea (covering delay time and notice time).

On the other hand, if given laytime for loading and discharging which is taken into account in the freight calculations is exceeded, said time lost at the ports is charged to the charterers as demurrage, as well as waiting and loss of time during transition through channels are also included in this total voyage period. As will be understood, while the ship provides service to the charterer at its disposal and the shipowner earns freight plus demurrage in consideration thereof, the ton-mile metric takes into consideration only the cargo carried and the distance taken as loaded. (0 cargo

x ballast leg taken does not express any value in this approach as Ballast is not a cargo carried on foot). However, the service created both leg (ballast and laden) and same purchased by the charterer, the cost of which was paid as freight plus demurrage for the lost of time at ports for loading and discharging is an issue related to the period of time rather than the transport of cargo and distance taken.

Indeed from the legal point of view, the carrier is responsible for allocating the ship that it owns or controls for the disposal of the charterer with the specifications that it guaranteed rather than for the transport itself and the contract concluded is an allocation contract in the form of a charter party. As is well-known, the carrier assumes an obligation of transport in the liner trade. Liner trade is a closed and bidirectional type of transport. Amount of Cargo which is transported in two directions is not a fully homogeneous one in respect of amount and kind. There is no ballast leg. It is possible to take a cargo from the port of discharge. Likewise, the period of stay at the port is not very long in container transportation today.

Although some studies take into consideration the time factor to measure the demand for seaborne trade (see O. Duru graduate thesis: Turkish Coal Import Shipping Supply-Demand Analysis 2006). But in this studies periods like detention, which are attributable to the charterer other than loading and unloading, which have not been priced beforehand (unliquidated damages) and which mean a loss for the carrier, were not taking into consideration. (detention: compensation of proven damages of the carriers by charterers for the any lost of time attributable to the charterer failure, except for the loading and unloading processes by the charterer). However, ballast leg and loading and discharging time were taken into consideration in this study. Here it is assumed that an average ship will work for 30 days every month without any offhire time. As is well-

known, every month is 30.416 days in average. And by saying 30 days without wastage (offhire), it is actually meant that a wastage share of 5 days/year was used.

Although this period of 5 days is reasonable as a valid off-hire period (during this period owners can not rendered the services because of maintenance and /or repair of vessels) for young and modern ships for the first two and subsequent several years of investments according to the bathtub curve, but it must be 15 to 30 days in average for the total global fleet which also comprises old ships. (350 working days a year is reasonable for a global fleet) Another shortcoming of this and similar studies is taking into consideration the transport capacity of a ship as DWT.

However, the basic value is in deed DWTCC (DWT Cargo carrying capacity) and although this varies depending on the size of the ship and the distance of the relevant voyage to be taken, it corresponds to 92 to 97% of the ship's DWT (For a 3200 DWT coaster, it may be $210 \text{ tons} / 3200 \text{ tons} = 6.5\text{-}7\%$ based on 150 tons of fuel, 50 tons of water and 10 tons of constant). In other words, DWCC capacity maybe equal to 93% of DWT (In his study titled The Origin and Consistency of Ton –Mile Metric in the Shipping Economics, Okan Duru has taken this point into consideration). Walter Carl Bergius has also taken into consideration the loading capacity of the ship according to the loading draft by excluding the coal used as a fuel onboard the ship. (3- Okan Duru Shipping Business Unwrapped; Illusion, Bias and Fallacy in The Shipping Business)

Another issue neglected by ton-mile is the fact that stowage factor of the goods carried in seaborne trade is not the same. This factor has been interestingly not taken into consideration in any study for time being.

For that reason, the amount of cargo may show difference depending on the stowage factor of the cargo despite the capacity allocated at the disposal of the

charterer and the fact that an income is obtained in return thereof.

For example, when we intend to load steel Cargo with the stowage factor STW/ DWT on a ship with 3210 DWT and a volume capacity of 125,000 cbf bale/ 135,000 cbf grain, (in other words a ship with a total cargo hold volume capacity of 135,000 CFBT for bulk cargo and 125.000 cbft for break bulk Cargo) 3000 mts max may be loaded as DWCC according to summer salt water draft, while only 1928 tons of SFS cargo with a stowage factor of 70 cbft can be loaded. Even if the same ship is fully utilized at the same distance in a fully loaded state, as DWCC in the first case and in cubic, i.e in terms of volume in the second case, and the demand created for the ship in terms of use and the income earned by the carrier is almost the same (under the assumption that loading and unloading times are the same), under this conditions the ton of the cargo carried will be different and the ton-mile values will also be different even if the distance is the same. Ton value(quantitiy) will be 3000 MTS in the first and 1928 tons in the second one, so in the first case vessel dwt capacity, but in the second case vessel volume capacity to be fully utilised, and owners may able to get same freight revenue. As well as vessel allocated to the disposal of the charterers for same period. Ton-mile metrics not identical in this respect and not present this reality.

This may also show differences depending on the type of the cargo, the terms of the charter agreement and loading procedure. For example, there may be tier limitation for the stowing of any stw/dwt cargo. Thus, it will not be possible to load additional goods although there is space on board as DWT and volume. Or freight will be imposed on cbm basis on unstackable construction materials, by calculating its volume on shipping dimension as if it was theoretically loaded in the hold of the ship inside a hypothetical box according to the place it covered in the

cargo hold although its weighs very small or the freight rates will be calculated on a lump-sum basis. Shortly a capacity will be used onboard the ship equal to the place allocated for that cargo. Naturally a demand equal to its value will be created. When ton-mile is taken into consideration, the amount carried as ton-mile will turn out to be very small even if the full volume of the ship or cargo hold has been used, but the carrier will collect the freight as if the ship was fully loaded as dwt.

In that case, it may be proposed to use m3 for volume or m3/cbft-mile metrics based on volume, instead of ton. However, a reverse situation will occur in the ores with a very low stowage factor as 20 or 10 cbft. DWTCC of the ship will be reached while using a very limited space in terms of volume (such a situation will not occur in ore ships due to their design).

In order to eliminate the negative aspect of these two states, it may be proposed to use revenue ton-mile metrics to calculate freight rates by taking into consideration w/m or "freight revenue", whichever is generating the higher total amount of freight revenue. However, this would also not be a proper approach because in tramp trade, most commonly lump-sum freight rates are offered for bulk cargos or even if the carriers quotes a freight rate based on tons, it determines the freight rates not based on volume but weight by dividing its total voyage cost and profit margin to the metric tons of cargo carried. In other words, it collects the freight based on ton as if the whole capacity of the ship was used. Despite the stowage factor of ores ensures that the cargo not rise very much in the cargo hold of the ship and makes the vessel is stiff, ore ships design solved this problem compare to ordinary bulk vessel. So all these alternative metrics have their own specific problems.

For this reason, it would be better to measure the demand and the service provided or the demand and the supply

created based on time, departing not from the transport side but from the standpoint of allocation of the ship at the disposal of the charterer. (The metric used is TEU mile in container vessel or passenger - mile in passenger ships since the capacity of container ships is determined as TEU and the supply and demand is calculated accordingly). On the other hand in conventional liner trade, even if w/m may be useful for the measurement of the actually used capacity when the shipping dimension is taken into consideration and a calculation is made including broken stowage and filler cargo is taken into consideration, joint use of two metrics for the purpose of determining the theoretical capacity supplied would give rise to difficulties. It is because the actual transport would come out through different variables. (like Cbft or mts).

III- HISTORICAL BACKGROUND OF TON-MILE CRITERION

The term 'ton-mile' has been used for railway transport for the last couple of centuries. However, its use for maritime transport goes back to 1871. Walter Carl Bergius, a naval architect, first utilized the ton-mile metric for maritime transport in the Journal of the Society for Arts. He was the owner of Bergius and Co., Engineers and Naval Architects, Glasgow, and wrote an article titled, "On the commercial economy and performance of several types of merchant steamers on some of the principal lines of steamship traffic". In his article, he calculated the performance of the five ships by using the ton-miles criterion, the railway transport analogy. (3 – Okan Duru)

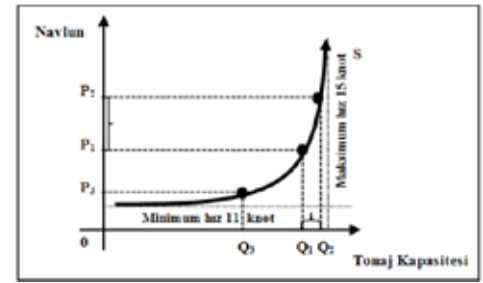
On the other hand Thomas F. Woodlock used this railroad analogy for the calculation of the transportation service under the heading "Transportation" in his book titles "Ton-Mile Cost" published in 1899. Woodlock focused on railroad transportation. The author noted that the Passenger-mile is an abstraction, because it does not exist except as an arbitrary mental concept. The same is true of the ton-mile. Yet both are real and

true measures of transportation, whereas neither of the component parts is alone a measure for the transport services in the full sense of the term. The author also does not associate the ton - mile metrics with supply and demand.

Dutch economist Jan Tinbergen, one of the pioneers of the econometrics and the theory of maritime economics in the 20th century and died in 1994 (he shared the Nobel prize in Economics with the Norwegian Economist Ragner Frish in 1969) developed 27 econometric balance model for the Dutch economy and created the first multi equation models in economy.

Tinbergen, who developed a modeling based on the analysis of the temporal series of freight rates (1934), investigated the sensitivity of freight rates against the changes in the demand on one side and associated the ton- mile metric with the demand in his work titled "Tonnage and Freight". He added fleet size, fuel prices (coal prices) and operating costs to that model while investigating the factors affecting the supply. But these factors were accepted as constants in the study as they are less fluctuating. Tinbergen suggested that demand is fully inelastic against the freight rates.

Furthermore he addressed the supply side of the industry as a function of the fleet size and fuel prices without associating with the ton-mile. It was also Tinbergen who first put forward the cyclicity of the seaborne trade markets. He explained this by establishing a similarity between Shipbuilding Cycle and Pork Cycle. Carrier places orders for new ships when the freight rates increase as a result of the increase in the demand for ship tonnage. However, tonnage enters into the market at the end of the period of shipbuilding which is 1 year in average and the orders for ship tonnage begin to drop following the decrease in the freight rates as the amount of the increasing tonnage exceeds the current demand in the market. However, there is a lag correlation between the increase of



Tonaj Kapasitesi (Ton-Mil)

freight rates and the introduction of ship supply into the market for that reason. (4 - A Ship Building Cycle? Jan Tinbergen Selected Paper Edited By L. H. Klaassen, L.M. Koyck and H. J. Witteveen).

Tinbergen found out that the freight rates and the fleet size(amount) has a positive impact and the increase in fuel prices has a negative impact on the industry. The increase in the fleet size will increase the supply while the increase of fuel prices will reduce the amount of supply offered to the market through slow steaming at a certain freight charge level in the depressive market (5 – Sinem Derindere Koseoglu- Analysis of Risks in the International Seaborne Trade Industry and Investigation of the Factors Affecting the Ship Investment Decisions)

As was seen during the crisis of seaborne trade that reached its peak in some segments as of the end of 2015 and beginning of 2016 due to reason not over helmed the passive/indirect crisis in 2008/2009 and to the abnormal tonnage increase and shortage of utilization(%74), beginning of real shipping crisis from 2012 , the idle shipyards began building ships without order although freight rates in the market were not attractive for placing orders for new ships at any rate; countries like China and South Korea fueled the increase of tonnage by providing incentives and governmental subsidies for their shipyards and shipowners. 35% of the shipbuilding projects made in the shipyards of those countries belong to their local companies. This was made possible by the availability of abundant financial resources at the global scales. It was even stated that the funds under the control of charterers



support that process in order to increase the tonnage and keep freight rates at a low level. Furthermore, big speculators with a big appetite for taking risks continued placing orders, considering the decline in the shipbuilding prices. Even if Tinbergen may be theoretically, or even practically right in his thesis to a certain extent, external variable factors affecting the actual situation and demand in the market have been different, scrapping has rapidly decreased or laid up tonnage entered into the market and caused the not permit increase of freight rates in a short time when the market began recovering a little bit. Such situations were experienced in 2016 for the first time and 2018 for the second time with in last 5 years.

T. Koopmans is the first economist who put forward the tonnage supply function in seaborne trade (J type) shown below and expressed tonnage supply using ton-mile metric or unit in his study

The diagram shows that the supply curve is elastic up to a certain point and non-elastic after that point. Koopmans thought that the supply of ton-mile is directly proportional to the fleet size. He defined demand as a function of the proportion of freight rates and fuel prices and other operating expenses

$$QD = f(FR \text{ ./ } P_b) y$$

The parameter (y) was found as 0.15 by Koopmans. As the laid up tonnage decreases, in other words, , tonnage is entered into the market from the laid up tonnage parallel to the rise in freight rates, the elasticity of the curve of supply of tonnage against freight rates decreases. According to Zannetos (1966) elasticity is almost endless up to a capacity use of 92%. It is point or naturel elasticity at 93. 4%. And 0.656 between 93 and 94.1% and 0.02 between 94.1% and 95.6%. Elasticity will continue weakening after that point and become 0 after 97.2%. Supply curve becomes upright by making an angle of 45° as seen in the diagram above. It was Koopmans who first examined the supply and demand functions in spot markets in tanker transport and followed the approach of cob-web theorem (6-H.E Haralambides Econometric Modelling of Newbuilding and Secondhand Ship Prices)

Koopmans also stated that demand elasticity is under 0.3 in short-term in the tanker transport market but is 0 in a depressive market. (7-T.Koopmans Tanker Freight Rates and Tanker Ship Building). In his article in (1) Okan Duru notes that Koopmans defined the ton-mile metric as measure of both shipping supply and demand. After the publication of Tinberg's a.m. book, Seaborne Trade Volume (ton-mile) was mostly used as a demand indicator in the studies made in

this area. Accordingly, Eriksen L.E (1977) investigated the demand for the service of transportation of bulk cargo in seaborne trade and Seaborne Trade Volume as demand and used ton - mile metric for this purpose.

As can be understood from the explanations above, both Tinbergen and Koopmans focused on static modeling. Predominantly, Tinbergens's approach has been adopted in the academic world. Tom – mile metric has been used for the measurements of factors like supply and demand in seaborne trade and for determining their equilibrium while some academicians adopted a much more neutral position like that of Metaxes. Ferris suggested that the mechanism of Tramp shipping cannot be characterized with a constant equilibrium (8- The Economics Of Tramp Shipping, The Future Of Tramp Shipping Industry Basil N. Metaxes).

At the point where a normal profit was made or obtained, supply and demand of tramp trade does not come to equilibrium and an acceptable freight rate is not formed at the point of intersection thereof. There is no such real equilibrium in the market. Metaxes addressed the demand for seaborne trade not in the form of ton-mile but as the volume of cargo carried by ships subject to research. Metaxes accounts for the difficulty of the realization of supply and demand equilibrium in a definite freight rate unit in seaborne trade based on two reasons:

1) The structure of the demand for Dry Bulk Cargo depends on the variabilities of the amount of demand in terms of the amount of dry bulk cargo carried by sea. The reason of decreases and increases of the variabilities in the demand for dry bulk cargo trade may depend on numerous factors of economic, political social physical or environmental nature. The ban on the export of nickel ore imposed by Indonesia, the restriction imposed by China on the import of coal with high ash rate and low calory

content from Indonesia, the impact of the accident occurred in iron ore facilities in Brasilia at the beginning of 2019 on the export of iron ore from that country, flood in the mines in Australia in 2011, the earthquake in Japan, negative impact of swine flu on import of soya and the regional disputes, trade wars can be given as examples for the argument of Metaxesis today.

2- Lack of flexibility of supply; lag correlation, in other words the lapse of minimum one year between placement and delivery of ship orders. Supply-side is unable to meet the rising demand in market in the short term. The fact that METAXES emphasized, that we have expressed in the introduction section of this study and M. Stafford addressed in his book "Maritime economics" is that the ship owners minimize their losses by continuing to provide service to the market at the expense of incurring loss during depressive periods as long as their losses are lower than their laid up costs/ losses and that they have no possibility to offer additional service to the market regardless of the level of rise in the freight rates after the ships have reached their maximum speed in the rising markets. Charemza and Gronicki (1981) Beenstock and Vargottis also used the ton-mile metric in their studies. Charemza and Gronicki utilized an indirect approach while still following the ton-mile approach (9-Okan Duru)

In the theoretical analysis of Tvedt on the other hand, the ton-mile metric plays a complementary role as an indicator of demand. According to Tvedt (2003) if the demand for seaborne trade could have been met instantly, freight rates would remain constant, provided that regional disruptions in tonnage, fuel prices and other cost variables are neglected. The incapacity of the shipyards to meet the increasing demand for new ships in time due to the long periods of shipbuilding gives rise to increase of freight rates. On the other hand, in cases where the supply exceeds the demand for ships, the reluctance of shipowners to

lay up their ships (hot or cold) delays prevention of the rise and fall of the freight rates compared to their normal levels. (10-TVEDT 2003.330 – A Strategic Decision – Timing of Purchase and Sale of Ships; T. Arslan 2008)

Glen and Martin thinks that it would be better to use ton-mile to express the demand instead of supply of tonnage or both supply of tonnage and the correlation between supply and demand of tonnage. On the other hand, Duru and Yoshida has developed Beenstock – Vergottis model and preferred expressing the demand for seaborne trade in terms of the correlation between seaborne trade volume and ton-mile metric.

IV-MEASUREMENT OF FLEET EFFICIENCY IN MARITIME INDUSTRY

As is well-known and as was explained above, fleet efficiency in seaborne trade is measured in two ways using the amount of cargo carried or ton-mile realized for DWT of each ship (DWTCC). In the first type of measurement, the amount of total cargo carried is divided into the carrying capacity of the World Trade Fleet. Decrease in that ratio shows that idle ship tonnage increases, that in other word the supply of ship tonnage increases more compared to the amount of the cargo carried. Shortly the utilization of the existing tonnage decreases. For example, the world merchant ship tonnage is currently 1.9 billion DWT. The capacity offered to the market as 95% (avg.) of that amount as DWTCC will be 1.8 billion DWTCC, assuming that it is always in service. The amount of cargo carried is 12 billion tons. Accordingly $12 \text{ billion tons} / 1.8 \text{ billion DWTCC} = 6.6$. If the World merchant marine fleet grows 4% while the amount of actual cargo carried increase 2% a smaller ratio will be obtained.

$(12 \text{ billion tons} \times \%2 = 12.240.000.000 \text{ tons}, 1.8 \text{ billion DWTCC} \times \%4 = 1.872.000.000 \text{ DWTCC}, 12.240.000.000 / 1.872.000.000 = 6.5$

However, this method has some inherent shortcomings. 12 billion tons is the

amount of cargos carried within one year. However 1.8 billion DWTCC is the theoretical capacity currently offered to the market. That capacity will increase depending on the number of voyages to be made by the ships within the year. For that reason, we have to multiply the number of voyages made by each ship within a year by its capacity in DWCC offered to the market. We must at least multiply the fleet by the annual average number of voyages to find out the annual capacity theoretically.

On the other hand, since some goods are bulky, the actual capacity provided for the transport of those goods is equal to the volume of the goods carried in the voyage and the ship will have a capacity under its normal theoretical transport capacity in ton basis even if it was fully utilized in terms of volume. For that reason, it would be a reasonable approach to assume that the theoretical transport capacity offered to the market within one year is equal to 85 to 90% of DWT capacity of the ship without making any recurrent reduction, considering also the percent margin that we use as DWCC. Other words this capacity will be %85-95 of the DWT capacity by making deduction for the bulky cargoes (having high stowage factor) and DWTCC allowance.

Another measurement unit is ton-mile metric. In this approach, the total amount of cargo carried is found by dividing the ton-mile amount obtained by the multiplication of the sea miles taken to carry that cargo by the total volume of the merchant marine fleet. The higher ratio obtain means the higher efficiency. An increase in that ratio shows that ships stay shorter in ports, make more voyages and carry goods at longer distances.

At this point, not the only amount of goods carried within a year but the total laden voyage distance sailed taken in to consideration as a more accurate approach. However, we will have to make the our above mentioned adjustments made for the other criterion also for this criterion.

Regardless of the above mentioned facts, the approach above would not be a good tool for the purpose of performance assessment, because when we adopt a pragmatic approach we see that longer periods of stay at ports for the ships which are not suitable for navigation but have a high port performance is desirable in respect of increasing efficiency, especially when considering the actual examples in real life. For example, it would be more advantageous for the open hatch ships (in which there is a very small difference between hatch and hold dimensions of vessel in respect of width – length and the goods may be loaded directly to their rest of place and which have a high port efficiency), which are not suitable for navigation due to their heavy cranes on them and need sheltering under bad weather and not calm sea condition say more than beaufort 4-5 but can easily and perfectly work at any berth of the ports which are not sufficiently equipped by shore crane to provide such service, to have a shortened time of stay at sea and operate in short voyages instead of long distances (like K type ships of DB Deniz Nakliyat).

Or, during the periods when fuel prices are very high but freight rates are not so convenient, it would be more advantageous for the ships use MGO for main engine and having higher fuel consumption and fuel cost to increase the period of stay at the port by making short voyages and also receive a good demurrage in respect of making a contribution to it.

Furthermore, if freight is to be paid at the destination, it would be more useful for the carrier who has cash flow problems to engage in a short voyage instead of a long voyage so as to be entitled to freight rates as soon as possible or in case of voyages where the cost of ballast leg cannot be reflected to the freight rates due to a depressive market, it would be more useful for the shipowner in terms of efficiency to engage in short instead of long voyages, in other words to have smaller ton- mile amount. For this

reason, even if it is theoretically correct to use ton-mile metric which increases according to the length of the distance taken (assuming the amount loaded as constant) as the only criteria to calculate the benefits to be derived by the carrier or shipowner from this transport and efficiency of the ship, it would not fit to the reality of the market and business life. Indeed almost all academicians and experts agree that this metric has drawbacks and is not perfect on its own merit.

V- TON-TIME METRIC INSTEAD OF TON-MILE METRIC

The reason we adopt the ton-mile metric and take into consideration the distance of transport as much as and even more then the amount of the cargo carried is our approach to emphasize the transport service in seaborne trade. However, ships are not only used for providing transportation service. VLCC's were used as a storehouse in 2014 when oil prices drop 45.55% annually and in 2015 when they dropped 30.17% and also in 2016 when oil prices fell down to USD 26.21/ barrel.

When an oilwell is opened, production necessarily continues as the cost of shutting down the well is much higher. However, since the oil companies would not want to sell oil at the current low prices and their warehouses at land are not sufficient, so oil is stored in hired tankers. It is experienced like that in USA, Iran and some other countries. Crude oil which could not be sold due to the embargo imposed on Iran was loaded on tankers and waited for a long time off the Iranian crude oil loading terminal before 5 + 1 agreement and ships departed to their destination after the embargo was lifted. Oil importing countries increase their strategic stocks when the prices drop as was the case when Japan and China, the largest crude oil importers in the world, increased their stocks in order to benefit from the low oil prices and kept that oil in the ships they hired as their premises at land were not sufficient for this purpose.

It is also well-known and has been experienced from time to time in the past that when there is an excessive demand for any agricultural product after a poor harvest or any serious seasonal factors, speculators step in and load the goods for themselves, keep it stored at ships, wait for the prices to rise and decide to sell and transport the goods when the prices have reached the desired level. All this is a demand for ships and ton-mile value will be 0 since the ship has not departed. However, those ships are in use during that period and create a value. There is a demand for those ships by the hirers. Although that demand is not immediately in the form of demand for transportation, it either becomes such a demand later or the ship is used as a warehouse as was the case with 565.000 DWT JAHRE VIKING which was used as a warehouse in Oman before being scrapped or like some tankers used as silo vessel offshore Mersin during the Iran-Iraqi War.

When we attempt at determining the demand in terms of ton-mile which is obtained by multiplication of the distance of transportation and the amount of cargo transported by excluding the time factor, the use of ship in the form described above is ignored and not taken into consideration. However, there is indeed a demand for the ships with this purpose and that demand absorbs a significant supply of ships and increases the upward positive impact of the demand made for transportation purpose on the freight rates. We cannot accurately calculate the demand for seaborne trade by ignoring that factor.

On the other hand, as we have explained above, ballast leg is not taken into account in calculation of ton-mile but only "laden leg" which refers to the sailing of the ship as loaded or the leg in which the actual transport is made is taken into account.

The problem here is that we approach to the subject fully based on the criterion of the science of economy and ignore the main characteristics of the seaborne trade.

This means that time operates against the carrier (time lost is carrier's account) in case of a connection based on voyage and reflection of this to the freight rates by the carrier according to the market conditions by taking into consideration the cost of all time losses and that more importantly, the carrier legally puts the ship at the disposal of the charterer by an allocation contract rather than transportation in tramp market. Thus demand is for the ship itself rather than transportation and this is a performance directly related to time. This point comes to the fore more in time charters.

It is known that ballast leg is taken into consideration for determining World Scale 100 values in tanker transport and freight rate is calculated accordingly. For that reason, some academicians use this ballast leg for determining the demand for seaborne trade in their models as will be explained below. Another important issue is that loading and unloading times, i.e. lay time and demurrage time also become a part of the total voyage time. In a voyage charter, carrier imposes a fee on the charterer to cover "Unliquidated Damages", i.e. losses of time which have a specific daily rate (demurrage rate) and this is charged for the time exceeding lay time.

Although this practice is interpreted as the cost of violation of the contract in respect of the English legal system, it refers to the cost/fee/hire of the period of time during which the ship was at the disposal of the charterer in the German and some other legal systems, like Time Charter. In other words, the ship provides a definite service by remaining at the disposal of the charterer, which is a part of the total demand for the ship. Indeed some studies took that period of time into consideration for the measurement of the demand for the fleet.

However, carrier also collects a fee for the losses occurring during the voyage which are caused by incidents other than loading and unloading and are attributable not to carriers/shipowner but



to the charterer. These are "Unliquidated Damages", i.e. detention. The cost of this loss of time is equal to the proven losses and damages, including losses of profits incurred by the carrier (the amount to be paid by the charterer per day is not definite and it will be equal to the actual loss documented by the carrier).

In other words, that period of time becomes a period of time during which the ship is operated by putting it at the disposal of the charterer.

And carrier earns an income from it accordingly (and this detention fee may be higher than demurrage rates since a low demurrage rate could have been bargained). This issue was overseen even in the models which have taken time factor into consideration.

However, as it is well-known and as was explained above, since loss of time is against the interest of the carrier in the voyage charter, the cost of losses of time for which carrier is not responsible is collected from the charterer (In cases of grey areas where none of the parties is responsible, the decision about who is responsible for the losses of time will be given according to the provisions of ch/p and, if ch/p is silent in that regard, the decision is given according to the provisions of the law to be applied to this ch/p for the settlement of disputes.)

What is more important is the fact that in seaborne trade, carrier assumes the responsibility for transport only in Liner trade, as we mentioned many times above. Even if it is argued that pursuant to the international law, the carrier, besides putting its ship at the disposal of the charterer, also assumes the responsibility for the Tramp trade based on the voyage charter (which is the case in all three Turkish Commercial Laws including the one currently in force) and even if a voyage charter is classified as a freight contract in many legal law systems it is indeed an allocation contract.

As such voyage charters differ from the general cargo carriage classified as freight contracts. We may see this difference also in the difference between voyage charters and booking a place in the ship in the liner trade. In liner trade, a transport contract is concluded (where mostly a booking note is issued and even generally the connection is established verbally). The document which puts that agreement into a written form is a pre-printed bill of lading, not allowing bargaining, by which the carrier imposes its conditions.

The conditions written on the rear page of that document counts as a proof of a transport contract (prima facie evidence of contract), and as a transport contract for the holder of the final bill of

lading when endorsed to another party which also accept to receive the cargo. In this transport, the carrier assumes responsibility for transport. Charterer is not interested in any details other than the name of the ship, voyage number and maybe the age of the ship for insurance purposes. Carrier also does not enter into any detailed undertaking against the charterer in this regard.

However, in a voyage charter basis tramp trade all the details about the ship which will be the subject of charter will be specified (with much more detail in a Time Charter and Bareboat trade) and the shipowner undertakes to maintain these specifications and details of the ship during whole voyage period except normal wear and tear and always to put the ship at the disposal of the charterer in such condition with immediate effect. All conditions of the trade connection are prepared for the chartered ship. What is important here is the ship itself, more properly allocation of the ship at the disposal of the charterer rather than transport. (Charter Contracts 1 - Prof. Dr. M. Fehmi ÜLGENER Page 2).

Consequently, the period of time in days during which the ship is supplied by the owners in the market within a year and the length time it was hired by the charterer within that period and put at its disposal against a fee must be determined in order to measure the demand for the ship. Out of these two factors, the latter gives us the demand for ship tonnage and its comparison with the first one gives us its effectivity and performance or utilization rate. We may find ton-time (day) amount by taking time in days and the real transport capacity of the ship based on the explanations above in ton and multiplying these two values.

The global merchant marine fleet will remain in service, in other words will be on hire for an average period of 350 days a year with a longer service time for young ships and shorter for old ships. Consequently, we must multiply the revised transport capacity of the ship

with 350 days based on our explanations above. However, there will also be offhire periods of the ships due to non routine, unexpected reasons like malfunction, accidents, etc. If we make a correction by also taking into consideration this factor and drop the estimated and average annual service time of the ship to below 350 days, the capacity offered to the market will decrease and naturally performance of the ship will turn out to be higher.

Such accidents and malfunctions are indeed the responsibilities of the technical department of owners/carriers. For that reason, it would not be reasonable to reduce the theoretical supply capacity as an additional percentage for this. Thus, the performance of the ship will turn out to be low compared to the real, actual period of use since it will not be possible to use the ship during that period. By contrast, the actual demand will have been put forward accurately.

When we have a look at the types of operation of ships in the market, the estimated volume of cargo carried in global liner trade and global seaborne trade in 2019 will be 2 billion tons and 12 billion 168 million tons, respectively. Container transport has its share of 95% in liner trade and conventional liner trade has a very small share. The amount of container transport by sea is 1.954 million tons.

Accordingly, the share of liner trade in the total amount of transport in tons is 16%. That percentage is around 20% in the literature. When we analyze in terms of allocation contracts and particularly charter contracts, we see that only 20 to 30% of transportation services in world trade are provided by voyage charter trade in the spot markets and the remaining is carried by the ships operated or chartered based on time charters or trip time charters. And this fact puts forward the importance of time factor in terms of the performance of the global merchant marine fleet in seaborne trade and the demand for such fleet.

There have been some authors who took time factor into consideration with respect to the demand for seaborne trade. One of them is Michael D. Tsuani. In his book titled "Petroleum Shipping Industry: A Non-technical Overview" he included the voyage time in the measurement of demand by saying "Measure of demand may be voyage days" with a view to measure the demand for tanker transport.

He emphasized that the time lapsing during the ballast leg and loaded leg of the voyage, period of stay at the ports and the channel transition time (which is shorter and more predictable in tanker compared to dry cargo); however, added that these calculations involves complications and difficulties.

Donatus and Geraldine (2012.189) put forward the formation of market demand curve in seaborne trade by using time-factor over ton-mile, however taking into consideration the amount of cargo carried within a definite period of time and the distance to which that cargo was carried within the same period, thus as a function of these two variables.

$DD = f(CT, AH)$, DD = Demand for Seaborne Trade, CT = Weight of the cargo during the period of transport, AH = Average transport distance of the cargo, t = time

However, in this context the term time is used to denote a voyage or a definite period of time: month, year, etc. In his work titled "Turkish Coal Import Shipping Supply-Demand Analysis", Okan Duru has indeed taken the definition and measurement methods of supply and demand that were previously outlined by Martin Stopford as a basis but took seaborne trade volume into consideration not as ton-mile but as the demand for the chartered/used fleet and the capacity of active merchant marine fleet capable of carrying that cargo as the supply and made his analysis of supply and demand accordingly.

This analysis has naturally been made within a definite period of time. In this study, Okan Duru took into consideration the ballast and loaded legs and time elapsing at the ports for loading and unloading, however neglected the potential detention time (or assumed that there will be no lost time). He approached the subject as DWT for the calculation of supply and suggested that the ship would be operated on a full day basis for 30 days throughout the month (the ship that he took as an example made 12 voyages a year and the voyage time was 30 days). Since type of cargo and stowage factor are well-defined in this example (48, i.e 1.4 to 1) there is no inconvenience in this respect. In respect of the speed of the ship; the speed of the ship was taken as 12.5 knots in average in depressive market / rising market. Thus, the following formula was devised in order to determine the demand for average monthly used fleet for a given ship type and size (CAPESIZE) at time t:

$KF_t = SS1 + SS2 + SS3 + SS4 + SS5 \dots SS_n$ $\therefore 12 \text{ voyages} = X \therefore 30 \text{ days} =$
Monthly used capacity, in other words fleet need/ fleet demand (each voyage may have a different length of time.)

$KF_t =$ used fleet or demand for fleet at (t) period

$SS =$ Voyage time, $SS_n = YS_n + BS_n + LS_n$

$SS_n =$ total length of the voyage n, $YS_n =$ laden voyage time of the voyage n, $BS_n =$ ballast voyage time of the voyage n, $LS_n =$ Total loading and unloading time of the voyage n.

This total period is divided into 12 as 12 voyages are made a year. Hence the average annual voyage time is obtained.

We on the other hand use a similar but different method to measure both the demand and fleet performance with the ton - time metric. For the purpose of the measurement of the global demand, we will first determine, for each of the commercial ships in the global fleet (containing 1.993.8 million DWT and

approximately 59.120 ships in 2019), the real amount of cargo in tons carried in each voyage during a year and calculate the loaded and ballast times, loading and unloading times and detention times, if any, for each voyage, in other words the periods of time the rate of which was paid by the charterer and during which the ship was at the disposal of the charterer and then we will state the actual period of time of service of the ship.

Let's say the period of service of the ship during this one year turned out to be 300 days. 65 days out of 365 days during which the ship was not in service would probably include the idle periods when the ship waits for the business (cargo offer) or could not be put at the disposal of the charter due to a malfunction or for any other reason. Indeed an out of service period of 15 days is already granted to carry out regular maintenance and upkeeping operations.

When the ship works normally, a transport capacity is theoretically offered to the market per day. It was explained above how this is calculated. 85% of DWT capacity of the ship is taken into consideration. The period of supply to the market in a year is 350 days. Therefore, this global fleet of 2 billion DWT $\times 85\% = 1.7$ Billion DWTCC (the state of the goods to be loaded as adjusted in respect of storage factor). This fleet which offers that much tonnage to the market per day will work 350 days a year and therefore offers a capacity equal to 1.7 billion ton $\times 350$ days = 595.000.000.000 tons. This will be the theoretical capacity.

Demand is obtained by multiplying the amount of cargo actually carried by each ship with the period of time during which the ship remains in service during a year. In conclusion, a comparison between these two values will put forward the real utilization and fleet performance. Just at this point, it may be asserted that during the periods when the market is in crisis but fuel prices are high, ships are operated with low speed both in liner trade and voyage charter trade and that

consequently service time of the ship would seem long and the perception of higher performance would be created by remaining in service in terms of time. This thesis would be correct from this point of view.

And for this reason, we create the ton-time metric by addressing not only the time factor but also the amount carried. In this case, ton-time performance of the ship will turn out to be lower regardless of increase in time since fewer voyages will be made and less cargo will be transported in this specific period of time due to low speed. On the other hand, during the periods of operation of ships with a very high speed, they will not be able to exceed a definite speed level even if they may go very rapidly in the short-term. And this is indeed the characteristic of the supply function in seaborne trade.

VI- CONCLUSION

In this article, we tried to give a brief history and characteristic features and drawbacks of ton-mile, and in contrast to put forward the importance of ton-time metric as an alternative for the measurement of fleet performance and the demand for ships. We deliberately used the concept of measurement of the demand for commercial ships instead of the demand for sea transportation. Because ships are not demanded only for transport purposes. However, that demand directly impacts the demand for transport. For that reason, we suggested that it would be proper to adopt a more holistic approach to the problem by creating this distinct metric. Such an approach does by no means mean a denial of ton-mile metric. We rather aim at taking into consideration the shortcomings of the ton-mile metric and emphasizing that it would be useful also to take into consideration the ton-time metric, keeping in mind the importance of time factor in allocation contracts.

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* ECONOMIST

WE HAVE BECOME THE SHIP MAINTENANCE AND REPAIR HUB IN OUR REGION



MURAT KIRAN *

As one of Turkey's oldest non-governmental organizations, we can say that 2018 was a busy year for the Turkish shipbuilding industry where we have adopted the philosophy of realistic findings and demands. As a result of our works, we have shown the importance of the shipbuilding industry for the economy and defense of the country and even for the competition in the international arena by explaining the realities of the industry both to the government and the public through our figures and domestic projects.

After identifying the main problems of the Turkish shipbuilding industry and preparing an action plan, we have solved the problems by dealing one by one the long-lasting issues, organizing meetings, conducting local, national and international expeditions, and by investing considerable time. Shipbuilding and ship repair and maintenance is a strategic industry with high added value for Turkish economy, thanks to especially its contribution to employment, technological developments, domestic

production, including side industry, and direct inflow of foreign currency.

Under the pressure of the global economic crisis in late 2008, orders received by our shipyards began to decline although the shipyards were heavily engaged in new shipbuilding activities. Despite signs of upward moves in new build ships, there is hardly significant increase. Our shipyards have followed a flexible strategy in response to the decreasing shipbuilding demand, focusing on shipbuilding as well as maintenance-repair activities, and placed significant importance on investments in this field. As a result, a significant increase has taken place in our capacity and capabilities with new floating docks. Considering all these, I can proudly say that Turkish Shipbuilding shipyards located at a strategic point of maritime transport routes have been turned into a hub for ship maintenance and repair in both our area and the western world thanks to its many advantages such as capacity, quality, reasonable pricing, its side industry, classification societies, air transportation facilities, occupational and environmental safety, and close location of shipyards to central Istanbul.

The Turkish shipbuilding industry's strengths compared to its rivals can be summarized as follows: specialized shipbuilding in energy ships, offshore ships, tugboats, chemical tankers, coasters, yachts, wooden boats, and military ships, as well as infrastructure and technology, number of shipyards, delivery time and high-quality production capacity, flexibility for customer requests and simultaneous building and repair & maintenance operations of shipyards, diversified products, the 3-hour flight distance to 52 countries, the strongest shipbuilding country across the region, the support of the iron and steel industry,

the ship recycling industry, universities and educational institutions, and adequate human resources in number and qualification.

Currently, our shipyards are working on green ships and ecoships, which are heavily on the agenda, by upgrading their technologies. We believe that we will gain strength by finding new markets in the future.

MORE ENVIRONMENTALLY-FRIENDLY AND FUEL-SAVING SHIPS

When it comes to our projects of focus and investments for 2019; the main problems of the previous and current year were the decrease in the new-build ship demand due to the global crisis, the increased financing problem in the competitive conditions and also negative impacts of economic and political developments around Turkey as it is situated in the middle of the Middle East, the Balkans and Caucasus Regions and at the heart of the maritime routes. Despite all these problems, it seems that the supply&demand imbalance in the shipbuilding industry will turn into supply&demand balance as a result of the shipyards shut down due to the global crisis. In this case, we expect that shipyards which manage to become active in terms of investment and production costs will be able to survive and start gaining. As for Turkey, in particular, we think that the use of our existing idle production capacity will increase depending on political stability in our region.

In line with the global trends, we can say that environmentally-friendly and fuel-saving ship construction (GreenShip) is on the rise. Our shipbuilding industry builds these green ships, while continuing to show utmost diligence for the protection of the environment



in its production areas. Construction of environmentally friendly and fuel-efficient ships will increase. Moreover, the offshore structures, which have been stagnant for the last decade, will be revived due to the increase in oil and gas prices. As a result of widespread automation, new generation ship designs with fewer seamen as well as new generation designs with advanced technology autonomous systems have already appeared as a candidate to take part in the world trade fleet. With the changes in ballast water treatment, we believe that the maintenance and repair activities of our shipyards will be more satisfactory. In addition, the recent limits for CO₂ and NO_x emissions bring about modifications in ships accordingly.

We believe that we will benefit from placing emphasis on R&D studies and innovation in areas of green ship&eco-ship, clean energy, and LNG ships; developing our new shipbuilding capabilities, developing joint ventures with foreign partners, maintaining our current status about tugs, expanding towards external markets with successful defense industry projects, and setting a course by taking into account the needs that will arise in African countries in energy vessels as our advanced area. In the field of environmental protection and environmental supervision, Turkey has harmonized many parts of the national legislation with the EU during the harmonization process. The harmonization of the environmental legislation is among the leading ones. As for the fulfilment of the environmental obligations, the industry is carrying out

activities through Environmental Permits. Also, it goes under frequent audits by the Ministry of Environment and Urbanization and also Istanbul Metropolitan Municipality. Maritime is an institutional sector, but still intensely hosts family companies. What is important here is to transfer the existing knowledge to future generations and to put forward new visions that can adapt to the changing world. Turkey has very good example of companies that passes forward the maritime culture to new generations with new visions and are managed by the 2nd and 3rd generation. These are the facts to be proud of and we will see that well-trained new generations with required knowledge about the global market will achieve even greater successes in the future.

The high-quality workforce and capacity of the Turkish Shipbuilding Industry, its production at European quality, reasonable prices and competitiveness, and its sensitivity about occupational health and safety and the protection of the environment all make our shipyards more competitive across our region. We can say that our goal is to get more from the existing demand in shipbuilding and maintenance&repair by making the best use of these advantages. In this regard, we will continue to promote our high capabilities in every area by focusing on marketing activities.

WE SHOULD INCREASE OUR MARKETING AND PROMOTION ACTIVITIES

In maintenance&repair, we must be aware that it matters most to offer reasonable pricing according to the

supply and demand balance and to maintain the high quality. We understand that we have used 67% of our docking capacity so far. This shows that we face a destructive competition among ourselves. To overcome this destructive competition, we should first increase our marketing and promotion activities to utilize our existing capacity. While we are performing these activities, we are trying to provide service to all ship owners by taking serious investment risks in the region. It should be kept in mind that our presence here provides great convenience to all ship owners across the territory. If we cannot sustain our existence, then all ships in the region will have to turn to the Far East for such services. As you know, it is impossible or too costly. After all, we're all on the same boat. Our seafarer ancestor Chief Admiral Barbaros Hayrettin Pasha said "One who controls the seas controls the world." This statement has been validated throughout the history. The most important turning points of history have always been related to maritime and shipping. In the past, the countries that were dominant in maritime managed to increase their power by discovering new countries and new routes. Today, seizing the power of transportation and determining the routes again bring together the power to rule the trade. Moreover, it is of critical importance for the states to achieve serious gains not only above but also below the sea. From this perspective, Turkey should be a real seafarer state with its fleet for commercial power, with its shipyards for production power, with naval forces for the national security, with its seabed resources and research infrastructure to be in a good economic position. With our defense industry projects, maritime policies, domestic production, and seabed researches important steps have been taken by our state to become a seafarer state. Serious steps will continue to be taken for its continuation. Our shipbuilding industry is putting all necessary efforts to be a seafarer Turkey.

CHAIRMAN OF GİSBİR (TURKISH SHIPBUILDERS ASSOCIATION)

WE CAME TO PROMINENCE WITH SPECIAL PURPOSE CUSTOMIZED SHIPS



CEM SEVEN *

Shipyard and Related Services Exporters Association represents the export side of ship, yacht and subsidiary industry sectors of our country.

All companies exporting the products within the field of business of our sector are the members of our association. There are more than 800 active members of our association as of 2019.

More than 150 of our companies export their products regularly every year. Our priority is to ensure the establishment of international business connections by our member companies and eliminate the obstacles that they encounter concerning their export operations.

The sectoral problems are identified by means of feedback coming from our member companies and we frequently submit them to the relevant authorities together with our solution proposals.

We organize national participation from



Turkey in the leading sectoral expos abroad and make efforts to increase the awareness about our sector at the international level and ensure more effective introduction of our member companies through the events that we organize concurrently with the expos.

We act as a bridge between our member companies and state institutions, particularly Ministry of Trade and provide the means for our members to benefit from support instruments.

WE HAVE SIGNIFICANT QUALITY AND PRICE ADVANTAGES

We organize trade commissions directed at target countries, set up purchasing commissions directed at maritime expos organized in Turkey and bring our member companies and foreign buyers together.

Norway and other European countries are our main export markets. Ships and yachts built in conformity with IMO,

ILO and European Flag Rules have risen to prominence with their awareness creating detailed workmanship.

Under this scope we have significant advantages in terms both of quality and price. We may say that we have come to the foreground with special purpose, customized ships.

A significant portion of our orders consists of LNG and Hybrid System driven ferries, platform support ships, fishing boats and trailers.

The principle of unconditional customer satisfaction applied by our shipyards, tailor-made production and our capability to make the modifications easily during the project process may be considered as factors that bring our sector to the foreground.

PRESIDENT OF SHIP, YACHT AND SERVICES EXPORTERS ASSOCIATION



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MARITIME A.S.

NEW BUILDING BROKERING & SUPERVISION



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Finding Suitable Shipyard

We are providing all kind conditional information about Shipyard such as financially , technical ability & project availability.

We are finding available shipyards at requested date providing competitive quotation from shipyard
Preparing time schedule with shipyard and confirm it suits to contractual new Building period
We confirm that organization of yard is ready for project.

During Construction

We are following progress during construction and we issue weekly and monthly basis progress reports

* Our philosophy is creating more plus value as we can that improves job quality and it creates mutual benefits for our project partners.

* We are doing our remarks pro-actively as much as possible earlier than failure of subcontractor it will effects quality of the vessel all type of works.

* Our working principle is create quality & successful job so , That creates mutual benefit shipowner & shipyard same time !

* We are working cloud based system , our shipowner clients could able to reach progress information daily basis photos simultaneously our daily inspections.



SERVICE CATEGORIES

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- SHIPYARD BROKERING
- FINANCIAL ANALYZE
- STEEL CONSTRUCTION
- PAINT
- PIPING
- OUTFITTING
- MACHINERY INSTALL.
- STARTING UP SYSTEMS
- DELIVERY SYSTEMS
- SHIP PERFORMANCE
- EVALUATION



BUNKERING IN İSTANBUL & TURKEY



MUSTAFA MUHTAROĞLU*

Istanbul is biggest supply centre in the area, supplying some 12.000 ships per annum with about 3 million tons of bunker fuels. Its total annual volume is higher than several ports and countries in the area such as Greece, Russia, Ukraine, Romania, Bulgaria, Israel, Cyprus, Egypt, Malta and Italy.

It's not only bunkering, but much greater number of ships are taking many other supplies and services in Istanbul such as luboil, provision, spare part and fresh water supplies, crew changes, sludge giving, boat services etc... and well equipped modern barges and motorboats are serving 7/24 base. There are about 55 bunker barges serving 365 days around the clock, over 100 motorboats giving continuous services day and night, also some 20 barges taking sludges. There are over 10 luboil brands available, supplied by dedicated luboil barges so it perfect SUPPLY & SERVICE CENTRE in the area. 43.000 ships are passing Turkish Straits per annum, half of them stop and take supplies and services in Istanbul which is known as best supply center in the area, some shipowners call Istanbul as "heaven of bunkering".

Istanbul and Turkey are known with perfect quality and very reliable services.

Turkey is very strictly regulated; all refineries and oil terminals are installed MFM, connected to custom, so it's very much under control and transparent that custom, all related authorities and even clients can see how many tons are loaded from which shore tanks via which lines into which tanks of barges so there is almost zero quantity & quality cases by 5 reliable physical suppliers serving.

Quality is also perfect, it is seriously controlled by custom, no product can go to end users without tested by custom by law. All products are coming Turkey are in specs by refinery quality proves then being re-tested by custom before going to ships, so no off-specs possible in Turkey.

Izmit bay ports near Istanbul are also important shipping and supply area in Turkey. Some 10.000 ships are calling there every year where bunkers and luboils are supplied at berths during cargo operations saving shipowner time by taking everything they need without stopping on roads. In this concern Turkey recently has taken important decision and steps for increasing bunkering and services in all ports in Turkey and announce 168 hours free waiting for all country for increasing supply and service business bringing country hard currency and further employments which will boost new bunkering areas like Aliğa & Nemrut where 2 refineries are located.

2020

As we all very well know, most important subject for bunker and shipping industry is sulphur regulation change in 2020 when all ships to use max % 0.5 sulphur bunker fuels. In this concern Turkey has big advantages by large tank farms and barges availabilities giving Turkey big chance to supply all grades required including LSFO%0.5 and gasoil as well as HFO%3.5 for ships with scrubbers. You can see very good and useful tables along with this artical showing price and volume forecast after 2020 which might be the



best and only information published only by this magazine in shipping community.

In this concern, Turkey is very unique example; dedicated working group called ISTANBULBUNKER2020 has been established under TURKISH CHAMBER OF SHIPPING by leading physical bunker suppliers ARKAS BUNKER, ENERGY PETROL, PETROL OFİSİ and SOCAR, who already done perfect job by several studies, articles and seminars which is honored by 2019 IBIA CONVENTION to be held in ISTANBUL on 22-24 October in Çırağan Palace.

Another important case is BIMCO chairman is now a Turkish lady Mrs. Şadan Kaptanoğlu, from long established ship owning family who is being first and only woman and Turkish president for such important and long established shipping institute who will be honoring convention in Istanbul in October 2019.

Consequently, we are facing serious and important changes and people, in changing times, seek reliable and safe addresses; ISTANBUL and all Turkish ports are such locations for shipowners during such important transition period when you need high quality, reliable people and problem free supplies, TRUST ISTANBUL & TURKEY.

**ASSEMBLY MEMBER, RESERVE BOARD
MEMBER AND BUNKER COMMITTEE
CHAIRMAN FOR TURKISH CHAMBER OF
SHIPPING**

BUNKER DEMAND FORECASTS 2010 - 2040

mn t

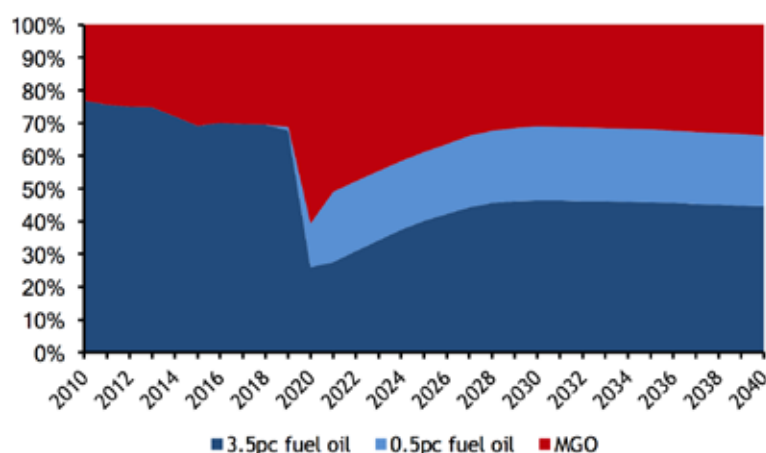
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
MGO	54.026	58.455	56.417	57.294	65.086	74.905	75.035	77.245	78.848	84.202	162.242	140.711	135.304	129.211	122.477	115.784
0.5pc	-	-	-	-	-	-	-	-	-	2.547	35.486	59.357	60.498	61.411	61.937	62.053
3.5pc	180.131	181.493	169.401	170.506	168.233	168.409	175.540	177.560	180.523	182.995	69.952	76.545	87.859	99.279	110.264	119.959
	234.158	239.948	225.819	227.800	233.319	243.315	250.575	254.805	259.371	269.745	267.680	276.613	283.661	289.900	294.678	297.795

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
MGO	108.110	100.742	96.763	94.971	94.069	93.770	93.436	93.064	92.653	92.211	91.506	90.708	89.803	88.782	87.641
0.5pc	63.370	64.990	65.766	67.327	68.445	67.752	66.991	66.155	65.239	64.238	62.678	61.055	59.365	57.610	55.789
3.5pc	125.673	131.965	136.695	138.878	140.712	139.370	137.894	136.267	134.475	132.510	129.349	126.055	122.624	119.053	115.344
	297.153	297.697	299.224	301.176	303.226	300.891	298.321	295.486	292.367	288.958	283.534	277.819	271.792	265.445	258.774

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
MGO	23%	24%	25%	25%	28%	31%	30%	30%	30%	31%	61%	51%	48%	45%	42%	39%
0.5pc fuel oil	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	13%	21%	21%	21%	21%	21%
3.5pc fuel oil	77%	76%	75%	75%	72%	69%	70%	70%	70%	68%	26%	28%	31%	34%	37%	40%

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
MGO	36%	34%	32%	32%	31%	31%	31%	31%	32%	32%	32%	33%	33%	33%	34%
0.5pc fuel oil	21%	22%	22%	22%	23%	23%	22%	22%	22%	22%	22%	22%	22%	22%	22%
3.5pc fuel oil	42%	44%	46%	46%	46%	46%	46%	46%	46%	46%	46%	45%	45%	45%	45%

2020 PRICE FORECAST



Forecast bunker prices														\$/t
	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	
Rotterdam														
HGFO 380cut	405	383	425	393	501	244	262	275	230	218	262	317	284	
0.1% MGO	601	555	604	626	648	717	703	709	679	664	706	739	722	
0.1% fuel oil	576	536	586	630	652	687	684	683	663	644	688	723	707	
0.5% MGO						689	676	685	656	638	679	714	698	
0.5% fuel oil						573	554	557	527	524	557	580	553	
Singapore														
HGFO 380cut	450	413	435	424	539	281	293	301	266	256	314	343	322	
0.1% MGO	630	582	625	637	680	739	726	732	702	686	730	762	746	
0.5% MGO						730	717	723	693	678	720	752	736	
0.5% fuel oil						584	565	568	538	525	567	591	564	
Houston														
HGFO 380cut	397	395	404	389	298	250	265	276	234	224	285	318	289	
0.1% MGO	643	601	632	632	677	738	718	726	700	687	724	755	735	
0.5% MGO						731	709	718	692	680	716	745	726	
0.5% fuel oil						581	558	559	523	521	562	582	559	
Japan														
HGFO 380cut	443	407	432	413	538	278	287	295	265	256	314	343	322	
0.1% MGO	773	717	700	720	763	813	796	812	782	760	800	843	826	
0.5% MGO						804	788	803	774	752	792	812	816	
0.5% fuel oil						579	558	561	521	527	560	584	560	

TÜRK LOYDU'S BIG SUPPORT TO THE NATIONAL DEFENSE INDUSTRY MOVEMENT

The national classification society of Turkey, Türk Loydu continues to be recognized for the classification services it provides for various types and sizes of naval and merchant ships, and keeps expanding its leadership in the field of naval ships to the whole world.



Türk Loydu is carrying out this valuable assignment given by the Department of Defense Industry with a sense of national awareness and pride, continuing to further increase its experience and competency in naval ships that have begun with the MİLGEM Project.

So far, it has classed nearly 150 naval ships, ranking among the most experienced societies in the world in the classification of naval ships. As one of the founding members of INSA (International Naval Safety Association), Türk Loydu makes its presence felt in the global defense industry with its experience. It continues its efforts to further strengthen its existing leadership in the naval ship projects and to develop its present cooperation with the Department of Defense Industry and the shipyards. Within this scope, Türk Loydu signed a Goodwill Agreement on

June 12, 2018, which includes training, consulting and R&D activities in addition to the naval ship classification activities, which have been continuing for nearly 20 years in cooperation with the Department of Defense Industry.

This agreement has consolidated the cooperation between TÜRK LOYDU and the Department of Defense Industry. Türk Loydu has obtained a substantial expertise and knowledge in the national and international military projects during its road story of naval ship construction, which started with the ship TCG Yarbay Kudret Güngör in 1996, and now continues with the huge project to be named TCG Anadolu when delivered.

TÜRK LOYDU IN INTERNATIONAL NAVAL PROJECTS

Türk Loydu continues its operations in many countries in the field of naval

ship classification and successfully completed the last four of 17 Hercules-series high-speed vessels, which have been constructed and classified since 2014 in cooperation with Ares shipyard, in July and October 2018. Two Hercules 150 and two Hercules 110 patrol boat type vessels, constructed according to Türk Loydu Naval Ship Rules, have started operating in Qatar.

Ares 150 and 110 Hercules type coast guard ships of Qatar Ministry of Interior, completed at Ares Shipyard in Antalya Free Zone with the largest composite hulls ever built in Turkey, are 48 and 34 meters long, and 9 and 8 meters wide, respectively.

Two 150 Hercules and two 110 Hercules type high-speed vessels were delivered to Qatar authorities, and Ares 150 Hercules has become the fastest open

sea patrol ship in the world with a top speed of 35 knots.

CONSTRUCTION OF TÜRK LOYDU CLASSIFIED TCG ANADOLU CONTINUES AT FULL SPEED

In 2015, the classification contract for the Multipurpose Amphibious Assault Ship TCG Anadolu was signed between Türk Loydu and Sedef Shipyard. Its block steel construction fabrications were completed in the first half of 2018, and the block joining works at cradles have started. Türk Loydu pays great attention to coordination between all stakeholders for this huge project in the aircraft carrier class, which is accepted as the final point reached in the development of Turkish Defense Industry. The Multipurpose Amphibious Assault Ship TCG Anadolu is expected to be completed in the last quarter of 2020. When completed, it will be possible to use the ship in the Aegean, Black Sea and Mediterranean fields of operation and when necessary, in the Indian and Atlantic Oceans.

The Multipurpose Amphibious Assault Ship TCG Anadolu will be able to transport to crisis zones a fully-equipped battalion, up to 46 Altay tanks and mechanized support vehicles - i.e. without main base support - under complete protection from the air and sea, to join landing operations with the landing vehicles it will carry in its dock, and will have a flight deck which will allow night and daytime operations by the heaviest NATO helicopters in the inventory and Osprey tiltrotor aircrafts.

In addition, TCG Anadolu will have a platform that will allow full capacity operations by air elements of various types and sizes, including our national pride, the Atak helicopter, under extreme sea and weather conditions. With TCG Anadolu, which will allow full time operations by 19 short take-off and vertical landing tactical aircrafts such as F-35B, Turkey will be able to convert its regional force transportation capability into a medium scale global force transportation. TCG Anadolu will have an infirmary/hospital with minimum 30 bed capacity, including an operation room, x-ray devices, dental treatment units, intensive care and infection rooms, and will be able to participate in humanitarian aid operations.

Built according to Türk Loydu's Naval Ship Rules, the Multipurpose Amphibious Assault Ship TCG Anadolu will become the largest marine platform in the inventory of Turkish Fleet with a full time weight of 27,436 tons and a length of 231 meters. In short, we can say that, in the near future, the balance of power in the surrounding seas, especially in the Mediterranean, will shift in favor of Turkey.

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“WE MADE A GREAT EFFORT TO GAIN GROUND IN NORTHERN EUROPE”

Cemre Shipyard aroused great interest especially in the North European countries with its specific ship projects. We had a talk with Ömer Özeroğlu, Chief Financial Officer of the company, about the international achievements of the shipyard.



ÖMER ÖZEROĞLU - CHIEF FINANCIAL OFFICER

Since when is Cemre Shipyard operating in the industry and in which segments?

Cemre has been continuing its operations since 1996. Our operations started with surface treatment works from 1996 to 2005 and continued with shipbuilding directed at export together with our first contract abroad in 2005.

We provided service at Istanbul Navy Shipyard between 2005 and 2008 and proceeded our way with our investments resulting in the shipyard that we built in Yalova in 2008. A total number of 62 ships were successfully delivered to Northern Europe as of April, 2019. Currently, 19 ships are under construction with the related contracts signed accordingly. Furthermore,

there are ships scheduled for delivery between 2019 and 2021. Our main export markets are predominantly the Scandinavian countries, but we have also exported vessels to such countries as England, France, Ireland.

Could you tell us about your specific ship projects?

The vessels that we build are the so-called “tailor-made” vessels built according to the order and specific duty. They have a wide product range stretching from off-shore vessels and fishing to ferries. We build vessels, different from the classically known types, requiring specialization with a high level of know-how. Many of our vessels are prize winning ones which are put into service for the first time. For example; NB 57, which was delivered last week was selected to the Offshore Renewables Award 2019.

This vessel will serve as a wind turbine support vessel in Germany. It is first of its kind in the world in terms of its specifications. And the shipyards which build this type of vessels are indeed specially selected. We were awarded with the contract for this ship as a result of a tender participated by approximately 25 shipyards from 9 countries. We also have the first LNG and Battery- driven fishing vessel which owns the Nor-Fishing Innovation Award 2018, still under construction. In a period when the production of the first domestic electrical car was discussed, we were already manufacturing two fully electrically operated ferries at the moment. We break new grounds in the world as Turkish shipyards.



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