A New Approach to Sea Transportation: An Application in Turkey

Alper Ertürk
Duzce University, Düzce, Turkey

Tuğkan Arıcı
Gebze Technical University, Kocaeli, 41400, Turkey

Orhan Çömlek
TÜBİTAK Marmara Teknokent General Manager, Kocaeli, 41400, Turkey

M. Şahin GÖK
Gebze Technical University, Kocaeli, 41400, Turkey

Abstract

This study has been conducted to detect the strengths and the improvement requiring areas of sea transportation in Turkey via SWOT analysis, and the opportunities this sector brings to Turkey and the threats that might appear have been put forward in several aspects. When the necessary advances have been made considering the outcomes of this study, it can be foreseen that Turkish navigation can make a swift progress and assume its place in the top 5 mercantile fleets of the World Trade Fleet. Moreover, this new approach that can be developed through the example of Turkey, especially in the context of SWOT analysis methodology, can get to be seen as a role model before the other developing countries. Sea transportation is not merely a transportation sector. Along with goods and human transportation, ship building industry, port services, sea insurance and sea tourism are among the many naval activities. Because of all these, sea transportation has a significant place in international trade. The overall commercial value of world trade mounting up to 15 trillion US dollars, 9 trillion dollars of this has been conducted via sea transportation. In other words, 60 percent of world commerce has been done through sea transportation (GISBIR, 2013). Furthermore, the volume of the dry bulk market via sea transportation is expected to grow by 6 percent between the years 2014 and 2018 (GISBIR, 2013).

Key Words: Sea transportation, Sea merchandise, Transportation sector, SWOT analysis

Jel Code: M15; M31
Introduction

The main reason behind businesses producing their products or several parts of their product in different countries is the cost. The companies that make their production in countries that provide cheap labor especially like Turkey, China, Bangkok, get a cost advantage against their competitors. Various incentives and tax discounts that these countries offer to foreign companies are also a main cause of businesses choosing these countries (Counsellors, 2015).

In today’s world, for businesses there is no such term as borders anymore. Raw materials and semi-products can be provided from different countries and yet the assembly or mounting processes can take place in another transoceanic country. For example, an automobile company can produce the iron shapes in Thailand, the engine parts in Germany, the interiors in Finland, and do the assembly in its factory in Turkey. The end production can be bought by a customer in the Middle East and transfer the payment to an American bank.

If the businesses wish to acquire a “competitive edge” against their competitors, they have to make their production in the most qualified, convenient and swiftest manner possible (Erturk&Ozcelik, 2008). The businesses who want to make their production in the most convenient way, import goods from different countries in the world. For the imported goods to be transported swiftly and with the most reasonable price, logistics operations have to be of a top-notch caliber.

In our world, where continents are interlinked by oceans, sea transportation distinguishes itself by making it possible for us to move the highest amount of goods at one time, in a safe way and in the cheapest way. For this reason 75 percent of the world trade is conducted via sea freight, 16 percent via railways and road transport, 9 percent via pipelines and 0.3 percent via airfreight (Aisarov, 2013).

Though airway transportation is more time-efficient compared to sea transportation, it is vastly disadvantaged regarding cost (Kol, 2010). Also when the one time amount of goods carried via the two are compared, sea transportation has a much bigger advantage over air transportation.

When sea transportation is compared to other transportation ways road and railway, it is 7 times cheaper than road transportation, and 3.5 times cheaper than railway transportation (MUSIAD, 2013); regarding fuel consumption, it is 4 times cheaper than road transportation and twice cheaper than railway transportation (Yilmaz, 1990).

Sea transportation is the most preferred way of transportation in world trade especially because it makes it possible to move a huge amount of goods that constitutes the raw material in industry from one place to another at one time, and because it is safe, and provides a minimum waste of goods, does not pollute the environment, and the energy consumption per unit is very little (GISBIR, 2013).

International air and road transportation often requires passing the borders of other countries. This situation has been causing an endless tension between countries around the world or because of other sources of tension in the world; countries may not want their borders used. This situation leads to undesired outcomes. Yet in sea transportation, because the cruises take place in international waters, problems of this nature are almost never encountered.

In developed and developing countries, serious investments are being made in sea transportation (Kogmen, 2014). In 2011, 60 percent of the world sea trade has been made by developing countries. They conducted 57 percent of these trade activities in their own region (GISBIR, 2013). The total financial value of the world trade is 15 trillion US Dollars and 9 trillion US Dollars of this amount has been through sea transportation. In other words, 60 percent of the world trade has been conducted via sea transportation (GISBIR, 2013).

In 2011, world sea transportation has reached up to 8.7 billion tons and has shown an increase of 4 percent after 2010. The biggest increase has been observed for dry bulk trade and it has made an increase of 5.6 percent after 2010 (GISBIR, 2013). Dry bulk trade made via sea transportation is expected grow by an average 6 percent through 2014-2018 (GISBIR, 2013).
The reasons for sea transportation being chosen over the other ways of transportation can be summarized as follows:

1. Being able to move big amounts of goods that make up for the raw material in industry to the desired destination easily, thus giving it a huge cost advantage considering the cost per unit,
2. Sea transportation being much safer given the aforementioned reasons, as it is conducted in international waters,
3. Continents and many countries are interconnected by seas. Considering this, transportation has to happen via air or sea freight. When the goods do not have a pressing urgency, among the other methods, sea transportation being the most cost-friendly and environment-friendly,
4. The ships coming to the country paying port charges and this being an important revenue for the country,
5. Harboring a considerable amount of revenue as a result of domestic ship owners renting their ships to foreign traders,
6. The care, maintenance and building services that are offered to the foreign fleets by domestic shipyards bringing significant revenues.

It is clear that countries like Turkey, which have the opportunity to make the utmost use out of seas, need to pay the needed attention to sea transportation to have a strong position in the world trade and to improve their economy.

As it keeps the business transportation costs of companies at a minimum, and has a noteworthy share in the world transportation sector, with the help of sea transportation, being surrounded by seas on three sides, Turkey can have a major share in the world sea transportation, even get to the top only by addressing the strengths and weaknesses of sea transportation and having a closer look at its advantages and disadvantages.

This study too is conclusively conducted to detect the strengths and the improvement requiring areas of sea transportation in Turkey via SWOT analysis, and the opportunities this sector brings to Turkey and the threats that might appear have been put forward in several aspects.

**Navigation Sector in Turkey**

Situated between the continents Asia and Europe, Turkey has the unique privilege of being a geographical, cultural and economical bridge. Surrounded by three seas, The Mediterranean, The Aegean and The Black Sea, having the strategically important Istanbul and Canakkale straits, our country has a coastline of 8,333 kilometers, which gives it an important competitive edge.

When considered on a tons-kilometer base, it is seen that goods transportation in Turkey is executed 90.4 percent via road, 5.4 percent via railways and 2.8 percent via sea (Yorulmaz, 2009). Considering this distribution, it is obvious that the cheap and effective sea transportation has not been made use of or there is not enough infrastructures to support this sector.

Although domestic sea transportation has a very small share (2.8 percent), we have a major role in international sea transportation. An approximate of 80 percent of the foreign trade in Turkey is conducted via sea transportation (Aisarov, 2013).

In Table 1, we can see the average age of the ships in the Turkish Sea Trade Fleet. The average age, being 24 in 2003, with some small changes, has remained at an average of 21 by 2011. Being 22 in 2012, the average age of our fleet was 23 in 2013 and 2014.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td>24</td>
<td>23</td>
<td>21</td>
<td>22</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>23</td>
</tr>
</tbody>
</table>
As can be seen in Table 2, while Turkish Sea Trade Fleet was in the 15th place in the world rank in 2010 and 2011, it rose by 2 degrees in 2012, placing itself in the 13th and has achieved to keep its place in the year 2013, too.

Of all the world trade fleet, Greece being in the first place, Japan being the second, China being the third, and Germany being the fourth, they have not given up their mantle in the past four years. The common quality of these four countries’ fleets is that the home flag-bearing ships have an average age of 12, while the foreign flag-bearing ships have an average age ranging from 7 to 12.

These numbers show in Turkey as home flag-bearing ships having an average age of 17.7 while this number is 17.2 in foreign flag-bearing ships. In this aspect, the Turkish fleet is 5 years older than the first 5 countries, and 2.5 years older than the first 30.

When we look into the top 4 countries, the average number of ships that these countries control is 4.118. The tonnage that they control with ships over 1000 DWT is 207,247. These numbers being 1,489 and 30,427 in Turkey, are way below the average.

This short analysis shows that to be at a higher ranking, the number of the ships owned should be increased and the ships need to get younger. In a sector where 20 of age is considered old, an average of 17 is not enough. Besides, there is a huge gap like 7 years between us and the top 4 Sea Trade Fleet owning countries. In our day, when we consider that technology grows every moment, the significance of 7 years for us will be even more apparent.

In addition to this, 70 percent of the total trade in Turkey is conducted via sea transportation (UTIKAD, 2015). The foreign trade volume of Turkey in 2013, has been announced as 911 billion 708 million liras (Milliyet Newspaper, 2015). This means that 638 billion 195 million Turkish liras of this foreign trade volume has been made through sea transportation.

Targeting a 500 billion dollar export and a 1 trillion dollar foreign trade volume by 2023 (UTIKAD, 2015), Turkey needs to put more emphasis on logistics, especially sea transportation sector.

Turkey is situated between The Middle East and Middle Asia which hold 65 percent of the world oil reserve and 35 percent of the natural gas reserve, and Europe which is an oil importer (Konya Chamber of Commerce, 2015). As Turkey is in such a critical place, there is no reason why it cannot accomplish its target of a 500 billion dollar export and a 1 trillion dollar foreign trade volume. The first of the many important to-dos is to give the essential importance to the transportation sector.
This short analysis shows that to be at a higher ranking, the number of the ships owned should be increased and the ships need to get younger. In a sector where 20 of age is considered old, an average of 17 is not enough. Besides, there is a huge gap like 7 years between us and the top 4 Sea Trade Fleet owning countries. In our day, when we consider that technology grows every moment, the significance of 7 years for us will be even more apparent.

In addition to this, 70 percent of the total trade in Turkey is conducted via sea transportation (UTIKAD, 2015). The foreign trade volume of Turkey in 2013, has been announced as 911 billion 708 million liras (Milliyet Newspaper, 2015). This means that 638 billion 195 million Turkish liras of this foreign trade volume has been made through sea transportation.
Targeting a 500 billion dollar export and a 1 trillion dollar foreign trade volume by 2023 (UTIKAD, 2015), Turkey needs to put more emphasis on logistics, especially sea transportation sector.

Turkey is situated between The Middle East and Middle Asia which hold 65 percent of the world oil reserve and 35 percent of the natural gas reserve, and Europe which is an oil importer (Konya Chamber of Commerce, 2015). As Turkey is in such a critical place, there is no reason why it cannot accomplish its target of a 500 billion dollar export and a 1 trillion dollar foreign trade volume. The first of the many important to-dos is to give the essential importance to the transportation sector.

An Application: SWOT Analysis

SWOT analysis was first coined as a term by Prof. Heinz Weihrich in his article published in “Long Range Planning” while he was a management professor at San Francisco University (Hamdioglu, 2002), and was improved by Harvard University professors Learned, Christensen, Andrews and Guth in the 1960s (Karakaya, 2014).

SWOT is an acronym for Strength, Weaknesses, Opportunities and Threats. Their meanings and explanations are as follows:

1. **Strength:** Determining the strong and positive sides of the business.
2. **Weaknesses:** Determining the negative and weak sides of the business.
3. **Opportunities:** Determining the internal and external opportunities that the business has/is likely to have.
4. **Threats:** Determining the internal and external threats that the business has/is likely to have.

Within the scope of the study, a lot of research that has been done in Turkey and abroad has been examined and Turkey’s shortcomings about sea transportation have been detected and possible solutions have been developed. While the Opportunities-Threats were examined in the analysis, Turkey’s geopolitical location and position in the sector have been taken into consideration. The importance of sea transportation for Turkey has been emphasized and the potential opportunities have been pointed out.

The second part of the analysis covers the Strong Sides and accentuates the superiorities. The recent changes in our fleet have been addressed, container ships of our fleet and the world leaders have been compared, and the advantages of our country have been mentioned. In the weaknesses part, our fleet is compared to the world leaders pointing out our poor and missing qualities. The biggest problem has been discovered as our neighbors not preferring us in their import and export activities. While we can be in a much advantaged position owing to our location, it is also mentioned why we still are in this position that we are in.

**Findings**

**Opportunities**

1. Transit transportation has a growing importance in the world and Turkey has the capacity to become a hub point in transit transportation as a result of both geographic and international waters proximity. Our country which is surrounded by seas on three fronts can have a big share in transit transportation by means of big ports and logistics villages that can be built.
2. A candidate country of European Union, Turkey has made some improvements as part of the compatibility process (Akpinar, 2014). Within the scope of the integration process, a new movement towards making our fleets and ports younger and a technological renovation has begun. To make this process more swift and efficient, some incentives may be prepared to multiply the attempts on this venture.
3. 70 percent of Turkey’s foreign trade is accomplished via sea transportation. However, 75 percent of this success is brought by foreign flag-bearing ships (Hurriyet Newspaper, 2015). To eliminate this superiority of foreign flag-bearing ships and making Turkish ships more
prominent, attempts to make our fleet younger and a serious competition with foreign flag-bearing ships have been started.

4. 21st century is both an age of technology and an age of consumerism. An intense desire to consume and produce has taken over the world. This is a sign that transportation sector is going to become even more inevitable in the coming years.

**Threats**

1. Although sea transportation takes place in international waters, the loading and dumping areas are under a government’s control. The natural disasters (earthquake, landslide, volcanic eruption, etc...) that might happen in the loading and dumping areas and political chaos especially like the one continuing in the Middle East at the moment are a huge element of threat for sea transportation. In such cases, both the time span of the shipment process and the safety of the goods become problematic. Such problems hinder the sea transportation process.

2. One of the biggest threats for Turkey is that there are container ports stronger and more modern than one another. Then again, Turkey’s current share of container shipment in the world is 1 percent and in 2010, it ranked 12th among the first 20 container ports in Europe (Ates, Karadeniz & Esmer, 2010).

3. With the developments in technology came the increase in the tonnage of ships. One ship can carry the goods that used to be carried by several ships in the past. This has led to a decrease in the number of ships using Canakkale and Istanbul straits.

4. According to our law, the possibility of foreign personnel working in Turkish ships is a big threat for Turkish merchant seamen (Official Gazette, 2015). Especially the personnel coming from low-income countries and working in our country, or the foreign personnel who came to stay in Turkey because of the problems in the Middle East are preferred as seamen by employers. This situation is not only a threat for Turkish merchant seamen, but also unqualified staff working in the ships increases the risk of accidents.

5. Turkey is in The Black List in Port Country supervisions as a result of the unethical actions of Turkish navigation personnel in the past years (Akpinar, 2014). Turkish ships being treated as “target ships” in these supervisions and problems that are faced in customs are serious threats for Turkish sea transportation (UBAK, 2014-2018 Main Plan Strategies).

**Superiorities**

1. Especially in the past 4 years, it is the most important superiority for Turkish Sea Transportation that our fleet has started to get younger by increasing the number and tonnage of the container ships.

2. Another strong point of ours is that new ships have been added to our fleet to transport petrol and petrol products and Turkish Navy fleet has assumed a duty in the transportation of petrol and petrol products.

3. Container and dry bulk container ships have an average age of 10.712. The average age of Turkish container and dry bulk container ships have an average age of 11. The average age of Turkish ships being in the world average is more of an advantage compared to its competitors. This is an important superiority for Turkish Navigation.

4. Because of Turkey’s location, many of our ports are situated in strategic locations and a lot of transportation activity takes place in our geographical surroundings.

5. Harboring free trade zones within our port reach.

6. Businessmen’s attention being directed at navigation sector because of the stagnation in many markets.

7. Turkey’s foreign trade and international trade becoming more prominent.
8. As a result of its geopolitical position, Turkey’s convenience for goods and people transportation and its huge potential.
9. Our quick adaptability as a nation towards change and rules.
10. That we use our Mediterranean ports like Mersin and Izmir ports as main transfer centers.
11. Turkey’s fast-growing economy.
12. Despite the ongoing highness of our special consumption tax and port rates, having made significant discounts and incentives in the past, and that these incentives are going to happen again.

Weaknesses

1. The average age of our dry bulk ships which constitutes for a big part of our fleet (38 percent) is 24. This shows both that we are quite underdeveloped technologically and that our ships are not very safe against possible accidents (DTO, 2013).
2. It is a huge loss for a country like Turkey, which is surrounded by seas that 75 percent of our import and export is transported by foreign flag-bearing ships.
3. Turkish banks’ not providing a long-term loaning is a hurdle before the companies who want to venture into the sector or renew their fleet.
4. Turkey is in The Black List in Port Country supervisions as a result of the unethical actions of Turkish navigation personnel in the past years. In our ships where officers are highly qualified, our staff are not qualified enough, which brings along a lot of ethical issues. Unethical, immoral and unlawful incidents happen or are likely to happen which gives Turkish ships a bad reputation, as well as putting lives and goods in danger.
5. While the range of countries that extend from our northeast to the ones in the southeast are exporters of oil, the range of countries that extend from our northwest to the ones in the southwest are all importers of petrol and petrol products. Being in a location like this, Turkey only has 7 LPG tankers in its fleet. The average age of these tankers is 21, which is way above the world average.
6. Along with the insufficiency of the number of LPG tankers in our fleet, they are also very old and dangerous. Because of this shortcoming of our LPG tankers, 80 percent of our LPG import is conducted by foreign flag-bearing ships.
7. We do not have LNG ships in our fleet, which are used to transport the most crucial merchant goods of our region: petrol and petrol products.
8. The lack of coordination between institutions and the ex officio chaos extend the port waiting span. As a result of this situation, companies see Turkey as a second choice while choosing ports.
9. The treaties to stop the environmental pollution caused by navigation that we are also a part of are not practiced or practiced inefficiently by our navigation personnel.
10. The relative price that is charged by private ports being high.
11. The ships that are used for inner city transportation being old, having little maneuverability, being uneconomical and not being fast enough.
12. Turkish flag-bearing ships being unable to accommodate expenses and thus serving as Panama flag-bearing ships.
13. The high cost of insurance premium, and port expenses, constitutes a problem for port searching navigation companies. To reduce cost, companies do not prefer Turkish ports.
14. Turkish flag bearing ships having little publicity and not having a good impression in people.
15. The inter-city people transportation being practiced very little in our country.
16. The bureaucratic procedures being very slow at our ports.
Conclusions

As the outcome of the study has revealed, deserving a high position in the sea transportation sector, - despite all the complications- Turkey has merely achieved to be the 13th in the World Trade Fleet. As a direct result of this, Turkey’s rate of progress has been slowed.

The fact that three quarters of Turkey’s foreign trade is conducted through sea transportation in fact shows how important sea transportation is for Turkey. In fact Turkey is an undesired country for sea transportation both because its ship age average is high and it is on the black list of many countries. However, our regional and geopolitical location gives us access to such achievements. It is very important for Turkey that it has 6 border neighbors, such jewels as Canakkale and Istanbul straits, it is in the center of the sea traffic in the region and its neighbors extending from the northeast to the southeast are all oil exporters.

The most noteworthy result of the SWOT analysis is that navigation sector can make a quick progress if it is focused even for a short period. Although our fleet is small, our ships’ average age is much higher than the world average, and also 75 percent of our import and export relies on foreign flag bearing ships because of high taxes, our rank in the world is not so dire as expected.

Within the scope of the European Union compatibility process, both our ports and ships are in a renewal process. With these changes that happen in our fleet and ports, our ships are going to be better equipped technologically and we will see an increase in the tonnage of the ships.

Thanks to the pipelines passing through Turkey and of which many more are planned to be built, Turkey will no longer be a country providing sea logistics, but it will also become renowned with its port services. Especially because of ports like Iskenderun, Antalya, Izmit and Istanbul, it has the potential to become the hub point of Europe.

In this regard, the renewing of the existing ships and the strengthening of the fleet with more technologically equipped ships can be considered among the top-priority activities. The second step would be increasing port capacities, and the third would be integrating the transportation systems. With these leaps, Turkey will be able to have a greater part in the sector, and reach its national goals more easily.

Acknowledgement

This paper has been presented in the International Conference on Leadership, Technology, Innovation and Business Management in 2016.

References


Internet References

http://www.counsellors.gov.tr/upload/CHC/devlet_yardimlari.doc
http://www.utikad.org.tr/haberler/?id=11446
http://www.utikad.org.tr/haberler/?id=11446
http://blog.milliyet.com.tr/turkiye-nin-100-yilinda-2023-hedefleri/Blog/?BlogNo=380942
http://www.ekodialog.com/Makaleler/dunya-deniz-ticareti-ve-tasimaciligi.html
http://www.ubak.gov.tr/BLSM_WIYS/UBAK/tr/Ana_Plan_Stratejisi/3-Rapor/20100518_171220_204_1_64.pdf