Gemi ve Deniz Teknolojisi Dergisi
Sayı: 221, Haziran 2022
ISSN: 1300-1973, e-ISSN: 2651-530X, Dergi ana sayfası: http://www.gmoshipmar.org/
Araştırma Makalesi

Bodrum Yat İnşa Sektörünün GZFT/PESTLE Analizi

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ÖZET

Bodrum yat inşa sektörü, Türkiye'nin eşsiz, katma değeri yüksek, yetkin ve gelişen sektörlerinden biridir. Bölgede uzun yıllardır yeni imalatın yanı sıra, bakım-onarım ve çekek hizmetleri gerçekleştirilmektedir. Yüksek kalitede üretilen Bodrum Guletleri ile tırhandiller zamanla Bodrum'un markaları haline gelmiştir. Bu çalışmada Bodrum yat inşa sektörü 2011-2021 yılları arasındaki tesis sayısı ve üretim değerleri baz alınarak incelenmiş, bölgesel üretim verileri, küresel ve yerel ölçekte analiz edilmiştir. Ayrıca toplanan veriler doğrultusunda Çevre-Değer-Kaynak uyumu yaklaşımı ile GZFT Analizi yapılarak Bodrum yat inşa sektörü için güç, zayıflık, fırsat ve tehdit faktörleri belirlenmiştir. Daha sonra analiz edilen faktörler, siyasal, ekonomik, sosyal, teknolojik, yasal ve çevre (PESTLE) analizi ile de kategorize edilerek detaylandırılmıştır. Son olarak elde edilen bulgular, Bodrum yat inşa sektörünün gelişimi için atılabilecek adımlar kapsamında stratejik karar verme sürecine katkı sağlayacak şekilde değerlendirilmiştir.

Anahtar kelimeler: Bodrum yat inşa, Bodrum Guleti, GZFT, PESTLE Analizi, Çekek

Makale geçmişi: Geliş 16/02/2022 – Kabul 11/05/2022

https://doi.org/10.54926/gdt. 1074404

GMO Journal of Ship and Marine Technology
Issue: 221, June 2022
ISSN: 1300-1973, e-ISSN: 2651-530X, Journal homepage: http://www.gmoshipmar.org/
Research Article

SWOT/PESTLE Analysis of the Bodrum Yacht Building Industry

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ABSTRACT

The yacht building in Bodrum is one of the unique, high value-added, competent, and developing industries in Turkey. The new building, repair & maintenance, and boatyard operations have been carried out in this region for many years. Bodrum Gulets with round and transom sterns and tirhandils produced in high quality have become the brands of Bodrum over the years. In this study, the Bodrum yacht building industry is investigated to determine the number of facilities and their production values within 2011-2021. Then the regional production data is analyzed within the global and local scale yacht building. The strength, weakness, opportunity, and threat factors are determined for the Bodrum yacht building industry within SWOT analysis using the Environment-Value-Resource congruence approach. Then the analyzed factors are clustered and detailed with political, economic, social, technological, legal and environmental (PESTLE) analysis. Finally, the findings are evaluated to contribute to the strategic decision-making process within the scope of the steps that can be taken for the development of the Bodrum yacht building industry.

Keywords: Bodrum yacht building, Bodrum Gulet, SWOT, PESTLE Analysis, Boatyard

Article history: Received 16/02/2022 – Accepted 11/05/2022

ISSN: 1300-1973, e-ISSN: 2651-530X, Dergi ana sayfası: http://www.gmoshipmar.org/
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1. Introduction

Yachts are luxury water vehicles propelled by an engine and/or sail and generally used for leisure and entertainment purposes. Aesthetics, comfort, quality, and private design are at the forefront of yachts compared to large-tonnage commercial vessels. Therefore, the yacht building industry with high value-added and strong interaction with other sectors, high foreign currency inflows, is one of the most essential sectors for the leading countries in maritime. Over the years, there have been significant developments in terms of yacht building capacity. Although there were fluctuations in the sector in 2020 due to the impact of COVID-19, the total number of projects in the 2022 world order book increased by 24.7% with 1024 projects compared to 2021 (Montigneaux & Robinson, 2021). On the other hand, the share of marine tourism revenue in total tourism is approximately 20%, and the marine tourism revenues, which were 1.9 billion US dollars in 2002, increased to 7.2 billion US dollars in 2019 in the Turkish yacht management sector (İMEAK-DTO, 2021). On a regional basis, yacht management is one of the developing fields in the southern Aegean region. Only in the Muğla region, there are 27 marinas with a capacity of 6,904 yachts and 538 yacht enterprises including 6,241 passengers (GEKA, 2018). Moreover, it was reported that the number of yachts to be used in yacht management will increase by more than 2 times and reach the level of 48000 in 2030 compared to 2015 (Yüksek, 2013). In addition, it is estimated that the Blue Voyage market size is about 300 million USD in 2020 and this value is reported to be increased to 500 million USD in 2022 (Kalyoncu, 2020). Besides, Turkey is known for semi-custom and full custom production in the yacht building industry (Montigneaux & Robinson, 2021), low labour costs, as well as the workers' qualification and skills, are the factors that promoted Turkey's rank in the global yacht building industry (Merendino, 2014; Zaltsman, 2021). Since the end of the 1990s, the yacht building industry in Turkey has grown remarkably, especially with the effect of superyacht and megayacht production (Gürler, 2013).

The yacht building industry, on the other hand, is mainly located in the Mediterranean and southern Aegean regions in Turkey. In Muğla province, yacht building, repair, and maintenance activities with boatyard operations are generally conducted in Bodrum, Marmaris, Ören, and Fethiye regions. Among the yacht manufacturing centres located on the Aegean coast of Turkey, especially the Bodrum region has been making great progress in the production of megayachts, as well as traditional wooden gulets and large leisure crafts, and attracts great attention from foreign markets (Hazneci, 2009). In the Bodrum peninsula, especially wooden yacht building is very famous and defined as a cultural heritage today. Boatbuilding in this region dates back to the reign of King Mausolous in the 4th century, even BC. It is stated that Egyptian King Ptolemy had warships built in Bodrum in the 3rd century (Kükner, 2009). The Bodrum region had also continued to be one of the important centres of shipbuilding during the Ottoman Period. It is known that the first ship was laid in the Ottoman Shipyard in Bodrum in 1784 (Bodrum Belediyesi, 2020). In Bodrum, where military-purpose boats were built until the 20th century, later boats were built to be used in commercial cargo transport, fishing, or sponge diving activities. By the 1950s, wooden boats accepted as the predecessors of world brand "Bodrum Gulets", started to be built (Ayaz, 2015; Binder, 2019). On the other hand, with the popularity of the Blue Voyage after the 1960s, the demand for leisure crafts has increased leading the number of Bodrum Gulets have increase (Kükner, 2007, 2009). Although Bodrum is known for its Bodrum Gulets, there are many different types of sailing yachts and motor yachts built in this region.

The growth in the yacht building and management industries requires a strategic decision-making process for short, medium, and long-term plannings since yachting is a global and competitive field in the maritime sector. However, there is a lack of cumulative, segmented, and detailed data for the Bodrum yacht building industry, and qualitative and quantitative evaluations are required to reveal

the specific strength, weaknesses, opportunity, and threat (SWOT) factors. Therefore, in this study, the strengths and weaknesses of the Bodrum yacht building industry are determined and the threats and opportunities (SWOT) to the industry are discussed in the light of the sectoral data, then a PESTLE analysis including clustered data related to political, economic, social, technological, legal and environmental factors is conducted to evaluate the conditions that affect the yacht building industry in Bodrum. Within this scope, the properties of yacht types specific to the Bodrum region are introduced first and the local yacht building industry is analyzed under the framework of the world and Turkish yacht building. The environment-value-resources (E-V-R) model is used for SWOT/PESTLE analysis and strategic outcomes and measures are presented. It is aimed that this study will contribute to the strategic decision-making process in the Turkish shipbuilding industry since there is a need for particular analyses of the yacht building in recent years in Bodrum.

2. Boat Types Specific to Bodrum

Bodrum Gulets with round and transom sterns as well as tirhandils stand out among the unique yacht types produced in Bodrum today. These yachts mainly used in the marine tourism sector, have many differences in terms of production technique, engineering, and design. Figure 1 shows Bodrum Gulets with round (top-left) and transom (top-right) stern yachts and a tirhandil (below) anchored in Bodrum harbour.

Figure 1. A Bodrum Gulet with round stern (top-left), transom stern (top-right), and a tirhandil (below)

2.1. Bodrum Gulets

Bodrum Gulets, which are among the iconic boats of Bodrum, has emerged as the usual gulet forms have changed over time. The forms of the gulets, which previously served for purposes such as sponge fishing, fishing, or cargo transportation, changed with the effect of the marine tourism that developed in the 1960s and took the form known as Bodrum Gulet today (Köyağasıoğlu, 2014; Kükner, 2007, 2009). The aesthetic concern, which increased with the effect of use, especially in the Blue Voyage, played an important role in the emergence of Bodrum Gulet forms (Büyükkeçeci & Turan, 2018). On

ISSN: 1300-1973, e-ISSN: 2651-530X, Dergi ana sayfası: http://www.gmoshipmar.org/

the other hand, with the introduction of lamination technique in the manufacture of yachts in Bodrum in the 1980s by Naval Engineer Fuat Turan, flexibility in the form and dimensions of the gulets manufactured in Bodrum has been increased, and it has become possible to produce larger gulets compared to the traditionally defined masonry manufacturing method (Turan & Akman, 2021b; Turan & Özcan, 2018). Today, Bodrum Gulets are not only made of wood but also steel. The yacht named Meira, with a hull in the form of a Bodrum Gulet and a full length of 50 m, built-in Bodrum is listed among the largest yachts ever built in Bodrum and is made of steel (Turan & Akman, 2021b).

2.2. Transom Stern Type Yachts

The concept of transom stern, which is used to describe the stern form in the maritime literature, is also used for defining a specific yacht form obtained by changing the stern structure of Bodrum Gulets in Turkey. The transom stern form, which has been used for centuries in sailboats in Northern Europe, started to be seen in Bodrum after 1985 (Köyağasıoğlu, 2014). These boats, whose hull form is similar to Bodrum Gulets, have a transom stern form, which is in the form of a cross beam, unlike Bodrum Gulets (Kükner, 2009). Transom stern type hulls have emerged with the idea of making the stern of Bodrum Gulets, which are widely used in the Blue Voyage, a flat form and having the additional volume on the aft lower deck with the added aft forecastle. In this way, the volume gained at the aft lower deck was used both as an additional cabin and as a galley with a crew area, allowing the boats to have a more efficient interior layout.

2.3. Tirhandils

Tirhandils are defined by symmetrical fore-aft forms, a beam of one-third of the length overall, a convex and inward-curving bow stem structure, a handrail close to the sea, and a clear sheer line (Köyağasıoğlu, 2014). The form of the tirhandil, the traditional fishing vessel of the Eastern Mediterranean, remained virtually unchanged for three centuries (Gür, 2020). These boats, which are shipped as sailing and motorized, have quite different features in terms of use. Tirhandils, which provide flexibility to the users in the interior volume with their wider middle part compared to Bodrum Gulets and transom stern type yachts, begin to lose their characteristic features above a certain length overall, so the number of tirhandils manufactured over 20 m is quite low (Turan & Akman, 2021a). As a result, the number of tirhandils in marine tourism is limited and these boats are generally manufactured for private use.

3. Method

Strength-weakness-opportunity-threat (SWOT) analysis is one of the substantial tools used in the strategic decision-making process by analyzing and evaluating the circumstances of businesses or different sectors. The simplicity of applying the SWOT Analysis is seen as the advantage and consequently, it is listed as the most widely applied strategic method (Phadermrod et al., 2019). In SWOT analysis, strengths are the performance indicators for success, and weaknesses are the factors that hinder successful performance; opportunities are trends thoughts and situations towards specific goals, and threats generally refer to external and uncontrollable forces and events (Phadermrod et al., 2019). Since the 1960s, SWOT analysis has been widely used and the analysis methodology during the decision-making process has developed over the years (Dyson, 2004). The original form of the SWOT analysis was based on qualitative and subjective views therefore the method was not applicable for long-term plans within the strategic decisions (Phadermrod et al., 2019). Afterwards, the quantitative,

risk and importance-based approaches have been added to the methodology for more convenient evaluation (Arslan & Turan, 2009; Phadermrod et al., 2019; Yang, 2010). On the other hand, the PESTLE approach can be used together with the SWOT analysis rather than as an alternative analysis type (NMBL Strategies, 2021). In PESTLE analysis, political, economic, social, technological, legal and environmental factors affecting the existing system are clustered and detailed (Srdjevic et al., 2012). Therefore, the PESTLE approach contributes to better understanding and decision-making processes. Consequently, the Bodrum yacht building industry which has different dynamics affecting competition power like location, cost, design and built know-how, technology and materials, is evaluated within a multi-criteria-based SWOT/PESTLE analysis.

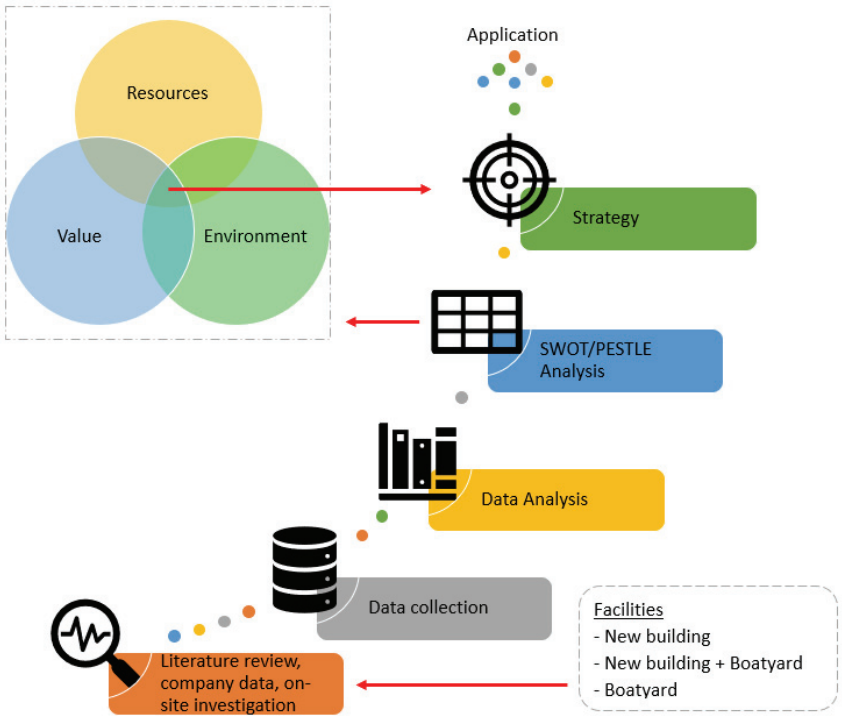

Figure 1. Analysis and evaluation process for Bodrum yacht building industry

In this study, the activities of enterprises in yacht building, repair & maintenance, and boatyard operations are investigated and numerical data of the yachts produced by the largest companies are analyzed considering the last decade. The facilities operating in the yacht building and repair & maintenance fields are divided into three main groups. These groups are categorized as the new building, boatyard, and new building + boatyard facilities. The yacht building facilities refer to 15 m and above buildings located in the Bodrum region. The yachts, canoes, or similar recreational watercraft under 15 m are not included in this group. The facilities in the boatyard group, on the other hand, are considered as facilities that do not build yachts and only provide wintering, landing, and repair & maintenance services. This group includes the boatyard areas of the marinas located in Bodrum. The facilities in the new building + boatyard group include both the new building and, wintering, landing, and repair & maintenance activities. The numerical data obtained from literature, sector reports, and on-site investigations, are statistically analyzed and evaluated within SWOT/PESTLE analysis based on the global and Turkish yacht building industry. During SWOT/PESTLE analysis, the E-V-R (Environment-Value-Resources) congruence model (Thompson, 1999) provided a framework to determine the needs and measures used for strategic assessments for the Bodrum yacht building industry. In this model, environment refers to the external factors affecting the success of the industry,

ISSN: 1300-1973, e-ISSN: 2651-530X, Dergi ana sayfası: http://www.gmoshipmar.org/
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which are detailed in opportunities and threats. Resources within strength and weakness define the factors that are expected to fulfil the environmental needs and, value shows the leadership and culture of the enterprise on the effectiveness and control ability of environment and resources matching (Thompson, 1999). Subsequently, the fitting of these three concepts provides an effective strategic positioning and successful actions to reach the targets. The analysis and evaluation process steps are given in Figure 2.

4. Yacht Building Industry in Macro and Micro Scales

The data collected within the scope of the research are evaluated by narrowing down to micro scales that include yacht building parameters of Turkey and Bodrum region, starting from the macro scale, which includes the parameters on the global scale.

4.1. Turkish Yacht Building Industry

The data published in Global Order Book 2021 (Boat International, 2020) shows that the total length of the yachts built by the world yacht building sectors increases dramatically until 2009, decreases between 2009 and 2013, then continues with an upward trend between 2013 and 2019 (See Figure 3). Italy, Germany, The Netherlands, Turkey, and Norway are listed as the top yacht builder countries by volume, and the distribution of the yachts between the length of 24 and 37 m increases from 57.9% to 61.1% from 2021 to 2022 (Montigneaux & Robinson, 2021).

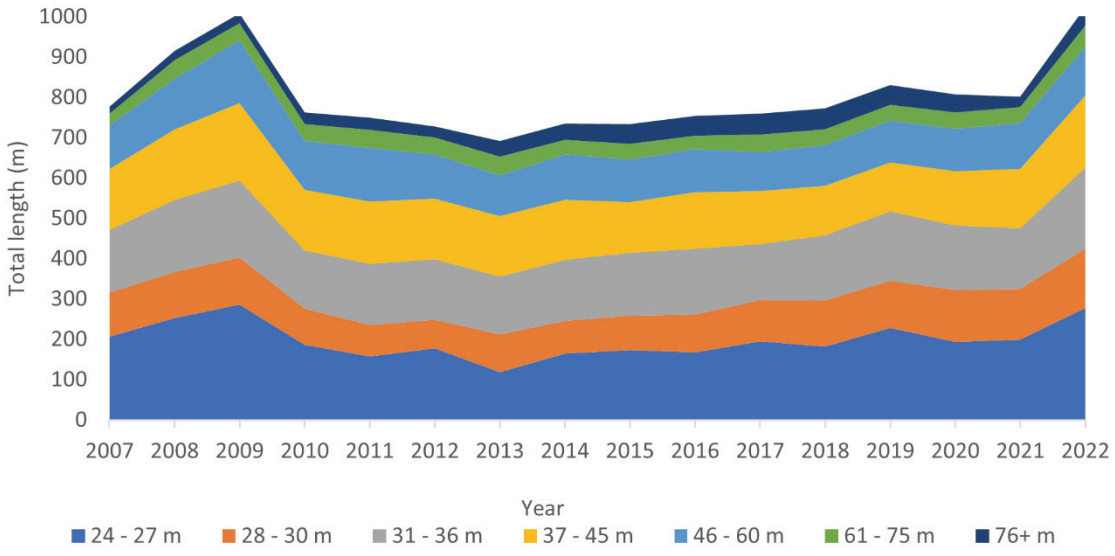

Figure 2. The change in the total length of yachts manufactured by the world yacht manufacturing sector by years (Boat International, 2020; Montigneaux & Robinson, 2021)

The number of yacht projects in Turkey for 2021 is recorded as 76 (Boat International, 2020), and 91 for 2022 (Montigneaux & Robinson, 2021). The collected data show that the yacht building industry is in an upward trend not only on the global scale but also in Turkey. According to the same reports, Turkey is in the fourth rank by total gross tonnage and the second rank by the number of yacht projects among the top five countries as shown in Figure 4 (Boat International, 2020; Montigneaux & Robinson, 2021).

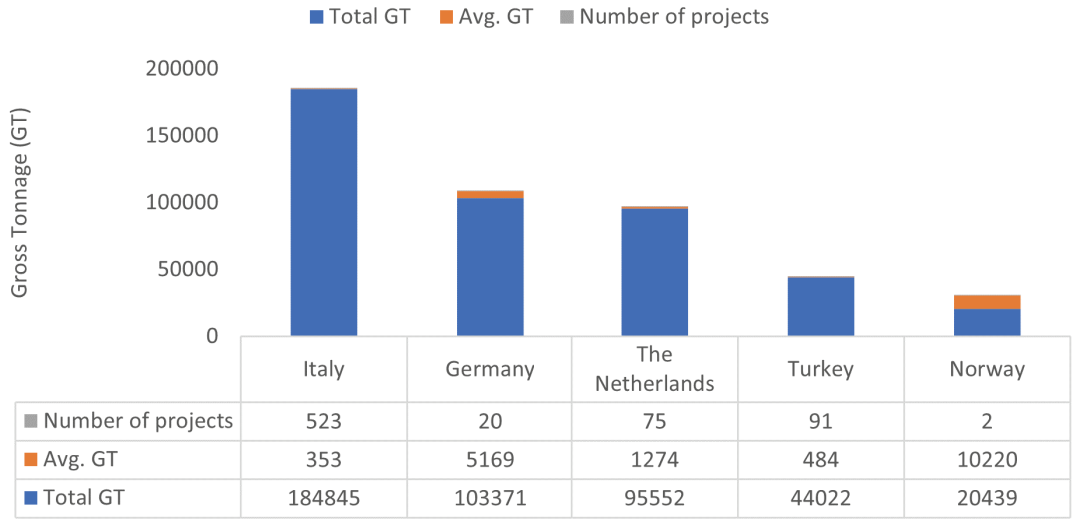

Figure 3. Yacht building project data of top five countries for 2022 (Montigneaux & Robinson, 2021)

4.2. Bodrum Yacht Building Industry

Collected data shows that new buildings and boatyard facilities in Bodrum are mainly located in the İçmeler Region, maintaining its attractiveness despite the decline in the last 10 years. It is also seen that with the closure of the facilities in Yalıkavak, Ortakent, Kızılağaç, and Gumbet, new building and boatyard has shrunk considerably in these regions. The number of yacht building and boatyard facilities, which was 58 in total in 2011, decreased to 35 in 2021. Table 1 shows the distribution facilities in Bodrum from 2011 to 2021.

Table 1. Distribution of facilities in Bodrum from 2011 to 2021

Region	New Building Facility			Boatyard Facility			New Building + Boatyard Facility		
	2011	2016	2021	2011	2016	2021	2011	2016	2021
İçmeler	35	24	18	4	4	4	6	5	4
Yalıkavak	0	0	0	1	1	1	3	2	2
Kızılağaç	3	2	2	0	0	0	0	0	0
Yalıçiftlik	0	0	0	0	0	0	1	1	1
Ortakent	1	1	1	1	0	0	0	0	0
Gümbet	0	0	0	1	0	0	0	0	0
Bodrum (marina)	0	0	0	1	1	1	0	0	0
Turgutreis	0	0	0	1	1	1	0	0	0
TOTAL	39	27	21	9	7	7	10	8	7

Table 1 shows that especially the number of the new building facilities decreases from 2011 to 2021 in Bodrum. On the other hand, even though the numbers of the boatyard facilities and the new building + boatyard facilities decrease from 2011 to 2016, there is no significant difference in the numbers in the last five years period. The overall number of the facilities decreased by 40% compared to 2011. The collected data shows that only 5 of the 14 facilities that provide yacht repair&maintenance services in Bodrum for 2021 use travel lifts while the others use slipways. Among the travel lifts used in Bodrum, the maximum capacity is recorded as 450 tons, and this lift can lift a yacht of approximately 48 m.

ISSN: 1300-1973, e-ISSN: 2651-530X, Dergi ana sayfası: http://www.gmoshipmar.org/
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Even the number of facilities decreases in the last ten years, production data in yacht building shows that there is no remarkable change in the number of delivered yachts. In Table 2, the numbers of the delivered yachts, as well as the total and average length from 2011 to 2021, are shown. The share of the Bodrum yacht building industry in terms of project numbers is within the range of 5-10% compared to the total number of yacht projects built in Turkey.

Table 2. Number of the delivered yachts in Bodrum from 2011 to 2021

Year	Sailing yacht			Motoryacht			Overall		
	Number	Total length	Avg. length	Number	Total length	Avg. length	Number	Total length	Avg. length
2011	5	204.00	40.80	1	19.00	19.00	6	223.00	37.17
2012	2	68.40	34.20	3	81.70	27.23	5	150.10	30.02
2013	3	86.66	28.89	1	15.00	15.00	4	101.66	25.42
2014	3	96.90	32.30	0	0.00	0.00	3	96.90	32.30
2015	5	152.90	30.58	3	76.90	25.63	8	229.80	28.73
2016	2	45.00	22.50	2	35.40	17.70	4	80.40	20.10
2017	4	114.50	28.63	0	0.00	0.00	4	114.50	28.63
2018	6	159.40	26.57	0	0.00	0.00	6	159.40	26.57
2019	3	84.90	28.30	0	0.00	0.00	3	84.90	28.30
2020	5	129.83	25.97	1	15.00	15.00	6	144.83	24.14
2021	5	138.31	27.66	0	0	0.00	5	138.31	27.66

The data shows that sailing yacht types constitute the majority among the delivered yachts in Bodrum between the years 2011 and 2021. The average length of the delivered sailing yachts is calculated as 29.67 and it varies between 22.50 and 40.80. According to reports, Turkey is listed in the third rank by having a 10.5% share of the global total length yacht production in 2021 (Boat International, 2020), whereas Bodrum produces 4% of the total length of Turkish yacht building. However, considering global sailing yacht production data for 2021 (Boat International, 2020), Bodrum has a share of about 6.8% in total for the yachts with an overall length of 24 m and above. The decrease that occurred until 2016 is related to the sectoral and economic problems experienced, and the decrease between the years 2020 and 2021 is attributed to the impact of the COVID-19 pandemic.

5. SWOT/PESTLE Analysis Results

The strengths are evaluated within the resource of historical and cultural background, location advantages, and weaknesses are analyzed under data inventory and building costs. Opportunities and threats are determined considering the external factors related to local and global developments. S, W, O, T factors are determined considering the sectoral reports, literature studies, obtained numerical data and observations. Then, considering the internal and external factors PESTLE analysis is conducted for categorical assessments.

5.1. Strengths

5.1.1. Historical and cultural background-know how

The fact that boat building in Bodrum dates back thousands of years has brought specialization and experience to the region, especially in wooden boats. Although the boat building in Bodrum stopped with the end of the Ottoman Shipyard's activities in the 1850s, it continued with the tirhandil type boat

produced in 1933, and today it has become a large industry (Binder, 2019). In addition to wooden yacht building, yachts made of steel, aluminium, and composite materials are also built in the facilities located in Bodrum (Turan & Akman, 2021b). Prestigious yachts built with alternative production techniques and construction materials show that experience and knowledge of the yacht building industry in Bodrum is at a level that can compete with rival regions.

5.1.2. Location (logistics, transportation: airport)

Transportation and logistics that include highway, airway, and seaway transportation alternatives are among the guiding criterion evaluated in the selection of a yacht building facility (Hazneci, 2009). Muğla province has Dalaman Airport and Bodrum-Milas Airport, each of which has served over 3.5 million passengers annually, according to 2017 and 2018 data (Muğla Büyükşehir Belediyesi Ulaşım Dairesi Başkanlığı Ulaşım Planlama Şube Müdürlüğü, 2018), which triggers yacht management and charter fields. In addition, Bodrum is connected to the surrounding towns and cities by common highway connections.

5.1.3. Blue Voyage and other marine tourism alternatives

There are many types of research underlining the interaction between Blue Voyage and yacht building industries in Bodrum (Kükner, 2007, 2009; Turan, 2021). The increasing demand for Blue Voyage is directly related to the demand in the yacht building industry which has a worldwide reputation today (Turan & Özcan, 2018). Besides, yacht tourism has its 10how10ics and is an individual-based field. Therefore, yachting is one of the least affected industries by external factors. COVID 19 pandemic is a current example of which the yacht building industry has increased its capacity. Previous studies 10how that COVID 19 affected cruise tourism and this global pandemic situation creates uncertainty in this marine tourism sector (Depellegrin et al., 2020; Milošević, 2020; Renaud, 2020; Tatenhove, 2021; Urbanyi-Popiolek, 2020). On the other hand, the global Covid-19 crisis causes customers to shift to marine tourism alternatives. The pandemic situation promotes travelling by sea more individually such as yachting tourism (Milošević, 2020). By providing a safe and isolated holiday option, Blue Voyage is among the least affected sectors by the COVID-19 situation and it is seen as a safe marine vacation type (Arlı, 2020). Blue Voyage is generally conducted by Bodrum Gulets and tırhandils therefore the number of new buildings along with repair and maintenance activities are expected to increase. In other words, the significant relationship between the yacht building and the Blue Voyage industries minimizes the negative impact of the COVID-19 on the yacht building industry. In this perspective, Blue Voyage is among the strengths of the Bodrum yacht building industry.

5.1.4. Specific yacht types: Bodrum Gulets and, tirhandils

Yacht types specific to Bodrum are the primary factors contributing to yacht building in the region. Gulets, manufactured and exported in Bodrum in the 1960s and 1970s, played a role in the recognition of the yacht building industry in Turkey by Europe (Ünlüsü, 2004). Gulet building in Bodrum started at the end of the 1950s with the construction of two separate gulets (Binder, 2019).

5.1.5. Government incentives for shipyard establishment and yacht building

The existing and to be established shipyard facilities along with the new shipbuilding projects are supported by the incentives given by the Turkish Ministry of Industry and Technology. The government

ISSN: 1300-1973, e-ISSN: 2651-530X, Dergi ana sayfası: http://www.gmoshipmar.org/
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incentives aim to alleviate the financial burden on the shipyards and increase employment. According to the report (Sungur, 2021), about 12% of the total incentives were distributed to various shipyards including yacht building facilities.

5.2. Weakness

5.2.1. Publicity and advertisement

Bodrum has a worldwide reputation for its tourism alternatives. However, specific yacht types need to be promoted especially in the global market. Recognition in the global market is one of the essential elements for the permanence of the yacht building in Bodrum.

5.2.2. Lack of collected data about the economical and production parameters

It has been observed that up-to-date and detailed economic data on yacht building and related sectors such as maintenance, repair, management, and operation in the Muğla region are quite limited (Turan & Akman, 2021b). Apart from merchant ships built in Turkey, yacht building data based on technical parameters such as length, tonnage, certification, construction material, techniques, etc. are missing.

5.2.3. High dependence on import raw materials, equipment, and machinery

According to the collected data, imported raw materials, equipment, and machines constitute a major part of the manufacturing process of the yacht building in Bodrum (Turan & Akman, 2021b). When the budget tables of three different wooden sailing yachts constructed in Bodrum between 2016 and 2020 with length overall of 20 m, 26 m and 43 m are analyzed, it is seen that imported products constitute 60 to 63 % of the total budgets. Sail & rigging equipment, engines and auxiliary system components, paint, varnish, entertainment tools, navigation system electronics and deck equipment are the equipment that contain mostly imported elements. On the other hand, the importation of raw materials used in the manufacture of non-imported products indirectly increases the dependency on imported materials of yacht building in Turkey. This circumstance increases the probability of being affected by external conditions that may cause delays or fluctuations in prices. Moreover, due to the high dependency on the imported materials in yacht building, yachts are generally priced in foreign currencies and seen as luxury-segment products by domestic customers.

5.2.4. Lack of segmentation and targeting strategies

It is observed that facilities in Bodrum have been producing various types of yachts with different construction materials and techniques. Even this ability represents a high level of flexibility, it precludes the yacht manufacturers in Bodrum to specialize in a specific type of yacht as well as the construction material and the techniques. Segmentation and targeting strategies on the other hand enable the enterprises to focus on a particular group of customers.

5.2.5. Lack of technological development in the manufacturing processes

During yacht building, particularly for wooden yachts, traditional cutting, assembling and outfitting processes are still conducted, which decreases the technological competition power of the shipyard facilities. Therefore, the reworks in the building processes are inevitable causing longer delivery time

and relatively poor quality. Moreover, most shipyards do not have an integrated enterprise resource planning (ERP) system to be used for each production and management process. As a result, a culture of continuous improvement could not be established in the shipyards.

5.2.6. Required amendments in regulations

Boats under 12 meters in length overall are not subject to class or certification rules. The length limit subject to the rules should be lowered below 12 meters and the boat building should be standardized to increase quality. Moreover, the boats that do not comply with any rules should not be allowed to be built.

5.3. Opportunities

5.3.1. Increasing demand for yachts with the length between 24-37 m

As analyzed in the previous sections, the reports (Boat International, 2020; Montigneaux & Robinson, 2021) show that demand for semi-custom yachts inclines in the global market. Moreover, demand for yachts with a length overall between 24 m and 37 m is in the upward trend for 2022 according to Global Order Book 2022 (Montigneaux & Robinson, 2021). The overall length of delivered sailing yachts in Bodrum between 2011 and 2021 varies from 22.50 m to 40.80 m which fits the global demand.

5.3.2. New yacht building facilities (Ören)

The boatyard and manufacturing centre, which is under construction in the Ören Region, is an opportunity for the Bodrum yacht building industry, due to its close location to Bodrum. The project has an area of 238,000 square meters consists of 31 hangars (Bodrum Ören Deniz Hizmetleri Sanayi Turizm ve Ticaret A.Ş., 2019) and is planned to be completed by 2023 (Turan & Akman, 2021b).

5.3.3. Initiatives in yacht-building education and training

In Bodrum, four vocational high schools and two university programs related to maritime and yacht building. Moreover, the demand for these schools where it is aimed to fulfil the demand for qualified employees in the sector is increasing. In addition, a project supported by the Ministry of Industry and Technology is being conducted by Muğla Sıtkı Koçman University named “Blue Generation” (GEKA, 2021). In this project, it is aimed to establish an applied, simulator, and computer-aided education and training centre for the individuals with the workforce potential needed for the yacht building and yacht tourism sectors.

5.3.4. University-industry collaboration

Unsan and Soylemez (Ünsan & Söylemez, 2004) underline the importance of the university-shipbuilding industry collaboration and refer to the universities as the core of the shipbuilding industry in Turkey. Especially in full custom and semi-custom yacht projects, computer-based design and optimization with research & development studies contribute to the added value of the industry. In addition, material testing and certification are required for enhanced design and production. The university-industry collaboration is needed to gain a competitive advantage against rivals in the yacht building market.

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5.3.5. Compliance with the class rules and maritime regulations

The shipyards can produce numerous types of yachts with various building materials. Even though wood is the primary building material, steel, composite and aluminium boats can be built in Bodrum shipyards. The design and manufacturing facilities have extensive know-how for building luxury yachts complying with the class rules, European norms and maritime regulations, which increases the international competitiveness of the shipyards.

5.4. Threats

5.4.1. Economical parameters-fragile economy

Materials, machinery, rigging, and other outfitting equipment are imported and the cost of them constitutes more than 60% of the total cost of a sailing yacht built in Bodrum. The dependency on foreign currency increases the vulnerability of the sector to fluctuations in exchange rates.

5.4.2. Lack of energy supply

Energy supply is listed among the essential criterion that affects the location selection process of a yacht building facility (Hazneci, 2009). Yacht building has intense energy consumption which also promotes the carbon footprint of the sector. Purkis (Purkis, 2018) states that the negative effects of thermal power plants in terms of the environment also affect the yacht building in Muğla. Moreover, Bodrum is one of the centres that receive intensive immigration and energy consumption increases due to the dramatic increase in population, especially in the summer seasons.

5.4.3. Unplanned and disorganized shipyard facilities

The settlement of shipyards in Bodrum is unplanned and disorganized causing various problems. Based on the unsuitable landforms of Bodrum, the shipyards are scattered in the İçmeler region and most of the shipyards are far away from the shoreline and don't have the capabilities of ship launching or berthing. Therefore, the layout of shipyards decreases the overall production efficiency.

5.5. PESTLE Analysis

The political, economic, social, technological, legal and environmental factors are determined under the defined internal and external factors and tabulated as given in Table 3. The positive factors refer to strengths and opportunities; the negative factors refer to weaknesses and threats, under the internal and external factors, respectively. According to the clustered factors, economic subjects seem the primary topic for the Bodrum yacht building industry. The economic weaknesses and threats are related to the data inventory, marketing, construction material and outfitting equipment, which can be improved by sectoral investments. On the other hand, the geographic location of Bodrum increases the positive factors that the government and private incentives can trigger improvements in the sector. Table 3 shows that even though the number of negative factors is high, Bodrum has a remarkable potential to be a centre of yacht building.

6. Conclusion

The numerical data related to yacht building facilities are analyzed, and internal and external factors affecting the yacht building industry are determined for strategic decision making. According to the analyses, the following conclusions and suggestions for the future strategy are drawn for the Bodrum yacht building industry:

Table 3. SWOT/PESTLE analysis

Analysis → / PESTLE ↓	SWOT	
	Internal Factors	**External Factors**
Political	• Government incentives for shipyard establishment and yacht building (S/+)	• Lack of energy supply (T/-)
Economic	• Location: Transportation and logistics (S/+) • Publicity and advertisement (S/+) • Lack of data on economical and production parameters (W/-) • Lack of segmentation and targeting strategies (W/-) • High dependence on import raw materials, equipment, and machinery (W/-)	• Increasing demand for yachts with the length between 24-37 m (O/+) • New yacht building facilities (Ören) (O/+) • Economical parameters-fragile economy (T/-)
Social	• Historical and cultural background (S/+)	• Initiatives in yacht-building education and training (O/+)
Technological	• Specific yacht types: Bodrum Gulets and Tırhandils (S/+) • Lack of technological development in the manufacturing processes (W/-)	• University-industry collaboration (O/+)
Legal	• Required amendments in regulations (W/-)	• Compliance with the class rules and maritime regulations (O/+)
Environmental	• Blue Voyage and other tourism alternatives (S/+)	• Unplanned and disorganized shipyard facilities (T/-)

• Boatbuilding in Bodrum has strong social and environmental bases where unique and high-value-added yachts are built. Therefore, the number of influential national and international promotion and advertising activities should be increased. Increasing the number of the international boat-show trade fairs in the region, and seasonal or annual organizations are potential steps to be followed for increasing the awareness of the yacht building industry in Bodrum.

• The current know-how, which is promoted by the historical background in yacht building is remarkable and should be supported with advanced design and engineering optimization studies. Therefore, university-industry relationships should be strengthened under social and technological integration. Increasing the number of R&D projects for improving the building processes to improve quality with efficiency is suggested in this content.

• Political decisions should be supported by technological tools. A detailed and electronic inventory system is needed to evaluate the current situation and foresee the national position in the global area.

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Moreover, a master plan for the yacht building, repair, and maintenance industry in Bodrum should be prepared. Targets should be integrated with this master plan to promote the yacht builders as well as the repair & maintenance facilities in the Bodrum region.

• Instead of focusing on a target group of customers, yacht builders tend to produce various yacht types. Segmentation of the domestic and the global market in yacht building is needed. Particularly, domestic demand should be increased by segmentation and targeting.

• To eliminate negativities in the economic factors that arise from dependency on the imported materials, machinery, and equipment domestic production should be supported to increase the number of domestic suppliers in the yacht building industry.

• Related to the new yacht building, repair & maintenance facilities in the Bodrum and Ören regions which will start to operate within 2 years, it is foreseen that energy supply capacities should be increased. Moreover, due to environmental issues, the renewable energy source used should be promoted in the region. Moreover, for the more efficient use of the energy sources and to eliminate the energy losses, the infrastructure of the existing yacht building facilities should be improved. Decreasing the waste in the used raw materials is another target issue in this content. The Government, university and industry collaboration is needed for such improvements.

• It is necessary to increase the education about yacht building and yacht design fields, which is the sub-field of shipbuilding, and to support domestic yacht designs in the industry.

Bodrum is in a good position in the global yacht building market, especially in sailing yacht building. When the situation between 2011-2021 is analyzed from the framework of the E-V-R model, it is seen that the region has many strengths and resources in the yacht building, repair&maintenance industry, as well as many advantages that will allow it to rise to higher ranks in the domestic and global yacht building markets. The findings show that even though the number of facilities in yacht building decreased significantly in the last ten years, the number of the new projects is on the trend an increase over the last two years. In this context, it is predicted that the number of new productions and the increase in total length will continue for 2022 and beyond. SWOT/PESTLE Analysis show that improvements in the yacht building industry in Bodrum depend on the government-industry and university-industry collaborations. For future strategies, actions should be planned to increase these collaborations.

7. References

Arlı, E. (2020). Effects of Covid-19 Process in Marine Business : An Evaluation on Marine Tourism Enterprises. The Eurasia Proceedings of Educational & Social Sciences (EPESS), 119–123.

Arslan, O., & Turan, O. (2009). Analytical investigation of marine casualties at the Strait of Istanbul with SWOT-AHP method. Maritime Policy and Management, 36(2), 131–145 https://doi.org/10.1080/03088830902868081.

Ayaz, H. (2015). Bodrum ve Turizm Sevdam. Destek Yayınları.

Binder, T. (2019). Bodrum Denizciliği ve Tekne Yapımcılığında Giritli Göçmenlerin Rolü. In Ege Araştırmaları I-Batı Anadolu'da Giritliler (pp. 217–250). Ege University Publishing.

Boat International. (2020). 2021 Global Order Book. Boat International. https://www.boatinternational.com/yacht-market-intelligence/luxury-yachts-on-order/2021-global-order-book.

Bodrum Belediyesi. (2020). Osmanlı Tersanesi. Bodrum Belediyesi. https://bodrum.bel.tr/page.php?id=25/osmanli_tersanesi.

Bodrum Ören Deniz Hizmetleri Sanayi Turizm ve Ticaret A.Ş. (2019). Bodrum Ören Deniz Hizmetleri Sanayi Turizm ve Ticaret A.Ş. Bodrum Ören Deniz Hizmetleri Sanayi Turizm ve Ticaret A.Ş. http://www.bodrumorenyatimalat.com/

Büyükkeçeci, E., & Turan, B. I. (2018). Türkiye'de Tekne Tasarımında Tasarımcının Rolünün Araştırılması: Gulet ve Motor Yat Karşılaştırması. UTAK 2018- 3. Ulusal Tasarım Araştırmaları Konferansı: Tasarım ve Umut Bildiri Kitabı, 159–171.

Depellegrin, D., Bastianini, M., Fadini, A., & Menegon, S. (2020). The effects of COVID-19 induced lockdown measures on maritime settings of a coastal region. Science of the Total Environment, 740 https://doi.org/10.1016/j.scitotenv.2020.140123.

Dyson, R. G. (2004). Strategic development and SWOT analysis at the University of Warwick. European Journal of Operational Research, 152(3), 631–640, https://doi.org/10.1016/S0377-2217(03)00062-6.

GEKA, (2018), Muğla İli Yatirim Destek ve Tanitim Stratejisi.

GEKA. (2021). Sosyal Gelişmeyi Destekleme Programı. GEKA. https://geka.gov.tr/tr/basvurusu-devam-eden-destekler/destek/2021-yili-sogep.

Gür, M. C. (2020). Kürekten Yelkene Kaybolan Miras. Koç Üniversitesi.

Gürler, A. (2013). A Comparative Study on the Yacht Building Industry: The Role of Design Strategy and Management in the Development of the Yacht Building Industry in the World and Turkey. Istanbul Technical University.

Hazneci, C. (2009). Türkiye'de Yat ve Küçük Tekne İmalatı Yapacak Yeni Tersane Alanlarının Yatırım Uygunluğu ve Yer Seçimi Açılarından İncelenmesi, Yıldız Teknik Üniversitesi.

İMEAK-DTO. (2021). Denizcilik Sektör Raporu.

Kalyoncu, Y. (2020). Türkiye'de mavi tur pazarının büyüklüğü 300 milyon dolara ulaştı. Anadolu Ajansı, https://www.aa.com.tr/tr/ekonomi/turkiyede-mavi-tur-pazarinin-buyuklugu-300-milyon-dolara-ulasti/2016676.

Köyağasıoğlu, Y. (2014). Denizin Kanatlı Perileri Yelkenliler, Naviga Publishings.

Kükner, A. (2007). Türk Guleti. Gemi ve Deniz Teknolojisi, 174, 7–8.

Kükner, A. (2009). Türk Tipi Yelkenli Tekne Gulet. Gemi ve Deniz Teknolojisi, 181, 5–12.

Merendino, A. (2014). Mega Yacht, Italian Leadership and Financial Crisis. Empirical Evidence on How Italian Leading Companies in Mega Yacht Sector Overcome the Crisis. European Scientific Journal, 10(28), 9–35.

Milošević, D. (2020). The impact of COVID 19 on maritime tourism: challenges and recommendations for Montenegro. Student International Scientific Conference.

Montigneaux, R., & Robinson, N. (2021). Global order book: Over 1,000 superyacht projects on order in 2022. Boat International. https://www.boatinternational.com/yacht-market-intelligence/luxury-yachts-on-order/how-many-superyachts-on-order-for-2022.

Muğla Büyükşehir Belediyesi Ulaşım Dairesi Başkanlığı Ulaşım Planlama Şube Müdürlüğü. (2018). Muğla Ulaşım Ana Planı. https://www.mugla.bel.tr/uploads/komisyonraportr/Ek-6 MUAP RAPOR 4.pdf.

NMBL Strategies. (2021). Four Alternatives to a SWOT Analysis. NMBL Strategies. https://www.nmblstrategies.com/blog/four-alternatives-to-a-swot-analysis.

Phadermrod, B., Crowder, R. M., & Wills, G. B. (2019). Importance-Performance Analysis based SWOT analysis. International Journal of Information Management, 44, 194–203. https://doi.org/10.1016/j.ijinfomgt.2016.03.009.

Purkis, S. (2018). Muğla'nın Kaliteli Bir Yaşam Ekseninde Gelişme Olanaklarının Kömürle Enerji Üretimi Çerçevesinde Değerlendirilmesi. Eğitim Bilim Toplum Dergisi, 16(62), 10–27.

Renaud, L. (2020). Reconsidering global mobility–distancing from mass cruise tourism in the aftermath of COVID-19. Tourism Geographies, 22(3), 679–689. https://doi.org/10.1080/14616688.2020.1762116

Srdjevic, Z., Bajcetic, R., & Srdjevic, B. (2012). Identifying the Criteria Set for Multicriteria Decision Making Based on SWOT/PESTLE Analysis: A Case Study of Reconstructing A Water Intake Structure. Water Resource Management, 26, 3379–3393.

Sungur, E. (2021). Tersanelere 2 milyar 300 milyon lira teşvik. Denizcilik Dergisi.

Tatenhove, J. P. M. van. (2021). COVID-19 and European maritime futures : different pathways to deal with the pandemic. Maritme Studies.

Thompson, J. L. (1999). A strategic perspective of entrepreneurship. International Journal of Entrepreneurial Behaviour & Research, 5(6), 279–296. https://doi.org/10.1108/13552559910306105

Turan, B. I. (2021). Konfor ve Lüks Unsurlarının Bodrum Guletleri Üzerindeki Etkilerinin Araştırılması. Dokuz Eylül Üniversitesi Denizcilik Fakültesi Dergisi, 13(1), 37–55. https://doi.org/10.18613/deudfd.942940.

Turan, B. I., & Akman, M. (2021a). Modeling and Comparison of Bodrum Gulets' Hull Forms with Round and Transom Sterns. Journal of ETA Maritime Science, 9(2), 120–129. https://doi.org/10.4274/jems.2021.09327.

Turan, B. I., & Akman, M. (2021b). Muğla'da Yat İmalatı Sektörü. In O. Bahar & M. Avcı (Eds.), Muğla Kent Ekonomisi (1st ed., pp. 126–149). Detay Yayıncılık.

Turan, B. I., & Özcan, A. C. (2018). Akdeniz'e Özgü Bir Kültür ve Tasarım Etkinliği: Mavi Yolculuk ve Bodrum Guleti. 1. Uluslararası Akdeniz Sempozyumu, 180–200.

Ünlüsü, C. (2004). Türkiye'de Mega Yat Yapımı. Gemi Mühendisliği ve Sanayimiz Sempozyumu, 16–19.

Ünsan, Y., & Söylemez, M. (2004). Dünya Rekabet Ortamında Gemi İnşa Sektörünün En Önemli Dostu: Üniversite. Gemi Mühendisliği ve Sanayimiz Sempozyumu, 52–63.

Urbanyi-Popiolek, I. (2020). Maritime Tourism in the Time of COVID-19 Pandemic in the Baltic Sea Region – Challenges for Ferry and Cruise Operators. 63rd International Scientific Conference on Economic and Social Development – "Building Resilient Society," 397–405.

Yang, Y. (2010). SWOT-TOPSIS integration method for strategic decision. Proceedings of the International Conference on E-Business and E-Government, ICEE 2010, 1575–1578. https://doi.org/10.1109/ICEE.2010.399.

Yüksek, G. (2013). Türkiye'de Yat ve Marina İşletmeciliği: İstihdam Değerlendirmesi için Mevcut Durum Analizi. Beykoz Akademi Dergisi, 1(1), 59–84.

Zaltsman, J. (2021). Forget Hot Baths. Turkey Is Now the World's Third-Largest Builder of Superyachts. Robb Report. https://robbreport.com/motors/marine/turkey-worlds-third-largest-builder-superyachts-1234638862/.