Transport and Accessibility

Greece scale

ENI CBCMED Cooperating across borders in the Mediterranean

Project funded by the EUROPEAN UNION

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

Co-Evolve4BG

Analysis of Threats and Enabling Factors for Sustainable Tourism at Pilot Scale

Transports and accessibility

Greece Scale

REGION OF
EASTERN MACEDONIA & THRACE

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

CPMR
CRPM

OVERVIEW

The present document was produced in the framework of **Co-Evolve4BG** project "*Co-evolution of coastal human activities & Med natural systems for sustainable tourism & Blue Growth in the Mediterranean*" in relation to Threats and Enabling Factors for maritime and coastal tourism development on a national scale" Co-funded by ENI CBC Med Programme (Grant Agreement A_B.4.4_0075).

This document constitutes the **Deliverable 3.1.4.47** (Transports and accessibility – Greece Scale) of the **Activity 3.1.4** (Threats and Enabling Factors at National scale: Overview) under the **Output 3.1** (Integrated analysis of Threats and Enabling Factors for sustainable tourism at MED scale) of the project.

REVIEW

Contributors

Savvas CHRYSOULIDIS, PhD
Environmental Geography, Greece
Giorgos GKIOUZEPAS, PhD
Greece
Ioanna PAPAIOANNOU, MSc
Greece

Reviewers

Dimitris KOKKINOS, PhD
REMTH, Greece
Maria HAMITIDOU, PhD
REMTH - Directorate of Technical Projects, Greece
Emna GARGOURI-ELLOUZE, PhD
National School of Engineers of Tunis, Tunisia
Artemis TSOLAKI, MSc
Head of Department for Life Long Learning, Employment, Trade and Tourism
Eirini ARGYROPOULOU, MSc
REMTH - Civil Engineer, Greece

Supervisors

Béchir BEJAOUI, PhD
National Institute of Marine Sciences and Technologies, Tunisia
Paraskevi CHOURIDOU, MSc
REMTH - Head of Department of Development Planning, Greece
Spyridon ARSENIOU, PhD
Head of Dep. for Regional Policy Planning, at Region of East Macedonia and Thrace

LAYOUT

Khouloud ATHIMEN, Engineer, Technical Coordinator
National Institute of Marine Sciences and Technologies, Tunisia
Houaida BOUALI, Engineer
National Institute of Marine Sciences and Technologies, Tunisia
Mohamed Ali BRIKI, Engineer
Coastal Protection and Planning Agency, Tunisia

Index

List of figures

List of tables

Abstract

This deliverable aims to integrate research, identify, and record Greece's various challenges to transports and accessibility concerning the tourism industry linked to the morphological stability of Greece coastal areas. It is based on a review of existing data at the national, regional, and international levels. The deliverable is structured to first present the mechanical relationship between tourism and transport, identify the interaction between tourism and air transport, and explain the dynamic of cruise and yachting tourism in Greece compared to the Mediterranean basin statistics.

I. Introduction

Transportation is a vital driver of the tourism industry: it is a prerequisite for travel, as it promotes travel and the flow of tourists from their original domicile to the desired destination and vice versa. Under this aspect believes that it has a symbiotic relationship with tourism: one cannot get out of the other, and the two are interdependent.

Notwithstanding many important books being written on tourism since the 1970s, seldom ever address in a more profound level of knowledge this symbiotic relationship or the dependencies between tourism and transportation. For instance, several early studies on tourism (*e.g.*, Burkart and Medlik, 1981) describe how the tourism industry developed as transportation technology evolved and mass tourism shifted manifesting in domestic and international contexts.

In conceptual terms, these fundamental changes or tipping points have directed significant development in domestic and international travel and are described as adding to tourism time-space concentration. The world has become a further accessible place in tourist travel, where no area of the world is longer than a 24–30-hour flight between the beginning and the destination. Transportation is a vital service component of tourism, and in some cases, it can determine the focus of the tourism experience per se (*e.g.*, cruising, yachting, and train journeys). Many types of transportation have been linked to the growth of tourism and technological progress in transportation, connected with increased personal disposable earnings, leading to the extension of domestic and international tourism.

At the destination level, state policies serve, together with tourist sites, to create and design accessibility in a constant way, according to the chain of movement and accessibility principle.

This deliverable will explore the evolution over the last few decades of new tourist modes resulting from evolving certain forms of transport (cruises, yachting, *etc.*).

II. Mechanical relationship: Tourism and Transport

Recreational and educational travel recorded by the historical years with the earliest sources was Egypt under the pharaohs and the classical world. Later, there is evidence of journeys beginning from a high-living lifestyle and the quest for entertainment, experience, and recreation. The factors affecting the development of tourist travel involve the growth of tourist transport. The reforms in tourist transport across the centuries show how strongly this activity is linked with all modes of human action, including tourist activity.

The writings of the first privileged groups of the population who started the first journeys for entertainment, describe that they visited popular monuments and artifacts of ancient Egyptian civilization, such as the Sphinx and the great pyramids of Gizeh – structures that had been built thousand years beforehand (Jaremen, 2008). Nevertheless, the vastest growth in tourist transport that cover the huge distance in a very short time have been seen in the last two centuries, especially after 1769. That year is considered as the conventional starting point for the Great Industrial Revolution, which changed transportation and formed what we experience today. All the activities linked to tourist transport intend to enhance the quality of services and improve transport modes and speed to reach more destinations quickly and comfortably.

An early form and forerunner of contemporary tourism was the grand tour undertaken by young nobles between the 16th and 18th centuries. This held its own, new structures defined by corporate status: the original goal was to expand one's education, point to the end of youth, and obtain social skills. However, over time, leisure and pleasure became more vital. This trend was two sides of the same coin, creating the differentiated paradigm of travel "as an art." At the same time, the need for entertainment and fun designated an element of traveling as an end (Opaschowski, 1996). The "early," "pre-," or "developmental" phase of contemporary tourism is commonly thought to have lasted from the 18th century to the first third of the 19th century. Throughout this stage, tourist travel continued, limited to a minority of prosperous nobles, and educated professionals. For those people, traveling was an emotional expression of their higher social class, demonstrating authority, status, money, and freedom. Two features stand out: the first was the search for more joy replaced the educational viewpoints; secondly, rich members of the middle social classes attempted to follow the traveling behavior of the nobles and the higher middle social classes (Ueli, 2008).

The improvement in tourist transport was affiliated with the improvement of its resources, infrastructure, and organization coping to the ever-changing requirements that had resulted in association with shifting favorites in tourist services. Furthermore, the contribution of transport to tourism is not only restricted to its contributory role of transportation. Transportation services are an essential part of each tourist program, and the formulation of proper transportation facilities defines the evolution of tourist traffic (Ciesielski and Jordan, 1977). During the 19th century, the general use of the steam engine made travel by rail and steamships popular. The invention of the gasoline engine and the development of traffic roads occurred in expanding motorized tourism.

Furthermore, 20th-century innovations are driven fundamentally by the growth of air transport, and the 21st century is promising for the expansion to space tourism as the next step of the touristic industry. The limits are boundless with the evolution of technology and humans' desire to explore the unknown. The close relationship between transport and tourism is in the pattern of feedback and mutual interdependence. The advancement of transportation is a condition without which the development of tourism will not succeed, and advancements and improvements in tourism affect the improvement and growth of transportation (Gierczak, 2011).

The need for transport services incites most transportation proposals, which can be seen in the progress of the number and quality of means of transport. The choice of mode of transport is defined not only by the need to travel to the desired destination but also by the level of quality and the attractiveness of the services offered by this means of transport. Table 1 presents a variety of means of transport that a contemporary tourist can use in general as a modern capability. In the Mediterranean Sea and, some of which are also available in Greece.

Table 1. The forms of individual and collective tourism transportation (Gierczak, 2011)

Air transport	Land transport	Water transport (inland, sea and ocean)
• The balloon • The paragli-der • The airplane • The spaces-hip • Other means of transport	• The bus, the coach • The train • The tram • The car • The bicycle • The underground • The rotel • The ski • The moped • The snow scooter • The sledges • The Quad • The Horse-drawn carriages • The Chinese rickshaw • The campers • Animals: the horse, the camel, the elephant, the donkey • Cable transport: aerial lifts and surface cable transportation • Other means of transport	• The ferry • The yacht • The passenger ship • The jet ski • The hovercraft • The kayak • The motor boat • The water bicycle • The water tram • Other means of transport

The progress of civilization is somewhat dependent on the evolution of technological ideas. Modern resolutions in tourism are an outstanding and indisputable example of such changes. They can be seen in the level and quality of transport infrastructure and the growing number of tourists worldwide, who often regard a transport form as the foremost attraction of their journey. Modern transportation in innovation and numerous scientific studies is meant to decrease travel time and give the greatest quality and security of transport services.

Technical, economic, and organizational factors form capabilities of each transport form, including the rail as a means of mass transit, the car as a means of a private carrier, the bus, and the airplane as a means of group mover. Transport is hence a technical tool to meet both the people's individual and collective transportation requirements. Transport has become the largest cultural phenomenon of modern society, the greatest civilization complex of the socio-economic-political life of every developed country. There is no branch of business, production or service field, or cultural sphere in which transportation doesn't play a crucial role. It is considered one of the most vital factors of the tourist sector that directly influences tourism development as a phenomenon and industry.

III. Tourism and air transport

According to the statistics provided by the International Air Transport Association (IATA), in 2014, airlines transported 3.3 billion people across a network of almost 50,000 routes generating 58 million jobs and US$ 2.4 trillion in business. The earliest commercial (with payment) passenger flight took place in Florida on New Year's Day 1914 as a person was transported beyond Tampa Bay (IATA, 2018). There has been a figure of international aviation milestones considering that flight, as represented in Figure 1.

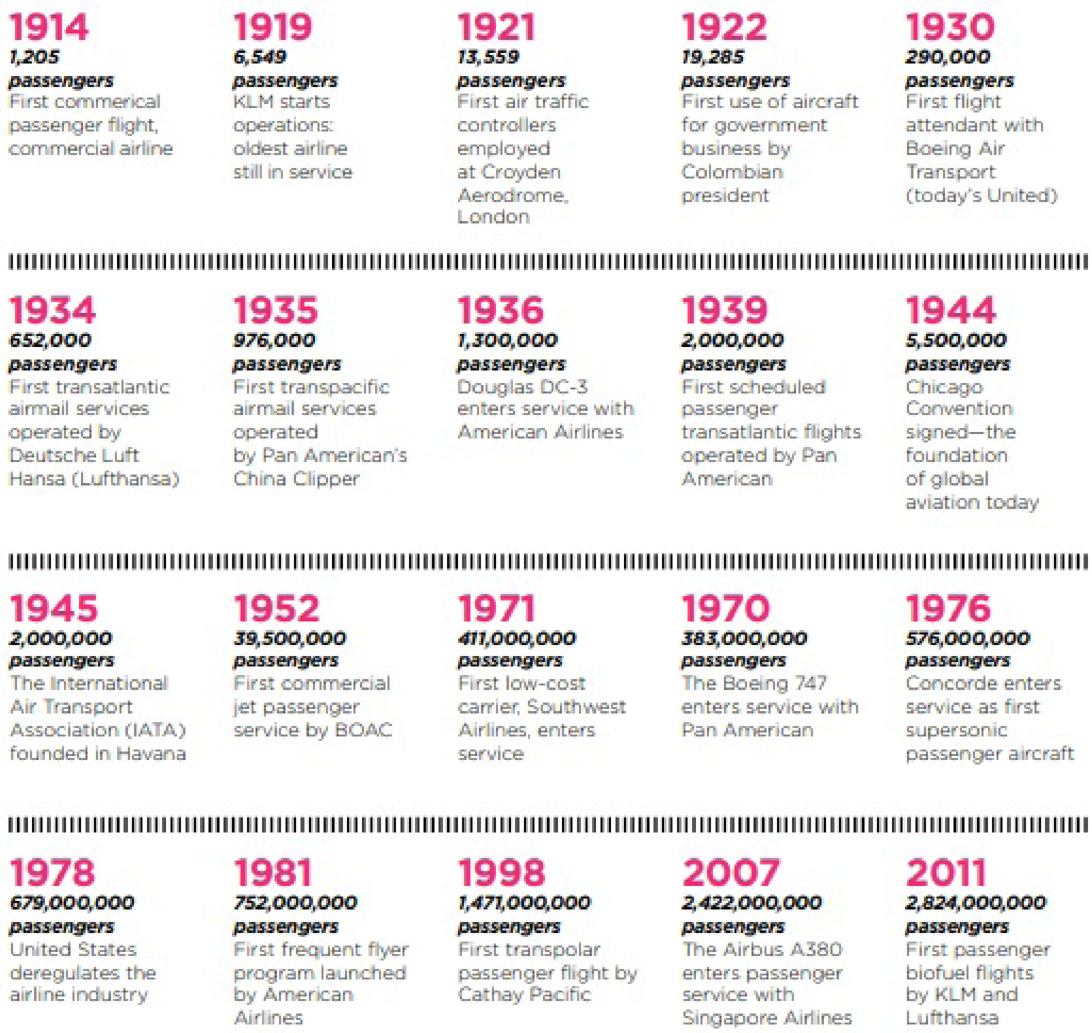

Figure 1. Hundred years of aviation: Key milestones and passenger numbers (IATA, 2018).

III.1. The importance of air transport in the development of the Greek tourism

In Greece, 41,000 persons work in domestic airline companies, airport operators, airport restaurants and retail, aircraft manufacturers, and air navigation service providers. In addition, by purchasing commodities and services from local suppliers, the sector maintained an extra 19,000 jobs (IATA, 2018). Moreover, the industry is evaluated to support an additional 8,000 jobs. International tourists who visit Greece by air, by spend their money in the local economy, are expected to invest another 388,000 jobs. In total, 457,000 jobs are sustained by air transport and tourists arriving by air (IATA, 2018).

The air transport industry, including airlines and its supply chain, is evaluated to support US $3.4 billion of GDP in Greece. In addition, spending by international tourists holds a further US $16.4 billion of the country's GDP, totaling US $ 19.7 billion. Thus, 10.2 percent of the country's GDP is maintained by figures for air transport and international tourists coming by air (Fig. 2).

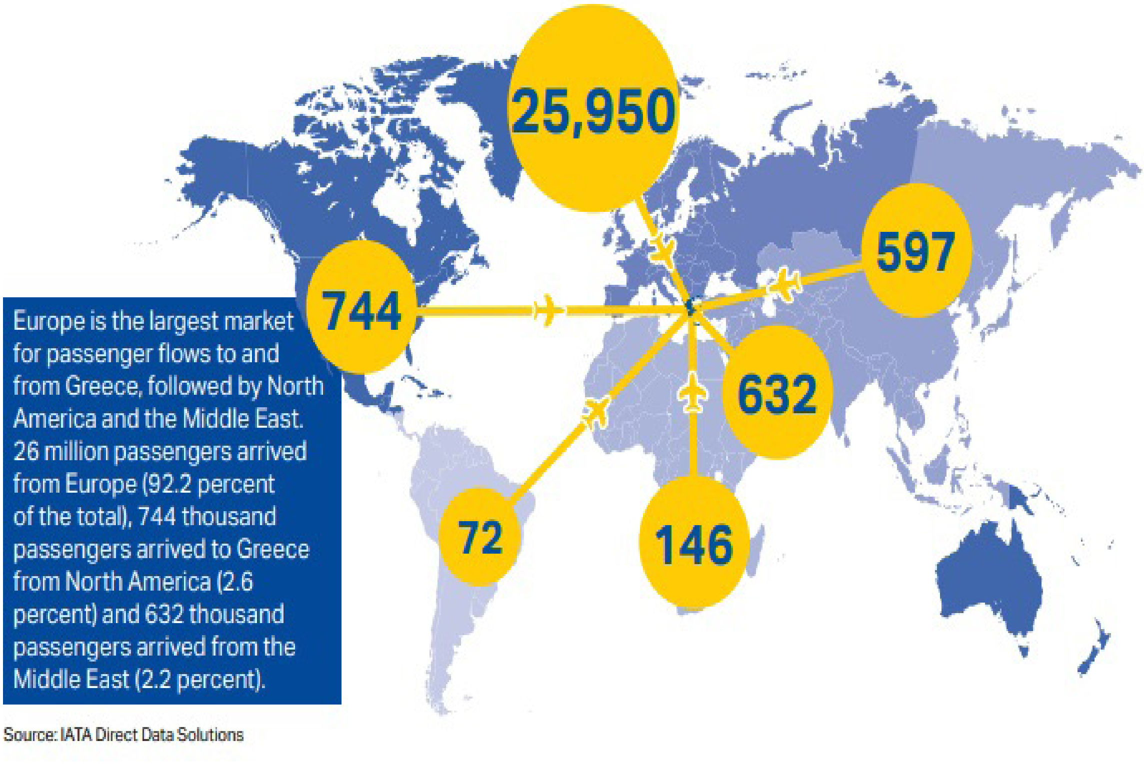

Figure 2. Annual passenger flows by region (origin-destination, 2000) (IATA Direct Data Solutions)

Air transport produces advantages to visitors/consumers and the broader economy by granting rapid connections between cities. These virtual bridges in the air allow the economic flows of goods, investments, people, and ideas that are the principal drivers of economic development (Table 2 & 3). The Air transport market in Greece is projected under the "current trends" scenario to increase by 33% in the following 20 years. This would follow in an additional 8.5 million passenger flights by 2037. This heightened interest would support around US $ 26.3 billion of GDP and nearly 446,000 extra jobs if reached.

Table 2. Domestic and international air traffic: 2007-2016 (Civil Aviation Service)

Year	Aircraft traffic	Passengers (thousands)		Freight and mail (tons)	
		Embarked	Disembarked	Loaded	Unloaded
2007	455,199	20,785	20,530	61,418	82,476
2008	440,914	20,491	20,346	62,751	84,452
2009	457,706	19,899	19,746	58,211	71,189
2010	428,859	19,220	19,083	52,078	64,696
2011	410,226	19,508	19,323	47,062	55,032
2012	382,781	18,398	18,260	42,451	47,116
2013	375,362	19,284	19,173	42,605	45,337
2014	415,250	22,350	22,242	43,383	46,271
2015	444,249	24,468	24,344	47,090	45,526
2016	469,553	26,546	26,447	51.274	49,748

Table 3. Passengers in Greek Airports in 2018 (Hellenic Civil Aviation Authority (CAA) and from the official websites of the airports)

Rank	Airport	Total Passengers	Annual Change
1	Athens	24,135,736	▲11.0%
2	Heraklion	8,098,465	▲10.4%
3	Thessaloniki	6,689,193	▲7.1%
4	Rhodes	5,567,748	▲5.0%
5	Corfu	3,364,115	▲15.1%
6	Chania	3,008,687	▼1.1%
7	Kos	2,666,307	▲14.9%
8	Santorini	2,254,926	▲16.8%
9	Zakynthos	1,800,457	▲8.5%
10	Mykonos	1,395,787	▲15.6%
11	Cephalonia	761,647	▲21%
12	Aktion/ Preveza	583,666	▲2.6%
13	Mytilene	465,057	▲6.6%
14	Samos	462,749	▲12.8%
15	Skiathos	437,916	▲3.3%
16	Kavala	406,949	▲20.4%
17	Kalamata	278,961	▲0.9%
18	Karpathos	253,987	▲10.4%
19	Chios	231,340	▲5.7%
20	Alexandroupolis	210,383	▲24.6%
21	Paros	204,924	▲25.3%
22	Araxos/Patras	180,129	▲17.9%
23	Ioannina	109,830	▲14.9%
24	Lemnos	94,227	▲8.7%
25	Naxos	86,210	▲52.2%
26	Milos	77,501	▲66.4%
27	Sitia	61,877	▲93.3%
28	Ikaria	44,203	▲6.4%
29	Nea Anchialos/ Volos	41,357	▲35.3%
30	Kithira	37,031	▲18.3%
31	Leros	24,048	▼12.8%
32	Skyros	18,103	▼15.0%
33	Syros	18,047	▲3.8%
34	Astypalaia	14,029	▲15.2%
35	Kalymnos	10,234	▼14.5%
36	Kastellorizo	5,485	▼0.2%
37	Kozani	4,310	▲13.0%
38	Kastoria	4,279	▼15.9%
39	Kasos	2,840	▼7.0%
TOTAL		**▲63,728,596**	**▲10.1%**

III.2. Organizational factors (inclusive tours and charters) for the democratization of tourism

As the formation of service provision changed, so did the type of holiday take by workers. Until 1946, *i.e.*, the time between the world wars, much international travel was for the privileged, prosperous, and elite clubs in society. From 1950 onwards, a compound of circumstances, such as growth in leisure time availability, rise in paid holidays, growth of package tours, and development in air transport, are all linked to provide a much broader possible holiday-taking market. This market was diverse in terms of socio-economic groups from the pre-1950 era. The 1950s was the era when international travel for holiday reasons was democratized. The dynamic nature of interest is one of the factors which shaped the formation of the tourism industry. This phenomenon of democratization is seldom reported as "the development of mass tourism." Nevertheless, the amount of tourism varies considerably among countries, and to use "mass" in a separate rather than a relevant sense can be very misleading.

The democratization process has been recognized to be approximately associated with factors such as socio-economic structures, historical, political, and various other crucial factors. In any case, studies of democracy point out that several different conditions may influence democracy in each country. These may well be cross-nationally variable.

The dynamic nature of holidays was displayed in the social groups taking holidays and in the distances which people were prepared to travel to holiday destinations. One of the significant requirement shifts was the improved availability of leisure for a broader group in society. In addition, growing real incomes, paid holidays, and a growing ability to demand foreign holidays or unification of these, were significant and enduring factors stimulating international tourism demand.

The term "charter" found in the Latin word *chartulary*, denoting a contractor to hire means of transportation. In the tourism industry, charter tours signify package trips consisting of pre-arranged services, including transport, accommodation, and often meals and choices for supporting activities. For example, there are 11 Charter airlines in Greece, which provide a special transportation package (Table 4). By giving package tours at competing prices, ensuring visitor security, and decreasing the individual's need to plan his own holiday, charter offices offer an increasing number of destinations for the average tourist.

Charter agencies usually rent planes from several airlines on a temporary basis and use buses, trains, or boats for transportation. Charter tourism has been especially popular in Scandinavian counties. Since the 1960s, charter tourism has become an influential factor in the development of international touristic markets. Nevertheless, the earliest planned charter journeys took place in England in the 1840s. Those rail trips were designed by Thomas Cook and soon became a success. In June 1841, Thomas Cook arranged a historic journey: as part of a tempting event, he had booked a special Midland Railways train to transport 570 people from Leicester to Loughborough, plus the competition of an orchestra, a musical parade, tea, sandwiches, and public entertainment, all for the all-inclusive cost of one shilling per passenger. Apart from the title, this was the first Inclusive tour. It had all the features: the organizer, the grouping of travelers, the program including transport, food and entertainment, the scope of the leisure time, and the low all-inclusive price. Therefore, he realized that this could be profitable on a larger scale, which constantly drove to new international destinations being introduced. In the 1950s, organized charter flights started to depart from Scandinavia and England. Spain remains the most desirable and famous destination for charter tourism (Andrew, 2011). Other countries such as Greece, Thailand, Turkey, and Tunisia have also experienced growing popularity in various periods.

A long-term menace to charter tourism is shifting visitor identity and behavior among tourists, showing a more individualized consumption of goods and services. It has been claimed that many tourists are now investigating more individualized or customized forms of the holiday rather than traveling with budget airlines and booking their accommodation (Jacobsen, 2000; Lauring, 2013). Charter tourism has also received a critical character of being "sun and sand tourism" on "playa del anywhere," indicating a shallowness of holiday interest of this type of tourist.

Notwithstanding historical crises in charter tourism and the fact that travel has diversified among different regions, its overall influence on today's tourism has been substantial (Lauring, 2011).

Table 4. Greece's Charter airlines (Hellenic Civil Aviation Authority)

Airline	Commenced operations
Air Mediterranean	2017
Amjet Executive	2009
Aviator Airways	1992
Epsilon Aviation	2008
GainJet Aviation	2006
Hellenic Seaplanes	N/A[1]
K2 SmartJets	2007
Lumiwings	2018
Swiftair Hellas	2005
Olympus Airways	2014
Orange2Fly	N/A

III.3. The liberalization of European skies and competition from low-cost airlines

Throughout the years 1992-1997, liberalization of air transportation in Europe relaxed pre-existing restrictions on where airlines could fly and at what prices. Then, in the late 1990s, a vast growth in air travel happened in Europe to implement the “third package” of liberalization rules and the development and growth of low-cost carriers (LCCs).

In the discussions before liberalization, there were anxieties that new airlines would focus on major trunk routes and that competition would generate grounds to cut costs that could affect safety. Neither of these concerns became a reality. Rather, LCCs opened new ways and shaped air travel markets that had earlier not existed. For example, using smaller, secondary airports, air travel through LCCs became more regional than previously. Nevertheless, a third concern – those national carriers would not fare well in a higher market-based environment – developed at least somewhat real, although not for the purposes originally conceived. Pre-liberalization fears of decreased service and job cuts by national carriers were based on the notion that regional services considered costly would become broken and that rates would increase. The fact that has emerged is that the national carriers were ultimately driven to cut costs and, in many cases, workers, due to competitive pressures from low-cost carriers.

The timing of liberalization in Europe also corresponded with the emergence of the internet as a means of user trade. This allowed LCCs to access an expanding market with a general business model, originated from Southwest Airlines in the USA, which was made more robust by technology that connected LCCs directly with their customers. LCCs could keep the internet interface simply because of the point-to-point distribution of their route structure and one-way pricing policies. The short duration of several flights within Europe and the availability of various small secondary airports made it possible for LCCs to join a streamlined ‘no frills’ or ‘low frills’ service over sets of city-pairs with an extremely lower value structure than the traditional flag carriers. In general, LCCs could give a price-service quality compound that users found very attractive for short-haul flights. LCCs could offer safe, on-time services at significantly lower fares than full-service officials.

Then, as the 20th century ended, the airline industry confronts a series of significant challenges beginning with the macroeconomic downturn caused by the bursting of the technologies stock-market bubble in 1999, followed by added macro downturn in 2001 and the results of the 9-11 terrorist strikes. These were soon followed by SARS, the war in Iraq, and jet fuel prices. Nevertheless, LCCs with lower cost structures and flexibility to adapt quickly were better positioned to face and gain from these negative shocks, largely at the expense of traditional full-service carriers (Mason *et al.* 2013).

The liberalization in European air transport established the base for the evolution of the LCC business model. Data on entry and exit from the LCC sector for 1995- 2011 designates that the real jump in growth started in 2002, extending until 2006. The number of exits also increased significantly in 2003. Thus, while liberalization was a fundamental condition for developing LCCs in Europe (Table 5), the models of entry and exit are not exactly associated with key events in the liberalization process.

Table 5. Entry into the European LCC sector by country of origin (1995-2011) (Mason *et al.* 2013)

Airline country of origin	No. airlines entering European LCC sector	Airline country of origin	No. airlines entering European LCC sector
Albania	4	Ireland	4
Austria	3	Italy	13
Belgium	2	Lithuania	1
Bosnia Herzegovina	1	Netherlands	3
Bulgaria	2	Norway	2
Croatia	1	Poland	3
Czech_Republic	3	Portugal	1
Denmark	3	Romania	1
France	6	Slovakia	1
Germany	12	Spain	2
Gibraltar	1	Sweden	10
Greece	2	Switzerland	3
Hungary	2	Turkey	3
Iceland	1	UK	19

III.4. Transport and tourism in the islands

The connection between tourism development and accessibility is more important, especially for island destinations, whose connectivity to the mainland depends completely on the sea and air passenger transport services.

Travel, and hence transportation, is an indispensable element of tourism. All definitions of tourism include some travel character because all descriptions of tourists comprise the fact that individuals travel to another location from the one, they live in. While travel, and hence transportation, are necessary to various levels to all tourists, it is also of vast importance to the destination regions themselves (Butler, 1996). The related accessibility or inaccessibility of a destination is commonly a significant factor in deciding not only the number of tourists who are expected to visit the destination, but also the kinds of tourists, the duration of their visit, their behavior (Butler, 1996), and as a consequence of these factors, their influence on the destination. Island destinations are, by definition, stretches of land surrounded by water, and so can only be reached by boat or airplane.

Their accessibility to both residents and visitors is typically more restricted than mainland destinations, making them more exposed to shifts in transportation (Papatheodorou, 2001). Such differences may happen by progress in transportation technology and physical infrastructure (including fixed links such as bridges, causeways, and tunnels), state or administrative developments, and changes in economic conditions. These can occur individually or in sequence and tend to have effective results on island tourism. Inter-island transportation in an archipelago is much more questionable than transportation between islands and the mainland because many such archipelago islands – especially smaller ones – encounter difficulties of "multiple insularities" for transportation of people, goods, and other economic activities essential for the quality of life on the island and the performance of its economy (Spilanis *et al.* 2012). These smaller islands are nearly constantly highly dependent on larger nearby islands, which perform as local service centers.

Historically, geographically, politically, and economically, islands are extremely crucial for Greece. Their characteristic geographical features (many islands of various sizes, many at significant distances from the Greek mainland and distributed in space) and the great but irregular tourism development characterized the Aegean islands (Fig. 3), where tourists and residents can only travel by ferry and plane. Overall, the transportation demands of more than 200 inhabited islands are today served by a network of 24 airports and 90 seaports. Request for transport services is highly seasonal, with the summer-time peak period, fueled principally by leisure tourism, being significantly higher than that for the rest of the year.

Between 2015 and 2019, the rise in coastal passenger traffic was more flourished than GDP growth. The increase in coastal passenger traffic since 2013 mainly came from the growth of inbound tourism (Fig. 4).

Nowadays, island regions are increasingly confronted with new challenges in the tourism sector linked to transportation means. In Greece, for many islands, the tourism sector represents the primary important industry and collectively constructs one of the essential pillars of the national economy. In addition, for these specific areas, the qualities of air and sea accessibility are factors, not only these, of course, but essential for the development of tourism (Mondou and Pébarthe-Désiré, 2013).

Figure 3. Aegean archipelago complexes and islands of Greece, which is: Eastern Aegean Islands, Cyclades, East Cyclades, Western Cyclades, Small Cyclades, Dodecanese, and Saronic Islands (Hatziioannidou and Polydoropoulou, 2017)

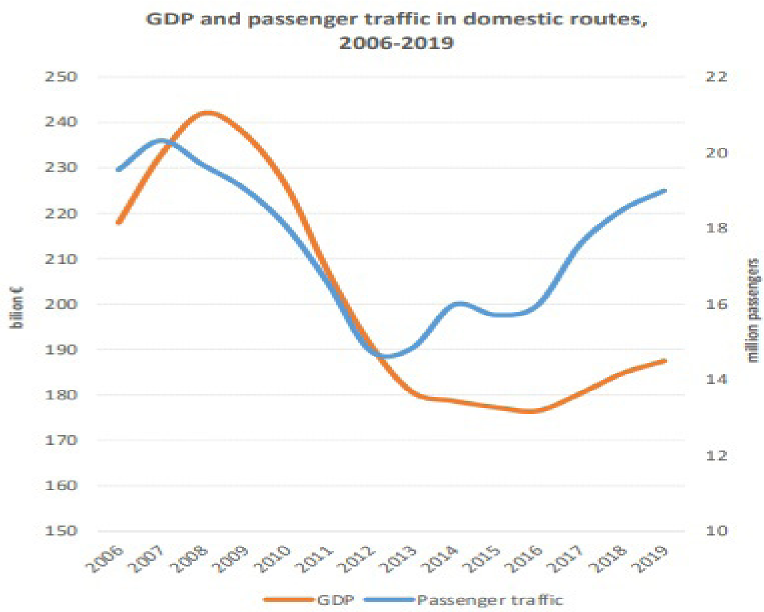

Figure 4. Greece GDP and passenger traffic in domestic routes, 2006-2019 (https://www.statistics.gr/)

IV. Cruise and yachting tourism: Greece's place in the Mediterranean Sea

Greece's coastal area extends in the Aegean Sea, the Ionian Sea, Libyan Sea, and the Levantine Sea. The Greek coastal zone (within a range of 10 km from the coast) covers 49 442 km^2 (13.3% of the analogous EUs coastal area) and is the second largest in the EU. This morphological formation proceeds in the appearance of a great coastline of 15,0211 km representing 11% of the total EU-22 coastline. Greece is distinguished by the great quality of insularity, formed of an expected number of more than 6,000 islands.

Top 15 cruise ports in the Mediterranean Sea in 2017

2017 Rank	2016 Rank	2010 Rank	Port	2017 (.000 pax)	Growth 2016/2017	Growth 2010/2017
1	1	1	Barcelona (SP)	2.712	1,1%	13,3%
2	2	2	Civitavecchia (IT)	2.204	-6,1%	11,8%
3	3	4	Balearic Islands (SP)	2.111	7,3%	26,7%
4	5	13	Marseille (FR)	1.487	-7,4%	52,9%
5	4	3	Venice (IT)	1.428	-12,5%	-13,3%
6	7	5	Piraeus (GR)	1.056	-3,7%	-8,5%
7	10	12	Tenerife Ports (SP)	964	8,3%	23,3%
8	6	6	Naples (IT)	927	-40,8%	-22,8%
9	8	9	Genoa (IT)	925	-10,0%	7,0%
10	9	11	Savona (IT)	854	-6,5%	8,6%
11	14	-	Valletta (IT)	779	-6,8%	36,6%
12	11	7	Dubrovnik (HR)	749	-7,9%	-25,0%
13	12	10	Livorno (IT)	699	-7,2%	-17,7%
14	15	14	French Riviera Ports (FR)	693	1,5%	3,0%
15	13	-	Corfu (GR)	680	17,2%	12,2%
			Top-10	**13.815**	**-4,9%**	**12,8%**
			Top-15	**18.271**	**-4,2%**	**10,5%**

PortEconomics

Data as reported by cruise ports — Thanos Pallis, March 2018

Figure 5. The top-15 cruise ports in the Mediterranean Sea (Pallis, 2018)

Table 6. Ranking order of the seven largest marine and maritime activities in Greece.

Rank	Marine and maritime activities	GVA (billion EUR)	Employment (*1000)
1	Coastal tourism	6,8	82,7
2	Deep Sea	6,7	24,3
3	Short-sea shipping	3,6	17,5
4	Fishing for human consumption	0,85	30,1
5	Passenger ferry services	1,69	9,1
6	Cruise tourism	1,6	6,5
7	Yachting and marinas	0,21	8,9

IV.1. Cruise tourism in the Mediterranean and Greece

Cruise tourism is considered a service industry (Fig. 5) with a high level of service status and luxury, which includes all the economy and society characters and has become an industry that greatly adds to the worldwide tourism economy. Funds from this market amount to USD 134 billion yearly, making it one of the fastest growing and most financially assuring tourism industry sectors. Between 2009 and 2019, the number of ocean cruise travelers globally developed from 17.8 million to 30 million passengers. The fast growth of the cruise industry and its impacts on all the services included in its plans, port development, and associated services express a chance to offer the economic improvement of the areas and countries visited and highlight its consequences on sustainable environmental and social development. In this regard, the Cruise Line International Association (CLIA) notes that cruise tourism produced, in 2017, an approximated circulating movement of USD 134 billion in total production of goods and services globally, creating an appreciation of 6.3% as correlated with that in 2016. Based on that data, 1,108,676 jobs were generated with an 8.5% increase over that in 2016, and people employed in these jobs earned USD 45.6 billion in tax, an 11% increase over that in 2016. Nowadays, in 2019, these numbers reached 1 166 000 jobs estimated at USD 50.5 billion in wages and salaries, producing a total global output of USD 154.5 billion. However, the effect of the COVID-19 pandemic, from mid-March through September 2020, generated losses of USD 77 billion in global economic activity and 518,000 jobs, equal to USD 23 billion in wages (Vega-Muñoz *et al.* 2021).

The Mediterranean Sea remains the world's leading tourist region and has lately been enriched by a new and especially dynamic element of the touristic domain: cruises. Of course, the activity is not recent in the Mediterranean Sea since routes were already organized in Greek islands before the early 1960s. Nonetheless, at that time, they did not have the same mode as of today's masses cruises, not the same scale, and they took place on board much smaller ships.

Based on experts in the tourism sector, the benefit and growth of cruise activity in a shipping area depend on several factors: the attractiveness of the port of departure/arrival of the cruise, as well as the region included in the route, the seasonality of the site, hospitality, the presence of infrastructures (ports with passenger terminals) as the purchasing power of the locals living in the area concerned. It must therefore be recognized that the Mediterranean Sea has a priori all the necessary qualities.

In recent years, the cruise ship industry in Greece (Fig. 6) has experienced a period of rapid expansion when the Greek islands are considered one of the most famous destinations in the world. The trends show that the development of the cruise industry in Greece is prominent, based on comparing the statistics of ship visits and passengers in the most famous Greek destinations (Fig. 7). Moreover, the incoming revenue streams originating from cruise ship visits highlight their importance for the development and sustainability of port cities and Greece in general.

It is a common truth that the viability and future success of the cruise industry in Greece will principally depend on the collaborative endeavors that the public and the private sectors will show. Despite the limitations posed by the current economy and COVID-19 crisis, there are many reasons for which there are still great prospects for continued growth by this industry in the foreseeable future.

Greece is a complete tourist destination with an extensive coastline that favors yachting activity. Many private companies are administering competitive yachting services. The vast investments planned in tourist ports and marinas are expected to improve berth capacity and attract international interest considerably. The legislative regime allows permissions for the management of existing marinas.

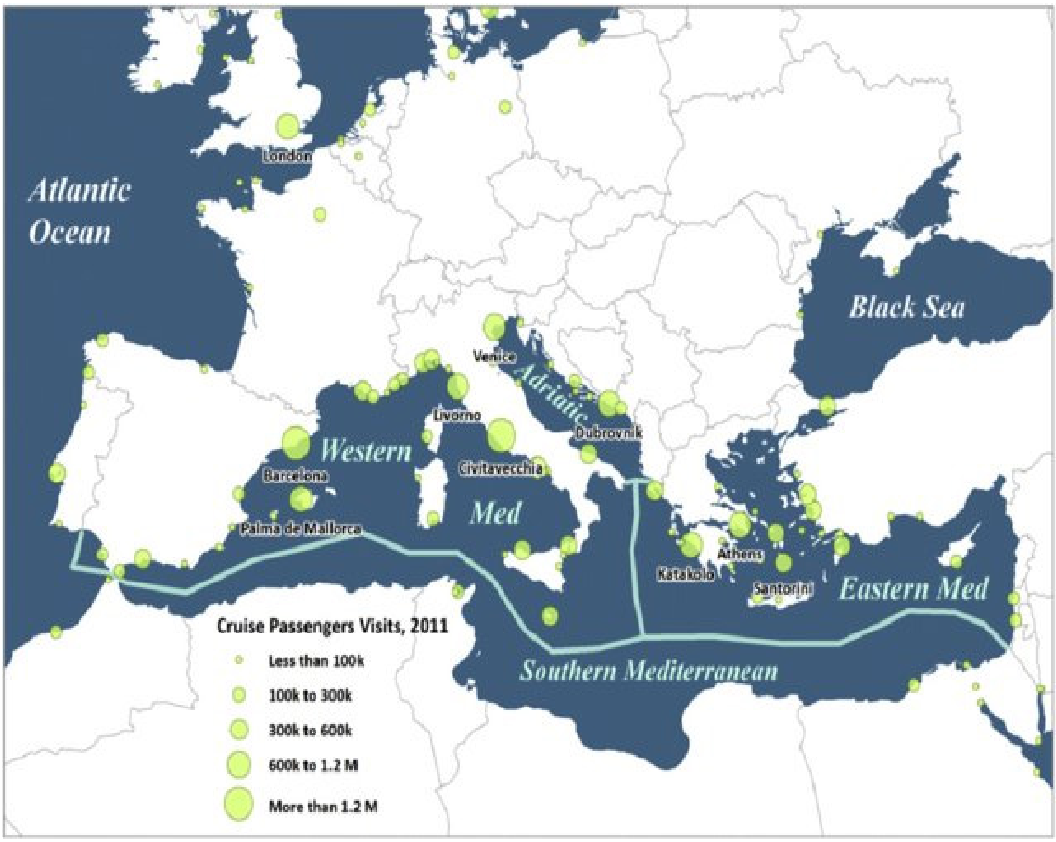

Figure 6. Visits from cruise passengers, Mediterranean, 2011. Data from Cruise Market Watch (https://cruisemarketwatch.com/)

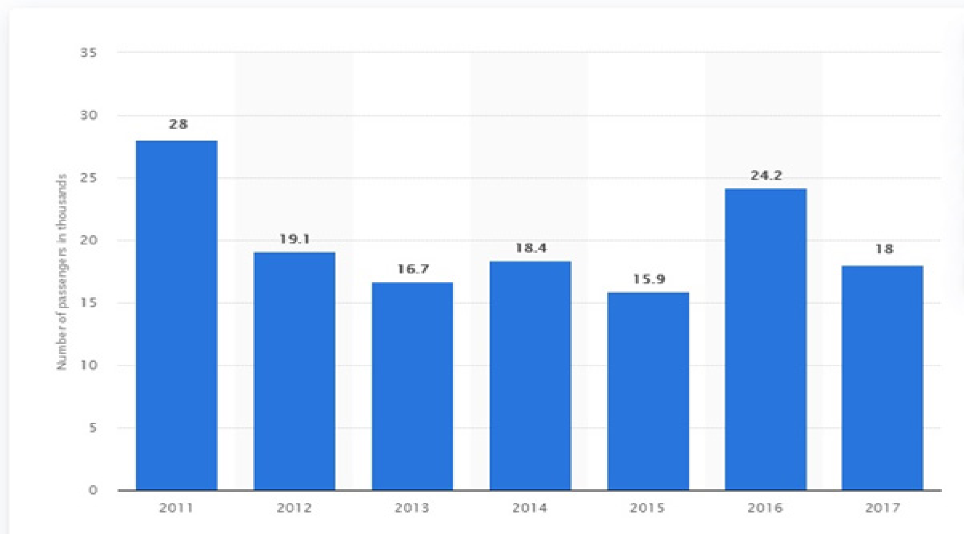

Figure 7. Number of ocean cruise passengers in Greece from 2011 to 2017 (in 1,000s) (https://www.statista.com/)

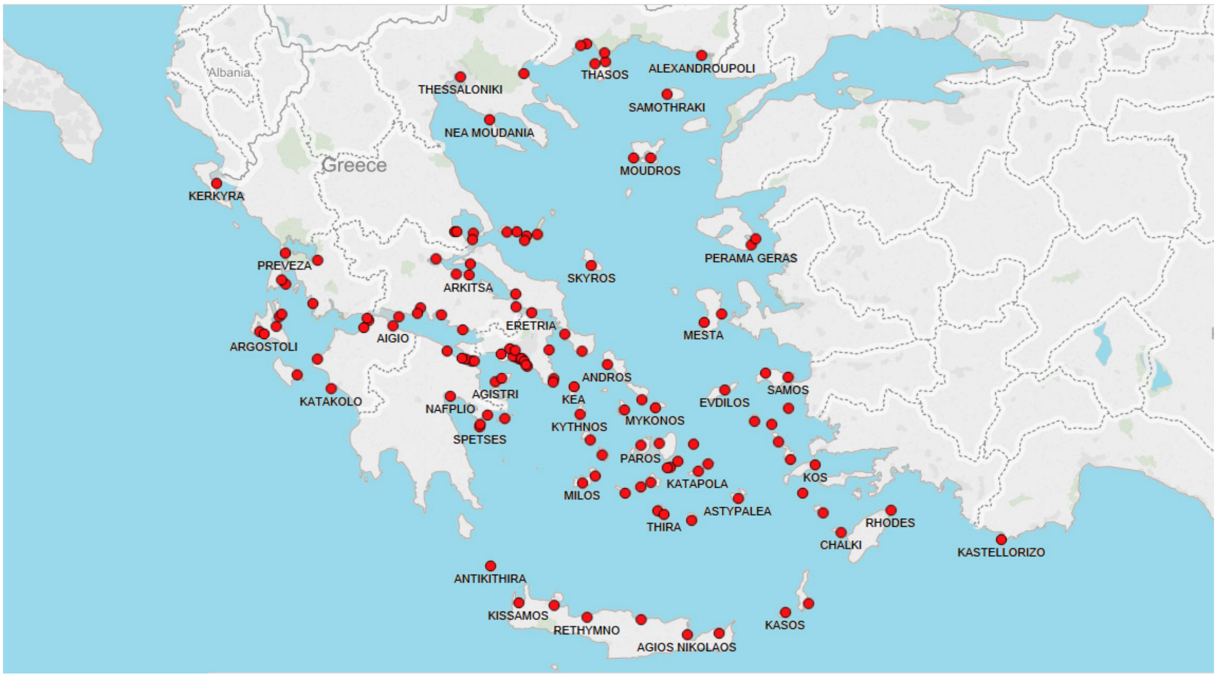

Figure 8. Sea Ports in GREECE (http://www.fleetmon.net/)

IV.2. Yachting in the Mediterranean and the positioning of Greece

Yachting in Greece presents an upward trend and is remarkably popular with both foreigners and residents. Notwithstanding the demand for further growth and advancement, the current network of ports and harbors for tourist's yachts provides visitors the possibility to have a maritime tour and familiarize themselves with the various insular and continental areas of Greece. In Greece, private maritime traveling is presented by human-crewed recreation vessels (motor yachts, *etc.*) or by sailboats, regularly organized without a crew.

The Greeks either own or administer the largest professional fleet worldwide for the supply of yachting services. This enterprise originally emerged in the 1960s and now grants the possibility to choose from new ships of varying types, such as sailing boats, motor yachts, sailing yachts, motor sailors, mega yachts, *etc.* A high portion of tourists obtaining yachting services is Europeans (German, Italian, British, French, Dutch, *etc.*). Americans favor motor yachts over sailing boats. Yacht owners establish two main professional unions. The performance of the enterprise is managed by the Greek Tourist Organization (GTO) (concerning tourist agencies) and the Mercantile Marine Ministry (MMM) (for issues regarding ships and yachts). An important element in the expansion of yachting is harbor infrastructure and the feasibility of supplying services to travelers of boats in tourist marinas. When matching with western Mediterranean countries, Greece comes short, not totally from several mooring points but the quality of the services. Nonetheless, yachting forms an essential source of profit and work for the coastal and island landfalls because it is directed largely to a clientele of a high-income level. At the same time, the need for the product represents a notable improvement worldwide.

Like any tourist activity, yachting does not simply impact a single sector of the economy. Consequently, neither the whole of tourism nor yachting are introduced as individual sectors in the national accounts. Hence, their economic influence on the national economy has not been evaluated, and, up to now, their contribution has not been recognized.

Among the cruising and coastal tourist shipping, yachting ranks just second in Greece regarding size, level of organization, and the time of its introduction in the tourist market. On the other hand, it ranks third concerning the number of maritime travelers. In 2004, about 234,000 tourists acquired yachting services, compared to 815,000 cruising tourists and 4,000,000 coastal tourist shipping passengers. However, in measuring mean tourist spending, yachting ranks first, with average spending of € 1,700 per person, while each cruise passenger pays €1,100 and each coastal tourist shipping passenger just €45. For a proper matching analysis, the spending per day per tourist (PDPT) is needed. As the average duration of a yachting charter is estimated at 7 days, the average share of the cruise spent in Greece is 3.5 days, while the spending of the coastal tourist shipping passenger occurs only the day of the daily sea tour. It seems, accordingly, that on PDPT data, cruise passengers spend €314, yachting tourists €243, and coastal tourist shipping passengers €45. Decomposing PDPT expenses into those that include the package tour and 'all other industries' spending, we conclude that:

- An ordinary cruise passenger spends approximately €204 per day for the cruise charge and other services added in the package tour and €110 for onboard and offshore expenditure.
- A normal yachting tourist spends approximately €125 per day to charter a yacht and other services existing in the package tour and €118 for offshore expenditure.
- A normal coastal tourist shipping passenger spends approximately €19 for a daily sea tour, including all package tour services, and €26 for 'all other trades' consumption.

The sum of ordinary tourist spending and the number of tourists of any maritime tourism 'sector' contains the extent of results on the significant macroeconomic values of the Greek economy, where cruising ranks first, followed by yachting.

Nevertheless, exceptions emerge:

- in the influence on employment, where yachting overwhelms cruising, 51% to 31% (18% for coastal tourist shipping employment), due to the larger number of owners and individuals who are involved particularly in the supply of yachting services.

- in total capital income (59% to 29%) based on the data only the services and repairs of cruise ships which take place in Greek shipyards; and
- in gross capital stock values due to the loss of cruising investment in Greek shipyards on the one hand and to a substantially unattainable evaluation of cruising gross capital stock, according to Greek tax law, most cruise lines are not obliged to register financial reports.

Yachting's supplement to the main values of the Greek economy is relatively small; it is, though, especially influential to the economy of the islands and coastal destinations. For many destinations, it composes one of the main economic activities of their residents. Local revenue and employment generated constitute the most important effects of maritime tourism activities on the local economy (Lowyck and Wanhill, 1992). Yachting provides all significant values of the local economy of the counties that have developed this specific interest in tourism (Diakomihalis *et al.* 2008). According to shipping ministry data, there are currently 6,000 professional yachts active and licensed in Greece; 65 percent of these are sailing boats and 35 percent motorboats.

IV.3. The Greek Coastal Shipping Industry

There is no doubt that the Greek coastal shipping industry has grown significantly throughout the latest years, both in terms of fleet renewal and quality service. In recent years, in Greek Seas, many modern, comfortable, safe, fast, and brand-new ships have been added. These ships contribute to an actual decrease in journey time, consequently providing Greek coastal shipping more competitive position versus other EU countries (*e.g.*, Italy, France, and Spain). Moreover, several big shipping companies have been founded in the market, which are well-organized and having deep expertise in transport; in numerous instances, these companies develop robust business Groups. Between 2004 and 2008, the Greek stock market has significantly added value to the industry, as it has provided a source of fundraising for each significant shipping company. Much of these funds were spent on fleet renewal. The incomplete market deregulation and the abolition of ships' age limit led to the diversification of the existing market conditions for the wider advantage of the industry (ICAP, 2008).

Notwithstanding all improvements, lately, the Greek ferry sector has encountered many problems, threatened future ventures and putted the sector's viability at risk. According to the National Statistical Service of Greece, the Greek coastal ferry boat sector has approached maturity: the traffic figures in passengers, cars, and trucks show indications of only limited increase, especially during the last few years. The average yearly increase rate between 2005 and 2007 is around 3%, 4%, and 3% for passengers, cars, and trucks, respectively (NSSG, 2007).

Passenger traffic, between 2014 and 2016, in coastal shipping, was estimated at around 16 million. Improvement of passenger travel in coastal shipping in 2014 (+7.7% compared to 2013), following the drop between 2008 and 2012. In 2015, passenger traffic somewhat reduced, despite the large number of refugees transported from the islands of North-Eastern Aegean to Piraeus. In 2016, it grew by 1.6% (or 255,000 passengers) compared to 2015 (Fig. 9).

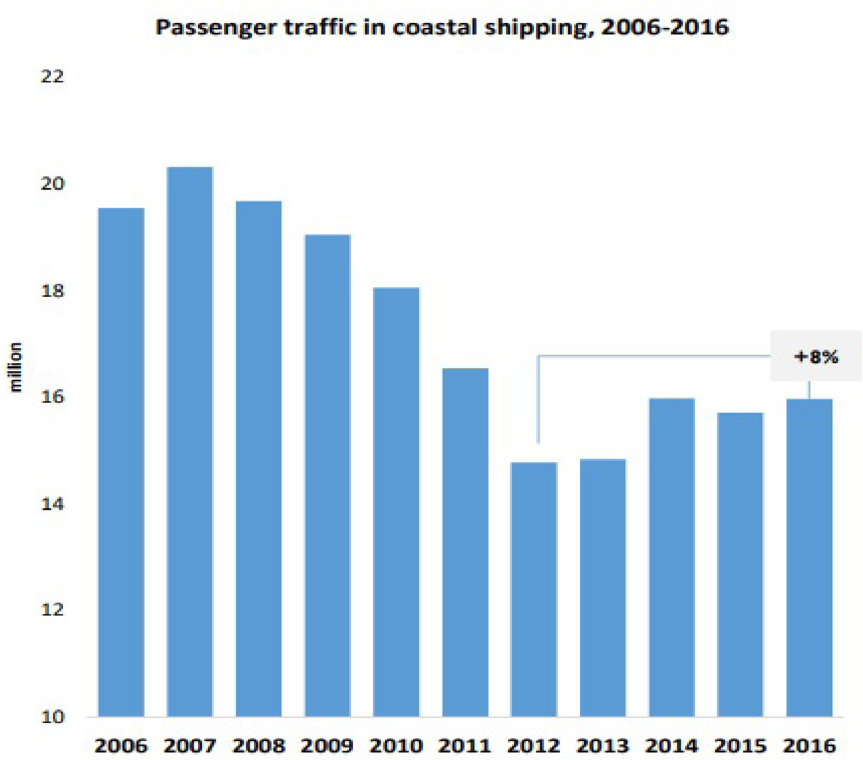

Figure 9. Passenger traffic in Greece coastal shipping, 2006-2016 (IOBE, 2021)

Between 2010 and 2016, around a third of passenger transport by coastal shipping occurred in the lines of the Cyclades. The portion of the routes to Crete fell to 11.7% in 2016 from 14.7% in 2010. Passenger traffic dwindled to 1.86 million from 2.65 million (-29.7% or 788,100 passengers). Similar growth was seen in the routes of the Saronic islands (12.8% in 2016 against 14.8% in 2010). On the other hand, the share of coastal passenger traffic rose in Kyllini-Zakynthos and Kyllini-Kefalonia (approximately 12% share in 2016 against 10% in 2010; Fig.10).

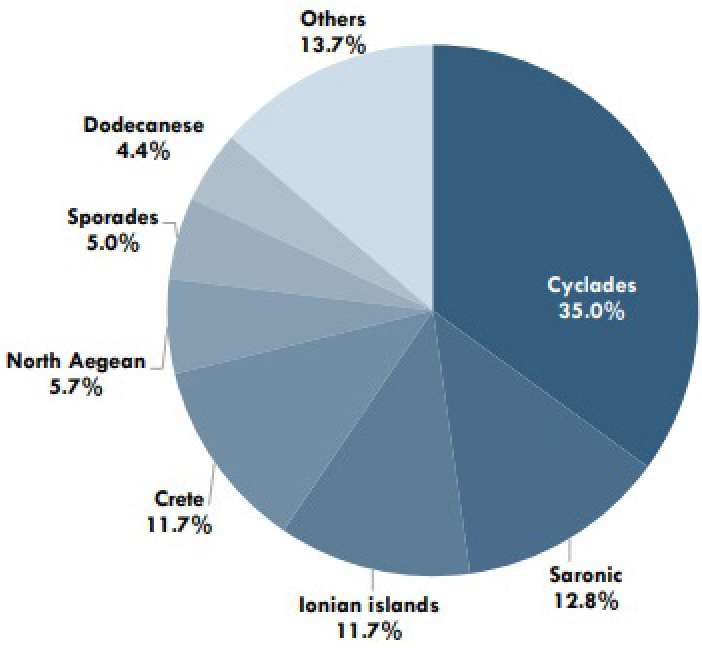

Figure 10. Geographic distribution of coastal passenger traffic in Greece, 2016 (ELSTAT, IOBE)

The maritime passenger transport sector connects the approximately 115 populated islands of Greece to the mainland. Although the industry operates mainly in the Greek region, it is part of the ecosystem of activities that support tourism. Thus, it contributes significantly to the openness of the Greek economy. Transporting shipment by sea from and to the mainland assists agriculture, manufacturing, trade, and the growth of the island economies, admitting that most goods are transported to and from the islands by vehicles that travel onboard passenger vessels. In this way, the coastal maritime sector is tightly connected with Greece's economic development (ELSTAT, IOBE).

The COVID-19 pandemic and the measures were chosen to restrict the spread of the coronavirus have substantial adverse effects on passenger shipping. Uncertainty about the next progression of the pandemic and its medium-term impact on tourism are the main ambiguities currently facing the sector.

Table 7. Impact of the COVID-19 pandemic on passenger and vehicle transportation in Greece and the Adriatic routes (IOBE, 2021).

	2019	2020*	Annual % change
Domestic routes (million)			
Passengers	19.00	8.55	-55%
Cars	2.43	1.46	-40%
Trucks	0.54	0.43	-20%
Adriatic Sea routes (million)			
Passengers	1.50	0.47	-69%
Cars	0.32	0.13	-58%
Trucks	0.37	0.34	-8%

N Note: * Estimate

V. Transport and accessibility parameters

In the frame of the Co-Evolve4BG project, a set of parameters has been developed to provide a summary of transport in the coastal zones at both the national and Mediterranean scales (Table 8). This set is formed from 15 parameters as presented in the following table. In addition, data relevant to these parameters were collected at both national and regional scales.

Table 8. Transport and accessibility parameters.

Parameters	Description	Source
Port name	Provide the port name	https://nee.gr/en/port/
Port Location	Indicate the location of the Port (Longitude, Latitude)	https://nee.gr/en/port/
Port type	Identify the type of port (Possible values: Fishing, Marina, Cargo, Passengers terminal)	https://nee.gr/en/port/
Status of the Port	Indicate the port status (Possible value: Good, Medium, Bad)	https://nee.gr/en/port/
Min water depth inside the port	Indicate the minimum water depth inside the port (m)	https://nee.gr/en/port/
Max water depth inside the port	Indicate the maximum water depth inside the port (m)	https://nee.gr/en/port/
Problems of the Port	Indicate the existing issues in the port	https://nee.gr/en/port/
The capacity of the port	Indicate the capacity of Port (Number of boats/ships)	https://nee.gr/en/port/
Rate of ducking in the port	Identify the increase/decrease of ducking rate in the port during the last ten years	https://nee.gr/en/port/
Are the activities of the port related to tourism?	Indicate if there are touristic activities inside the port (Possible values: Yes/No)	https://nee.gr/en/port/
Airport name	Provide the Airport name	http://www.ypa.gr/en/
Airport Location	Indicate the location of the Port (Longitude, Latitude)	http://www.ypa.gr/en/
Airport type	Indicate the type of Airport (Possible values: Primary commercial Airport, General aviation airport)	http://www.ypa.gr/en/
Accessibility of Airport by public transport	Indicate if the Airport is accessible by public transport (Possible value: Yes/No)	http://www.ypa.gr/en/
Rate of passenger number in the Airport	Identify the increase/decrease of passengers' rate in the Airport during the last ten years	http://www.ypa.gr/en/

VI. Conclusions

This deliverable is based on desk research, academic studies and bibliographical references, which investigate and analyze transport and accessibility challenges across Greece. In the Greek context, we identified the mechanical relationship between tourism and transport as more important than in other places in the world. The territory of Greece consists of tens of thousands of islands without means of transport and in great danger, in many aspects.

The progress of civilization is somewhat dependent on the evolution of technological ideas. The modern revolution in the tourism industry is an outstanding and indisputable example of such changes. Transport has become the largest cultural phenomenon of contemporary society, the greatest civilization complex of the socio-economic-political life of every developed country.

In total, 457,000 jobs are sustained by air transport and tourists arriving by air. In addition, air transport produces advantages to visitors/consumers and the broader economy by granting rapid connections between cities. These virtual bridges in the air allow the economic flows of goods, investments, people, and ideas that are the principal drivers of economic development. Throughout the years 1992-1997, liberalization of air transportation in Europe relaxed pre-existing restrictions on where airlines could fly and at what prices. Then, in the late 1990s, a tense growth in air travel happened in Europe to implement the “third package” of liberalization rules and the development and growth of low-cost carriers (LCCs).

The connection between tourism development and accessibility is more important, especially for island destinations, whose connectivity to the mainland depends completely on the sea and air passenger transport services. As a result, island regions are increasingly confronted with new challenges in the tourism sector linked to transportation means. In Greece, for many islands, the importance that tourism takes in their economy constitutes one of the essential pillars of the national economy.

Greece’s coastal area extends in the Aegean Sea, the Ionian Sea, Libyan Sea, and the Levantine Sea. According to experts in the tourism sector, the profitability and growth of cruise activity in a maritime area depends on several factors: the attractiveness of the port of departure/arrival of the cruise, as well as the region included in the itinerary, the seasonality of the site, hospitality, the presence of infrastructures (ports with passenger terminals) as well as the purchasing power of the locals living in the area concerned. Therefore, it must be recognized that the Mediterranean Sea has a priori all the necessary qualities.

In addition, Greece is an elaborate tourist destination with an extensive coastline that favors yachting activity. Many private companies are administering competitive yachting services. Yachting in Greece presents an upward trend and is remarkably popular with both foreigners and residents. In the light of the countries of the western Mediterranean, Greece is lacking, not totally on several mooring points but on the quality of the services.

Tourism remains the “heavy industry” of the country, and every adverse impact can distract the national development for many years. Especially, the Covid-19 pandemic showed Greece’s vulnerability in terms of economic indicators and the need to develop a national growth plan where tourism occupies the foremost position amongst other domains as economic pillars.

VII. References

Andrew H., 2011. The British on Holiday: Charter Tourism, Identity Consumption. Clevedon: Channel View.

Burkart A.J., Medlik S., 1981. Tourism: past, present and future. Tourism: Past, Present and Future., Ed. 2.

Butler R., 1996. Transportation innovations and island tourism. In: D. G. Lockhart and D. Drakakis-Smith (Eds.), Island Tourism: Trends and Prospects, 36-56. London: Pinter.

Ciesielski M., Jordan K., 1977. Transport in tourism.

Diakomihalis M.N., Lagos D.G., 2008. Estimation of the Economic Impacts of Yachting in Greece via the Tourism Satellite Account. Tourism Economics. 14: 871-87.

Gierczak B., 2011. The History of Tourist Transport After the Modern Industrial Revolution. Pjst 18: 275-81.

IATA, 2018. The importance of air transport to the air transport sector makes a major contribution to UAE' s economy Air transport facilitates flows of goods, investment and people. 1-4.

Jacobsen J., 2000. Anti-tourist Attitudes: Mediterranean Charter Tourism. Annals of Tourism Research, 27: 284-300.

Jaremen D.E., 2008. Low-cost airlines and the development of tourism in the regions. In: Gołembski G., (Ed.), New trends in tourism development. 157-169.

Hatziioannidou F., Polydoropoulou A., 2017. Passenger Demand and Patterns of Tourists' Mobility in the Aegean Archipelago with Combined Use of Big Datasets from Mobile Phones and Statistical Data from Ports and Airports. Krzykała F., (2004). Outline of the Sociology of Transportation.

IOBE, 2021. Passenger shipping in Greece in 2016-2020: Performance, economic contribution and prospects Summary.

Lauring J., 2011. Individuality and Mass Consumption in Charter Tourism. Annals of Tourism Research. 38: 319-322.

Lauring J., 2013. Creating the Tourist Product in the Opposition between Self-actualization and Collective Consumption: The Case of Charter Tourism. Journal of Hospitality and Tourism Research. 37: 217-236.

Lowyck E., Wanhill, S., 1992. Regional development and tourism within the European Community. Regional Development and Tourism within the European Community. 227-244.

Mason K., Morrison W.G., Stockman I., 2013. Liberalization of Air Transport in Europe and the Evolution of 'low-Cost' Airlines. Liberalization in Aviation: Competition, Cooperation and Public Policy (June). 141-56.

Mondou V., Pébarthe-Désiré H., 2013. The Island and the plane: from the technical constraint to the economic choices of the tourist islands of the indian océan (Reunion Island, Mauritius, Seychelles, Maldives). 13ème Édition Du World Conference on Transport Research.

National Statistical Service of Greece (NSSG), 2007. National Economic Accounts. Statistical Data/ National Accounts.

Opaschowski H.W., 1996. Tourism: Systematic Introduction - Analyzes and Forecasts, 2nd completely new and revised ed., Opladen (Leisure and Tourism Studies 3).

Pallis T., 2018. Learning from statistics: what do trends in the top-15 cruise ports in the Med tell us? PortEconomics.

Papatheodorou A., 2001. Tourism, Transport Geography and Industrial Economics: A Synthesis in the Context of Mediterranean Islands. Anatolia. 12: 23-34.

Spilanis I., Kizos T., Vaitis M., Koukourouvli N., 2012. Measuring the economic, social and environmental performance of European island regions: emerging issues for European and regional policy. European Planning Studies. 1: 1-22.

Ueli, G., 2008. The History of Tourism: Structures on the Path to Modernity. European History Online. https://dnb.info/1020543884/34%0Ahttp://ieg.eu/threads/europe-on-the-road/the-history-of-tourism

Vega-Muñoz A., Salazar-Sepúlveda G., Contreras-Barraza N., Araya-Silva L., 2021. Port Governance and Cruise Tourism. Sustainability (Switzerland). 13: 9.

DISCLAIMER

The present document has been produced with the financial assistance of the European Union under the ENI CBC MED Programme. The contents of this document are the sole responsibility of *Region of Eastern Macedonia & Thrace* and can under no circumstances be regarded as reflecting the position of the European Union of the programme management structures.

PARTNERS

ASSOCIATES PARTNERS

Bs partage 95 05 05 15
Design and Editing