



Greece: International Freight Center

2nd edition, April 2021

The EY logo consists of the letters 'EY' in a bold, white, sans-serif font. A yellow diagonal bar is positioned above the 'Y'.

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Introductory note

We issue this updated report at a time when the world is experiencing the full effect of the COVID-19 pandemic, with some bright signs slowly appearing on the horizon.

During this pandemic era, we have witnessed severe disruptions to inbound and outbound shipments and heavy port congestion, both of which have severely impacted the transportation and logistics (T&L) industry. Cost structures and overheads continue to be the biggest internal challenges, as industry players consider strategic drivers for improving profit margins. Technology and innovation remain the key pillars for business process transformation in the industry.

As the coronavirus pandemic threatens to drag the global economy to a new, deeper recession, the T&L industry manages to stay afloat, supporting the local and global communities to overcome this unprecedented threat. The keyword for the industry's next day is "resilience", as global players are transforming their linear supply chains to value-chain interconnected ecosystems on cloud-enabled platforms, involving multiple stakeholders. Digital ecosystems are shaping market networks and enabling hybrid forms of cooperation and competition: coopetition. Ecosystems create and serve communities and harness their creativity and intelligence. Entities may play multiple roles in an ecosystem. In this greater context, we see the following key trends developing in the industry:

- ▶ The rapid growth of e-commerce worldwide, which is expected to propel the emergence of new consumer trends and the adoption of exponential technologies to support online customers' growth.

- ▶ Logistics and courier, express and parcel (CEPs) companies adopting both in-house development and innovative start-up collaboration, to reduce products' and offerings' delivery time to the market.
- ▶ Digital logistics as a means of integrating operating systems, in order to more effectively communicate information, synchronize activities, collaborate across a wide range of business processes and provide E2E visibility.
- ▶ Increased private equity (PE) and venture capital (VC) funding, toward start-ups in the transportation sector, but also to traditional market players.
- ▶ Extended supply chain risk intelligence and sustainability are climbing on top of the agenda of an increasing number of stakeholders, as global organizations and associations look to lower the impact of transport and logistics on the environment, through regulations and policies.

Furthermore, it is vital to underline the industry's move from "doing digital" to "being digital", which translates to the implementation of supply chain technologies that open up new revenue streams, rather than simply efficiencies, and necessitates the closure of the talent gap in digital fluency. All of the above being critical value drivers for organizations and economies - now, next and beyond.

In this challenging global environment, the Greek T&L community is heavily investing and expanding its footprint. In our - second of its kind - report, which also includes a survey on the Greek transportation and logistics infrastructure, we examine the role of Greece as a competitive intermodal corridor for the European seaborne trade with Asia.

In addition, we present all recent developments in:

- ▶ the Greek shipping and maritime logistics industry,
- ▶ the Greek hinterland logistics industry,
- ▶ the Greek road freight transport,
- ▶ the Greek rail freight transport,
- ▶ the Greek air freight transport,
- ▶ and the public sector's support and facilitation of trade in Greece.

As our report reveals, Greece, leveraging its strategic geographical location, along with increasing investment in upgrading its transportation and logistics infrastructure, has gone a long way toward developing its position as a global logistics hub, over the past years. It is clear, however, that there is still room for improvement for our country to achieve what we call "excellence".

At EY, we are proud to have succeeded over the years in standing at the forefront of developments in the global, regional and Greek T&L industries. This report is part of our contribution to drive the dialogue among all stakeholders, with an aim to explore the optimal ways to address the challenges that the Greek transportation and logistics industry is facing, and take advantage of the opportunities arising in an ever-changing global environment.

The journey for Greece has already begun, with our country taking pivotal steps toward sustainable growth and success. We really look forward to seeing how these efforts will develop over the coming years, and how Greece will manage to reach its full potential as a leading global freight and logistics hub.



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Executive summary

Since the first edition of this survey was published in 2017, Greece has been making progress in its efforts to becoming an international freight center, leveraging its strategic geographical location, a recovering economy and a friendlier investment environment. However, this progress has been driven primarily by developments in the shipping and the maritime logistics industries, as well as in road infrastructure. More work will be needed with regard to rail and air freight transport, hinterland logistics, the third-party logistics market (3PL), customs services and, above all, the interconnectivity of these distinct nodes of the Greek transport and logistics industry (T&L).

The shipping and maritime logistics industry is steadily on the rise

Shipping is, undoubtedly, one of the strongest cards of the Greek economy, contributing around €11b - or 6.6% of the country's GDP in 2019. The Greek-owned merchant fleet is the largest in the world, accounting for 15.6% of the global fleet in deadweight tonnage (DWT), while vessels controlled by Greeks carry 21% of global seaborne trade.

The strong presence of Greek shipping companies, and the leading position of the Greek-owned fleet in the global maritime community, have been the major drivers behind the development of the Greek shipping cluster, as one of the most significant and competitive maritime centers in the world. The majority of Greek shipowners have a ship management office or operate their business from Greece and, in spite of the growing international competition - mainly from emerging maritime centers in Asia - they still consider Greece as an attractive location for establishing their ship management offices.

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The Greek-owned merchant fleet is the largest in the world, accounting for 15.6% of the global fleet in deadweight tonnage (DWT), while vessels controlled by Greeks carry 21% of global seaborne trade.

Piraeus and the broader Attica region have been at the epicenter of this growth, attracting important shipping activities, including ship management companies, shipyards and shipyard subcontractors, port operators, freight forwarders, and third-party logistics providers (3PLPs).

Moreover, at a time when trade flows between Asia and Europe continue to grow year after year, Piraeus offers a highly competitive end-to-end alternative connection to the ports of the Far East, compared to North European ports, in terms of transport duration, frequency of service and cost, allowing the country to develop into a major maritime interface for Europe.

Piraeus has been one of the most rapidly growing ports in Europe and was the largest commercial port in the Mediterranean, and the fourth largest among all European ports in terms of total container throughput in 2019 and 2020, despite the pandemic's adverse effects on global trade. The vision of turning Piraeus into the south gate of Europe is backed by a

series of planned investments within the next years, aiming at improving infrastructure and achieving better integration with the railway and road networks, transforming the port into a state-of-the-art logistics hub.

Piraeus:

1st largest commercial port in the Mediterranean

4th largest port in Europe in terms of TEUs (2019 & 2020)

Significant investments are underway for the port of Thessaloniki, the primary entry port for Northern Greece and an international logistics hub for all Balkan countries, following its privatization in 2018.

Thessaloniki: An important node of the Trans-European Transport Network

The port of Thessaloniki is part of the Trans-European Transport Network (TEN-T) and is situated in proximity to the Trans Adriatic Pipeline (TAP). The master plan of the port, prepared in 2017 and approved by the European Commission, sets clear short- and medium-term priorities for the development and upgrade of Thessaloniki to a middle category European port; the main developmental actions aim at raising the capacity of the cargo terminals, as well as upgrading the sea cruise facilities and transit services capabilities.

In total, more than 25 important commercial seaports are currently operating in Greece, five of which have been identified by the EU as ports of strategic interest and key maritime interfaces of the Orient / East-Med (OEM) corridor.

25+ important commercial seaports

5 ports of EU strategic interest

Further privatizations or concession agreements involving some of the main regional ports are expected to lead to additional investments and a strengthening of their competitiveness and international status.

Meanwhile, similar developments beyond the ports themselves are shaping a more competitive and reliable hinterland for Piraeus and the other important Greek ports. The privatization of the Greek railway operator in 2019, is expected to lead to a faster development of the Greek railway network system and the addition of high- and ultra-high-speed trains to the lines, as well as an upgrade of the Athens-Patras route, which will make land connections with ferries to and from Italy, possible.

The Greek third-party logistics market still faces many challenges

The 3PL market in Greece faced significant challenges as a direct result of the severe downturn of the Greek economy from 2009 onward. Though it had been rebounding since 2014, the market has yet to completely recover to numbers before the financial crisis, with the turnover of the Greek 3PLs recording a compound annual growth rate (CAGR) of -2.06% between 2008 to 2019 (but with a +3.55% CAGR since 2014).

The contraction of consumption and production, along with the slow growth of international trade, put a lot of pressure on Greek manufacturers and traders to lower their costs, without reducing performance and

service levels. However, they have also become more positive toward outsourcing their basic logistics operations, allowing reliable 3PLPs, which have invested in service quality and innovation, to expand their market share and improve their performance. The Greek 3PL market grew by 4.6% in 2019 and is expected to grow by an annual average rate of 2.8% in the medium term (up to 2023).

Greek 3PL market in 2019:

+4.6% ↑
+2.8% projected annual average growth rate
(up to 2023)

Greek 3PL companies provide a full range of supply chain services, with a significant part of their income coming from warehousing and distribution activities, as well as from the organization and management of road transportation. The sector mostly comprises of medium- and small-sized companies, that operate in a highly competitive environment.

The Thriasio Logistics Center headlines a series of major logistics projects in the country

The most important logistics markets have developed around Athens and Thessaloniki and are closely linked to the country's main international maritime interfaces: the ports of Piraeus and Thessaloniki.

The construction of the new intermodal freight and logistics park in the Thriasio Pedio plain, near Piraeus, will significantly enhance the port's hinterland and will also facilitate the potential development of new operations and added-value logistics services. When fully developed, Thriasio will be one of the largest dry ports in Southeast Europe.

In addition, the logistics center to be built at Gonos, a former military camp in Thessaloniki - currently at the pre-feasibility stage - is expected to provide additional storing capacity to the port's terminal and greatly enhance its potential.

The growth of the supply chain industry has also triggered the development of supply chain business parks with the first two major investments implemented at the Oinofyta industrial zone and at Igoumenitsa in Western Greece.

A comprehensive and modern road network leads the growth of road freight transport

Road transport in Greece suffered a dramatic reduction between 2009 and 2015 - however, the international freight component of the road freight market has been growing steadily since its record low in 2011, boosted by the expanding international trade through Greek ports - primarily Piraeus. The further increase of international trade volumes transshipped via Greece and the recovery of the Greek economy, can be expected to further boost road transport activity in the coming years.

Greece has one of the most developed road networks in Southeast Europe, consisting of more than 2,145 km of highways and motorways. In terms of tonnes of commercial road transport, Greece ranked 11th among EU countries in 2019, with 354m tonnes, compared to Germany's 3.2b tonnes.

Over 2,145 km of highways and motorways

In 2018, the Greek road transportation industry accounted for 30% of enterprises in the transportation and storage services sector. The industry consists primarily of small companies and owner-driver haulers, that provide low-margin traction services to medium or large national and pan-European logistics providers. The hire and reward transportation sector had a share of 26% of the total road freight transportation activities in 2019 (in terms of tonnes-kilometer), significantly below the EU average. The market is characterized by low margins, largely due to its high fragmentation and reliance on small providers (1.5 trucks per provider, on average).

Increased international air freight transport through the Greek airports, presents significant opportunities for the country

Greece has a total of 45 airports - of them, 15 are international, 26 domestic and four are municipal. The "Eleftherios Venizelos" Athens International Airport (AIA) is, by far, the predominant Greek airport, in terms of both freight volumes and passenger traffic, emerging as an important passenger and logistics hub for Southeast Europe.

The 40-year concession of 14 regional airports starting in 2015, has led to major investments for their renovation and further development, a process completed in January 2021. More than 30m passengers passed through the 14 airports in 2019, the last year before the collapse of the tourism industry worldwide, due to the pandemic, which led to a 69.3% decrease in passenger traffic in 2020.

Air freight transport in Greece has a share of ca. 35% of international trade in terms of value, but only 1% in terms of weight. However, air cargo transportation is rapidly expanding, with international intra-EU and extra-EU transport in Greece growing by 10.1% and 5.9% respectively, between 2017 and 2018. This may lead to significant opportunities for Greece to emerge as Southeast Europe's gateway for air cargo traffic, providing a real alternative to congested hubs worldwide.

In 2019, air freight carried through Greek airports reached the pre-crisis volume of 2008, after suffering a 44% drop during the Greek financial crisis. International air freight transport accounts for around 90% of the total, with extra-EU traffic surpassing intra-EU for the first time in 2018, and outbound freight transport gradually increasing from 40% in 2008 to 57% in 2019. More than 88.3% of the total

air freight in 2019 passed through the "Eleftherios Venizelos" Athens International Airport.

Outbound freight transport increased from 40% in 2008 to 57% in 2019

A much improved legal and regulatory logistics framework has borne fruits, but there is still road ahead to catch up with the competition

In recent years, the T&L industry has worked closely with the public sector to develop a long-lasting transformational plan to support the sustainable development of the logistics market and international trade. This resulted in a comprehensive legislation reform in 2014, with a new law providing a holistic regulatory framework, facilitating investments and reducing red tape in logistics installations permits.

Partly as a result, Greece has been gradually improving its international ranking with regards to trade facilitation, trade competitiveness and logistics performance. However, in most of these indices, Greece continues to lag behind its main trading partners and competitors.

Greece's five Free Trade Zones, as well as customs warehouses operated by 3PL providers and freight forwarders, provide clear benefits to importers and shippers, in terms of improved cash-flow and greater flexibility and transparency. Meanwhile, an increasing number of 3PLs, airlines, and shipping companies in Greece, have been certified as Authorized Economic Operators (AEOs), thus enjoying benefits throughout the EU, easier access to simplified customs procedures and a more favorable position to comply with the new security requirements.

Conclusions and recommendations

In order to increase its attractiveness as an international freight center or a leading regional logistics hub, Greece will need to focus on four priorities:

- ▶ Improve connectivity with global trade lanes and other hubs, primarily, but not exclusively, by leveraging the Greek shipping ecosystem.
- ▶ Improving its port and logistics infrastructure, with investments in logistics parks needed to match the progress made in port infrastructure.
- ▶ Strengthening its financial ecosystem to provide top-level financial and business services.
- ▶ Upgrading technology, innovation and human capital, to allow the development of new business models and enable the required transformation of supply chains.

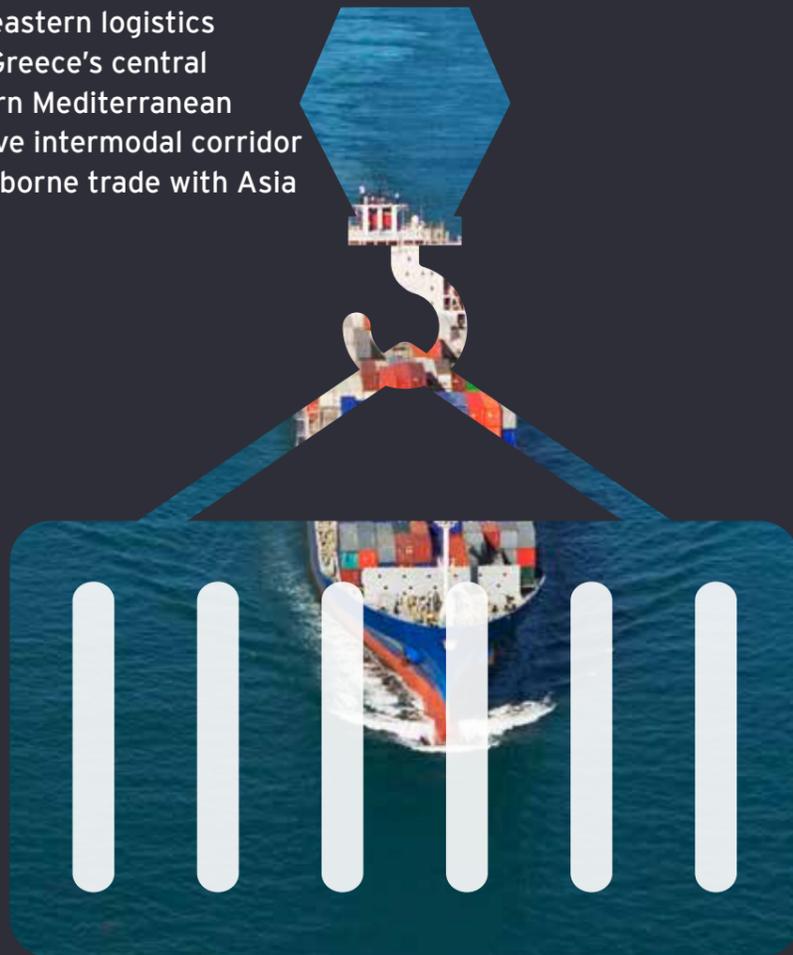
To materialize on the above, the EY report presents a series of area-specific recommended actions, with regards to:

- 1 The ports
- 2 The road network
- 3 The 3PL / 4PL sector
- 4 Air and sea freight transport
- 5 The rail network
- 6 The customs
- 7 The human capital in the T&L industry
- 8 Brand awareness



1 The Greek shipping and maritime logistics industry

Greece as the southeastern logistics gateway to Europe: Greece's central location in the Eastern Mediterranean provides a competitive intermodal corridor for the European seaborne trade with Asia



The EU-27 account for around 15% of the world's trade in goods. This is an especially important factor, since the value of international trade in goods significantly exceeds that of services by approximately three times.

Since 2004, the European Union, the United States, and China have been the largest global players in international trade. In 2019, the EU-27 recorded over €4t in total trade in goods (excluding intra-EU trade). This was €23b more than China and €308b more than the United States, with Japan standing fourth, at approximately €1.3t.

In 2019, Russia and China saw a remarkable increase in their export-to-import ratio in terms of exports, both having the largest annual trade surpluses. The EU-27 followed with the second largest share, capturing 15.4% of total global exports and imports. The only country exceeding those numbers was China with 16.2%, while the United States stood at 10.6% of the global total. As for global imports, the United States led with 16.2% of the total share, while the EU-27 and China captured 13.7% and 13.1% respectively. The EU-27 trade in goods with the rest of the world (i.e. the sum of extra-EU exports and imports) was valued at just over €4t in 2019. Both imports and exports were higher compared to 2018, with the increase in imports (€27b) being smaller than the increase in exports (€73b). As a result, the EU-27's trade surplus of €152b in 2018, increased to €197b in 2019¹.

Located in the southernmost point of Europe and standing at the crossroads of three continents - Europe,

Asia, and Africa - Greece holds a unique geographical position in the international maritime routes. It is of no surprise, therefore, that Greece has traditionally been an important maritime nation. The Greek-owned merchant fleet is the largest in the world, accounting for 15.6% of the global fleet in deadweight tonnage (DWT)². Shipping is the country's most important industry and Greek ports are vital hubs for the West-East international trade.

Even though Greece accounts for just 0.15% of the world's population, 21% of global seaborne trade is carried by vessels controlled by Greeks³. The Greek-owned fleet provides an indispensable service to Greece, to Europe, and to the world at large, something that constitutes a major achievement for a country of such small size.

As maritime transport remains the backbone of globalization, and trade flows between Asia and Europe continue to grow year after year, traffic through the Mediterranean ports is increasing and Greece's role as a major maritime interface for Europe is becoming more apparent. In this respect, the Greek ports and other major transportation infrastructure, as well as logistics operations in Greece, are widely considered as attractive investment opportunities for major global companies.

Indeed, the significance of the country's main ports, namely Piraeus and Thessaloniki, as major gateways in the West-East maritime route has been recognized by foreign investors over the years.

2019 was another year of double-digit growth for Piraeus, as the port captured the first place in the Mediterranean, reaching 5.65m twenty-foot equivalent units (TEUs) annually⁴. The Greek port continues to climb the rankings by gaining two places, occupying the 4th position in Europe in 2019 and 2020 (despite COVID-19's impact), jumping over the Spanish ports of Valencia and Algeciras⁵. The fact that Piraeus was not even in the top-15 in 2007, is a testament to the port's tremendous improvement over the past decade.

In addition, COSCO - the port's operator - has invested in also transforming Piraeus into an important inland gateway to Europe, by expanding the port's hinterland infrastructure and improving its railway and road connections toward Central Europe. In 2013, the port of Piraeus was connected to the main national railway network via a new high-speed electrified line. Additionally, COSCO has taken control of PEARL (Piraeus-Europe-Asia Rail Logistics), a company providing rail logistics support and other freight forwarding services to and from Piraeus and other Greek ports.

As a result, Piraeus offers a highly competitive end-to-end alternative connection to the ports of the Far East, when compared to North European ports, in terms of transport duration, frequency of service, and cost. In this respect, Piraeus links Asia to the major Central European logistics centers, in significantly less time compared to the large North European ports.

1. International Trade in Goods, Eurostat, March 2020

2. Shipping register continues to shrink, ekathimerini.com, 17 June 2020

3. Greek Shipping and Economy 2019, ugs.gr, 2020

4. Annual report 2019, COSCO Shipping, 12 February 2020

5. Top 15 containers ports in Europe in 2020, portconomics.eu, 2 March 2021

For example, it is estimated that a trip from Asia to the Czech Republic through Piraeus is 8-9 days shorter, in comparison to the same trip through Rotterdam or Hamburg. This is because freight rail transportation services from Piraeus to the major logistics centers in Central Europe are performed in approximately four days, by dedicated block trains, whereas the maritime trip from China to Piraeus is 8-9 days shorter when compared to the North European ports. Moreover, the Southeastern European intermodal corridor via the Piraeus port is not only a faster and a more lucrative alternative supply chain route for shippers and traders, but also a more reliable one.

In the current globalized and demanding supply chains, the reliability of logistics services is a major concern among traders and logistics providers and, in most cases, much more important than the speed of services. As shippers require quality delivery and certainty on when their delivery will take place, the Greek south gate to Europe has been highly modernized with regards to the provision of reliable railway and road freight services. Global business cases, like those of HP, Sony and Huawei, which use dedicated block trains departing from Piraeus port to transport their products to Central European markets, have proved that the Greek hinterland can

become a strategic alternative for major multinational manufacturers, shipping liners and international logistics providers. Furthermore, the recent privatizations and concession agreements are shaping a more competitive and reliable hinterland for Piraeus and the other important Greek ports. In short, it is evident that the opportunities for logistics operators and traders are considerable.

On 1 April 2019, Ferrovie dello Stato Italiane S.p.A. acquired TRAINOSE's Rosco, a company which supports railroad systems and repairs railway wagons⁶. The Italian company is now ready for the development of the Greek railway network system in two phases, adding high- and ultra-high-speed trains to the lines. The company is also set to reinstate the popular Athens-Patras route, which used to operate in the past, making land connections with ferries to and from Italy, possible.

Moreover, the construction of the new intermodal freight and logistics park in the Thriasio Pedio plain, near Piraeus, will significantly enhance the port's hinterland and will also facilitate the potential development of new operations and added-value logistics services.

The privatization of the port of Thessaloniki finally concluded in March 2018, for a fee of €1.1b, with the

Greek state handing 67% of the shares of the Thessaloniki Port Authority S.A. to the new owners of the port, South Europe Gateway Thessaloniki Ltd. Thessaloniki constitutes the primary entry port for Northern Greece and acts as an international logistics hub for all Southeastern European markets⁷.

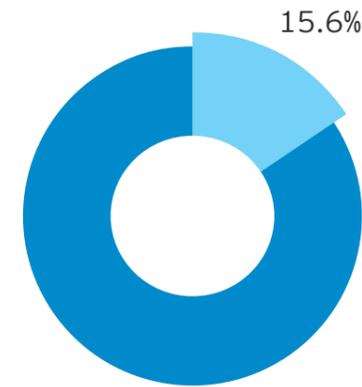
The port of Thessaloniki will substantially improve the international competitiveness of Greece. Thessaloniki is the second biggest container port in Greece and the biggest dry bulk and break bulk port of the country. It is an operating port with six piers, 6,200 meters of quay, 1.55m square meters of port land and several buildings and warehouses. Additionally, the port of Thessaloniki is part of the Trans-European Transport Network (TEN-T) and is situated in proximity to the Trans Adriatic Pipeline (TAP).

Furthermore, the development of the Gonos Logistics Center in a plot of 672,000m² near the port of Thessaloniki, will also enhance the Greek hinterland to the Balkan countries, at the Greek northern borders. The most used railway corridor from the Thessaloniki port to the Central European economic and logistics centers is PanEuropean Corridor X, which passes through North Macedonia, Serbia, Hungary, Slovakia, the Czech Republic, etc.

Greece is further strengthening its position as the largest ship-owning nation and one of the most important shipping centers worldwide.

Greece is home to the largest ship-owning community in the world

15.6% of the global fleet in terms of deadweight tonnage is owned by Greek nationals



Greek ship-owners control the largest merchant fleet in the world

According to the Union of Greek Shipowners, shipping contributed around €11b - or 6.6% of the country's GDP in 2019. Deep-sea shipping and related services employ more than 192,000 people, according to the Hellenic Statistical Authority - nearly 3% of Greece's total workforce⁸.

Greece has always been considered as one of the five most important traditional shipping centers in the world, with its main advantage being its large ship-owning community.

In a national economic environment, which offered little investment incentives, the Greek shipping sector provided increased foreign exchange earnings. In particular, the contribution of Greek shipping to the country's economy is as important as it is diverse, going beyond the receipts for maritime transport services recorded in the balance of payments, which amounted to €17.3b for the 2019 fiscal year.

The country's geographical location and its human capital are also important factors, contributing to its high position among the top shipping countries in the world. The Greek shipping industry has weathered the storm and strengthened the country's

position as the largest ship-owning nation, in terms of tonnage capacity and value, with 3,968 vessels and an approximative value of US\$105b in 2020. Despite the domestic and global challenges that the Greek ship-owning community faces, Greece continues to lead the ranking of ship-owning nations. Greek shipowners remain the dominant force in global shipping, accounting for 15.6% of global DWT, followed by Japan (11.47%), China (10.51%), Singapore (6.19%), Hong Kong (5%), Germany (4.92%), the Republic of Korea (3.91%), Norway (3.11%), the United States (2.97%), and Bermuda (2.97%)^{9,10,11,12}.

The majority of the Greek-owned fleet consists of oil tankers and dry bulk carriers, followed by gas carriers and containerships. In fact, Greek shipowners lead the rankings of the world's largest merchant fleets in the tankers and bulk carriers' categories. Lastly, it is worth noting that the Greek merchant fleet is expanding into rapidly growing markets, such as liquefied natural gas (LNG) carriers and containerships. Despite the negative impact of the recent global economic downturn, as well as the severe competition by developing cities and countries - primarily in Asia - Greece has managed to maintain its high position among the top maritime nations.



6. Press Release - Completion of the EESSTY SA sale to TRAINOSE SA, Hellenic Republic Asset Development Fund (HRADF), 1 April 2019
7. Top 15 container ports in Europe in 2019: TEU volumes and growth rates, porteconomics.eu, 21 February 2020



8. Greek Shipping and Economy 2019, ugs.gr, 2020
9. Review of Maritime Transport 2019, UNCTAD, 31 January 2020
10. Greek Shipping is First in The World in Vessel Value, greece.greekreporter.com, 6 February 2019
11. Maritime, greeceinvestorguide.com, 5 October 2020
12. Greek fleet reduces in number of ships, increases in tonnage, searade-maritime.com, 12 March 2020

The renowned global shipping cluster developed in Greece, offers a diverse portfolio of maritime-related services.

The majority of the Greek shipping community operates from Greece

Most of the Greek-owned fleet's ships are either flying a Liberian or Marshall Islands flag. In actual numbers, in March 2020, out of the 3,968 total Greek-owned ships, 866 ships flew a Liberian and 850 a Marshall Islands flag. In terms of deadweight tonnage, ships flying a Liberian flag represent 22.7% (i.e. 77,323m DWT) of the total Greek DWT, while ships flying a Marshall Islands flag represent 20.3% (i.e. 69,344m DWT) of it. The Maltese flag comes third for Greek-owned ships, with 673 ships and 62.1m of the Greek DWT. Some other remarkable numbers come from Panama (375 ships, 22.2m DWT), Cyprus (226 ships, 17m DWT) and the Bahamas (203 ships, 18.24m DWT). It is worth mentioning that the Cyprus flag lost 22 Greek-owned ships during 2019; a loss of 2m in DWT.

In terms of ship numbers, the Greek-owned fleet occupies 7% of the world fleet; 13.2% in terms of gross tonnage (GT) and 15.6% in terms of DWT. The fact that Greek parent companies represent 26.6% of the world tanker fleet and 14.7% of the ore and bulk fleet, is also highly remarkable.

Overall, the Greek fleet is currently trading under 32 different flags. Greek vessels under the Liberian and Marshall Islands' flags have increased over the course of the last year, despite the total Greek fleet declining. The home flag fleet comprised of 636 ships, and 65.64m DWT and 38.8m GT in 2020¹³.

The Liner Shipping Connectivity Index (LSCI) captures how well countries are connected to the global shipping networks, based on five components of the maritime transport sector: a) the number of vessels, b) container capacity, c) maximum ship size, d) number of services, and e) number of companies developing container ships in a country's ports. In recent years, Greece has shown growth in improving its commercial infrastructure and public commercial ports.

13. Ibid.
14. Lloyd's List One Hundred People 2020, Lloyd's List, 2020

According to the LSCI, Greece ranks 20th in the world with a score of 60.3, scoring higher than competing countries in the region. What is more impressive is that Greece has also managed to climb from the 69th place to the 20th, in just eight years. Greek shipowners are the second biggest customers of the world's shipyards, purchasing their ships from Japan, South Korea, China, Germany, and, to a lesser extent, from France and Italy.

As shipping is predominantly a family business for Greeks, it is sometimes hard to know who exactly the largest industry players are. Possibly, this is due to the fact that shipowners' assets may be suddenly separated or merged, rearranging the picture. It is also worth noting that shipowner family names are the ones that are usually the most recognizable in the shipping community, rather than the names of the companies by which the fleets are managed. Greek shipping continued to lead the world in 2019, with Japan following in second place and China ranking third. According to Lloyd's List "One Hundred", there are many Greek shipowners amongst the 100 most influential people in world shipping¹⁴.

The strong presence of Greek shipping companies, and the leading position of the Greek-owned fleet in the global maritime community, have been the major drivers of the development of the Greek shipping cluster as one of the most significant and competitive maritime centers in the world. Although a significant part of Greek-owned vessels do not fly the Greek flag, Greek shipowners are more than keen on having a ship management office and operating their business from Greece.

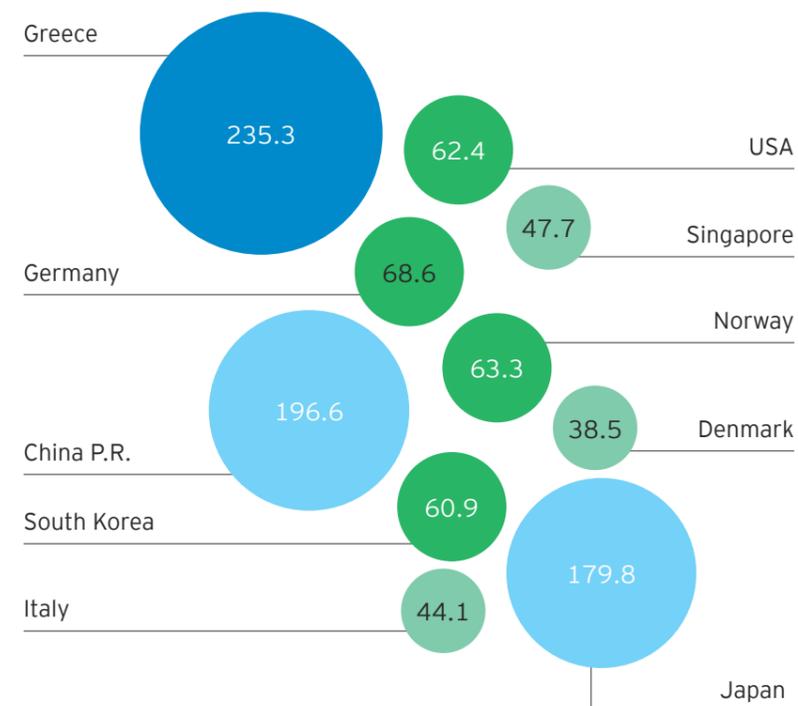
In 2017's "Re-positioning Greece as a global maritime capital" report, EY had surveyed leading members of the Greek shipping community, in order to shed light on the industry's perceptions of the comparative advantages and disadvantages of Greece as a shipping cluster. Based on the results of the survey, 97% of respondents reported that they

performed at least some of their ship management functions in Greece, whereas 56% performed the totality of such functions in the country. While almost one in four respondents found no competitive advantage in flying the Greek flag, 73% agreed or strongly agreed that having a ship

management office in Greece provided them with significant competitive advantages. Even though there is growing competition, mainly from emerging maritime centers in Asia, most of the survey participants still considered Greece as the single most attractive and complete maritime

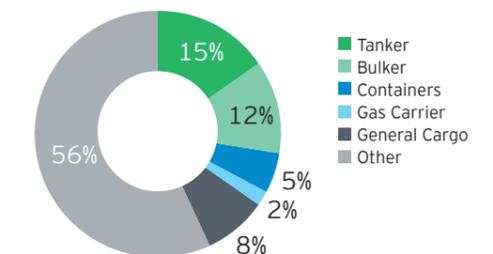
environment for establishing their ship management offices. While there have been significant developments in the four years since that survey was conducted, we believe that the key trends identified are still valid.

Current fleet by flag (in million GT)

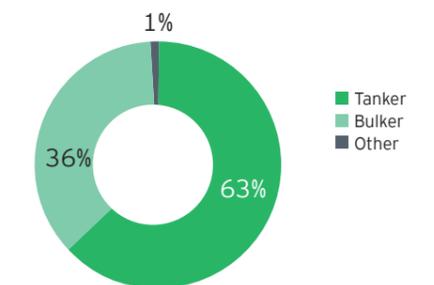


Source: Clarksons Research World Shipyard Monitor

World flag fleet per type of vessel, based on the number of vessels

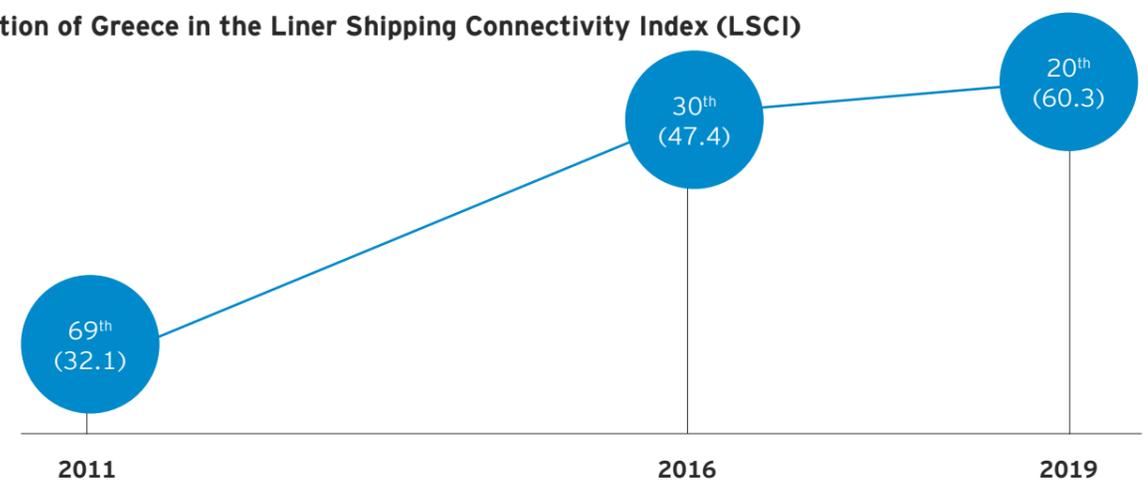


World flag fleet per type of vessel, based on ship size



Source: Statista.com, EY analysis

Evolution of Greece in the Liner Shipping Connectivity Index (LSCI)



Source: UNCTAD, EY analysis

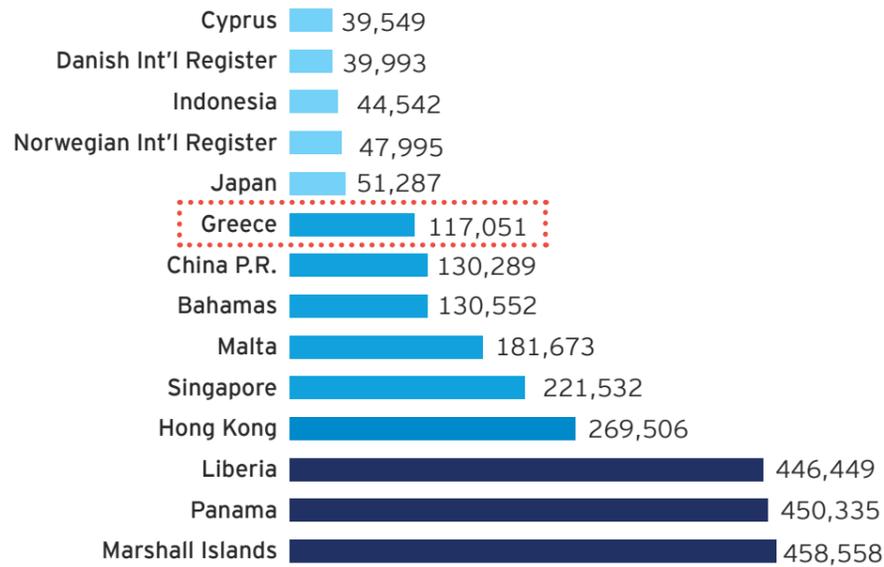
The Greek flag registry

The Greek registry continues to be one of the strongest fleet registries in the world, based on the total number of registered vessels, as well as in fleet capacity. In terms of deadweight tonnage capacity, the Greek-registered fleet ranked 10th globally in 2020 across all types of vessels (and 9th when accounting only for the major vessel types), while it was featured among the top-10, based on its total number of vessels¹⁵.

The Greek fleet is dominated by tankers of all types, which made up for 32% of vessels under the Greek flag and 60.91% of the total gross tonnage, followed by bulkers, which amounted to 12.91% and 24.87% respectively, in 2020. It should be noted, however, that dry bulk ships registered under the Greek flag account merely for around 11% of the total bulker fleet owned by Greeks. Oil tankers perform significantly better, making up 23% of the Greek-owned vessels flying the Greek flag. As mentioned earlier, Greek shipowners continue to possess the largest merchant marine fleet in the world.

Based on the results of EY's 2017 survey with leading members of the Greek shipping community, a large proportion of Greek shipowners had a relatively positive (38%) or positive (42%) perception of the quality of the Greek flag. However, they did not attribute great value to the advantages of flying the Greek flag, since only 13% of them believed that it provided them with significant competitive advantages. The survey also revealed that, among the most

Most important national fleets by DWT capacity* in 2020



Source : Clarksons Research World Fleet Monitor, EY analysis
*Analysis includes only major vessel types

important perceived advantages of the Greek flag, were the high standards of compliance with the Paris MoU (38%), as well as the availability of marine engineers (33%) and offshore personnel (27%).

An outline of the Greek shipping cluster

Owing to the fact that the clear advantages of Greece as a maritime cluster are recognized by the majority of the Greek shipping community, the latter has opted to establish the center of its fleet management activities in Greece. Attica, and the port of Piraeus in particular, constitute the core of the Greek shipping cluster. Besides being the traditional capital of the Greek shipping industry, Piraeus is also a major international transshipment hub and among the ten most popular Mediterranean cruise ports.

In 2019, the port of Piraeus handled nearly 5.65m TEUs in its container terminals. In addition, over 16.5m passengers used the port's coastal terminal and more than 1m cruise passengers were recorded at its cruise terminals¹⁶.

Piraeus and the broader Attica region have attracted the most important shipping activities, including, among others, ship management companies, shipyards and shipyard subcontractors, port operators, freight forwarders and 3rd party logistics providers (3PLPs). The world's best-known and strongest ship management companies, as well as operators of Greek interests, hold their offices in Piraeus. By looking at the registry of maritime companies, a total of 3,665 maritime and shipping-related companies were found in 2018 (up by 1.19% compared to 2017), grouped in 28 main categories of economic activities, with the most important being 795 "ship management and operating companies" and 606 "spare parts and marine equipment" companies¹⁷.

Technical functions, accounting, commercial services, crewing, and chartering are the most frequent activities performed in Piraeus by the shipping companies that had participated in EY's 2017 survey. By leveraging its current strengths and aforementioned core advantages, the Greek shipping cluster has the

potential to maintain its leading position for years to come. However, as a response to global competition, several initiatives have already been implemented - or are planned - by the Greek shipping community, aiming to attract more shipping companies to the Piraeus cluster and more vessels and ship-owners to the Greek registry.

The establishment of a more attractive and business-friendly regulatory environment, supported by a more favorable national tax framework, have been promoted as the two most important areas on which public sector interventions should focus, in the coming years. The further enrichment of the Greek shipping cluster with new services and capabilities, is the second most important focus area for the improvement of the competitiveness of the Greek maritime cluster. To

this end, efforts should concentrate on the two aspects where the Greek maritime cluster mainly lags compared to its competitors: ship financing and research, as well as technology. Therefore, short- and medium-term measures should focus on securing adequate access to funding for shipping-related facilities, and on improving maritime education and training. The existence of several shipping associations, organizations, as well as marine education institutes in Greece, provides a good mixed foundation which can further enhance the cluster's role as a research and development (R&D) hub.

Piraeus Port Authority (OLP) data shows that the effects of the COVID-19 pandemic were less severe than what had initially been expected, as the number of TEUs handled by the

port of Piraeus in the first half of 2020 may have declined by 6.2% (compared to the same period in 2019), but it was not as devastating as in other significant European ports (e.g. the port of Rotterdam, Europe's largest sea port, recorded a traffic decline of 9.1% in the first half of 2020, as a result of the coronavirus pandemic, while the port of Hamburg saw its TEU throughput fall by 12.4% over the same period)^{18,19,20}.

In total, almost 5.44m TEUs were handled in Piraeus port in 2020, marking a 3.8% decline, when compared to the 5.65m TEUs handled in 2019. However, Piraeus seems to have withstood the COVID-19-related pressures and managed to maintain its position among the top 15 container ports in Europe, ranking fourth for the second year in a row²¹.

The Piraeus port concentrates the majority of the Greek shipping cluster's activities

The world's most well-known Greek shipping companies have established their core businesses in Piraeus.

16.5m passengers
More than 16.5m passengers used the coastal terminal of the Piraeus port in 2019²².

5.44m TEUs
Almost 5.44m TEUs were handled at the port's container terminals in 2020²³.

1m cruise passengers
More than 1m cruise passengers were recorded at the cruise terminals in 2019²⁴.

622
cruise ship arrivals in 2019



18. Rotterdam port H2 traffic falls by 9%, hit by COVID-19, reuters.com, 23 July 2020
19. Hamburg sees TEU traffic plummet in 2020, porttechnology.org, 22 August 2020
20. COSCO SHIPPING Development Announces 2020 Interim Results: Stable Development with Revenue Increasing by 14.2% Y-o-Y, hellenicshippingnews.com, 1 September 2020
21. Top 15 containers ports in Europe in 2020, porteconomics.eu, 2 March 2021
22. 2019 Annual Financial Report, Piraeus Port Authority, 21 February 2020
23. Top 15 containers ports in Europe in 2020, porteconomics.eu, 2 March 2021
24. Cruise Ship and Passenger Arrivals to Greece Rise in 2019, news.gtp.gr, 8 January 2020

15. World Shipyard Monitor, Clarksons Research, 2020
16. 2019 Annual Financial Report, Piraeus Port Authority, 21 February 2020
17. Στατιστικά και Οικονομικά Στοιχεία Πλοίων και Ναυτιλιακών Εταιρειών 2018, nautilia.gr, 17 January

Being the natural maritime interfaces of Europe with Asia, the Greek seaports are key drivers of growth for both the Greek and the European economies.

Greece, having the longest coastline in Europe, with an approximate length of 13,676 km, and an advantageous geographical position at the center of the Eastern Mediterranean, is Europe's natural maritime interface with the Far East, via the Suez Canal. Additionally, seaports are the lifeblood of EU's economy, since the Union is highly dependent on its member states' seaports for trading with the rest of the world, as well as within its internal market.

In 2019, the total gross weight of goods handled in EU ports was over 3.5b - very close to the 2018 numbers, also at 3.5b tonnes. The gross weight of goods handled in the main EU ports in the third quarter (Q3) of 2019 decreased by 3.9% (880m tonnes), in comparison to the second quarter (Q2) of the same year. In the past three years, a seasonal trend has been noticed where Q3 numbers were increased, compared to Q2 numbers. In the fourth quarter (Q4) of 2019, 866m tonnes were handled in EU ports, marking a 3.3% decline from Q4 of the previous year.

In Q3 2019, the total volume of goods handled in the main EU ports was made up of approximately 60% of inward movement of goods. In comparison to Q3 2018, there was clearly a remarkable stability in the inward movement of goods to the main EU ports in Q3 2019, at 527m tonnes. At the same time, outward movement suffered a decrease of 2.8%, falling to 353m tonnes. Inward movement of goods in the first quarter (Q1) of 2019 was the lowest recorded since 2008, right before the beginning of the global economic crisis.

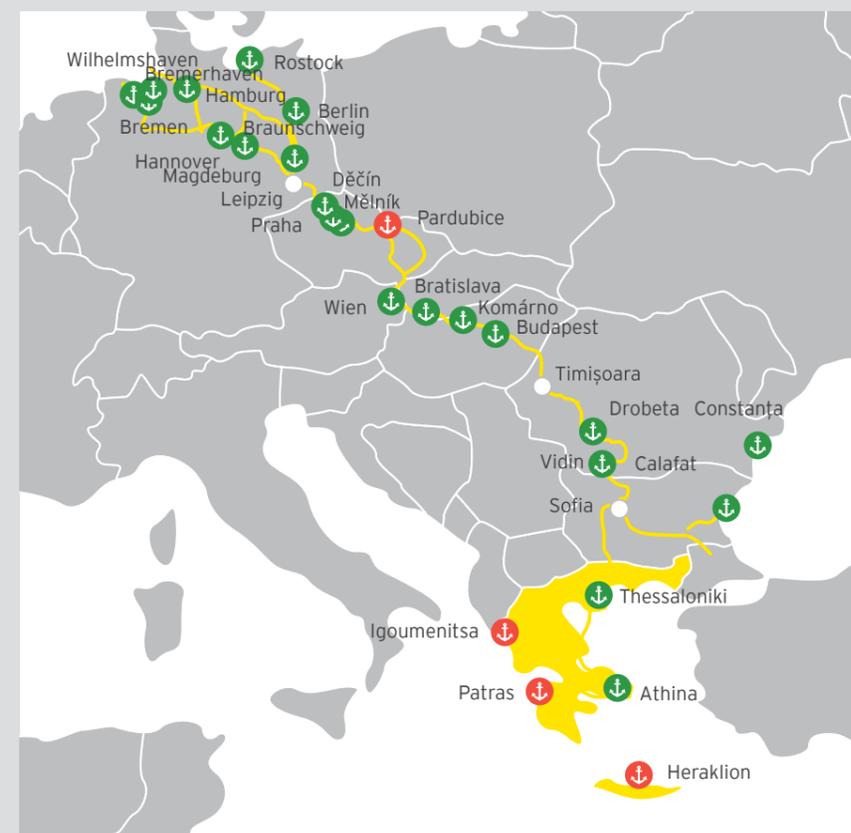
More than 25 important commercial seaports are currently operating in Greece, five of which have been identified by the EU as ports of strategic interest (i.e. "core ports") and have been included into the TEN-T, as key maritime interfaces of the Orient / East-Med (OEM) corridor. These five Greek OEM ports are: Piraeus, Heraklion, Thessaloniki, Igoumenitsa, and Patras. Supported by other regional seaports, the five Greek core ports serve the trade and

economy, not only of Greece, but of several other EU member states and the European Union as a whole. Moreover, 75% of vessels calling in at Greek ports are carrying out intra-EU trips.

Of equal importance for the Greek and the other European economies, is the short-sea shipping of goods to several non-EU countries in the Black Sea and the Mediterranean. Having an annual utilization rate ranging between 70%-85%, Greek OEM ports do not experience major capacity bottlenecks. All Greek OEM ports have appropriate transshipment facilities and relevant equipment in place, facilitating their connection with the national road network. In addition, the two largest and busiest ports, those of Piraeus and Thessaloniki, have state-of-the-art railway connections, supporting seamless intermodal transportation by all means of transport (road, rail, and maritime) along the supply chain of the OEM corridor, toward the major economic centers in Central Europe.

Due to the fact that the Greek ports have recorded significant growth in cargo throughput in the previous years, important investments have been planned, to ensure port infrastructure and facilities meet new transport and logistics requirements, and to absorb the expected growth of cargo in the next decade. At a time of scarce public funding, funds from the EU - from sources such as the Common European Facility Fund and the Cohesion Fund - as well as private sector support, through public-private partnerships (PPPs) and Concession Agreements, are critical. More than €650m have been allocated by the Common European Facility / Cohesion Funds alone, to support studies or works which contribute to the development of necessary infrastructure for the Greek transportation network²⁵. A significant part of these funds will be allocated to the expansion and upgrade of the Greek ports, as well as the improvement of their integration to the OEM rail / road corridor.

25. European Union launches Connecting Europe Facility call worth €1.4 billion, tornosnews.gr, 19 October 2019



Source: European Commission

The Orient / East-Med Corridor interconnecting Greek ports with Central Europe

The Orient / East-Med Corridor is part of the "Core Network Corridors" of the European Union.

As depicted in the side map, the corridor connects the German ports of Bremen, Hamburg, and Rostock via the Czech Republic and Slovakia, with a branch running through Austria to Hungary and the Romanian port of Constanța, and then through the Bulgarian port of Burgas (with a link to Turkey) to the Greek ports of Thessaloniki and Piraeus, ending up to a "Motorway of the Sea" link to Cyprus. It comprises of railways, roads, airports, ports, rail rapid transits (RRT's), and the Elbe River inland waterway.



COSCO is aiming to exceed €7m annually in investments, after the completion of the expansion works for container traffic, and expects Piraeus to evolve into one of the world's 30 largest container ports. COSCO's goal for 2019 was making Piraeus the premier port in the European Mediterranean, with a capacity of more than 5m containers; a goal which was indeed achieved²⁶. In the meantime, a total of 123,784m TEUs were handled at COSCO's terminals worldwide in 2019 - 5.5% up from the 117,365m TEUs recorded in 2018.

COSCO is the third largest operator in the world by equity TEU throughput. The Piraeus port, meanwhile, ranks 26th among the world's 100 largest container ports, according to Lloyd's List 2020²⁷.

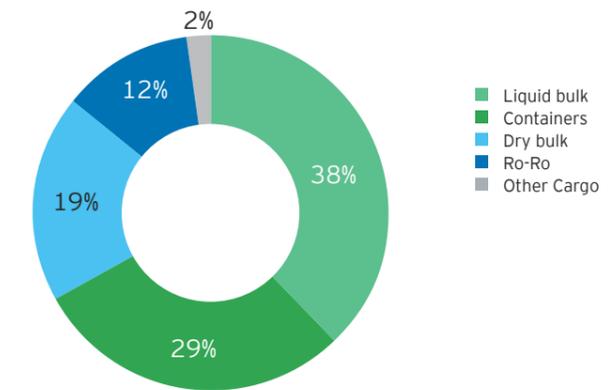
Piraeus also ranked as the fourth largest port among Europe's 15 largest ports in 2019 and 2020, and the biggest port in the Mediterranean, effectively skyrocketing the port from the 96th to the 30th place, in the global ranking. The port of Rotterdam in the Netherlands is the

biggest port in Europe in 2020, with 14.35m TEUs of traffic, followed by the port of Antwerp in Belgium, with 12m TEUs, while Germany's Hamburg is third, with 8.5m TEUs. Every week, between 16 and 18 freight trains depart from Piraeus, heading to Central and Western Europe. The program implementation for the interconnection of China's and Europe's sea and land routes has started and Piraeus is expected to be transformed into one of the world's largest freight-forwarding centers.

26. Piraeus Becomes Top Container Port in Entire Mediterranean, greece.greekreporter.com, 26 May 2020
27. Lloyd's List One Hundred Ports 2020, Lloyd's List, 2020

All Greek ports have achieved radical growth, with container goods recording the largest growth in terms of total tonnage

Gross weight of goods handled in Greek ports, per type of cargo (2018)



Greece is the natural maritime hub in the Eastern Mediterranean

Greek ports are vital for the development of the EU's "Motorways of the Sea" (MoS) concept:

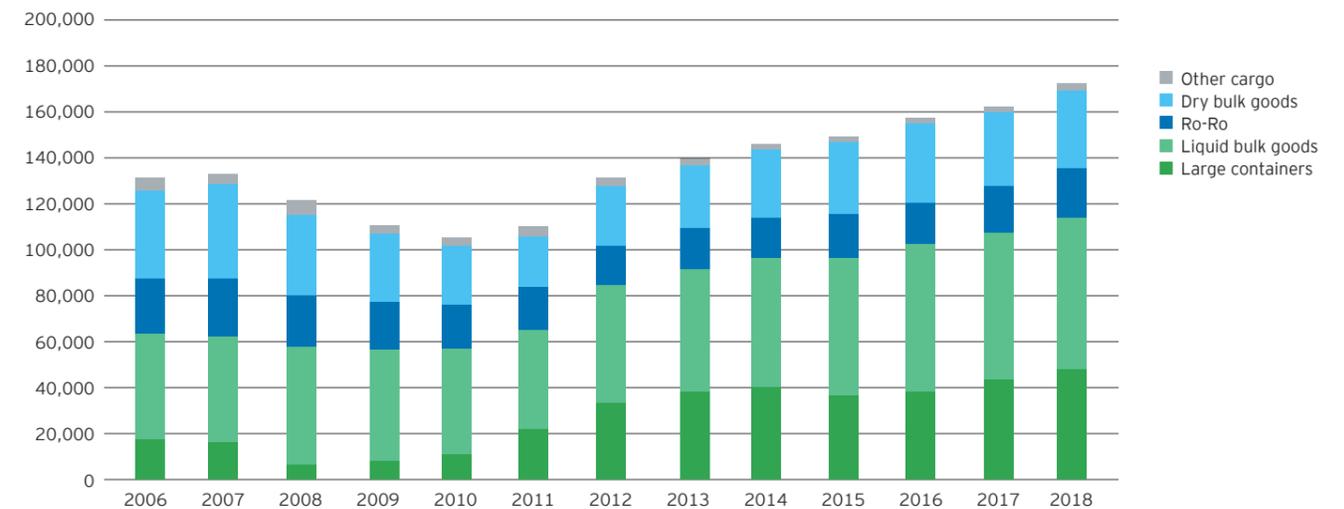
- ▶ EU-27 international trade in goods was valued at €4t in 2019, while both imports and exports were higher compared to 2018.
- ▶ EU-27 exports grew more than its imports, and the trade surplus

increased from €152b in 2018 to €197b in 2019.

- ▶ Maritime intermodal transportation solutions are highly favored by EU transport policies, via initiatives to establish the trans-European MoS network.
- ▶ The Greek ports of Piraeus, Thessaloniki, Heraklion, Patras,

and Igoumenitsa, have been established as critical interfaces of Southeast Europe, since they link Greece with Cyprus in the east (Limassol), with Italy in the Adriatic Sea, and with other non-European countries in the Eastern Mediterranean and the Black Sea.

Gross weight of goods handled in the Greek ports



Source: Eurostat, EY analysis



The core Greek ports are key maritime interfaces of the Trans-European Orient / East Mediterranean Corridor

Piraeus port

- ▶ Piraeus is the largest Greek seaport and the country's main international commercial port.
- ▶ It is the natural gateway to Europe in the Eastern Mediterranean region and has emerged as a major maritime hub for Europe, linking Greece and the EU to Far Eastern and Middle Eastern markets.
- ▶ The Piraeus port is specialized in container traffic; having an annual handling capacity of over 7.5m TEUs, the port of Piraeus ranked fourth among all European ports in 2019 and 2020, in terms of total container throughput, and is first among the Mediterranean's commercial ports, surpassing Valencia and Algeiras, according to Lloyd's List Top 100 Global Ports.
- ▶ With the port's current capacity utilization exceeding 80%, and following its privatization in 2016, new investments in infrastructure are in place, with COSCO planning to expand pier 3 and build a fourth pier. Planned investments of €300m in the next two years are expected to increase port capacity to more than 10m TEUs²⁸.

Thessaloniki port

- ▶ The port of Thessaloniki is one of the strongest Greek ports. It is a transshipment container port, specializing mainly in dry cargo.
- ▶ Thessaloniki constitutes the primary entry port for Northern Greece and acts as an international logistics hub for all Balkan countries. The port attracts both grouped and conventional cargo traffic.
- ▶ The port's annual handling of container traffic is in the range of 0.5m TEUs. However, an expansion of the container terminal is planned, which will increase its capacity to 1.3m TEUs. Right now, there are seven companies and consortia interested in undertaking the extension of the Thessaloniki port's sixth pier, which will reportedly cost around €120m²⁹.
- ▶ The master plan, prepared in 2017 and approved by the European Commission, sets clear short- and medium-term priorities for the development and upgrade of Thessaloniki to a middle category European port; the main developmental actions aim at raising the capacity of cargo terminals, as well as upgrading the sea cruise facilities and transit services capabilities to handle 150,000 passengers annually. This is expected to be completed by mid-2023.

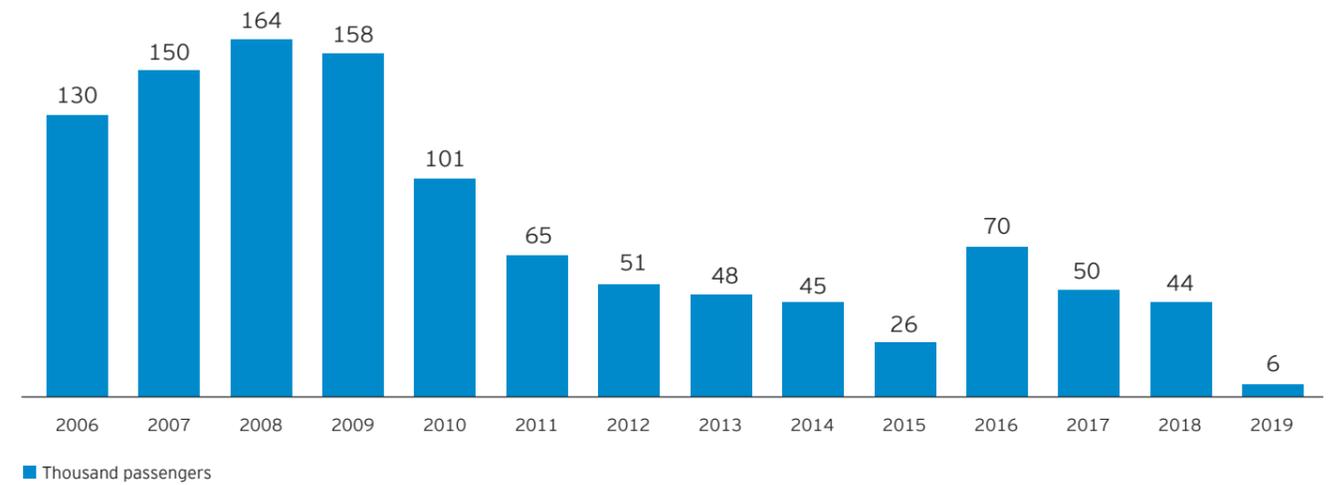
Furthermore, the transfer of 67% of the Thessaloniki Port Authority (OLTH) shares to a new owner, took place on 23 March 2018. This marked the end of a 13-year long privatization process for Greece's second largest port. The new majority owner is the Cyprus-based "South Europe Gateway Thessaloniki Ltd." (SEGT) consortium, comprised of three companies: the German "Deutsche Invest Equity

Partners GmbH" fund, the "Terminal Link SAS" container terminal management company, and "Belterra Investments Ltd."³⁰. The new majority shareholder acquired the management of major port infrastructure and superstructure, which include, among others, 6,200 meters of quay and 1.55m square meters of terrestrial spaces, warehouses, offices, etc. It is also worth noting that the available cash and cash equivalents of OLTH, at the close of financial year 2017, amounted to €81m.

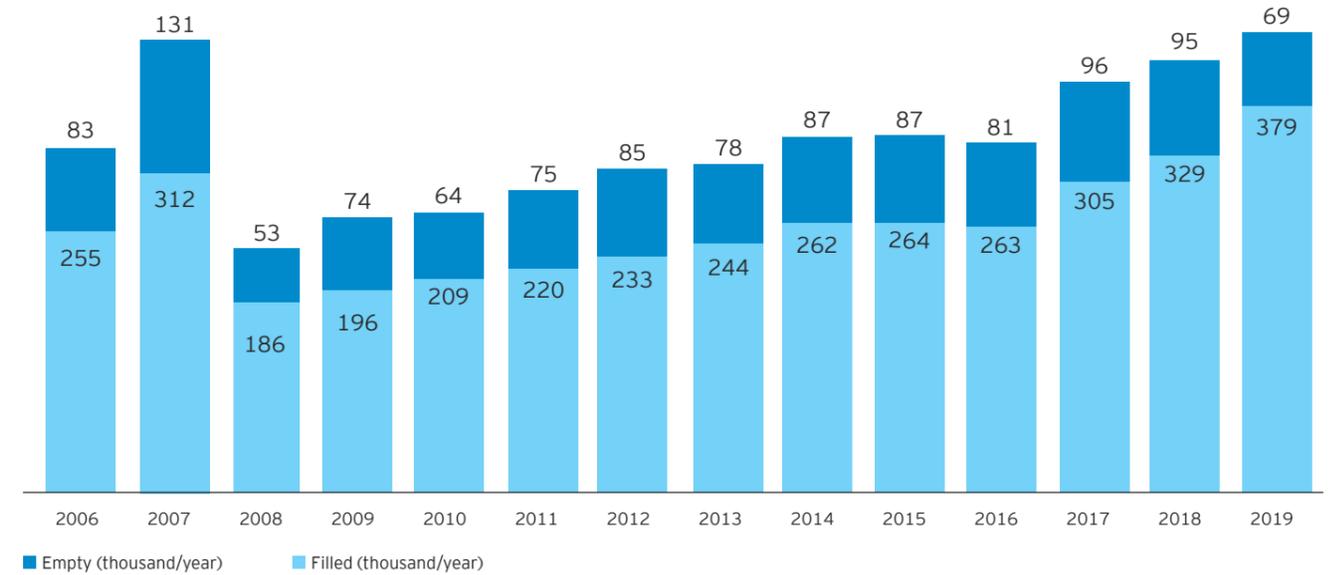
The shares' sale agreement also stipulates that the new owner pay 3.5% of the company's turnover to the Greek State, an amount that may not be less than €1.8m. SEGT undertook mandatory investments of €180m: an investment of €130m is planned for the expansion of container terminal pier 6, an investment of €30m for the modernization of the cargo handling equipment, at both the container and the conventional cargo terminals, and an extra €20m investment for the restoration of the passenger terminal building and for general port development³¹.

For its part, the Greek State has undertaken to invest in projects that increase the port's connectivity. The contract also contains provisions for the minimum guaranteed profitability of the port of Thessaloniki under the new ownership regime. Conditions for minimum container traffic and contractual cargo are provided on an annual basis, throughout the term of the contract. Moreover, there are conditions that refer to minimum levels of productivity in the handling of containers, conventional cargo and cruise passengers³².

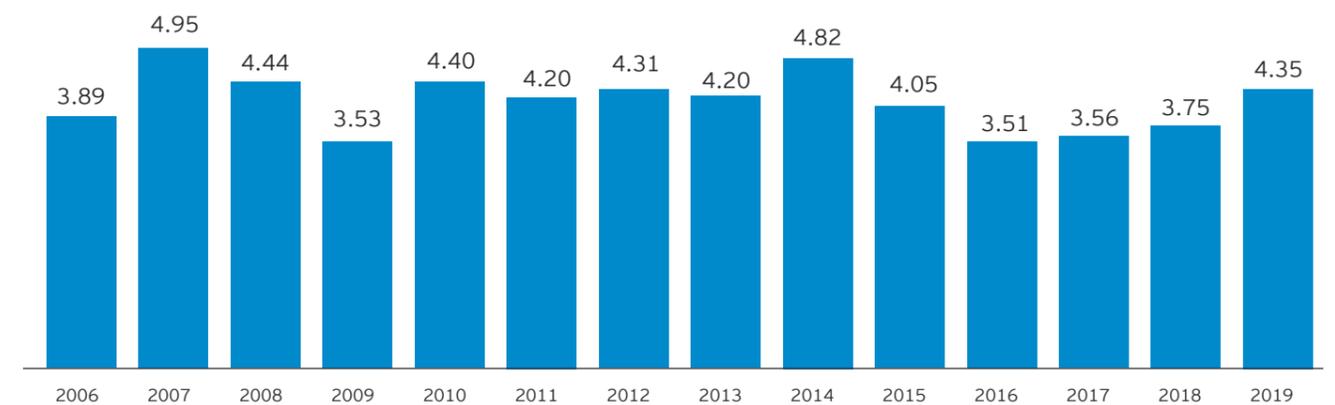
Passengers at the Thessaloniki port per year



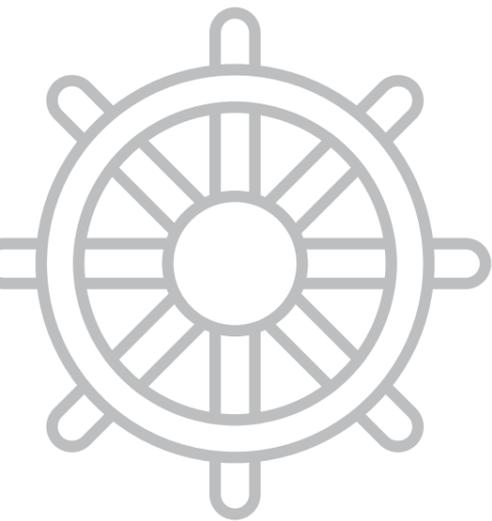
TEUs at the Thessaloniki port per year



Conventional load at Thessaloniki port per year (million tonnes of general and bulk cargo)



Source: Thessaloniki Port Authority (OLTH)



28. Cosco Plans new Pier to expand Piraeus capacity to over 10m TEU, searade-maritime.com, 15 August 2019
 29. Transforming Thessaloniki Port into a Regional Transport Hub, greeceinvestorguide.com, 21 February 2020
 30. GREPORT2018: Report on Greek ports, porteconomics.eu, 3 June 2018
 31. Supply Chain and Logistics Magazine Issue 95, o.mind creatives, 12 June 2018
 32. GREPORT2018: Report on Greek ports, porteconomics.eu, 3 June 2018

Alexandroupolis port

The port of Alexandroupolis, along with the port of Kavala, are high on the Hellenic Republic Asset Development Fund's (HRADF) agenda; in fact, after legislation proposed by the Ministry of Shipping and Island Policy was adopted by the Greek Parliament, the privatization of the port of Alexandroupolis is underway and, in October of 2020, the HRADF announced that four interested parties have submitted an expression of interest for the acquisition of a majority stake of at least 67% of the Alexandroupolis Port Authority³³.

The concession of the Port Authority of Alexandroupolis (OLA) will cover the use and exploitation of the eastern part of the harbor, namely the container ships' berth, the container terminal (SEMPO) and the large 400 acres area located in the eastern part of the harbor. It is worth noting that the container ships' berth has a draught of 12 meters.

The port of Alexandroupolis, which is linked to the national railway network, serves only conventional cargo to date, as it lacks container loading and handling equipment, and still does not feature a Free Zone³⁴.

However, over the past two years, many individuals have expressed their interest regarding OLA, while interest by an American company in Gastrade's LNG floating station has increased not only the port's value, but also the value of the city of Alexandroupolis and of the wider area as well.

Alexandroupolis has excellent potential to develop into a commercial cargo / bulk cargo logistics management center, while it is also fit for the construction of shipbuilding and ship-repairing shipyards and a marina.

Regarding the country's 10 regional ports, the government will likely review the current legal framework, to provide flexibility and added value. On the basis of previous studies, the harbors of Alexandroupolis and Kavala in Northern Greece and the ports of

Igoumenitsa and Corfu in Western Greece, are leading candidates. These ports undoubtedly have a strong role to play in upgrading the country's infrastructure and, taken together with the rail and road transport complex that has also been developed, Greece is gradually becoming a transport and commerce gateway to Europe.

Igoumenitsa port

The port of Igoumenitsa is located in Northwestern Greece, and, in particular, in the Epirus region:

- ▶ The port of Igoumenitsa is one of the largest roll-on / roll-off (Ro-Ro) international transport ports, both in Greece and in the Eastern Mediterranean.
- ▶ Millions of tonnes of goods are transported annually from the port by international transport trucks, serving Northern Greece, the Southern Balkans (mostly Bulgaria and Turkey), as well as some Middle Eastern countries.
- ▶ It is located at an important road junction, where the Egnatia Odos and Ionian Odos motorways converge.
- ▶ The port is currently managed by the Port Authority of Igoumenitsa until 2042, under a concession agreement with the Greek Government.
- ▶ The port is located at a naturally protected area, in the bay of Igoumenitsa. The gulf is oriented to the West, which is also the only source of wave activity. As a result, there is no port protection infrastructure, due to the natural protection provided by the area.
- ▶ The jurisdiction of the Port Authority of Igoumenitsa covers the main port within the urban limits of Igoumenitsa (for passenger use), the fishing units of Plataria and Sagiada (applications for whose conversions into yacht shelters have been filed), as well as the recreation crafts unit in Sivota (which has been designed from the beginning as a recreation boat shelter, but has not yet been granted a permit).
- ▶ The port serves exclusively passenger traffic through passenger ferries, including limited cruise ship activity.

- ▶ Passenger traffic is divided into the international ferry terminal (new phase A and phase B projects) and the domestic terminal for passenger carriers (i.e. the docks of the old port).
- ▶ There are 17 ramps in the new port of Igoumenitsa and eight in the old port.
- ▶ The port of Igoumenitsa sits at the starting point of the Egnatia Odos motorway and is, therefore, a vital gateway to both Greece and Europe, through passenger / ferry services.
- ▶ The creation of a marina has been introduced into the port's master plan, while its location has been approved by the authorities.
- ▶ The design of a logistics center 17 km away from the port, within walking distance of the village of Grikas, in an area of approximately 890,300m², is planned by the Port Authority of Igoumenitsa, to add further value to port operations.

Infrastructure

- ▶ Following the completion of the second phase of the port extension project (phase B), the domestic and international passenger ferry terminals will be completely separated and will have sufficient mooring and terminal capacity.
- ▶ Phase B of the port extension project that includes the completion of the dock and of the second passenger terminal has mostly been completed, while phase C that includes the docks, is expected to be completed during 2021. This extension project will increase the port's capacity by contributing to the development of both passenger ferry and cruise liner activity.
- ▶ The exceptional road access and connectivity to the Egnatia Odos motorway strengthens the competitive position of the port of Igoumenitsa as a passenger ferry hub.
- ▶ Connection to the railway is unlikely to be completed in the near future, as it is not covered by the suggested concession plan.

Loads and operation

- ▶ International passenger and vehicle traffic volumes have recovered after the economic crisis, and provide a solid basis for profitable operations. The loading and unloading of passenger ferries is mostly carried out by liner staff. Added value is generated by the provision of services to freight vehicles and the operation of the international passenger terminal.
- ▶ Short-sea shipping to Corfu and the other Ionian Islands is self-sufficient and will not benefit from the concession, since the added value of this activity is very low.
- ▶ Cruise ship traffic is still low, as there is limited ability to navigate cruise ships calling in for religious and cultural tourism purposes.

Key obstacles

- ▶ The profitability of the Port Authority of Igoumenitsa will be significantly reduced if the international terminal is added to the concession agreement. The loss of dividends would be offset by concession fees.
- ▶ The concession holder must maintain a level playing field for all international shipping companies.

Technical Assessment

- ▶ The general condition of the port is good.
- ▶ 17 ramps for Ro-Ro ships are available at the existing facilities of the new port.
- ▶ Eight ramps for Ro-Ro / open passenger ferries are available at the premises of the old port.
- ▶ Four extra ramps will be created during phase C of the port's extension project.
- ▶ Passenger terminal buildings are in a good condition.
- ▶ Port security procedures have been effectively implemented.
- ▶ The port bumpers, which were built during the first phase of the port works, are obsolete and in bad condition (due to the corroded metallic material and high-density polyethylene).
- ▶ Phase C will enhance the capacity of the port, particularly at truck level.

Patras port

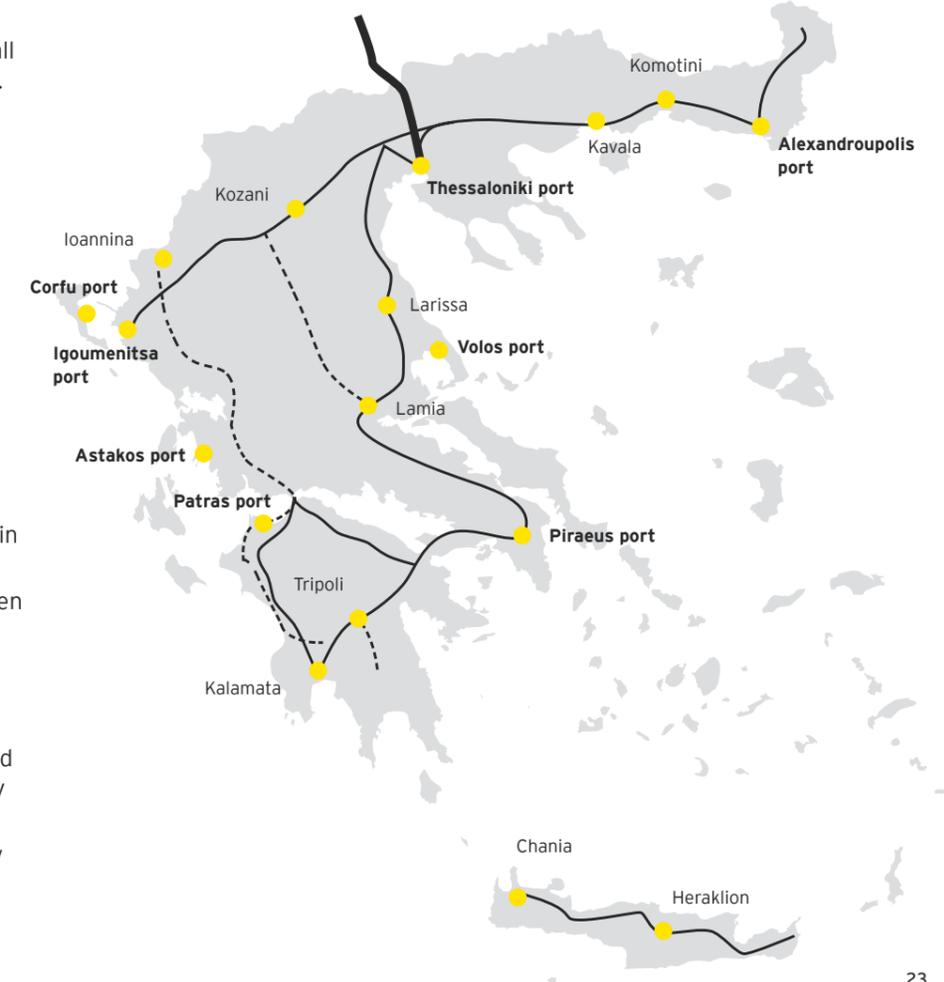
- ▶ The port of Patras plays an all-important role in the economic life of the city, and Western Greece in general.
- ▶ It is mainly a passenger port which handles a significant part of the total passenger sea traffic between Greece and other countries.
- ▶ As a commercial port, Patras connects Greece with the Italian ports in the Adriatic Sea via Ro-Ro services, which then continue up to Central Europe.

The port of Patras will be a stopover on the Istanbul-Trieste route and vice versa, to be utilized by the ships of the "U.N. RO-RO" shipping company, based in Istanbul. This company was acquired by one of Europe's largest supply chain companies, the Danish "DFDS", which dominates the North Sea trade routes and has an extensive combined transport network across Europe.

Ships will be calling in four times at the Patras port on a weekly basis, as planned; two to each direction (to and from Trieste), with the prospect

of increasing the calls to three, for each direction. The purpose of these intermediate stops at the Patras port en route to Trieste, is the transshipment of consignments from Turkey destined to the Italian ports south of Trieste (i.e. Brindisi, Bari, Ancona, Venice), which will be served from existing lines of other companies from the port of Patras, as well as from the unloading of cargo for the domestic market. Conversely, ships that return from Trieste with a direction to Istanbul, will be loading cargo arriving to Patras from the aforementioned Italian ports, as well as cargo from the domestic market destined for Turkey and other eastern countries.

The Patras port supports and reinforces the efforts of the Port Authority of Patras (OLPA), in line with its strategic plan to make the port a strong intermodal transport hub of the Central Trans-European Network, and an interconnection link between the two major axes crossing Italy: the East Mediterranean and the Scandinavian corridors.



33. U.S. developing interest in Alexandroupolis port, portseurope.com, 5 February 2018

34. Free Zones are special areas, usually near ports or airports, reserved for the storage of imported goods under beneficial customs conditions. When goods are held in a Free Zone, import duty, VAT and excise duties are suspended on goods imported from outside the European Union, until they are released into free circulation, used or consumed within the Free Zone.

Corfu port

Overview of the port

- ▶ The port is located at the east coast of the island of Corfu, which belongs to the Ionian Islands group.
- ▶ It is managed by the Port Authority of Corfu until 2042, under a concession agreement with the Greek State.
- ▶ The port mainly serves passenger services via Ro-Ro, cruise ships, hydrofoils, high-speed boats, open-air passenger, and day-trip boats.
- ▶ The Corfu port is interconnected with both domestic (e.g. Igoumenitsa and Paxos Island) and international ports, such as Bari, Brindisi, Venice, and Ancona.
- ▶ The construction of the various port areas has been planned in successive phases, with a significant development being the extension of the main port of the harbor by 430 meters.
- ▶ All passenger activities are served through the port's internal facilities, while cruise ships are docked along the main pier toward the west-east direction. The length of the pier is approximately 770 meters, while the mooring of cruise ships takes place on both sides, with the possibility of serving four cruise ships at the main pier docks.
- ▶ Based on the available depth of the main mooring docks, cruise ships up to 300 meters long can be docked.
- ▶ Facilities for passenger services and accommodation have been constructed within the port area. More specifically, the old terminal passenger station (1,644m²), the new terminal passenger station (3,762m²), the duty-free building (214m²), the customs building (1,100m²), and the exclusive for cruise passengers home passenger terminal station (1,000m²).

Infrastructure

- ▶ With the completion of the current port extension for domestic passenger ferries, the port will have sufficient dock and terminal space for both cruise ships and passenger ferry activities.
- ▶ Its proximity to the Corfu airport (3.5 km) is an advantage for the development of the port as a starting point for cruise ships.

- ▶ Off-harbor traffic has improved, but still passes through the town of Corfu.

Passengers and operation

- ▶ The International Ship and Port Facility Security Codes, as well as security control and traffic management procedures, are implemented very efficiently.
- ▶ International routes to / from Italy do not interfere significantly with cruise ship traffic, as arrivals and departures are scheduled mainly in the afternoons, when cruise ships have already departed.
- ▶ As Albanian coastal shipping is growing rapidly posing some logistics challenges, a separate terminal would help improve the situation.

Key obstacles

- ▶ Mixing passengers outside the Schengen Area (e.g. routes to Albania) with cruise passengers.
- ▶ The recent expansion of the main cruise ship pier does not have enough width to simultaneously accommodate the disembarkation of passengers to both sides. Although this situation is rare, additional problems may occur during peak periods, with the simultaneous arrival of many cruise ships, as the option of splitting arrivals during the week for decongestion is not available.

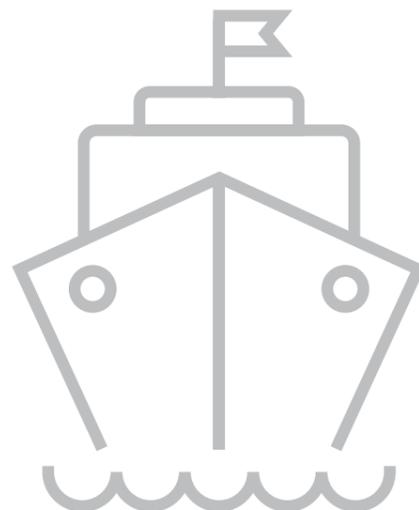
Revenue is based on the following traffic forecasts:

- ▶ Existing cruise ship volumes - 630,000 passengers on average in recent years, including 70,000 passengers leaving from Corfu port.
- ▶ The current tax per passenger is low compared to Mediterranean standards, and there may be a possibility for an increase. This has been taken into account in earnings estimates, in both the basic and high scenarios for the concession.
- ▶ In the basic scenario for the concession, the growth target will be 840,000 passengers, including 140,000 passengers leaving from Corfu port.
- ▶ There are good trade prospects and potential for the development of the cruise ship section - both as a

passage and as a starting point for ships.

Technical assessment

- ▶ A platform of more than 1,500 meters is available for the docking of cruise ships (up to 300 meters in length).
- ▶ A platform of more than 2,000 meters, with a docking space of more than 1,000 meters for passenger ships (e.g. passenger ferries, seaplanes, open-type passenger ferries), serving the coastal routes to the ports of Igoumenitsa and of Paxos Island.
- ▶ At least seven stern and side docks are currently available for activity of equal size.
- ▶ Rehabilitation works are required for the majority of the old port's docks. Concrete surfaces are currently in poor condition, as the concrete is washed-out.
- ▶ The recently completed main pier extension is of a small width (12 meters), creating difficulties when passengers disembark from cruise ships on both sides at the same time. The existing width prohibits buses from picking up passengers, since there is no room for them to maneuver. There will probably be a need for widening the pier to make adequate maneuvering room for buses, in the future.
- ▶ The old passenger terminal requires major renovation.



Volos port

Overview of the port

- ▶ The port of Volos, located in the Pagasetic Gulf, is the only important port of Thessaly.
- ▶ It is managed by the Port Authority of Volos, under a concession agreement with the Greek State until 2042.
- ▶ The port's location is considered strategic, as it sits at the center of the Greek mainland, 330 km north of Athens and 215 km south of Thessaloniki.
- ▶ The port's facilities are deployed along the city, with several urban buildings located within the port.
- ▶ Volos's port serves multiple activities, namely commercial (bulk and bulk cargo), passenger (coastal and cruise), as well as tourist and fishing activities.
- ▶ The port is connected to the Patras-Athens-Thessaloniki-Evzoni motorway (PATHE - E75), through the Volos-Velestino national road, while it is also accessible via the city's center.
- ▶ The port is also connected to the national rail network via constructed railways, but no rail transport has been scheduled or executed for over a decade. This is mainly because the port's connection via rail requires interrupting city traffic.
- ▶ The existing port area is 676,695m², with concentration of cargo management at two terminals.
- ▶ The general plan provides for the creation of a terminal dedicated to the import of scrap, which could be transferred to pier 3 (one dock - 250 meters).
- ▶ The plan also provides for the creation of a multi-purpose dry bulk (grain / fertilizer), steel / general cargo, liquid bulk cargo, and container terminal. Subject to proper organization and the use of appropriate equipment, these could be served by pier 2. Container volumes are significantly low, not necessitating a separate container terminal at pier 2.

Other port functions

- ▶ Cruise activity in Volos used to be important before the beginning of the recession in Turkey (60 arrivals/year) and is expected to return to

these levels of activity or develop even further. The mountain ranges of Meteora and Pelion are the main tourist attractions in the area, thus creating a need for modern cruise ship installations, but existing docks do not have the necessary length. Converting the former grain silo in pier 1 to a cruise terminal, could be an interesting alternative.

- ▶ Recreational boat tourism in the wider area requires better facilities, as there is no marina offering full services between Thessaloniki and Athens. Three locations were considered for the establishment of a marina in the 2015 master plan; however, no choice has yet been made.

Key obstacles and solutions

Proximity to the city of Volos is a problem, as dust and noise raise complaints from citizens and can lead to restrictions on port working hours. The concentration of passenger, cruise and marina activities on the east side, and freight management on the west side, would be a reasonable and desirable option. However, even in this case, cargo handling at the future multipurpose terminal should include measures to reduce its environmental impact (i.e. dust, noise, and light pollution). This proposed potential relocation will require a modification of the plan.

- ▶ The basin between pier 2 and pier 3 needs to be excavated, partially removing contaminated soil from the seabed. Targeted works on the adjacent rivers - which are already necessary to address the city's flood problems - could help resolve the port's sediment problems.
- ▶ Reduced wave activity and existing protection infrastructure (i.e. the main dock and existing breakwater) ensure the safe operation of existing facilities and goods management.
- ▶ Connectivity between the national rail network and existing railways within the port (pier 1), will enhance the port's dynamics by creating new prospects of combined freight transport in Greece, and could be a competitive advantage for Volos, as the majority of domestic ports do not have this option.

- ▶ It is necessary to immediately rebuild the completely damaged concrete surfaces and the rail in platform 10 used for scrap management in pier 1, as environmental issues have arisen from scrap residues, in addition to operational issues.
- ▶ A significant proportion of port management equipment is not operational and needs to be repaired or removed from the piers.
- ▶ The types of bumpers that have been installed in most docks are obsolete and no longer appropriate for docked vessels, thus their gradual replacement is required.
- ▶ It is suggested that the large fishing vessels for professional use currently docked at platforms 6A, 7A, and 7B, be transferred from the front side of the city, either to different parts of the port or to a new smaller, complementary marina.
- ▶ If fishing activity is transferred to a different part of the port, then a tourist shelter or a small marina can be created at the entrance of the city, something which will create added value for both the city and the port.
- ▶ The current passenger terminal building on the central dock is practically out of use; therefore, it is necessary to examine alternative options for its re-operation, if possible.
- ▶ The existing location for cruise ship activities and the respective passenger terminal, are considered inappropriate.
- ▶ The three cranes in platform 10 and one of the two cranes in platform 8, are out of order.
- ▶ The 15,000m² capacity silo installation has been out of use since 2012.

Following the privatization of the port of Piraeus, Greece recorded substantial growth in container traffic, attracting significant shares of the West-East seaborne trade.

New growth potential after the privatization of the Piraeus port

Containerized traffic in Greek ports increased by more than 5.5 times, in terms of total tonnes of goods handled between 2009 and 2018³⁵. This growth is attributed to the outstanding growth of container throughput in the port of Piraeus, following the beginning of the concession agreement with COSCO in 2009. In fact, the port of Piraeus dominates the Greek container market, serving 86% of the total container throughput in Greek ports, followed by the port of Thessaloniki³⁶. Three other Greek ports also handle a small number of containers.

Piraeus's growth in container throughput has been outstanding in the last 10 years. Since COSCO started operating and managing pier 2 of the Piraeus container terminal in 2008 – and later constructed and operated pier 3 (that is currently being expanded) – the port has achieved substantial growth. Between 2008 – when the port recorded the weakest performance in its known history – and 2018, Piraeus increased its container traffic more than 11 times. When compared to 2006, Piraeus port shows an impressive 10.4% compound annual growth rate (CAGR). The situation at the other Greek ports remains stable, despite Piraeus's port growth the previous years.

In 2015, the port's rail connection to the Thriasio Pedio freight center and the TEN-T European Orient-East Mediterranean Corridor was completed, thus increasing its intermodal capacity. COSCO took advantage of this opportunity by developing competitive and reliable end-to-end intermodal transportation solutions for Central Europe. In cooperation with TRAINOSE – the Greek railway undertaking – multinational companies such as HP, Sony and Huawei are currently using approximately 15-20 block trains per month, in direct connection to Piraeus

port, to transport their products to Central Europe. Piraeus's performance is expected to further improve in the immediate future, as a result of the privatization of the port that took place in 2016.

COSCO, which is now the owner of the port, will put in place more than €600m worth of investments within the next years, planning to help the port capture the first place among commercial ports in Europe. In order to do so, they are planning to boost its operations, including mandatory investments of €300m by the end of 2022, allowing COSCO to acquire an extra 16% stake of the company. COSCO is also targeting to increase the port's capacity to more than 10m TEUs per year^{37,38}.

In addition, the port owner is investing in new logistics facilities within the port, and in achieving better integration with the railway and road networks, aiming to remove any existing bottlenecks, and transform the port of Piraeus to a state-of-the-art logistics hub, connecting Asian and European trade. COSCO promotes new synergies with railway undertakings, major shipping lines, and leading logistics providers in Greece and abroad, in order to improve the Greek hinterland and develop new and reliable intermodal logistics solutions toward Central Europe. To this end, COSCO is in close cooperation with the Greek State and the relevant stakeholders, to support the alleviation of intermodal bottlenecks across the entire national railway network, aiming, in particular, at enhancing interoperability among the different modes of transportation, improving cross-border railway links, and increasing the reliability of the railway system.

35. Top 20 ports - volume (in TEUs) of containers handled in each port, by loading status (main ports), Eurostat, 22 February 2020 - EY analysis

36. Country level - volume (in TEUs) of containers handled in main ports, by loading status, Eurostat, 22 February 2020 - EY analysis

37. «Στόχος της Cosco η συνεχής ανάπτυξη του ΟΛΠ», Kathimerini.gr, 16 September 2019

38. China, Greece agree to push ahead with COSCO's Piraeus port investment, reuters.com, 11 November 2019

Evolution of container throughput in the Piraeus port (1,000 TEUs, 2006-2020)



Source: Piraeus Port Authority S.A. (OLP)

- ▶ Piraeus lost half of its traffic during the 2008-2010 period, mainly due to poor operating conditions and business management inefficiencies.
- ▶ In 2009, COSCO was awarded the concession agreement to manage and operate pier 2 and pier 3 of the Piraeus container terminal, for 35 years. On the other hand, pier 1 remained under the management of the Piraeus Port Authority.
- ▶ The concession agreement with COSCO for the operation of pier 2 has changed the picture; from 2011 to 2019, Piraeus' throughput has more than tripled.



COSCO's vision to turn Piraeus into the south gate to Europe, is transforming Greece into a leading international transit hub for products and services in the West-East trade route.

China's 21st Century Maritime Silk Road initiative brings new investment plans and growth opportunities for Piraeus

More than 10 years ago, COSCO – China's shipping giant, the third largest container shipping and second largest port operator in the world³⁹ – realized the benefits of Greece as a maritime and logistics center, by investing in the port of Piraeus. In October 2009, COSCO was awarded the concession agreement to start managing and operating pier 2 and pier 3 of the Piraeus container terminal. From that year onward, port growth in container traffic has been impressive, with Piraeus being one of the most rapidly growing ports in Europe, becoming the largest commercial port in the Mediterranean, and the fourth largest among all European ports for 2019 and 2020, in terms of total container throughput.

This growth has been mainly the result of COSCO's investments in either developing new infrastructure, machinery, and equipment, or upgrading existing ones, as well as in improving port operations and securing maritime freight in the West-East trade corridor. The provision of the port's terminal services was reorganized in line with the latest standards, and significant investments have been made in upgrading the pier 2 terminal and constructing a new pier 3 at the Piraeus container terminal. However, this was only the first step in the port's development. There are newly planned and on-going investment projects in place for Piraeus, that will further boost the port's role as the primary seaport hub in the Mediterranean, including repairs in pier 1 and the underground connection with the car terminal.

The completion of the 21st Century Maritime Silk Road (MSR) initiative,

which is part of China's Belt and Road (B&R) initiative, will highly influence the global containerized trade market. More than US\$250b have been allocated to the B&R initiative, out of which, US\$40b are for developing and securing maritime hubs, inter-oceanic channels, and trading links for the MSR initiative. Although the impact of the new Silk Road project cannot be thoroughly calculated, the scale of the initiative and the economic figures involved are expected to reshape the trade between Europe and Asia, thus creating new opportunities for Greece.

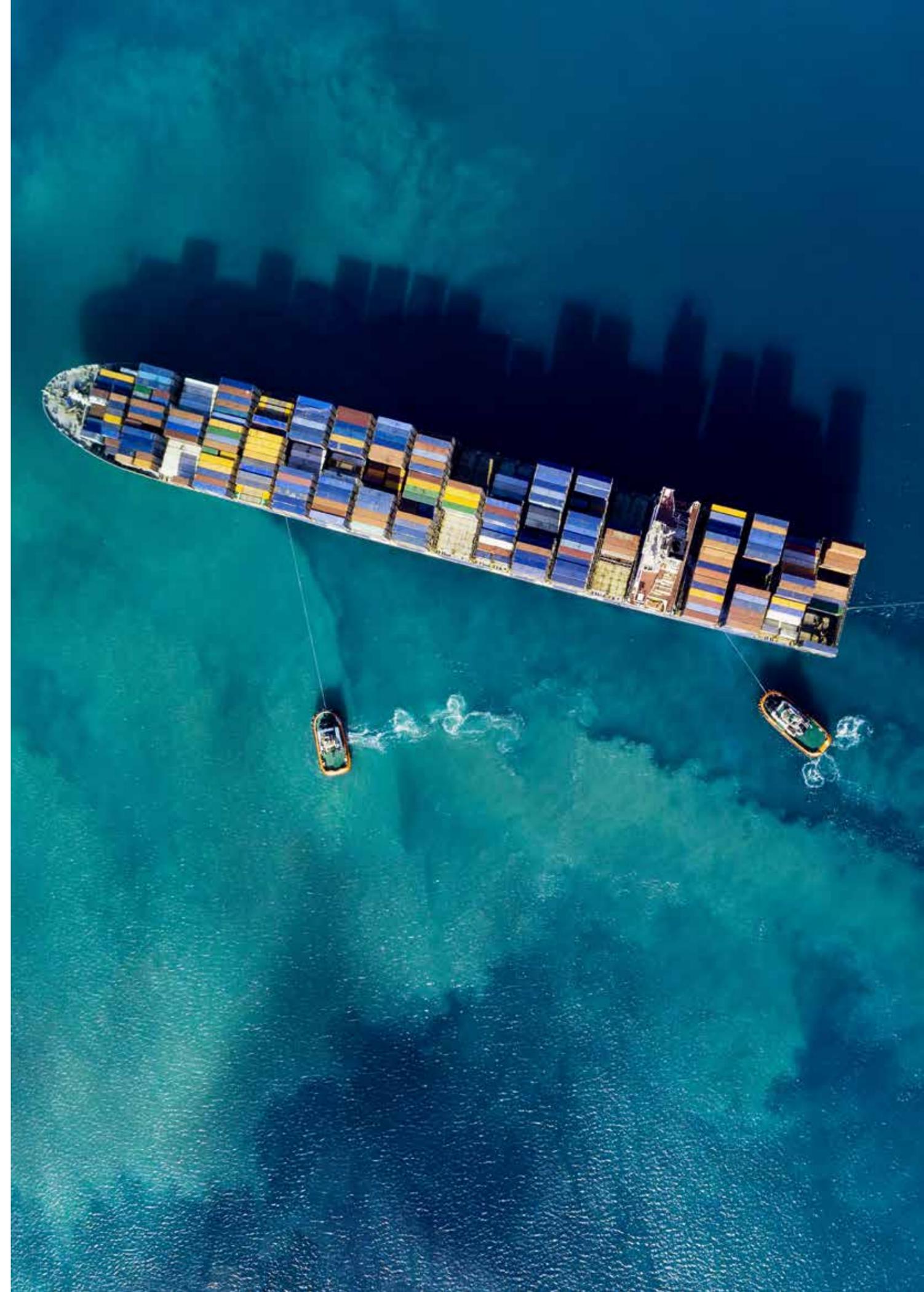
The port of Piraeus has been recognized early in the process as a major maritime link in the West-East inter-oceanic corridor, and COSCO has already invested heavily in developing Piraeus as a major European transshipment port. Since Piraeus constitutes a key maritime interface on the MSR corridor, COSCO is increasing its investment in the port, aiming to secure Piraeus's role as the south gate to Europe by enhancing port capacity, optimizing performance, and improving the port's links with railways, motorways, the Athens International Airport, and other regional ports.

Important investments regarding the expansion of the Piraeus port and the development of new facilities have been planned by COSCO and are to be initiated soon, in order to increase port capacity and improve performance. A €300m investment project within the next two years has been agreed with the Greek State, following the privatization of the port. The expansion works in pier 3's western part are planned to be completed, expanding the port's capacity to 7.5m TEUs per year, making Piraeus the largest port in terminal capacity in the Mediterranean, while pier 4 is expected to add another 2.8m TEUs^{40,41}.

39. China COSCO Shipping Group Profile, coscoshipping.com, 2020

40. Cosco to expand Piraeus port by building fourth pier, ekathimerini.com, 13 August 2019

41. China, Greece agree to push ahead with COSCO's Piraeus port investment, reuters.com, 11 November 2019





Perikles Nicolaou
CEO, GAIAOSE S.A.

Q. What are your plans for the development of intermodal transport and logistics knots? Is there a prospect for Greece to become an international freight center?

A. GAIAOSE S.A. has plans to develop logistics centers through concession agreements in two regions; in Attica and Thessaloniki.

In Attica, the Thriasio Logistics Center (TLC), is expected to be the core of intermodal transport in Greece in the near future, given its vicinity to the Piraeus port, as well as the fact that multiple modes of freight transport (railway, vehicles) can be employed. The size of the TLC plot is 588,000m² and is expected to host about 240,000m² of warehouses.

With regards to the Thessaloniki region, GAIAOSE is planning to develop part of or the whole plot (area

of the plot 672.000m²) of the former Gonos Camp, to an intermodal transport center, along with other complementary activities. As in the TLC case, this project is also enjoying unique advantages, such as closeness to the Thessaloniki port (8 km), and multiple transport, railway, and truck capabilities.

Overall, Greece, by its location, has a unique positioning in becoming an international freight center, connecting the Mediterranean Sea with Central Europe; the TLC and Gonos projects of GAIAOSE will play a pivotal part in this.



Photo credits: ΓΙΑΝΝΗΣ ΜΑΓΑΛΙΟΣ (from the «Τρένο και Κίνηση» photography contest)

Major privatization projects and public-private partnerships are key drivers in improving the competitiveness of Greece as the south logistics gateway for Europe.

The Greek port industry has undergone important structural changes within the last 20 years, as a result of a continuous port privatization reform process initiated by the Greek state in the early 2000s. The role of the Greek state in the operation and organization of the ports is gradually reduced as a means to attract private investment, improve port competitiveness, and optimize commercial activities. This reform process has highly transformed the organizational structure and operational model of the major Greek port of Piraeus and significantly affected the country's second largest port, that of Thessaloniki.

As a result of the Greek fiscal adjustment program that was agreed with the Troika (the European Commission, the International Monetary Fund, and the European Central Bank), and a decision by HRADF - which owns the shares of the Greek ports - the tendering process for the sale of 67% of the shares of Piraeus Port Authority S.A., was initiated in 2014 and was completed in 2016, with COSCO Group Ltd. as the preferred investor. Moreover, a similar tendering process for the sale of 67% of the shares of the Thessaloniki Port Authority has been completed.

Further to the above, the Greek State holds a portfolio of 10 additional ports and is in the process of evaluating the most appropriate approach for their reform and development. It should be noted, however, that the privatization program is not limited to the ports. Several state-owned assets concerning rail, road transport, and logistics, have attracted global investors' interest through the public assets privatization and development program run by HRADF. The most important privatizations and public-private partnerships (PPPs) in the logistics sector in Greece, are:

- ▶ The 50-year concession agreement for the development of the Thriasio Pedio freight center, in a plot of 600 acres near the port of Piraeus, which was awarded in 2016 to the winning venture of ETVA VIPE and Goldair.
- ▶ The ongoing international call for tenders concerning the development of the Gonos logistics center in a warehouse area of 672,000m², near the Thessaloniki port, suitable for storing containers, swap bodies, dry bulk cargoes, and fresh produce. GAIAOSE S.A. had originally announced the international tender for the creation of a freight center at the former Gonos military camp in Thessaloniki, with the prospect of submitting bids by the end of July 2018 and works to begin around mid-2019⁴². Despite the initial timeline, there have been some delays in the bidding process with the project of establishing a freight center at the former Gonos military camp currently being frozen⁴³.
- ▶ The Greek railway undertaking, TRAINOSE, has recently been privatized, after the sale of the company's total shares to Ferrovie dello Stato Italiane S.p.A., for a total of €45m.
- ▶ The concession agreement for the right to operate, maintain, and commercially exploit the fully constructed Egnatia Odos motorway and its three vertical axes, is in process.

When the Thriasio Pedio logistics center will be fully developed, it will be one of the largest dry ports in Southeast Europe

Intermodal logistics center

An area of 600 acres, suitable for the construction of 240,000 m² of logistics buildings

600 acres
land plot

240,000m²
logistics buildings

Intermodal Terminal

Railway yard area of 145 acres with intermodal and cross-docking facilities

145 acres
terminal station, railheads and intermodal yard

42. Προκηρύχθηκε ο διεθνής διαγωνισμός για τη δημιουργία του Εμπορευματικού Κέντρου στο πρώην στρατόπεδο Γκόνου στην Θεσσαλονίκη, supply-chain.gr, 2 November 2019

43. Φρένο στο διαγωνισμό της ΓΑΙΑΟΣΕ για το Στρατόπεδο Γκόνου, προχωρά το Θρήσιο 1, tourismtoday.gr, 22 October 2019

The privatization of the two largest Greek ports reinforces their international status.

The privatization process for the sale of 67% of the Piraeus Port Authority shares, was completed in April 2016, with COSCO Group Ltd. as the preferred investor.

In addition, the privatization of Greece's second largest port, Thessaloniki, has also been completed, with the "South Europe Gateway Thessaloniki" venture emerging as the new majority stakeholder.

In April 2016, COSCO Group Ltd. was selected as the preferred investor for the Piraeus Port Authority, with the total value of the agreement estimated at €6.5b, including €368.5m for the 67% majority stake in the Piraeus port and a mandatory investment amounting to €300m over the next two years. HRADF and COSCO signed the agreement on 8 April 2016, while the concession was ratified by the Greek Parliament in July 2016. The acquisition of 51% of the Piraeus Port Authority stakes was formally completed in August 2016.

The privatization of one of Greece's biggest seaports, the port of Thessaloniki, has also been finalized through a €1.1b deal. The port's privatization - which was ratified by the Greek Parliament - was finalized with the port's sale to a consortium of Russian-Greek, German and French enterprises. The disposal of port operator Thessaloniki Port Authority constitutes a combined share sale and concession arrangement, which was agreed under the terms of Greece's international bailout program and took approximately three years to complete. 67% of OLTH was acquired by Deutsche Invest Equity Partners GmbH, Belterra Investments Ltd., and Terminal Link SAS, with the companies agreeing to invest over €650m in upgrading the port's facilities over the 34-year concession timeframe. HRADF is now proceeding with the privatization of the port

of Alexandroupolis, in addition to nine other regional ports, which are currently fully owned by the Greek State.

OLTH reported a 10-year record in container traffic in 2017, as well as the second highest performance in the last 21 years. Following an upward trend, the number of containers increased in 2019, reaching 448,000 TEUs (compared to 424,000 TEUs in the previous year), while conventional cargo registered 4.47m tonnes of general and bulk cargo, with increases of 6% and 19% respectively, in comparison to 2018. Despite the COVID-19 crisis, OLTH managed to marginally increase its throughput during the first nine months of 2020 (9M/2020), with a 2% increase, from 328,000 TEUs in 9M/2019 to 335,000 TEUs in 9M/2020.

In 2019, transit operations grew by 14% and Greek container exports rose by 5.7%. Cargo traffic totaled 4,469,000 tonnes of compatible cargo in 2019, from 3,756,000 in 2018 (an increase of 19%), while the number of ships that docked in the port of Thessaloniki decreased by 5%, to 1,347 (from 1,404 in 2018), of which 463 were container ships, 832 cargo ships, and 52 passenger ships. Compatible cargo was significantly affected in the first nine months of 2020, with a 12.6% reduction compared to the tonnes of the similar period of 2019.

According to the Thessaloniki Port Authority, 2019 revenues totaled €68.9m⁴⁴ and €52.7m in the first three quarters of 2020, marking a total increase of 6.5% between 9M/2019 and 9M/2020⁴⁵. It is important to note that OLTH's major clients are key players of world trade. The average size of the Ocean Alliance-operated container ships calling in at the port of Thessaloniki is 1,571 TEUs, and the respective size for the 2M Alliance-operated ships is 2,416 TEUs.

With the Thessaloniki port being a key role player in the regional maritime container market, well connected to transshipment hubs in both Greece and Turkey, and heavily serving feeder services from / to Piraeus, its global role is being widely upgraded^{46,47}.

Recommendations

- ▶ The port of Thessaloniki should be connected with the PATHE and Egnatia Odos motorways.
- ▶ The investment in the port of Thessaloniki's pier 6 should proceed, for it to be able to accommodate large freight vessels.
- ▶ The extension of the gate / hinterland logistics site close to pier 6 should be promoted.
- ▶ Pier 6 and the extended gate / hinterland logistics site should be connected via rail.
- ▶ A Free Trade Zone to support export-oriented enterprises should be established. This zone can be merged with the extended gate/ hinterland logistics site.
- ▶ The creation of a strong supply chain / logistics eco-system of service providers should be promoted.
- ▶ Thessaloniki should be branded and marketized as an international freight center/ logistics hub at all major international transport exhibitions.

44. ΟΛΘ statistics 2019, thpa.gr, 2019

45. ΟΛΘ: Αύξηση εσόδων 6,5% στο εννέμηνο - Στα 21,6 εκατ. το EBITDA, capital.gr, 11 December 2020

46. Supply Chain and Logistics Magazine issue 102, o.mind creatives, 15 May 2019

47. Thessaloniki Port sees increased traffic in 2019, portseurope.com, 9 January 2020

COVID-19's impact on the shipping market

Per the World Bank, the global GDP for 2020 suffered a reduction of 4.3%, based on COVID-19's impact⁴⁸. This contrasts with the initial prediction of 3.3% growth, showing that the pandemic's impact is deeper than that of the last global financial crisis. Comparatively, global GDP declined by 2.5% from Q4 2008 through Q3 2009. Additionally, Q2 2020 marked the highest point of COVID-19's economic impact.

There was also a significant impact on the 11.9b tonnes of seaborne trade, which fell by around 10.9% on a year-on-year (YOY) basis in May 2020. By August, this decline had started to contract, reaching a total YOY decline of -5.5% for the first nine months of the year. Indicatively, total container throughput in the top 15 ports in Europe, fell by 2.8% in 2020, to 76.8m TEUs.

In terms of deep-sea cargo, a 5% YOY decline was recorded in August 2020. Again, it appears that this declining trend bottomed-out in May, when it reached -9.9% YOY, and has been since trending upwards.

In other trading blocs, activity fell across Q2 2020, but latest data shows tentative signs of it being stabilized or even picking up. European port call activity fell by 11% YOY in June, US activity fell by 16% - but is now trending upwards - and activity in Japan fell by 18% YOY, respectively. If other shipping segments more heavily impacted by the disruption caused by COVID-19 are to be included (e.g. cruise and ferry), then a deeper decline in port activity (-18.9% YOY in May) is observed, but there is also a more pronounced recent uptick (-15.7% in June). Global ferry activity was down by almost 45% YOY in April, and by almost 35% YOY in June 2020.



48. Global GDP growth in 2021 could be limited to 1.6% on vaccine delay - World Bank, spglobal.com, 5 January 2021



Thanasis Ziliaskopoulos
Chair, Hellenic National Logistics Council

Q. What is the vision of the Hellenic National Council for the Development and Competitiveness of the Supply Chain, for Greece as an international freight center?

A. The mission of the Hellenic National Council for the Development and Competitiveness of the Supply Chain (the Council) is to support the Government of Greece to formulate a strategic vision and identify the actions in supporting the strategic objectives adopted.

In this capacity, the Council has recently prepared a strategic document, submitted to the government, where it details that one of the main Strategic objectives for the country must be for Greece to become a logistics cluster for global supply chains. This includes attracting multinationals to perform value-added logistics services, not only for European markets, but also for the whole Middle East and North Africa (MENA) region, as well as the Black Sea countries.

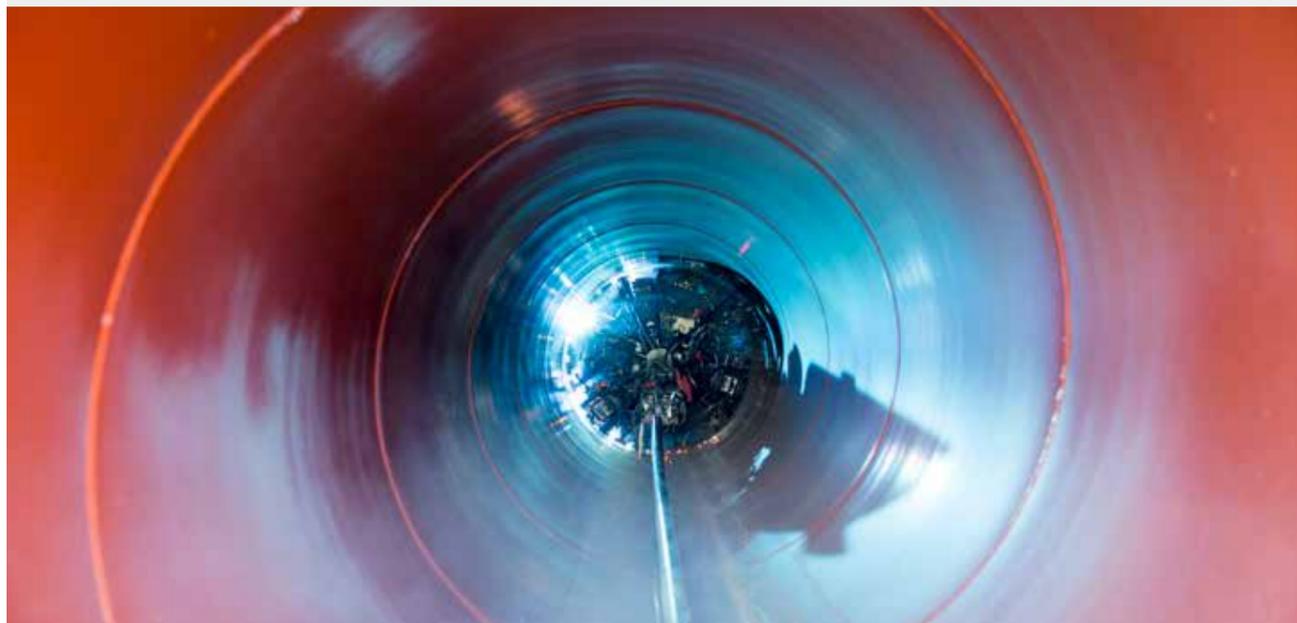
This is obviously an ambitious goal in the current post-pandemic climate and requires a number of tightly coordinated actions among many stakeholders - from public agencies to the private sector. Actions include legislative reforms that would make the investment environment attractive, such as land use legislation, digitalization of the supply

chain, simplification of the licensing process for logistics installations, and incentives for the land acquisition and development of logistics parks of global interest, as well as for the reorganization of areas with high concentration of logistics activities (e.g. in Aspropyrgos, Boeotia, and Kallochori).

The Council aims to support the government in these initiatives and undertake actions to promote the Greek logistics industry in the global market.

Q. Is there a prospect for Greece to become an International Freight Center?

A. The short answer is, of course, positive; the devil is, however, in the details! Certainly a lot of valuable time was lost since the first trains left from the COSCO terminal in Piraeus for the Czech Republic in 2013, and many countries in the region have taken all necessary actions to attract many of the global players that could have invested in Greece, to invest in their countries. The ports in the Adriatic have come a long way to compete with state-of-the-art facilities, and countries such as Hungary, Slovakia, and Romania have developed a competent logistics industry. There is still a window of opportunity, but it has to be recognized as the last chance for Greece to become part of the global supply chains, and the abovementioned actions must be successfully deployed.



2 Economic performance of the Greek logistics market

The third-party logistics market in Greece managed to withstand the domestic economic recession and the slow growth in international trade, through the provision of warehousing and other added-value services.



The performance of the logistics sector is inextricably linked with the external environment that shapes the needs and patterns for the production and consumption of goods. Therefore, it is of no surprise that logistics providers in Greece faced significant challenges as a direct result of the 2008 global financial crisis and the severe downturn of the Greek economy from 2009 onward.

Following the recession, the Greek economy has been on the road to recovery in recent years and the logistics sector - being especially sensitive to the performance of the national economy - has been in an upward trajectory as well. An indicative example of the dynamic development of the Greek logistics sector is the country's third-party logistics (3PLs). From 2014 to 2019, the 3PLP sector had been growing continually - however, 2020 fell back to 2018 numbers due to COVID-19's impact.

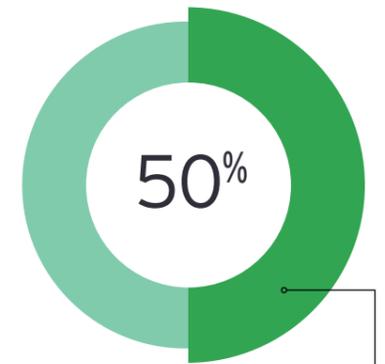
Based on the turnover results of the Greek 3PLPs, the logistics industry has yet to completely recover to numbers before the financial crisis, managing a total CAGR of -2.06% from 2008 to 2019 (but with a +3.55% CAGR from the deepest point of the recession for the 3PL market, in 2014). The severe reduction of domestic consumption and industrial production, along with the slow growth patterns in international trade, put a lot of pressure on Greek manufacturers, producers, and traders to lower their costs without reducing performance and service levels.

On the other hand, Greek manufacturers, producers, and traders have become more positive toward outsourcing their basic logistics

operations to reliable 3PLPs, enabling them to focus on their core business. As a result, logistics companies in Greece, specifically the 3PLPs which have invested in service quality and innovation, have taken advantage of this opportunity, expanding their market share and improving their performance.

According to data from the ICAP Group⁴⁹, the Greek 3PL market size was €387m in 2019, 4.6% up compared to 2018. The food, beverage and tobacco industry accounted for 45% of the market by value, in 2018. In the medium term (up to 2023), the domestic 3PL market is expected to grow by an annual average rate of 2.8%. Moreover, it is estimated that there were 100 3PL companies in Greece in 2018. Additionally, there were approximately 30 enterprises involved with 3PL services in Greece, with almost 4,800 employees estimated to work in 3PL-related activities, in 2018⁵⁰.

Companies operating in the T&L industry have an easier way of getting into the courier sector, since they already possess the necessary infrastructure, appropriate networking, and customer base. Out of the major international players in the courier, express, and parcel (CEP) sector, only one company has a national presence in freight forwarding in Greece, mostly in air cargo (both in the Athens International Airport and, since 2018, in Thessaloniki airport, through the new air cargo center that was created). Statistics show that the courier sector's market total in Greece is mostly split between seven companies, sharing 97% of the market, with none offering a freight forwarding portfolio.



The 10 biggest 3PL companies share 50% of the Greek market

This concentration in the 3PL market, when compared to other sectors of the Greek economy, should be considered as medium to low. However, when compared to studies from previous years, there is a clear trend toward increased market concentration⁵¹, which is expected to further intensify as the pandemic's after-effects continue to impact the Greek economy.

49. THIRD PARTY LOGISTICS 2020, ICAP Group, 2020

50. Third Party Logistics - 3PL, Stochasis, June 2019

51. THIRD PARTY LOGISTICS 2020, ICAP Group, 2020



Dr. George Xirogiannis
Deputy Director General, SEV-Hellenic Federation of Enterprises

Q. How important to manufacturers is the development of an effective intermodal transport and logistics sector? Is there a prospect for Greece to become an International Freight Center?

A. In the midst of every crisis, lies great opportunity. The COVID-19 crisis is transforming drastically the supply chain of industrial goods worldwide. Global trade is in a state of disruption, while regional supply chains grow rapidly. The need for greater visibility and resilience urges manufacturing and logistics to re-evaluate their operations and find alternative transportation and supply routes. As a result, efficient and timely supply chain routes are utilized heavily, outweighing low-cost locations in Asia or Africa.

Greece once again faces a major opportunity to capitalize its favorable geographical position to become an internationally acclaimed logistics center with substantial economic and employment benefits. Greece currently offers modern transport and logistics infrastructure, port utilities and competitive 3PL providers. However, Greece should utilize RRF funds to upgrade further its status as a first-tier international hub. Initiatives like a modern railway network, large logistics parks and simplification of investment licensing are necessary to meet the standards of potential international investors.



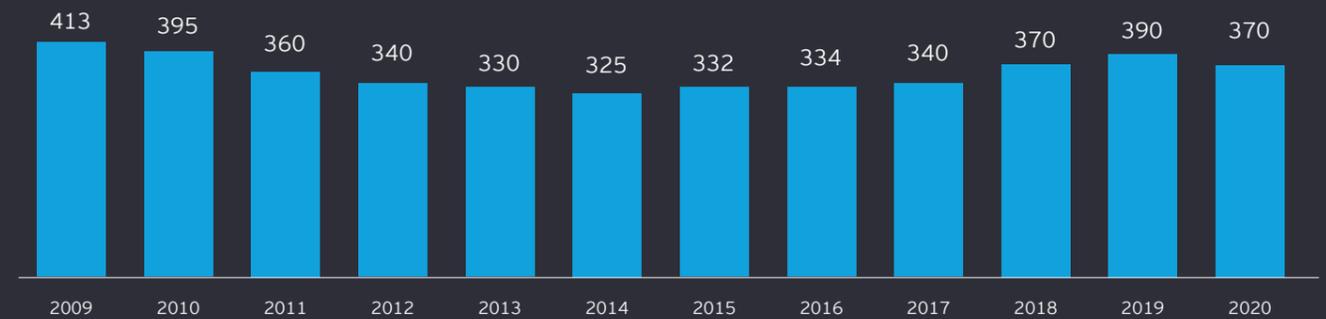
Following a few years of decline, the logistics market in Greece seems to be picking up.

The 3PL market showed significant growth up to 2008, due to the increased demand for 3PL services, attributed to the overall growth of the Greek economy. At the same time, market dynamics drove the establishment of start-ups in the sector, the expansion of provided services, and the upgrade of third-party goods management services through new technological systems. However, the Greek economy's recession had a big impact on businesses in the sector, as their industrial and commercial activities shrunk, while the demand for these services dropped significantly as well.

According to the ICAP Group's economic analysis of the Greek logistics industry⁵², a downward trend was identified in the Greek 3PL market between 2009-2014, with an annual decline rate of 4.9%; a cumulative loss of about 26% of its total value. This downward trajectory was restrained in 2015, as the value of the domestic market recorded its first increase in six years (2.15%). According to 2020 data, the Greek 3PL market value was estimated at €368m, showing a significant decline (4.9% decrease), compared to 2019 (which was the highest point of the decade for the market, with a value estimate of €387m), due to the COVID-19 pandemic.

The growing trend of outsourcing services to third parties, both in Greece and internationally, has consolidated the demand for 3PL services, although their penetration into Greek businesses is still estimated to remain low. Greece still finds itself well below the World Bank's last available Logistics Performance Index (LPI), ranking 42nd in 2018, among 160 countries⁵³. It will be interesting to see, if the next edition of the index will show any improvement in the country's position.

Estimation of the 3PL services market size in Greece (in million euros)



Source: ICAP Group, Stochasis

Global 3PL market value by region (2016-2019)

Region	2016	2017	2018	2019	YOY change 2017/16	YOY change 2018/17	YOY change 2019/18
Africa	25.5	26.1	27.2	28.8	2.4%	4.2%	5.9%
Asia	306.1	329.3	358.8	380.2	7.6%	9.0%	6.0%
Commonwealth of Independent States / Russia	21.7	25.5	27.5	28.7	17.5%	7.8%	4.4%
Europe	173.4	184.1	200.9	177.6	6.2%	9.1%	-11.6%
Middle East	40.5	42.2	46.2	46.0	4.2%	9.5%	-0.4%
North America	200.3	220.0	251.5	252.2	9.8%	14.3%	0.3%
South America	36.7	41.8	38.6	38.0	13.9%	-7.7%	-1.6%
Total	804.2	869.0	950.7	951.5	8.1%	9.4%	0.1%

Values in billion dollars

Source: ICAP Group and Armstrong & Associates, Inc.

According to estimates by Armstrong & Associates, Inc.⁵⁴, the size of the global 3PL market in 2019 was at US\$951.5b; a marginal increase of 0.1% in comparison to 2018, due to the enlargement of the 3PL market in Asia.

52. Ibid.

53. 2018 Logistics Performance Index (LPI), The World Bank, 2018

54. THIRD PARTY LOGISTICS 2020, ICAP Group, 2020

Overview of the Greek 3PL sector

Greek 3PL companies have a strong presence in the country, providing a full range of supply chain services. The most significant part of their income comes from warehousing and distribution activities, as well as from the organization and management of road transportation. Depending on their target market, many providers specialize in the international movement of goods, while others focus only on domestic transportation and warehousing. A significant percentage of 3PL providers offer more specialized added-value services, like packaging, repackaging, and labelling, whereas leading companies offer innovative solutions by expanding their portfolio of services in the fields of reverse logistics, procurement, supplier management, and information and communications technology (ICT).

The sector mostly comprises of medium- and small-sized companies, that operate in a highly competitive environment. Also, 3PL penetration into small- and medium-sized Greek enterprises is low and was estimated between 10%-16% for complete and partial outsourcing respectively in 2017, based on the National Research Bank's data of 540 industrial and commercial enterprises. The most common services offered by 3PL companies to SMEs are transport (46%) and distribution (35%). However, in recent years we have been witnessing the rise of the largest - in both size and importance - national and multinational 3PLs in Greece⁵⁵.

Business relationships between 3PL providers and their clients are generally based on medium- to long-term contracts, which help logistics providers in designing their logistics network, operations, and investment plans more efficiently. Specialized freight forwarding companies organize and manage the international transport of less than truckload (LTL) and full truckload (FTL) cargoes, and containers for multinational shippers, traders, and manufacturers. These companies may own smaller or larger warehouses, as well as outdoor storage facilities and, therefore, their distinction from 3PL providers is not always clear.

Regarding the physical distribution and transportation of goods, the majority of 3PL providers rely heavily on subcontracting work to smaller entities and owner-drivers, who provide low-margin, road-traction-only services. A smaller share of 3PLs operate their own fleet, mostly consisting of small vans, for the distribution of goods in large cities, as well as few medium or larger trucks that support the trans-regional movement of goods from the clients to their distribution centers and warehouses.

The majority of transportation companies that carry out the physical transportation and distribution of goods, are small enterprises of 2-5 employees or owner-drivers, with an average of 1.5 heavy goods vehicles per company. Road operators that

operate in similar geographical regions, tend to collaborate by forming special purpose alliances, while, by joining their forces and assets, they are also able to collectively organize and provide road traction to regional shippers, as well as to 3PLs. Additionally, around 1,500 haulers established in Greece are currently engaging in cross-border international road haulage operations, between Greece and other EU and non-EU countries.

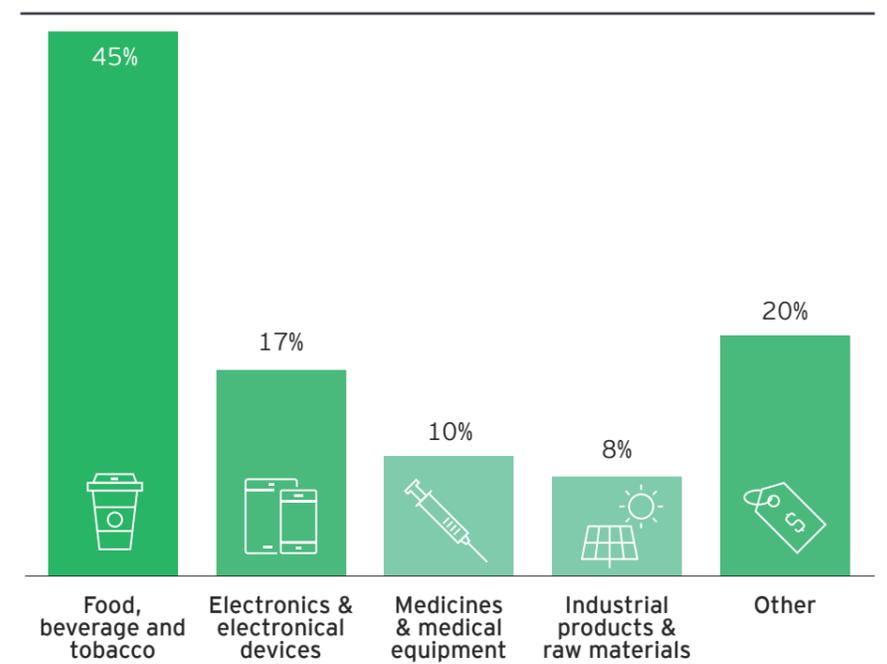
Moreover, according to a sectoral study by the ICAP Group, the overall Greek market for 3PL services had been increasing over the 1998-2008 period, with an average annual growth rate of 19.7%, followed by an annual shrink rate of 4.9% in the 2008-2014 period and an annual growth rate of 2.1% between 2014-2020. These figures validate the perception of senior business executives, that organizations regard logistics management as a tool that can drive reductions in operating costs during times of economic pressure and can create competitive supply networks during times of prosperity⁵⁶.

In terms of the sectors of the economy that have attracted major investments in Greece in the 2017-2019 period, the top five are: agri-food (17%), digital technology (15%), business services (14%), transportation and logistics (12%), and finance (12%). These five sectors attracted, cumulatively, more than two out of three investments (70%)

in the country. It is worth pointing out, specifically, that Greece attracted double the investments in transportation and logistics, compared to the rest of Europe (12% and 6% respectively)⁵⁷.

Additionally, 45% of logistics services concern the food, beverage, and tobacco industry, 17% electronics and electronic devices, 10% medicines and medical equipment, 8% industrial products and raw materials, and 20% other industries or sectors (vehicles and vehicles parts, clothing and footwear, furniture and household equipment)⁵⁸.

Logistics facilities in Greece have been modernized and concentrated within regional logistics markets, with improved access to the country's engines of growth: its ports.



Source: Stochasis

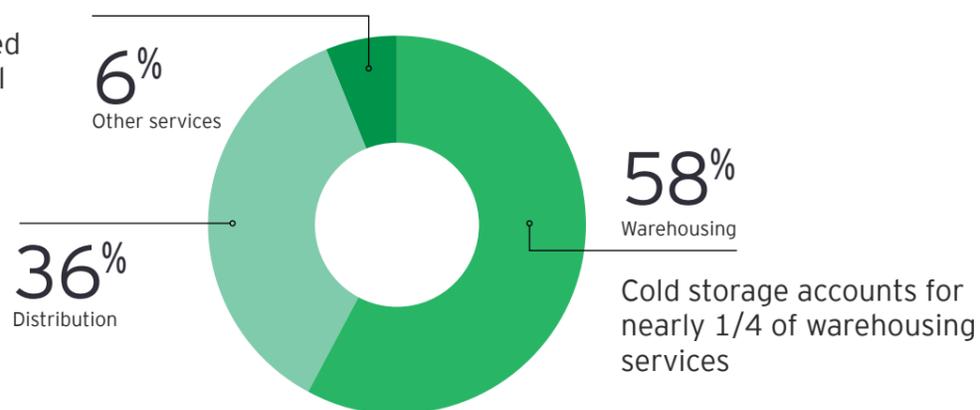
Warehousing facilities and distribution centers have been modernized and are getting larger...

The quality of storage areas and distribution infrastructure / facilities in Greece has considerably improved within the last fifteen years, mainly due to the fact that the major 3PL providers have invested in bigger, automated, and better technologically equipped warehouses and distribution centers. The available storage size of logistics facilities in Greece more than doubled in the 2003-2009 period preceding the economic crisis. Additionally, this expansion was framed by investments in new

or upgraded building materials, warehouse equipment and machinery, management systems, safety, and automation.

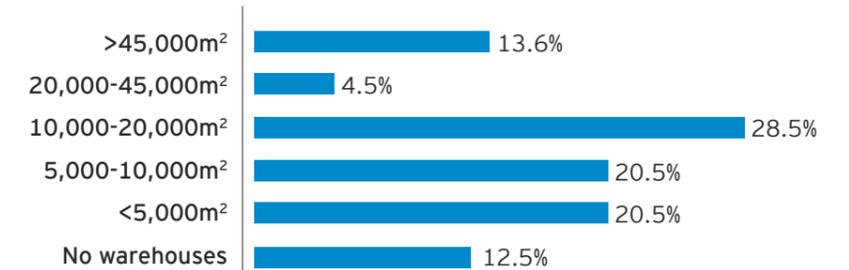
Despite these developments, the average size of the area of the warehouses that have been built or upgraded has not yet increased. The existing logistics infrastructure still primarily consists of small-sized warehouses and cross-docking facilities, which are fragmented and spread across the country. Based on a recent study from the University of the Aegean⁵⁹, approximately 14% of logistics services companies have warehouses with an indoor storage area that is larger than 45,000m²,

Warehousing and distribution corresponded to about 94% of the total value of 3PL services in 2018



55. Third Party Logistics - 3PL, Stochasis, June 2019
56. THIRD PARTY LOGISTICS 2020, ICAP Group, 2020

Allocation of logistics services companies according to the size of their warehouses



Source: University of the Aegean

57. Attractiveness Survey Greece 2020, EY Greece, July 2020

58. Third Party Logistics - 3PL, Stochasis, June 2019

59. Supply Chain and Logistics Magazine Issue 102, o.mind creatives, 15 May 2019

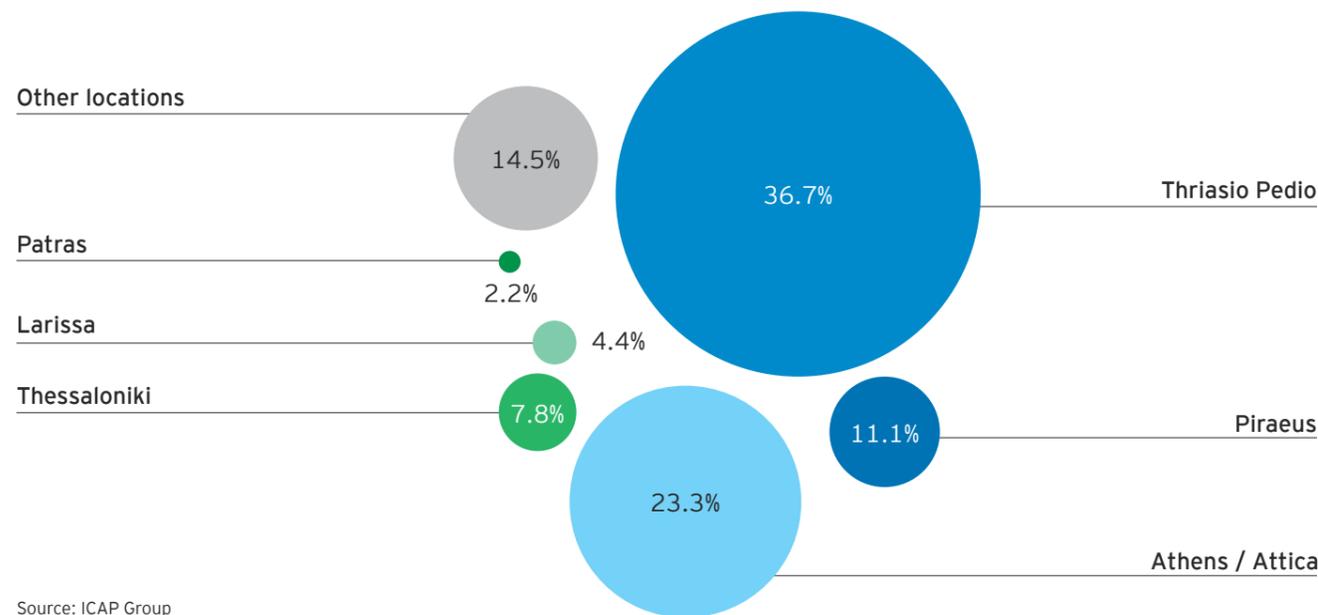
whereas more than 40% have facilities smaller than 10,000m². If we take into account the medium-sized companies alone, the average size of a warehouse facility would be less than 7,000m². However, the market concentration which took place in Greece as an indirect effect of the global economic crisis and the national sovereign debt crisis, pointed toward larger and more efficient warehouses⁶⁰.

...and are gathered in distinct regional logistics clusters

Besides its negative effect on the domestic market and the volume of goods imported and exported, the Greek economic crisis also led to the significant concentration of the logistics market and further empowerment of the largest 3PL providers. In order to accommodate their growth in market share, these

leading 3PL companies have invested in new and larger warehouses, as well as in innovative technologies and systems. Concurrently, the development of the port of Piraeus as a major Mediterranean container port, the expansion and integration of the national road network, and the modernization of the railway system - which also took place in the last eight years - are reshaping the country's logistics infrastructure footprint.

3PLPs in Greece per geographical location



Source: ICAP Group

Main logistics clusters in Greece

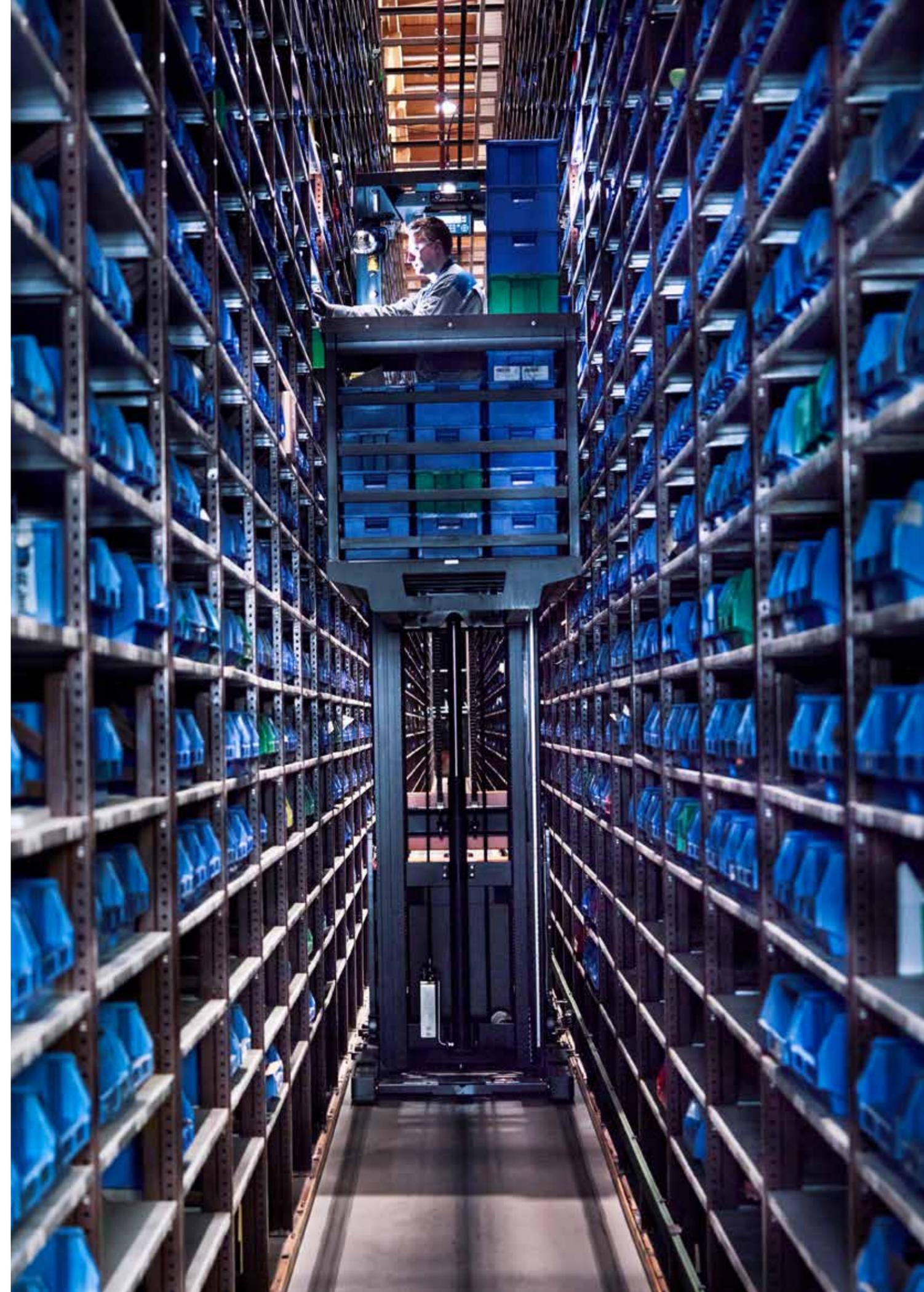
Altogether, the logistics network in Greece has been developed around seven regional logistics clusters, each covering the supply chain requirements of a specific geographical area. The most important logistics markets have been developed around Athens and Thessaloniki, the country's two largest cities. At the same time, they are closely linked to the port of Piraeus and the port of Thessaloniki, the country's two main international maritime interfaces, and have direct access to the country's core international road and railway network. In Athens, the major logistics

facilities are concentrated in either the Thrasio Pedio plain in West Attica, or Oinofyta, an industrial zone north of Attica, in the regional unit of Boeotia.

- ▶ As a common practice, 3PLPs have developed and currently operate their warehouses and distribution centers primarily in the aforementioned major logistics centers of Attica / Boeotia and Thessaloniki. Similarly, large retailers and manufacturers mainly operate their logistics facilities and warehouses in the same regions.
- ▶ Besides Attica and Thessaloniki, 3PLPs usually opt not to develop

and operate their own facilities in other geographical regions, preferring to develop the rest of their network through collaborations with agencies or by subcontracting to smaller logistics providers that already operate in the corresponding regions.

- ▶ In order to serve remote areas or / and the Greek islands, the majority of 3PLPs subcontract their transportation and distribution activities to regional agencies or / and transportation companies.



60. Third Party Logistics - 3PL, Stochasis, June 2019



Athanassios Psathas
CEO, ETVA VIPE S.A.

Q. How sufficient and effective do you believe that the current intermodal infrastructure is in Greece?

A. The current infrastructure for intermodal transport in Greece is insufficient and ineffective. That is the reason why intermodal transport taking place in Greece constitutes only a small percentage of the total freight throughput.

The necessary link in the supply chain that will reinforce intermodal transport is infrastructure and services that can be provided by a complete freight transit center. As of today, no such centers have been established in Greece. The establishment of the Thriasio Pedio logistics center aims at covering this shortage.

Q. Is there a prospect for Greece to become an international freight center?

A. Greece is already evolving to an international freight center. The most significant evidence that supports this statement is:

- ▶ The improvement of the ranking of the Piraeus Container Terminal (PCT) to the 4th place, coming up from the 6th place in 2018, making Greece the most significant gate to Southeast Europe.
- ▶ The designing and establishment of the Thriasio Pedio complex, which is composed of:
 - ▶ The logistics center, where the construction of product storage infrastructure is being planned
 - ▶ The Thriasio freight railway station and the marshalling yard, the construction of which is almost complete.
- ▶ The prospects of developing the commercial port of Thessaloniki and its transport connections, following the completion of its privatization process.
- ▶ The geo-location of the above infrastructure in relation to the national transport networks that are part of the Trans-European Transport Network.
- ▶ The upgrade of the transportation network of the country.
- ▶ The commercial development plan of other significant ports of our country (Alexandroupoli, Kavala, Igoumenitsa, Volos, Irakleio).
- ▶ The plan to create an energy hub at the port of Alexandroupolis.



The Thriasio Pedio logistics market

Undeniably, the most important concentration of logistics facilities has been developed around the greater Athens metropolitan area, specifically in two distinct areas: the first one is the Thriasio Pedio plain in West Attica, and the second one is located at Attica's northern borders, in the industrial area of Oinofyta, in Boeotia. Both areas are located near the capital city of Athens and serve as the city's main supply centers for all types of goods. It is estimated that the existing logistics facilities in these two areas alone have an indoor storage capacity of about 2m square meters, with the total indoor storage capacity in Attica being more than 2.3m square meters⁶¹.

All the major 3PL providers have developed and currently operate their warehouses and distribution centers in the greater area of Thriasio Pedio, due to its proximity to Athens and its suburbs, its connection to the Piraeus port container terminal, and the full access it provides to the core cross-national road and railway network.

A freight village of more than 145 acres is under construction at the Thriasio Pedio plain

After more than a decade of unsuccessful efforts, the development of the Thriasio Logistics Center ("TLC" or "Thriasio I") is about to take off, pending final approvals from EU's DG Comp.

TLC will be the first organized logistics park in Attica, Greece, and will be developed in two distinct phases: T1 comprising ca. 120,000m² of storage facilities, and T2 comprising an additional 115,000m².

The project will be developed by THEK S.A., a special purpose vehicle set up by the joint project promoters, ETVA VIPE (the largest industrial parks developer and operator in Greece) and Goldair (one of the top Greek logistics

services providers), holding 80% and 20% of THEK S.A. respectively. The 588,000m² land, which is owned by the Greek State through its GAIAOSE subsidiary, will be developed under a 60-year PPP scheme. The construction works have been awarded to the Mytilineos Group.

Per the developer's plans, the T1 phase will be developed in two years with a budget of ca. €70m⁶², while the T2 phase will be developed over the next 10 years with a budget of €60m⁶³ - however, the T2 development period can be accelerated as required, subject to demand. In preparation for the commencement of the development, the TLC shareholders recently proceeded with a €35m capital increase.

As TLC benefits from a direct rail connection to the port of Piraeus and to the Trans-European Transport Network, upon completion, it will become one of the most important modern intermodal freight and logistics parks in Southeast Europe.

All in all, TLC is one of the most important infrastructure projects in Attica and is expected to provide a major boost to both the construction and the supply chain sectors. Indeed, during the construction works, hundreds of people are expected to be employed, while TLC's operation is expected to create approximately 3,000 direct and indirect jobs.

The launching of the TLC development was also expected to pave the way for a second PPP project in the same location, "Thriasio II", an intermodal terminal station to be developed on a 1,650,000m² land plot adjacent to TLC and owned by OSE - the national railway infrastructure company.

The first bidding process for Thriasio II attracted the interest of four consortia, three of which were shortlisted for the second phase. The bidding process was concluded in January 2020 without success, however, and a new bidding process is expected to be initiated in the near future.

61. Περιζήτητες οι εγκαταστάσεις logistics στην περιοχή της Αττικής, kathimerini.gr, 5 June 2020

62. Goldair Cargo: Πνοή στο εμπορευματικό κέντρο Θριάσιου με 3000 θέσεις εργασίας, thriassio.gr, 22 January 2018

63. Συμμαχία Goldair - αμερικανικών κολοσσών για τα περιφερειακά λιμάνια, capital.gr, 15 February 2020



The Thriasio Pedio logistics park

Besides having been established as the country's major logistics market, Thriasio Pedio is expected to soon accommodate the largest multi-modal logistics park (TLC I & II) and the most developed intermodal freight center in Southeast Europe. Having a direct railway connection to the Piraeus port (Ikonio), the Thriasio Pedio logistics park will become a physical expansion of the Piraeus container terminal. The park is also connected to the Greek core road network and the comprehensive TEN-T network, via the modern three-lane Attiki Odos motorway, and has direct access to the city of Athens and the Athens International Airport. Additionally, the freight center will also be accessible via the East Aspropyrgos ring road, linking NATO Avenue with the Attiki Odos motorway. In terms of freight traffic, 400 trucks and 50 wagons will be served daily. Last but not least, Thriasio will provide the below services:

- ▶ Product storage
- ▶ Car and truck parking spaces
- ▶ Customs
- ▶ Security
- ▶ Waste management and recycling
- ▶ Electricity production from renewable sources
- ▶ Servicing to motorists and vehicles



Boeotia's logistics cluster

The second largest concentration of logistics facilities can be traced at the northern borders of Attica, in the regional unit of Boeotia and, more specifically, around the town of Oinofyta, located 50 km north of Athens. The area also accommodates some of the largest and most important industrial installations in the country, while the main national motorway (PATHE) and railway line, which both connect Athens to Thessaloniki and to the Greek borders to the north, also cross it.

This concentration of logistics facilities in Boeotia expands along the national motorway to the north, in two sub-regions: around Schimatari and on the outskirts of Thebes.

Besides serving the city of Athens, the abovementioned logistics centers have turned out to be all-important supply chain nodes for the national manufacturing industry, as they connect the industrial zone at the northern borders of Attica, in Boeotia, with the port of Piraeus, as well as with the rest of the country's main cross-border links and maritime multimodal interfaces, via the core national road and railway networks.

The East Attica logistics cluster

Last but not least, another logistics facilities center in the suburbs of Athens has been recently established in East Attica, adjacent to the Attiki Odos motorway, across Paiania, Koropi, and Markopoulo. The aforementioned logistics facilities are situated at a short distance from the main retail centers of the greater Athens area, and are also near the "Eleftherios Venizelos" Athens International Airport. Therefore, the concentration of 3PL providers in this area is limited, and the majority of the established warehouses belong to wholesalers and retail companies.

The Aspropyrgos industrial park

The Aspropyrgos industrial park is located south of NATO Avenue and administratively belongs to the Municipality of Aspropyrgos. The creation of this area begun after the signing of a Joint Decision by the then Ministry of Economy and Development and the Ministry of Environment and Energy. Specifically, the development of the Type B Aspropyrgos business park (south section) was approved by the "Aspropyrgos Industrial Park Authority (VIPA) South Section" company, carrying the distinctive title "VIPANOT Aspropyrgos". The total expenditure envisaged is €25m and includes a net expenditure of €20.2m, plus €4.8m in VAT⁶⁴. The whole area under development will cover 2,062 acres. Finally, the Aspropyrgos business park, will also house - among others - logistics companies, warehouses, and warehouse complexes which are not part of the industrial / craft facilities. Similarly, renewable energy plants, laboratories, research centers, schools, public service departments, and more, will also be housed there.

The Sindos logistics and industrial zone

In addition to the logistics centers located in the greater Athens area, a majority of the Greek 3PL companies, particularly those with strong presence in international freight forwarding activities, also operate warehouse facilities in two main regions on the outskirts of Thessaloniki, namely Sindos and Kalochori. The strongest concentration of warehouses and distribution centers may be traced at Sindos, in West Thessaloniki. Sindos has been developed as an organized industrial zone covering an area of 2,470 acres, originally attracting the most important logistics facilities in Northern Greece.

Featuring two adjacent railway connections at its northern and southern borders, direct and immediate access to the core national road network, and sitting within a 15 km distance from the port of Thessaloniki, Sindos is considered an advantageous area and has, therefore, been the favorable location

for the major 3PL companies, which, in the previous years, have invested in establishing modern warehouses there, each of which exceeds 18,000m² of indoor storage capacity. Located at this unique and advantageous geographical position in Northern Greece, Sindos is widely considered as an important logistics gateway to the Balkan countries and is expected to soon strengthen and boost its international role, further extending its catchment area toward the southeast and central regions of Europe and Turkey.

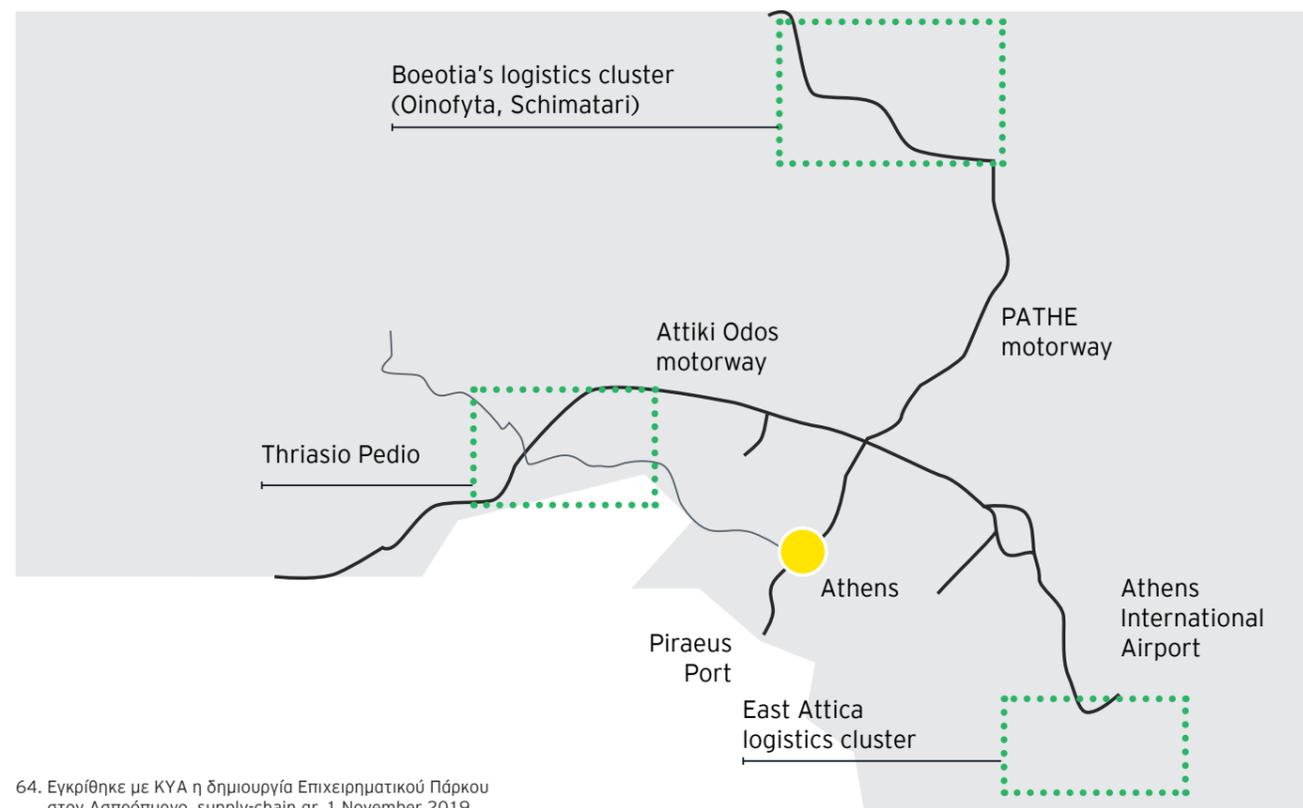
The Kalochori logistics center

Kalochori constitutes the second largest concentration of logistics facilities in the greater Thessaloniki area. Since it is in very close proximity to the city's port, it functions mainly as the regional logistics center for several companies in the retail sector.

The first results of the study on the rehabilitation of the informal industrial concentration in Kalochori, were presented to the local and business

stakeholders on 27 June 2018, during an event organized by the then Deputy Minister of Industry and the Thessaloniki Chamber of Commerce and Industry. During this event, a road map leading to the establishment of the Kalochori business park was presented. The then Ministry of Economy and Development, taking into consideration the serious environmental and operational problems of the region, undertook to promote all necessary actions for setting the foundations for the rehabilitation of the Kalochori industrial area. After a silent period, the rehabilitation process has recently started, with the connection of the Kalochori industrial area with the PATHE and the Egnatia Odos motorways being awarded to AKTOR in May 2020, following a bidding process⁶⁵.

Finally, the domestic market is also supported and served by a third, smaller concentration of logistics facilities in East Thessaloniki, near the city's international airport, named Kavallari.



64. Εγκρίθηκε με ΚΥΑ η δημιουργία Επιχειρηματικού Πάρκου στον Ασπρόπυργο, supply-chain.gr, 1 November 2019



65. Η ΑΚΤΩΡ μειοδότησε στο έργο της οδικής σύνδεσης ΠΑΘΕ με το λιμάνι της Θεσσαλονίκης, yprodomes.com, 13 May 2020

Supply chain business parks

The growth rate of the supply chain industry in our country, combined with the National Strategy for Logistics and Transport, is an important policy area for the government and all political parties. This, coupled with the rapidly expanding business dynamics of the private economy and the promotion of relevant business associations, has triggered the development of supply chain business parks, which were first introduced with Law 3982/2011 on logistics companies. Supply chain business parks have already matured in Greece, with the first two major investments in the country carried out according to relevant technical / economic studies for their licensing and implementation.

The first investments in logistics freight centers were implemented at the Oinofyta industrial zone and at Igoumenitsa, the country's western gate and an important hub in the trans-European transport network, due to its port.

Enterprises operating in the above-mentioned facilities, are expected to achieve the highest business success rates and have access to financial sources and incentives from the first day of their operation. The multidisciplinary character of these clusters (logistics, processing, tertiary, etc.) will effectively serve the modern economic needs dictated by business coexistence, the necessity of which was perfectly recognized and institutionalized for the logistics sector, through Law 4302/2014.



The two fundamental investments are the following:

1

The Oinofyta supply chain business park

The project concerns the development of a specialized business park for supply chain companies at Oinofyta. The project's implementing entity is a special purpose company supported by "Transcombi Express SA", operating from a 25-acre building within the development area of the park.

Inside the park, small- and medium-sized supply chain companies can engage in a range of logistics activities, as stipulated by Article 4 of Law 4302/2014, as well as in manufacturing and third-party activities included in the area's low and medium disturbance productive activities listed in Presidential Decree (PD). 59/2018.

The Oinofyta logistics park was included in the first group of investments in the context of the implementation of Law 4472/2016, for which a positive opinion was issued by the General Secretary of Planning with the agreement of the Ministry of Environment and Energy. The development and operation of the business park will take place in four phases, involving the mandatory construction of a central wastewater treatment plant. The project will be undertaken by a special purpose company (the Industrial Park Development Company, established in August 2019), involving ETVA VIPE, the Region of Central Greece, the Municipality of Tanagra, and the Association of Central Greek Industries, with the last three having signed a memorandum of cooperation.

Its funding scheme will consist of 50% public and 50% private funds, utilizing EU funds⁶⁶. Right now, studies are being conducted for the business park. The studies are planned to be completed until the summer of 2021. Construction works for the park will start right after.

The total area of the park is about 370 acres. After its construction, the area available for exploitation will correspond to 215 acres, within which, buildings with a building coverage ratio of 70%⁶⁷, a building to plot ratio of 1.6⁶⁸ and a maximum building height of 18 meters, can be developed. A Free Customs Zone has been established in an approximately 200 acres part of this area, managed by "Transcombi Express SA".

The Park Development Agency aims to integrate the area into the city plan, in order to achieve the optimal spatial and environmental organization of the site, and avoid any consequences related to operating outside the plan. It also aims at promoting the incentives offered to businesses that will settle in the park, bringing added value to the already known advantages of the property, namely its transport infrastructure and geographic location.

It is worth noting that the area is within the reach of the metropolitan center of Athens, very close to the PATHE motorway and adjacent to the Athens-Thessaloniki railway line. A rail diversion has been built, to allow for the development and establishment of rail transport for businesses within the park. The operation of the Free Customs Zone is greatly facilitated by the fact that the customs office of Oinoi also operates within this area. All that infrastructure fully fulfills the appropriate intermodal transport environment standards, and it can be inferred that the park will be a source of significant investment in logistics, meeting the needs of the major industrial area of Oinofyta.

The project, with a budget of €7m, will be completed with land-use planning and the construction of infrastructure projects (roads, water supply, sewage, road lighting, optic fiber telecommunications, etc.). It calls for the creation of large-scale communal and utility infrastructure, with a green perimeter of about 25 acres and communal green areas covering 42% of the land, in addition to the administration building or other buildings where public authorities and services can be housed. A fire service station and large parking spaces for commercial vehicles (trucks, etc.) are also to be constructed, along with half-time and hosting infrastructure (parking and car service, hygiene and catering services, etc.).

The business park, with all the proposed technical and environmental infrastructure to be constructed in it, combined with its operations and management processes that fall under the operational regulation, incorporates all the infrastructure and processes identified for the operation of a Smart City-type area, making it eligible for an ISO 50001: 2011 certification. This is the first of its kind logistics infrastructure to be developed in the country and fulfills all the prerequisites for attracting freight transit flows, leading to the development of added-value services (e.g. assembly, small processing, etc.) within Greece. The implementing body's goal is to make the Oinofyta logistics park the first "smart connected transport logistics park" in the country.

2

The Thesprotia supply chain business park

The Thesprotia regional unit is host to the first logistics business division of its kind in the country, with the port of Igoumenitsa being a key driver of growth, meeting all the conditions for the development of combined transport services. The implementing body is supported by the Port

Authority of Igoumenitsa, which is responsible for the management and operation of the port area. The Port Authority of Igoumenitsa is designing the park with the immediate aim of developing new specialized transportation, storage, and logistics services, that will highlight the new momentum of the port of Igoumenitsa in freight transport.

The business park is being developed in two areas. The first is located within the port and will be used as a temporary storage site for unaccompanied cargo. The second area is located in the hinterland, at Grikas, within an 800 meters distance from Egnatia Odos, where a road junction that will connect the motorway with the park is being planned and will be developed by the Region of Epirus. This is an area of approximately 500 acres, with 270 acres allocated to logistics companies, in combination with the existing industrial park of Thesprotia, which already houses manufacturing enterprises, covering an area of approximately 230 acres. The total area available for urban development is 335 acres, with building conditions falling under the permitted limits for buildings in business parks (i.e. 70% building coverage ratio and a building to plot ratio of 1.6).

The project, with a budget of €7.6m, is currently in the approval phase, and complements the area's urbanization and infrastructure construction projects (road, water, sewage, road lighting, optic fiber telecommunications, etc.).

The park has direct access to the Egnatia Odos motorway and has been designed with all the appropriate technical infrastructure that can enable future connection with the Egnatia Railway, at Kristalopigi. Supply chain companies engaging in low and medium disturbance activities across the range of logistics activities of Article 4 of Law 4302/2014, as well as in manufacturing and third-party productive activities of low and medium disturbance of Presidential Decree 59/2018, can operate inside the park.

The functional relationship between the two divisions of the port (port and hinterland) ensures the investment is as strong, lasting, and efficient as possible, enjoying entrepreneurial interdependence. The project is financially supported by the Connecting Europe Facility (CEF), upon its inclusion in the ADRI-UP program as a Trans-European Transport Network project, following actions by the Igoumenitsa Port Authority. This way, part of the cost of the infrastructure and public buildings is secured.

The nature of the project calls for the creation of large communal green areas covering 38% of the park, as well as large-scale utilities necessary for the operation of a logistics park (i.e. fire station, customs office, car service and gas station, entrance gateway, engine room, restaurant / refreshment area, etc.). The comfortable public spaces, combined with large parking spaces for commercial vehicles (trucks, etc.), with half-time and hosting infrastructure (parking and car service, hygiene and catering services, etc.), offer the best operating conditions in an "all-in-one" logistics park, for users and visitors alike.

According to a review carried out by sectoral media⁶⁹, the development of logistics companies and the logistics sector is affected by the establishment of modern commercial and industrial centers. Law 4605/2019 gave a significant boost to the creation of commercial parks, solving significant problems. However, companies located outside these parks - which constitute the majority - might have a harder time gaining access to international markets, as their competitiveness might be comparatively lower to that of their peers operating inside the parks.

66. Ιδρύθηκε η Εταιρεία Ανάπτυξης Επιχειρηματικού Πάρκου (ΕΑΝΕΠ) Οινόφυτων, supply-chain.gr, 1 November 2019

67. The building coverage ratio refers to the ratio of the building area, divided by the land (site) area. The building area refers to the floor space of a building, when looking at it from above. As an example, a ratio of 70% means that a warehouse of 7,000m² can be built in an area of 10,000m² (excluding floors).

68. The building to plot ratio refers to the ratio of the total floor area (for all available floors) of a building to the area of the site. As an example, a plot ratio of 1.0 means that the total floor area can be equal to the site's area.

69. 1st Infrastructure and Transport Review 2018-2019, metaforespress.gr and ypodomes.com, 2019

The process for the international call for tenders concerning the development of the Gonos logistics center in Thessaloniki has been initiated.

The Gonos logistics center

One of the two most important freight centers in Greece, from a geostrategic perspective, is the one planned to be established in the Gonos former military camp in Thessaloniki, which is located in close proximity to the Port of Thessaloniki and the industrial parks of Sindos and Kalochori.

The ca. 670,000m² land plot is owned by the Greek State, through its GAIAOSE subsidiary, and the development potential is ca. 300,000m².

The establishment of the Gonos logistics center is of supra-local and geostrategic importance, as it concerns not only the Greek market, but also the Balkans and Eastern Europe.

The project is currently in the pre-feasibility stage, which proposes its development in two distinct phases: the first phase (T1) may take up to two years, and concerns the processing of all technical studies and the completion of the relevant approval process, while the second phase (T2) may last four to eight years, and involves the construction and operation of the project.

If developed as a logistics park, it is estimated that the Gonos logistics center will create approximately 3,000 jobs. If other, more complex activities, such as manufacturing, are to be hosted, then newly-created jobs may increase to approximately 5,000-6,000.

At present, the majority of cargo handled at Thessaloniki's port is bulk goods, raw materials, or general cargo designated for the Balkan countries. A large plot of land like the Gonos camp, which features a direct rail link to the port, will provide additional capacity to the port's terminal for the temporary storage or / and processing of these goods. During the last few years, container throughput in the port of Thessaloniki has shown a stable growing trend. The demand for container transport by the port's hinterland market is expected to

increase significantly over the coming decades, given the relatively low output of the neighboring economies, assuming the pace of their integration into the world trading system remains at today's standards⁷⁰.

The above are supported by the interest shown by a number of investors, given the strategic location of Thessaloniki in the Balkan Peninsula and the camp's close proximity to the city's port. Indeed, the Gonos camp is located 3 km away from the Egnatia Odos motorway, which ends at the Promachonas border station via the A1 and A2-E12 highways, and connects the national road network to the rest of the TEN-T road network, through Bulgaria.

The Gonos camp also features a rudimentary rail connection, with the OSE rail network (part of the greater TEN-T railway network) extending within the land plot, and a container transit station at a distance of just 500 meters from the northern part of the camp. Due to the synergies that will occur through the use of the Gonos logistics center, and through its projected connection via rail with pier 6 of the Thessaloniki port, the city could further enhance its commercial profile and develop into one of the most significant transportation and logistics hubs in Southeast Europe.

Competitive warehouse rents facilitate industry growth

Warehouse rents in Greece are among the most competitive ones in the region, since they have been significantly reduced compared to the previous decade, as a result of the financial crisis. The average rental cost for storage facilities in Thriasio Pedio in West Attica - which never ceased being the most attractive logistics market in Greece for over 15 years - ranges between €4-€4.5/month per square meter, depending on the type and size of the facility.

Prior to the financial crisis, and in close alignment with the continuous growth of the Greek economy,

warehouse rents in Thriasio Pedio had reached their peak value in 2008, exceeding €5.5/month per square meter. Rents of more than €6/m² were also reported in some cases. However, as a result of the recession of the Greek economy, prices rapidly declined at the start of the previous decade and, since 2015 onward, remain relatively stable, in the range of €3/month per square meter, until

2018, when prices started rising again to upward of €3.5/month per square meter.

In other regions, where availability of construction land is greater, or the distance from the city of Athens or / and the Piraeus port is longer, as in Boeotia, rent values are even more competitive, being 30% lower than the ones in Thriasio Pedio. Logistics

facilities' rent prices in Thessaloniki are currently in the range of €4.5/m² in Sindos and Kalochori.

Construction of new warehouse facilities, especially in the Thriasio Pedio area, is on the rise in recent years, since the demand supply of storage space exceeds the supply, as the majority of warehouses under construction are pre-rented⁷¹.

71. Περιζήτητες οι εγκαταστάσεις logistics στην περιοχή της Αττικής, kathimerini.gr, 5 June 2020



70. Port of the month: Port of Thessaloniki (Greece), espo.be, 31 January 2017



Nikos Stathopoulos
Former Secretary General for Transport*,
Ministry of Infrastructure and Transport

Q. What are your plans towards the development of an effective intramodal transport & logistics sector?

A. To our understanding the key problems for the development of the logistics sector in Greece today are:

1. The completion of an efficient railway market in terms of both infrastructure and operation.

- a. This means connecting Patras to Alexandroupoli through Athens and Thessaloniki in less than 10 hours. The necessary scheme is Patras to Athens in less than two hours, Athens to Thessaloniki in 3 hours and Thessaloniki to Alexandroupoli in less than 5 hours.
- b. Completing the technical systems in the railway network, especially the signaling and ETCS, in order to maximize speed and capacity in the railway at least at the Patras-Athens-Thessaloniki-North borders axis.
- c. Connect the remaining ports on that main axis of the country.

Without those three necessary conditions, the whole discussion about intra / multi / intermodal logistics sector will remain theoretical. We do hope that the railway projects for the upcoming period, both for the Recovery and the Structural European funds, will move in that direction.

2. Develop a logistics sector with the necessary critical size and know-how

Currently, the supply chain market suffers from several chronic problems. Our operators do not have the critical size to compete in the European and international markets. Too many small companies, limited to transportation, storage and low added value operations, an aged fleet, especially for the international transportation, overcapacity and underutilization in terms of vehicles. The state

effort in that direction must be the simplification of the legal framework for logistics, incentives for mergers and growth, and facilitation of a fleet renewal. Most probably, this will entail combining the fleet renewal with critical size conditions and environmental efficiency.

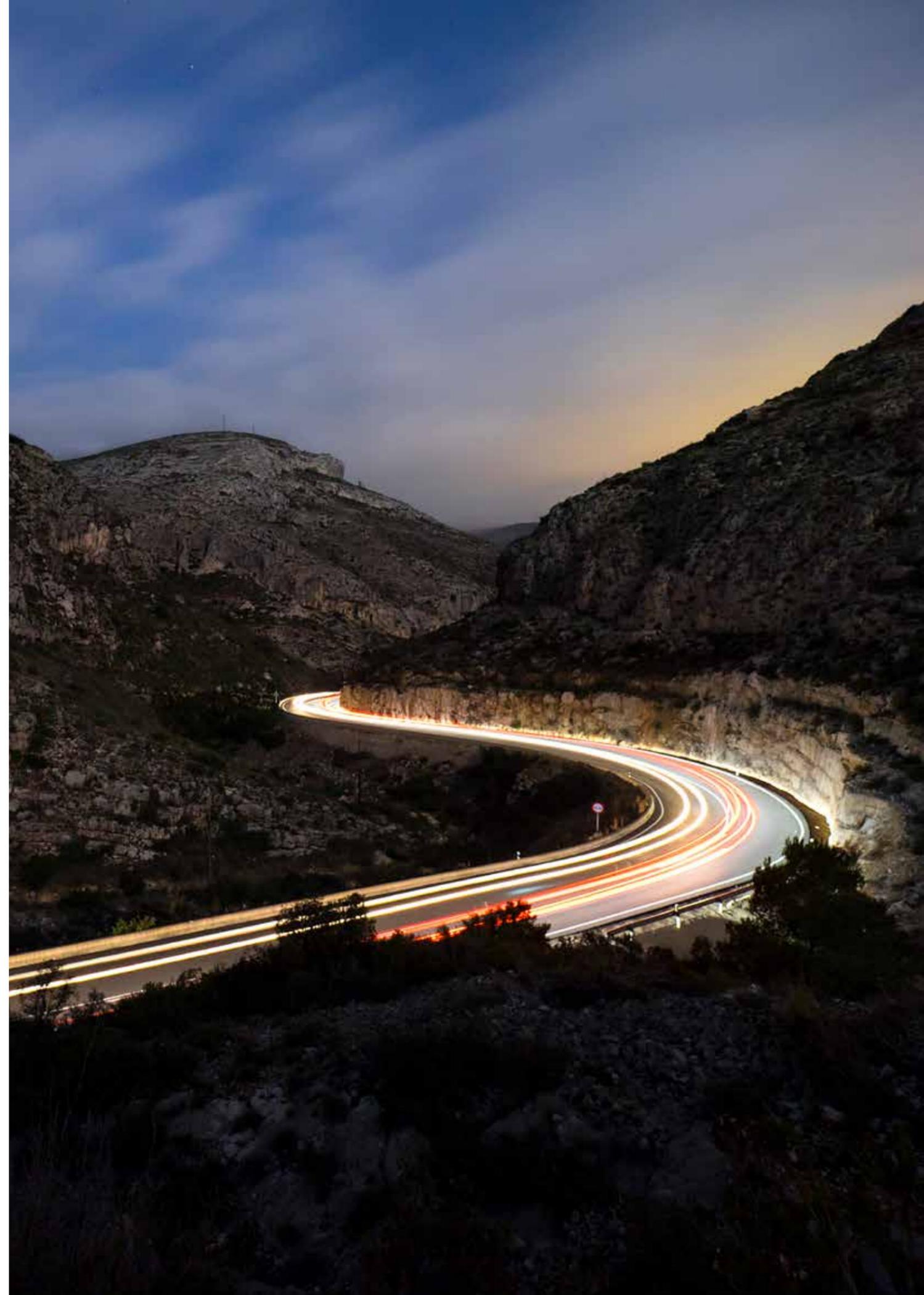
3. Favorizing the TPL market and operators in the supply chain global market

A clear priority in terms of compatible state aids, subsidies and projects must be given to the TPL sector. The actual share of the TPL operators in our supply chain, is far lower than in every other country considered as a successful model. Favorizing the TPL and the Value-Added Logistics (VAL) sector, is a sine qua non condition for the innovation and globalization of the Greek logistics sector.

Q. Are there opportunities concerning the development of foreign direct investments in this sector for Greece?

- A. As mentioned earlier, favorizing critical size, mergers and acquisitions is one of the necessary conditions for an efficient logistics sector. Some of the bigger Greek logistic companies can be of interest to foreign investors. Also, in terms of the territorial organization of the logistics market, we need some heavier warehouses and TPL infrastructure at Patras, Thessaloniki and Alexandroupoli, at least, as well as some smaller but modern logistics facilities near our other ports. For all those facilities, foreign investment can be considered as the necessary precondition for articulating and promoting in the international market a clear, realistic and comprehensive national logistics facilities strategy, combining all three pillars mentioned above.

* This viewpoint was provided by Mr. Stathopoulos in his capacity as Secretary General for Transport, in November 2020.



3 Road freight transport

The state-of-play of the road freight sector in Greece



International road freight has recovered as international trade through the Greek ports is expanding rapidly

Reduced volumes of goods transported in Greece put pressure on road freight transportation

Between 2009 and 2015 a dramatic reduction in total road transport performance occurred in Greece. The national transport industry, having a share of 98% in total road freight volumes and 61% in total road freight tonne-kilometer, suffered the most severe consequences of the global financial crisis and the Greek economy's recession.

Between 2015 and 2017, the road freight sector managed to record a considerable increase in both tonnes transported and tonne-kilometer. However, a decline was observed during the 2017-2018 period, as the weight of goods carried by road freight vehicles registered in Greece had decreased⁷², followed by an increase in imported goods during the 2018-2019 period⁷³.

Focusing on the most recent years, road freight volume seems to have stabilized from 2012 onward, even though there were some noticeable fluctuations as a result of the political and economic uncertainties in Greece. These year-on-year performance fluctuations are more noticeable in tonnes transported figures, since the volume of goods transported is more prone to the uncertainties of the domestic market.

In general, it is important to understand how the COVID-19 pandemic has affected transport worldwide and, therefore, the Greek sector. According to ICAP, the COVID-19 pandemic had a severe impact on the volume of worldwide freight trade in 2020. In the first eight months of the year, freight volume

was reduced by 12.1% (compared to the first eight months of 2019). In total, estimations regarding the worldwide freight volume of 2020 foresaw a year-on-year decrease of 8.7%⁷⁴.

Road freight transport in Greece, in terms of tonne-kilometer, has increased by approximately 3.03%

This slight year-on-year increase in road freight transport performance is mainly the result of the slow recovery of the sector's international road freight activities. Despite some ups and downs, international road freight transport reached its record low in 2011 and, from that year onward, it has been recovering, achieving a significant increase of 25% by 2015. From 2015 to 2018 it kept increasing, while it faced a small decrease in 2019. The international freight component of the road freight market in Greece addressed the decline of the first years of the Greek recession by exceeding its pre-crisis performance levels, reaching a new record high of 292m tkm, in 2018 and 280m tkm in 2019.

This recovery can be accredited to the increase of international trade volumes transshipped via Greece, with the port of Piraeus being at the heart of this activity (please see chapter 1).

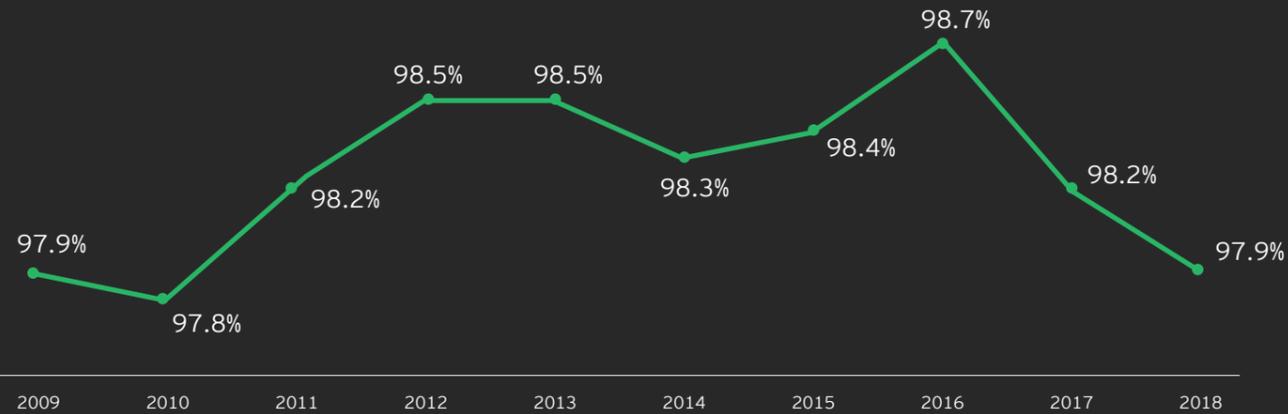
The considerable increase of trade through the Piraeus port, supported the recovery of almost all related industries, transforming the port into a real engine of growth for the Greek economy. Since new investments for the port's expansion have already been planned for the next years, the opportunities for Greek road freight transport have never appeared more promising.

72. Share of road in inland freight transport on the rise, Eurostat, 4 September 2020

73. Ibid.

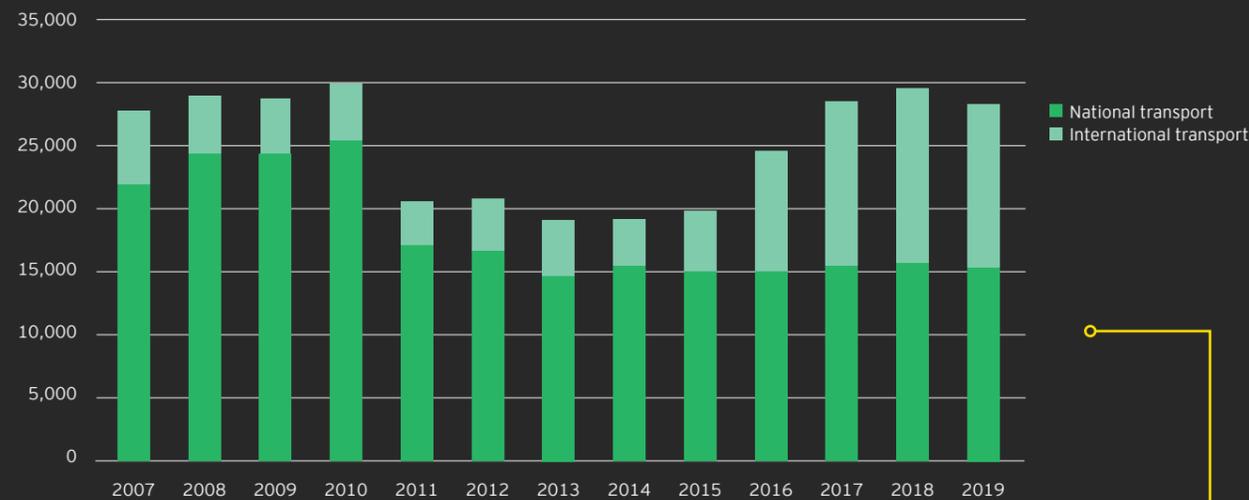
74. ΥΠΗΡΕΣΙΕΣ ΔΙΑΜΕΤΑΦΟΡΑΣ 2020, ICAP Group, 2020

Evolution of road share in total inland freight transport performance, per year



Source: Eurostat, EY analysis

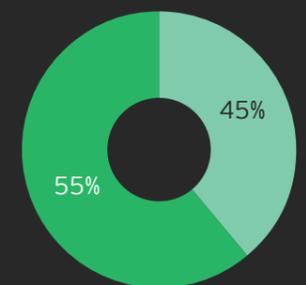
National and international road freight transport (in million tonnes-kilometer)



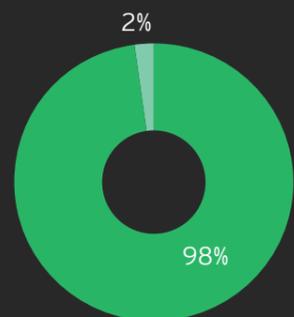
Source: Hellenic Statistical Authority, EY analysis

Road freight performance in 2019 per type of activity, in terms of tonne-kilometer / tonnes transported

In terms of tonne-kilometer



In terms of tonnes transported



■ National transport
■ International transport

Source: Hellenic Statistical Authority, EY analysis

National transport is the predominant component of the Greek road freight transportation market, especially in terms of tonnes loaded; in 2019, its share in total road freight volumes reached 98%, and 54% in total road freight tonne-kilometer.

It is worth mentioning that the COVID-19 pandemic had a strong effect on the port of Piraeus, as COSCO announced its first quarterly decline in container handling in years. The Piraeus port recorded a reported 3.8% decline, compared to 2019 – a small number considering the worldwide effect of the pandemic on the sector and given the fact that, in March (which was the only month that recorded a decline), the container handling percentage dropped by a staggering 15.4 points^{75,76}.

As discussed in the previous chapter, the domestic logistics market was also on the rise in the previous years, in line with the recovery of the national economy. Despite the COVID-19 setback, the logistics market is expected to resume its upward trend in the following years and, as a result, the road freight sector can expect an increase in freight volumes and tonnes-kilometer, rendering it more attractive for new investments⁷⁷.

Road freight transport has experienced a severe downturn as a result of the continuous recession of the Greek economy and, despite some signs of recovery from 2012 to 2015, there was another decline in 2019:

- ▶ The growth of freight volume (in tonnes) transported via road, reached its ceiling in 2009, when more than 644m tonnes were transported.
- ▶ After a strong 20% recovery in 2013, road freight performance worsened in 2014, recording a 16% decline in total tonnes transported. However, it had partly recovered by 4% in 2015, reaching 420m tonnes. After that, the total tonnes transported kept decreasing, reaching 354m in 2019.

The Greek road network

Greece has one of the most developed road networks in Southeast Europe. The main road network consists of more than 2,145 km of highways and motorways⁷⁸.

The EU-27 shared the most extensive road network in the world, with a

total of 4.9m km of roads in 2018. The USA and China closely followed, with 4.6m and 4.5m km respectively. With 34.8m, the EU-27 also owned the most means of road transport, followed by China with 25.7m. Greece ranked 12th among the EU-27, in road network length.

In 2018, trade transportation reached approximately 3.3b tkm globally, with road transportation accounting for 51% of the total share, and maritime transport for 29.2%.

The total number of means of road transport in the EU-27 increased by 2.5% in 2019, compared to 2018. At a country level, Greece ranked 9th among its fellow EU member countries, with the first two spots occupied by Spain and Germany respectively.

Greece owns the oldest fleet of heavy road transport trucks. The average age of Greece's trucks are 20.9 years, while the EU-27's average is 12.1 years. In 2018, Austria had the newest fleet of trucks in the EU, with an average age of 4 years.

Greece ranked 11th in road transportation in 2019, with 354m tonnes. Germany, on the other hand, sat at the top of the ranking, with 3.2b tonnes of commercial road transport in the same year⁷⁹.

Greece's transportation infrastructure, includes:

- ▶ Ports
- ▶ Motorways
- ▶ Airports
- ▶ Railways
- ▶ Customs stations
- ▶ Hinterland logistics infrastructure

Each of the above is very important for the Greek logistics sector. According to the EY Attractiveness Survey Greece 2020, the recent investments and various initiatives in the T&L industry have started to bear fruit; the World Economic Forum's 2019 Global Competitiveness Report ranked Greece 37th among

141 countries, as regards the competitiveness of the country's infrastructure, marking an improvement of one place from the year prior.

Structural analysis of the Greek road freight sector

The Greek road transportation industry primarily consists of small companies and owner-driver haulers, that provide low margin traction services to medium or large national and pan-European logistics providers. Therefore, a large number of Greek haulers rely heavily on providing outsourced traction to 3PLPs, whilst others are able to win their own work directly from shippers and carry it out with their own vehicles and drivers.

The hire and reward transportation sector in Greece had a share of 26% of the total road freight transportation activities in 2019 (in terms of tonne-kilometer), significantly below the EU average. If the share of outsourced transportation activities is calculated based on the tonnes of goods transported, then the provision of hire and reward services has a very small share, in the range of 21%. The fragmentation of the transport market in small providers (1.5 trucks per provider, on average) explains the existing low margins in the transportation sector.

On the main line-hauls, where the supply of transportation services usually exceeds the demand, the pricing of transportation services is in the range of €1/km, on average. Whilst extensive road haulage subcontracting practices provide a responsive resource to the Greek logistics industry, this level of fragmentation in the road transportation market can lead to an imbalance in the ability of small operators to fully recover their costs. Any increase in costs (such as in fuel price or driver wages) directly affects profits and many haulers simply struggle to pass the added costs on to the client.

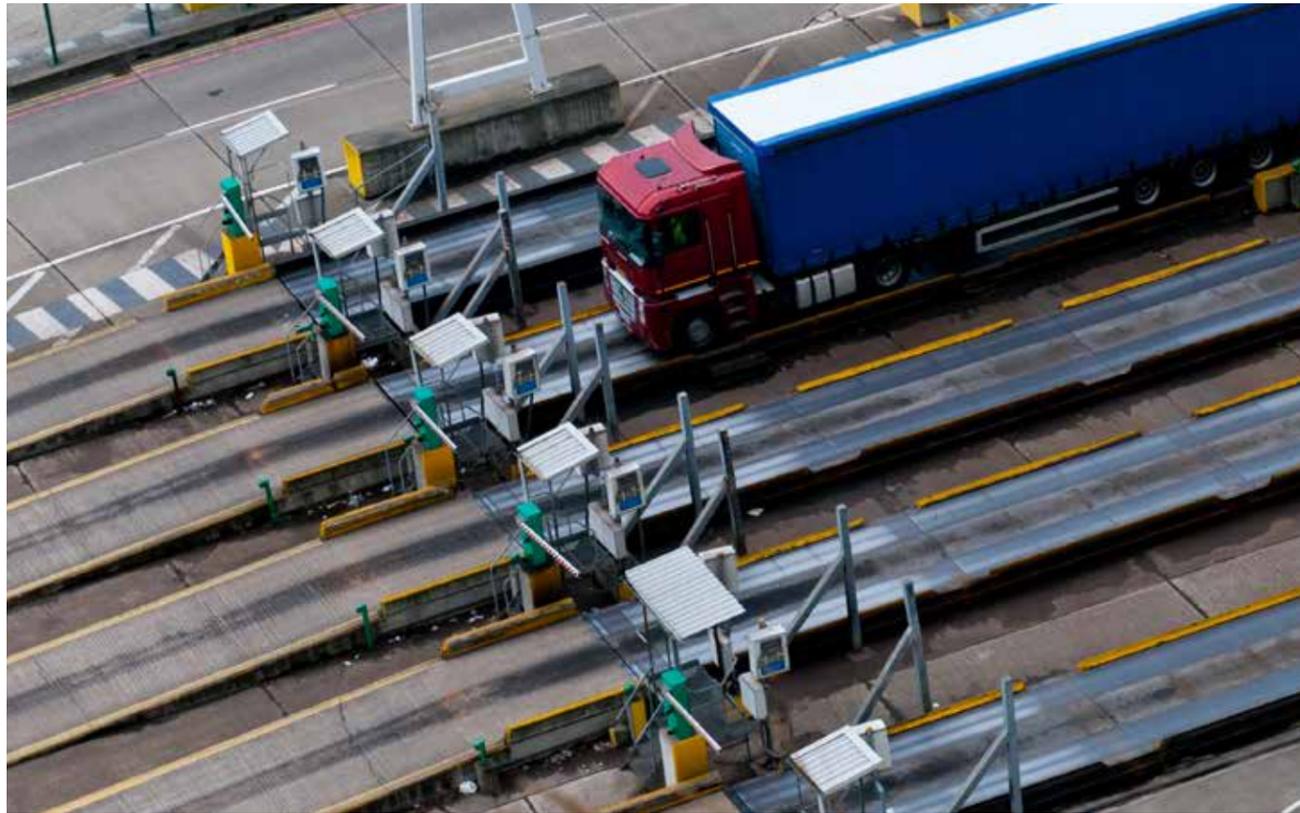
75. Piraeus container traffic slumps in March, ekathimerini.com, 29 April 2020

76. Greece: Logistics & Industrial Market Snapshot Q2 2019, Delfi Real Estate, April 2019

77. Αντοχές επέδειξε ο ΟΛΠ εν μέσω πανδημίας, kathimerini.gr, 8 January 2021

78. Στατιστικά Στοιχεία έτους 2019, Hellenic Association of Toll Road Network (HELLASTRON), 2019

79. ΥΠΗΡΕΣΙΕΣ ΔΙΑΜΕΤΑΦΟΡΑΣ 2020, ICAP Group, 2020



Fuel and toll surcharge agreements are levied on some contracts, but sometimes they can be difficult to put into effect. Delays in payment from the buyer to the carrier have been a main feature of the industry in the last decade and this situation has only been exacerbated by the economic developments over the past few years.

There is a steady increase in the development of strategic alliances and synergies among Greek road haulers. Traditionally, these synergies are mainly achieved through the formation of so-called "transportation agencies", a result of the collaboration between several owner-drivers or / and small road transport companies operating in regional networks. These agencies provide road transportation services within the regional boundaries of one or more prefectures, by consolidating goods (groupage) that either originate from or are designated to the county's shippers or consignees, respectively. This type of cooperation allows small transport operators to increase their vehicles' load factor and reduce empty running - especially in backloads - and, therefore, improve vehicle productivity and optimize operational costs.

Despite this level of organization, however, 3PLs, freight integrators and forwarding agents, continue to play the most important role in the organization of domestic, as well as international road freight movements. While driver shortages in the road haulage sector are a fundamental challenge for the majority of EU countries, the economic recession in Greece has led to a surplus of qualified and experienced truck drivers or truck owners, who are currently either unemployed or struggling to win on-the-spot work contracts. As more and more international cargo is arriving at the Greek ports, and as the economy is recovering, such a surplus of qualified professionals is an important asset for the logistics industry in Greece. A large percentage of these drivers have compulsory driver qualifications, allowing them to drive different classes of vehicles; apart from holding an EU professional driver license, they have also been certified with and hold the European Certificate of Professional Competence (Driver CPC) in compliance with EU Directive 2003/59/EC.

Subcontracting of road freight transport in Greece

Subcontracting levels in road freight transport in Greece are significantly lower than those in other EU member countries. Subcontracting in the transportation sector may serve different business needs, including: cost saving, covering a peak in demand, addressing a particular service not suited to the main operation, involving / meeting specialized cargo requirements, and, last but not least, serving a particular destination or region, especially where there is little prospect of a backload.

The majority of 3PL providers rely considerably on subcontracting work to smaller entities and owner-drivers that provide low margin, road-traction-only services. There are several types of relationships and dependencies among 3PLs and road hauliers, including: (a) small hauliers that work exclusively for large 3PL companies, (b) those that work with a few significant 3PLs, and (c) those that serve an occasional "on-the-spot" load.

The connection between Greece and the Danube River

Establishing a vertical link between the Danube River - Europe's second longest river - and Greece's Aegean coast, by a navigable route through the Morava and the Axios/Vardar Rivers, may seem like a project of colossal proportions by European standards, but its development cannot be ruled out, as it would serve the interests of China - an undisputed powerhouse trader. The potential project, the development of which could bring about radical changes to the transportation options in the wider region, seems to be moving up on the agenda of Greek and Serbian bilateral relations, also promising to inevitably engage North Macedonia, as well as various Central European

countries. The development of what is being promoted as the "new Silk Road" - involving land, air and sea - is already in progress, and the utilization of existing rivers could not be left out of the wider plan. The issue has been addressed at top-level talks involving leaders in Athens, Beijing, Belgrade, and Skopje, over the past few years. Some preliminary studies have indicated that such a route would work out to be three and a half days faster, compared to the existing option via Rotterdam.



Cargo is dispatched from the Dutch port of Rotterdam to reach the Danube River, running horizontally, from Central Europe, to Germany's southwest, and then to the Black Sea, through Romania's east coast. Development of the new waterway would offer a transportation link from the East Mediterranean directly to the heart of Europe, via the Axios/Vardar, Morava and Danube Rivers. Cargo would no longer need to be shipped all the way to Gibraltar and from there up to the Netherlands, or be held up in the narrow Bosphorus Strait. This is an attractive prospect for China and other East Asian countries, which export millions of containers to European markets and Russia each year. The Greek, Serbian, and North Macedonian routes, will need to be widened and deepened, while, according to a Serbian study, canals bypassing Skopje and the two Serbian cities of Nis and Kraljevo, must also be developed.

Brief organizational and economic profile of the road freight transportation sector in Greece

About 16,370 enterprises operated in the Greek road freight transportation sector in 2018, equivalent to more than 30% of the entire transportation and storage services sector population. These enterprises employed a total of 36,234 people, representing 27.1% of those working in the transportation and storage services sector, and recorded €1,061.4m of value added.

The relatively high share of road freight enterprises among the transportation and storage services sector population, combined with the corresponding lower share in value added, indicate that the average size of enterprises (in value added or employment terms) was below average. Indeed, the road freight transportation subsector is dominated by very small enterprises, when compared to those that operate in other sub-sectors; especially the very large enterprises operating in the postal services, as well as in the air, water and rail transport sub-sectors.

Key economic indicators of the road freight transportation sector, 2018

Sector	Road freight services sector	Transportation & Storage services sector
Number of enterprises	16,371	50,829
Turnover	2,519*	4,377.7*
Production value	2,311*	3,909.04*
Value added at factor cost	472.2*	1,061.4*
Personnel costs	271.4*	762.4*
Wages and salaries	213.5*	604.5*
Number of persons employed	36,234	98,632
Turnover per person employed	69.5	44.4
Apparent labour productivity (Gross value added per person employed)	13	10.8
Number of persons employed per enterprise	2.2	1.9

*in thousand €

Source: Eurostat, EY analysis

Analysis performed in accordance with the NACE Rev.2 classification of economic activities. NACE provides the framework for collecting and presenting a large range of statistical data according to economic activity in the fields of economic statistics (e.g. production, employment) and in other statistical domains. The "Transportation & Storage Services" NACE 2 economic activity includes the following activities, in addition to the road freight transportation sector: passenger transport, rail transport, water transport, air transport, transport via pipelines, warehousing and support activities for transportation, postal, and courier activities.

The Greek TEN-T road network

- ▶ The Orient / East-Med (OEM) Corridor is one of the most important EU corridors, since it connects critical European maritime interfaces in North and, mainly, Southeast Europe, to the major Central European industrial centers and logistics markets.
- ▶ The biggest part of the corridor's road infrastructure is allotted to Greece (1,245 km or 26% of the total road infrastructure). The country's two largest ports, those of Piraeus and Thessaloniki, are the two main maritime interfaces of the OEM corridor, connecting Asian and Middle Eastern ports to the economic and logistics centers in Central Europe.
- ▶ The corridor also extends across the Ionian and Adriatic Seas to the Italian ports, via the two Greek ports of Patras and Igoumenitsa in Western Greece. This EU "Motorway of the Sea" interconnects the OEM Corridor with the Scandinavian-Mediterranean EU Corridor, which links Italy to Central European countries.

- ▶ Another EU "Motorway of the Sea" interconnects Cyprus with Greece and, consequently, with the European core network.

- ▶ Some important projects are currently funded by the EU, under the CEF program, aiming to upgrade critical multimodal links and cross-border connections.



Following recent developments, Greece features one of the most developed road networks in the region.

Several developmental programs have been implemented over the last 15 years in Greece, resulting in the significant expansion and modernization of the national motorway network. Unsurprisingly, the most important road networks are located around the key economic logistics hubs of Athens and Thessaloniki, interconnecting these two large cities with the country's main seaports of Piraeus, Thessaloniki, Patras, and Igoumenitsa, as well as with Greece's northern borders.

The core Greek road network consists of more than 2,145 km of motorways, the majority of which have been expanded or upgraded in conformity with the strictest European motorway standards. Furthermore, an additional 500 km are under construction^{80,81}.

The PATHE motorway

- ▶ The oldest motorway of the country, the Patras-Athens-Thessaloniki-Evzoni motorway, also known as "PATHE (E75)", is the main road corridor of the Greek network, vertically interconnecting the two largest cities of Greece: Athens in the south, and Thessaloniki in the north.
- ▶ The PATHE motorway also constitutes the backbone of the Greek part of the TEN-T network. This north-south road axis runs along the east coast of the Greek mainland, also linking the two main Greek ports of Piraeus and Thessaloniki to the national borders in Northern Greece - specifically the ones with North Macedonia, in the town of Evzoni.
- ▶ Several parts of the motorway have been largely upgraded to the most modern motorway standards and new sections have been constructed over the last 13 years.

The Egnatia Odos motorway

- ▶ The Egnatia Odos motorway crosses Northern Greece, linking the Greek eastern borders with Turkey to the country's western borders in the Adriatic Sea. The motorway constitutes a vital road

freight intermodal corridor, that interconnects Greece and Turkey with Europe, via the sea route to Italy.

- ▶ The Egnatia Odos motorway also interconnects the Thessaloniki and Igoumenitsa ports with the regional ports of Kavala and Alexandroupolis, located near the borders of Greece with Turkey in the east.
- ▶ Construction works began in 1994 and the motorway was completed in 2014. The Egnatia Odos motorway is considered as one of the largest and most demanding infrastructure projects in Greece. It has a length of 670 km, fully compliant with the latest European motorway quality and safety standards.
- ▶ Several high-quality auxiliary routes connect Egnatia Odos to important logistics locations and ports in Northern Greece, as well as to the Albanian and Bulgarian borders.
- ▶ The concession tender for the operation, maintenance, and utilization of Egnatia has not yet been officially launched, due to delays in the procedure. According to HRADF, one bid was submitted on 11 December 2020⁸².

The Ionia Odos motorway

- ▶ The Ionia Odos motorway, having an approximate length of 196 km, runs across Western Greece from the north to the south, interconnecting the ports of Patras, Astakos, and Igoumenitsa.
- ▶ Passing through all the major urban and rural centers of Western Greece, such as Ioannina, Arta, Agrinio, and Patras, the motorway contributes to the wider development of the area by improving access to major tourist and archaeological sites.

The Kentriki Odos motorway

- ▶ Kentriki Odos (Central Greece Motorway) is a modern two-lane motorway, which, upon completion, will feature a total length of 238 km, and will connect the eastern and western part of Greece, currently separated by the Pindos mountain range.

80. Six major motorway projects underway in Greece during the next 5 years, tornosnews.gr, 15 February 2019

81. Final Transport Plan Report, National Transport Plan for Greece (NTPG), June 2019

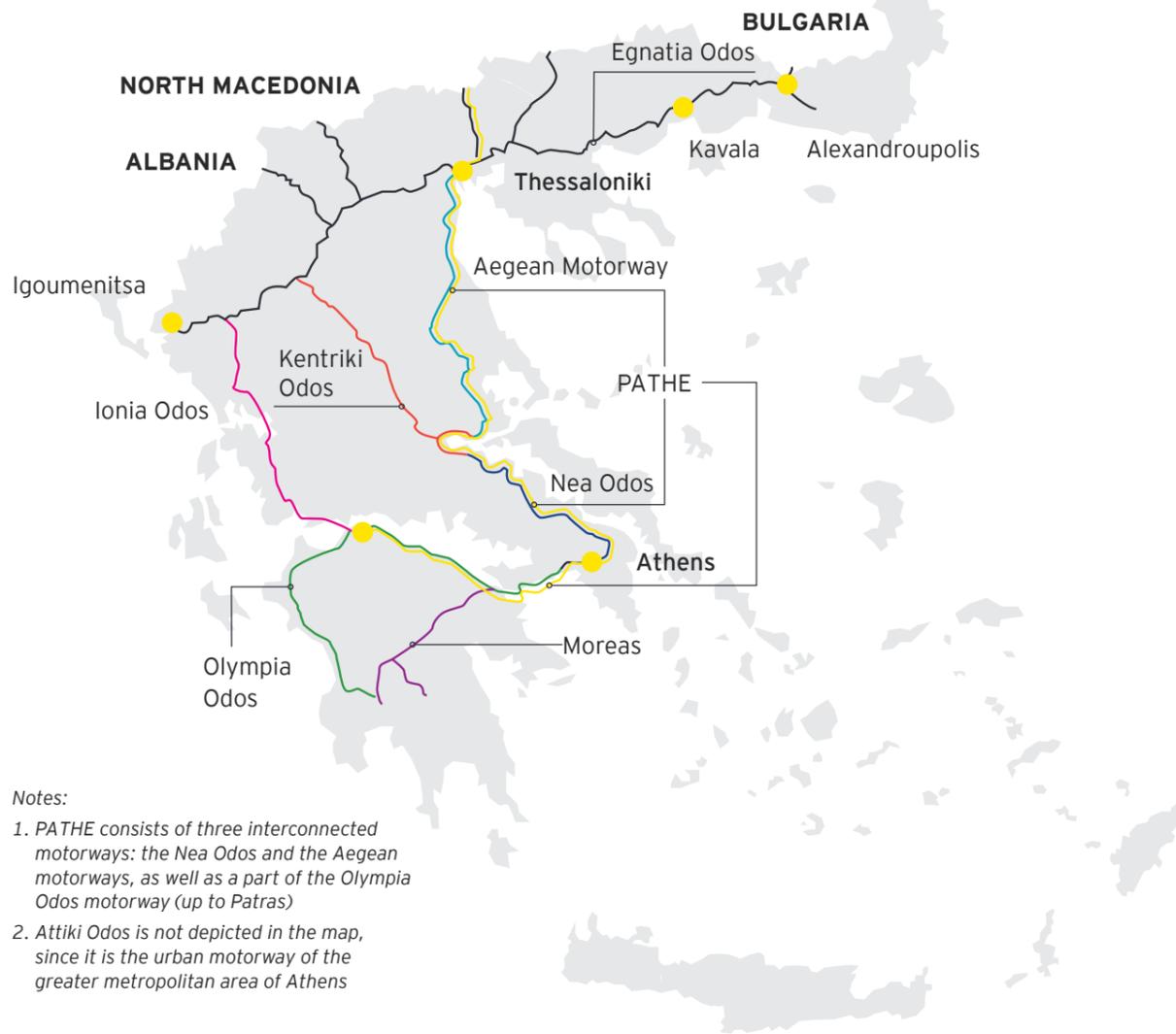
82. UPDATE 2-Greece gets one bid for Egnatia Odos motorway lease, reuters.com, 11 December 2020

By connecting the two main Greek road corridors of the PATHE and Egnatia Odos motorways via central Greece, the new road will reduce current travel time from Athens and the Piraeus port to the port of Igoumenitsa, by more than 40%, providing a new and modern trans-regional and international road freight corridor.

The Olympia Odos motorway

Olympia Odos is a strategic motorway with a total length of 202.3 km, which connects Athens and the port of Piraeus to Western Greece and, most importantly, to the port of Patras in the Ionian Sea. The motorway accommodates the majority of international road freight movement toward Central European countries, via the Ro-Ro services

between the port of Patras and various Italian ports (e.g. Brindisi, Bari, Ancona, Ravenna, and Venice). Within the last eight years, several new motorway sections were constructed, while existing ones saw some upgrades, with the scope of modernizing the network, reducing travel time, and improving comfort and safety.



- Notes:
- PATHE consists of three interconnected motorways: the Nea Odos and the Aegean motorways, as well as a part of the Olympia Odos motorway (up to Patras)
 - Attiki Odos is not depicted in the map, since it is the urban motorway of the greater metropolitan area of Athens

The extensive, brand-new road network consists of the following motorways:

- The Nea Odos and Ionia Odos Motorways (377.1 km)
- The E65 Central Greece Motorway (Athens-Thessaloniki corridor and Domokos-Trikala in Thessaly - 136.5 km)
- The Aegean Motorway (Central Greece-Thessaloniki - 263.7 km)
- The Egnatia Odos Motorway (Igoumenitsa-Thessaloniki-Greek borders with Turkey, and the Vertical Axes of the Egnatia Motorway, connecting Egnatia with the borders of Albania, North Macedonia, and Bulgaria - 887.2 km)
- The Olympia Odos Motorway (Patras-Corinth-Athens - 202.3 km)
- The Moreas Motorway (Corinth-Tripolis-Kalamata and a branch to Sparta - 205 km)
- The Rion-Antirion Bridge (3.5 km)
- The Attiki Odos Motorway (Elefsis-Athens Airport and Hemyttus Ring Road - 70 km)



The future

Today, the country features a complete and functional road network. What is now needed are additions to complete and enrich the existing network. It is worth mentioning that the island of Crete is going to see the completion of the Northern Road Axis (VOAK), a planned 200 km motorway running along its north coast, in the following years. VOAK will connect four major port cities (Chania, Rethymno, Heraklion, and Aghios Nikolaos), two existing airports (Heraklion and Chania) and one airport currently under construction (Kastelli)⁸³. The Kastelli airport will be ready in 2024-2025 and will replace the Heraklion airport (please see chapter 4).

Over 500 km of new roads (highways and bypasses), important improvements, and rehabilitations are currently under implementation across Greece, under the supervision of the Ministry of Infrastructure and Transport. Investments include elements of the

strategic road network, as well as a number of sectional upgrades of regional and local roads.

Projects are funded under the 2014-2020 Partnership Agreement between Greece and the EU and / or exclusively by national funds. Completion of these investments is anticipated before 2027. The five main expansions, three of which were included in concession contracts of the previous decade, are:

- Patra-Pyrgos (Olympia Odos - 75 km):** the natural continuation of the Olympia Odos motorway, which entered its construction phase in 2018.
- Lamia-Xyniada (E65 - 32 km):** the southern part of the Kentriki Odos motorway, for which construction works will begin in 2021.
- Trikala-Egnatia (E65 - 64 km):** the northern part of the Kentriki Odos motorway, for which there are also good signs regarding its funding.
- Ioannina-Kakavia (60.1 km):** the

natural continuation of the Ionia Odos motorway, for which funding is still being sought.

The Attiki Odos expansions (still under study): these projects would cost about €1.5b and will create an integrated motorway network that we should be able to witness, in its full form, by the middle of this decade.

Additionally, a major pending project is the completion of the Aktio-Amvrakia axis (48.5 km) - essentially a branch of the Ionia Odos motorway to the west.

It is worth noting that the country features an excellent complementary network of expressways which, along with the motorways, can take someone virtually everywhere. Today, Greece has more than 2,145 km of covered motorways, placing the country in a very high position among the EU ranks (12th), due to its dense road network⁸⁴.

83. Greek government seeking interest in US\$1.6 billion road projects in Crete, infrappworld.com, 21 June 2018

84. ΥΠΗΡΕΣΙΕΣ ΔΙΑΜΕΤΑΦΟΡΑΣ 2020, ICAP Group, 2020

4 Air freight transport

The ever-increasing passenger traffic drives air freight volume recovery in the Greek airports.



Greece has 45 airports, 15 of which are international, 26 are domestic and four are municipal.

The “Eleftherios Venizelos” Athens International Airport (AIA) is, by far, the predominant Greek airport, in terms of both freight volumes and passenger traffic. AIA serves not only the Greek capital, but also the whole Attica region. Moreover, “Eleftherios Venizelos” is emerging as an important passenger and logistics hub for Southeast Europe, being the central transfer point for connecting Europe to the Middle and Far East.

Besides AIA, many of Greece’s other airports are undergoing significant infrastructure upgrades, while, at the same time, based on the national transportation master plan, there are provisions for the construction of new ones.

In addition to operating, managing and developing 14 of the country’s regional airports over the four decades since the completion of the privatization process in December 2015, Fraport Greece had committed to invest about €330m (an amount later readjusted at €440m) in improving and expanding these airports by April 2021. These works were completed ahead of schedule, in January 2021⁸⁵. These regional airports are split into two categories: three mainland and 11 island airports. Mainland airports include Aktion, Kavala, and Thessaloniki. The 11 island airports are in Kerkyra (Corfu), Chania (Crete), Kefalonia, Kos, Mytilene (Lesvos), Mykonos, Rhodes, Samos, Santorini, Skiathos, and Zakynthos.

2019 was a special year for Fraport Greece, taking into consideration that more than 30m passengers passed through the 14 regional airports it operates. The company transported about over 30m passengers, in comparison to 29.87m in 2018, marking an increase of 0.9%. That years’ (2019) marginal increase

shows signs of development in the Greek tourism industry and in the seasonality of the regional airports, which successfully withstood the collapse of five air companies flying to Greece. The airports of Mykonos, Aktion, and Mytilene, recorded the biggest percentage growth, with 8.9%, 7.2% and 4.1% respectively⁸⁶.

Planned investments provide tremendous growth potential for the airports, as well as for Greek tourism and the local development of the respective islands and cities throughout Greece that feature such facilities.

While 2019 was a great year for Greek airports, 2020 was terrible, due to the pandemic’s impact. Up to November, the traffic at the 14 Greek airports operated by Fraport Greece was down by 71.1% compared to 2019⁸⁷, while, according to the Greek Civil Aviation Authority, overall traffic at all Greek airports decreased by 69.3% in 2020. The travel restrictions imposed in Europe, Greece, and the rest of the world, have resulted in a dramatic decline across all relevant statistics. At the same time, IATA has released data, according to which, in November, the global freight markets witnessed a 6.6% decrease compared to 2019⁸⁸.

Greece as Southeast Europe’s air freight transportation logistics hub

The role of air transport in freight transportation is less pronounced, when compared to the other means of transport, due to its expensiveness in terms of tonne-kilometer. For this reason, air freight is considered to be highly competitive, primarily for the long-distance transportation of relatively lightweight, valuable goods or for the immediate and fast transportation of delicate / fragile goods. As a result, air freight transport in Greece has a share of ca. 35% of international trade in terms of value, but only 1% in terms of weight.

However, air cargo transportation is rapidly expanding, especially in Europe. Between 2017 and 2018, international intra-EU and extra-EU transport in Greece recorded a growth of 10.1% and 5.9% respectively⁸⁹. As the importance of international air transport is growing, there are significant opportunities for Greece to emerge as Southeast Europe’s gateway for air cargo traffic, providing a real alternative to congested hubs worldwide. Initiatives like the recent cooperation between the Athens International Airport and the port of Piraeus - the so-called “Seanairy Project” - contribute to the development of Greece as a major regional logistics hub that interconnects Europe with the Middle East, Africa, and East Mediterranean.

The rapid growth of passenger traffic through Greek airports, before the onset of the global COVID-19 pandemic, and the establishment of new international air connections via the “Eleftherios Venizelos” Athens International Airport, create promising opportunities for air cargo services as well.

The Kastelli airport

In 2018, the Ariadne Airport Group - a joint venture between the Greek firm “GEK Terna” and India’s “GMR Airports Limited” (GAL) - was awarded the concession contract for the construction of the new Kastelli airport at Heraklion, in Crete, and its operation for 35 years. Additionally, the European Investment Bank (EIB) loaned €180m to Greece for this project. The Group is bound to complete the project - which is expected to cost €517m - within 60 months. The Kastelli airport is set to become the second biggest airport in the country, with an annual capacity of more than 8m passengers⁹⁰. It is reported that the airport could become a key hub for tourism and transportation, and bring great benefits to the area and its economy⁹¹.

85. Fraport Greece: Έτοιμα τα 14 αναβαθμισμένα αεροδρόμια, protothema.gr, 10 February 2021

86. 1st Infrastructure and Transport Review 2018-2019, metaforespress.gr and ypodomes.com, 2019

87. AIA, Fraport Greece Airports Passenger Traffic Hits Low in November, news.gtp.gr, 11 December 2020

88. Air cargo demand improves in November, capacity remains constrained, tornosnews.gr, 11 January 2021

89. Air Transport Traffic, Eurostat, December 2019

90. Crete to Get New Airport: Works at Kastelli Begin, news.gtp.gr, 11 February 2020

91. Ibid.

Works include the construction of a 3.2 km-long runway, capable of handling commercial aircraft (including Airbus A380 jet airliners), a 23-meter parallel taxiway (with a provision for the construction of a second taxiway to facilitate independent operation), airside facilities (including a cargo terminal building and an apron area capable of initially housing 27 aircrafts), 19 passenger gates, as well as a commercial area within the main terminal building, which will have the capacity to accommodate between 57,500 and 65,000 passengers per

day, upon the airport's operation. The terminal building will be five stories high, with a total area of 72,000m², of which, 13,000m² are intended for commercial use, and 1,100m² dedicated as a permanent exhibition space⁹².

At the same time, due to the construction of the airport, several other key infrastructure projects, including the completion of the VOAK road axis and other peripheral roadway networks, as well as water and sanitation works, are in the pipeline.

Development of air freight transportation in Greece

Approximately 105,398 tonnes of air freight were carried through Greek airports in 2019⁹³. 2015 marked the first year that an increase in freight volumes was observed, following the onset of the financial crisis in 2008. In fact, between 2008 and 2015, the quantity of goods transported via air in Greece (both domestically and internationally) was dramatically reduced by 44%, as a result of the Greek sovereign debt crisis. Just before the financial crisis, in 2008, air

freight numbers amounted to 112,225 tonnes. However, in 2019, Greece managed to attain the numbers of 2008 (pre-crisis levels), reaching a total of 105,398 tonnes.

Concerning the type of air freight traffic, international air freight transport has by far the largest share in total quantities of goods transported through the Greek airports, in the range of 90%. Intra-EU air traffic was the most important component of air freight transportation in Greece up to 2017, however percentages are split between intra- and extra-EU in the last two years, with extra-EU traffic

surpassing intra-EU for the first time in 2018. The proportion of Greek air freight that was transported to or from other EU airports within the reference period of 2008-2019, was in the range of 48%-61%.

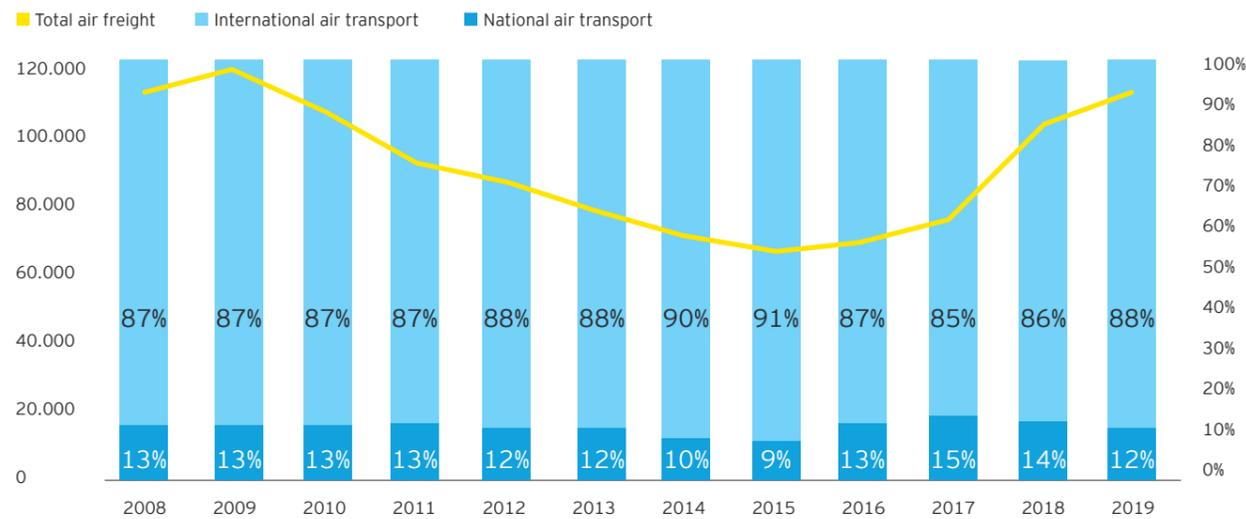
The split between national and international air freight transport did not vary considerably within the period of the Greek recession.

International air cargo is dominating air freight transport, with more than 85% of total cargo every year since 2008, peaking at 91% in 2015 and standing at 88% in 2019.

On the other hand, within the same reference period (2008-2019), there was a remarkable shift in the split of air freight that arrives in the Greek airports, compared to the freight that departs from them.

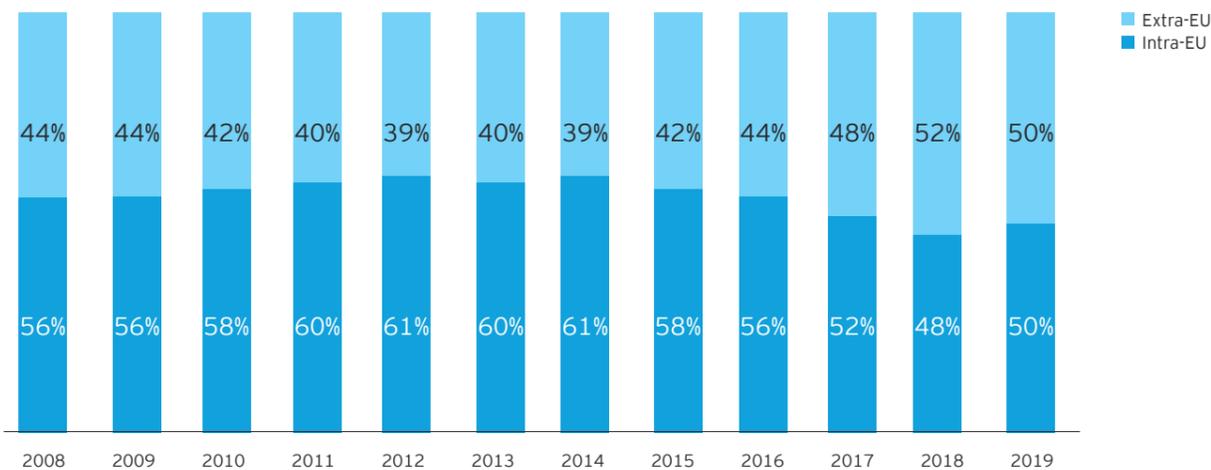
From only 40% in 2008, the share of air freight that departs from the Greek airports – in international or national flights – reached the value of 51% in 2015 and 57% in 2019, showing considerable growth in the significance of outbound air freight.

Air freight transport in Greece (in tonnes)



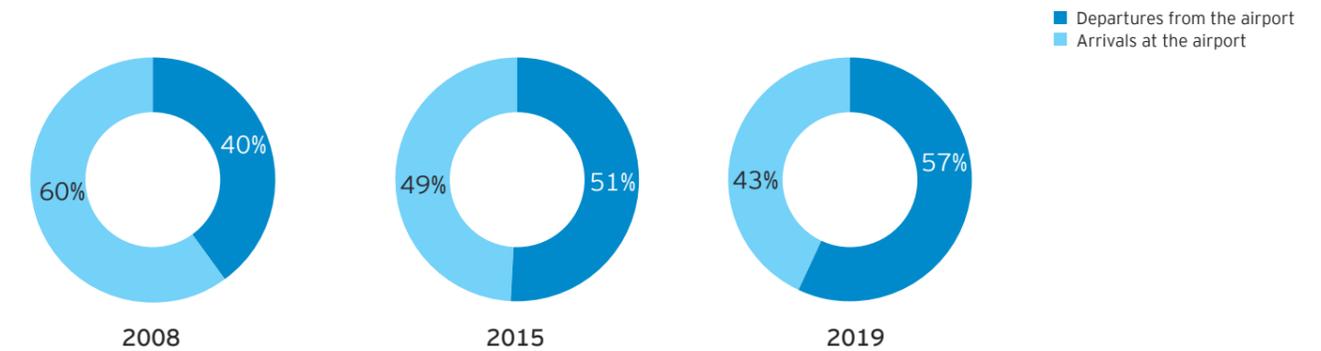
Source: Eurostat, EY analysis

Intra-EU vs extra-EU air freight transport in Greek airports



Source: Eurostat, EY analysis

Split of air freight volumes per direction of shipment



Source: Eurostat, EY analysis



92. Construction of New International Airport in Crete Set to Begin, greekreporter.com, 13 February 2019
 93. Cargo Uplift Development 2019, Athens International Airport (AIA), 2019

The Athens International Airport is the largest air freight transporter among all Greek airports

The Athens International Airport, officially operating since March 2001, is a modern facility with state-of-the-art cargo infrastructure, and has earned numerous international awards and distinctions in recognition of the high quality of services it offers. Also known as “Eleftherios Venizelos”, named after the distinguished Greek statesman, the AIA has two terminals and is a growing hub for travels to Asia and the Middle East.

The AIA serves not only the Greek capital, but also the whole of Attica, Greece’s most densely populated and economically strongest region. Having immediate access to the railway and to the core national road network, via the three-lane Attiki Odos motorway, the

airport functions as an important hub for Southeast Europe and is the central transfer point for people travelling to Europe from the Middle East.

The AIA has begun its expansion and renovation plan. These investments are expected to cost up to €700m. The expansion is another big investment in Greek airports, after the completion of the renovation works at the 14 regional airports operated by Fraport Greece, indicating the growth of the sector and the opportunities it brings for the economy.

In detail, the AIA’s expansion and renovation project includes a new terminal, which is planned to include, among others, new gates equipped

with jetways, ramps, new VIP and lounge areas, shopping and dining areas, etc. The project is estimated to cover an area of 100,000m², including the expansion of the satellite station. The AIA aims to be able to handle around 30m passengers annually in the short-term, and 50m by 2040^{94,95}.

In the European Union, the total number of passengers travelling by air in 2019 reached 1,034m, 3.8% up from the previous year. In 2019, Paris’ Charles de Gaulle airport became the largest in the EU in terms of passengers, freight and mail. The AIA is ranked 31st among other European airports in freight and mail transporting, and 23rd in passengers in Europe⁹⁶.

The Athens International Airport, having a total operational floor area of 30,000m², can handle 275,000 tonnes of general and special cargo, annually. More specifically, the existing cargo infrastructure consists of:

- ▶ Three independent “front-line” cargo terminals and one distribution center, with a total operational area of 30,000m² and a total mezzanine office area of approximately 7,000m².

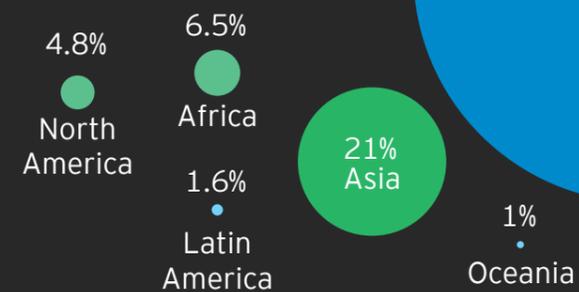
- ▶ One “front-line” air mail center.
- ▶ One “front-line” station for veterinary and phytosanitary inspections.
- ▶ One “second-line” cargo community administration building.

In January 2020, the new AIA masterplan was approved by the Civil Aviation Authority. The masterplan’s main goal is for a new terminal to be constructed, which is expected to allow an increase of

about 7m passengers per year. The terminal extension is planned to cost €500m, while the total investment is expected to reach €700m (terminal plus bridges, airplane hangars, VIP lounges, stores, etc.). In the long term, the masterplan includes a study for the construction of another terminal, that will allow for 50m passengers annually by 2040⁹⁷.

In 2019, Greek exports reached a total of US\$37.8b, ranking Greece the 57th exporter globally. Over the last five years, Greece’s exports decreased by 4.1%.

The most important destinations for Greek exports are⁹⁸:



Main types of air-cargo handled at the Athens International Airport, include:

- ▶ Ship spare parts
- ▶ Pharmaceuticals
- ▶ Fresh fish
- ▶ Foods
- ▶ Perishables
- ▶ Electronics / machinery / parts
- ▶ Jewelry
- ▶ High-tech products
- ▶ Aluminum
- ▶ Special cargo (live animals, dangerous goods, radioactive materials, etc.)
- ▶ New premium products, such as bio products

94. Long-awaited master plan for Athens International Airport greenlighted, tornosnews.gr, 28 January 2020

95. Passengers Traffic 2019, Athens International Airport (AIA), 2019

96. Air Transport Statistics, Eurostat, January 2020

97. Απογειώνεται η επένδυση των 700 εκατ. στο αεροδρόμιο της Αθήνας, businessdaily.gr, 22 January 2020

98. Greece Exports by Country, tradingeconomics.com, 2020

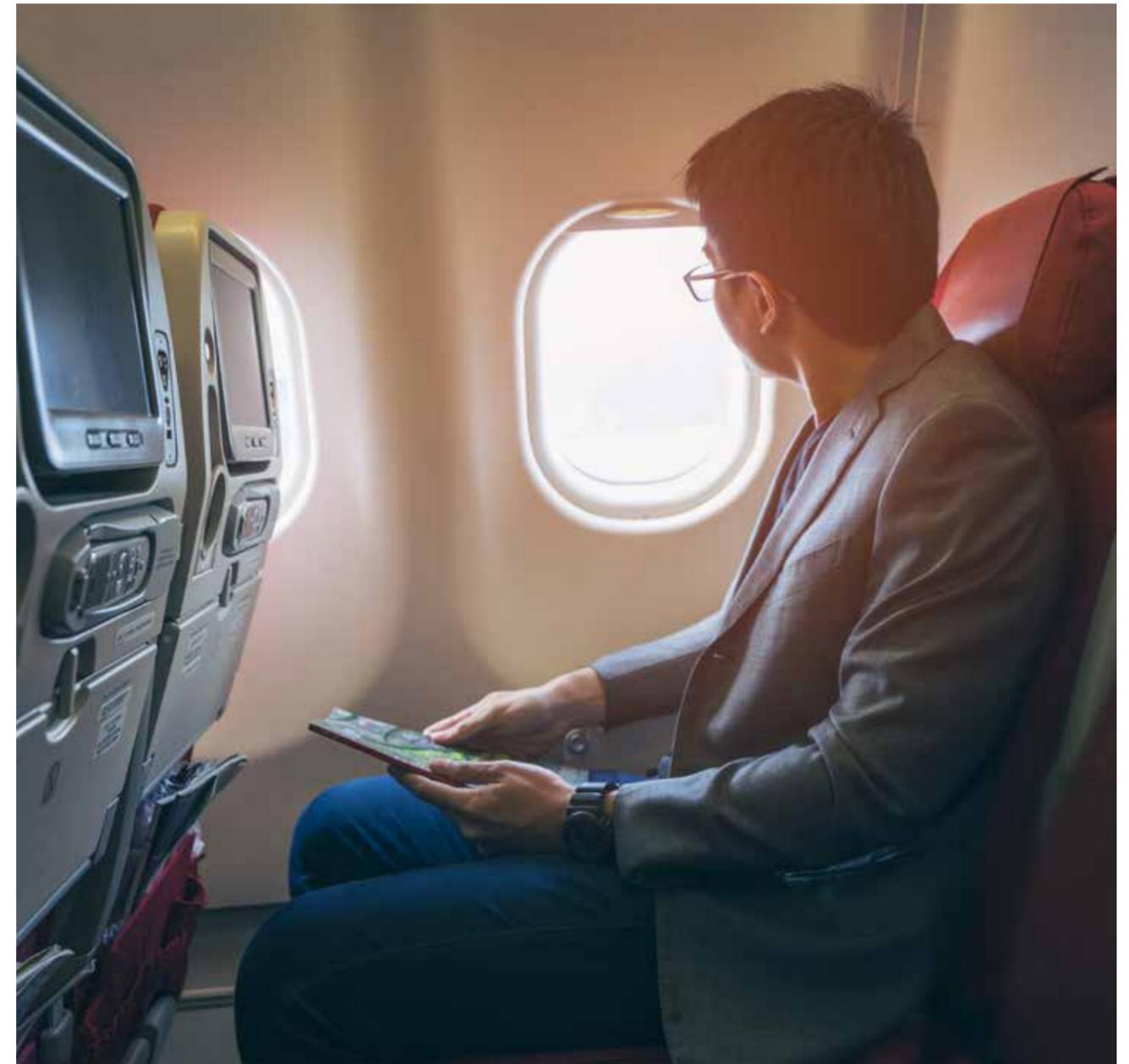
More than 88.3% of the total air freight in 2019 passed through the “Eleftherios Venizelos” Athens International Airport. In the same year, the airport recorded an increase of 1.4% in total national and international air cargo transport, reaching a total tonnage of 93.3 thousand tonnes.

Before the beginning of the economic crisis, “Eleftherios Venizelos” reached its peak in total air freight transport in 2008, with 122,000 tonnes. A severe and sharp drop of 38.7% in freight

volumes occurred within the first years of the Greek economic recession, between 2009 and 2013. However, air freight volumes in the AIA have been strongly recovering year-on-year.

In 2019, the number of total freight in the AIA was 85,790 tonnes, while the number of total mail was 8,207 tonnes, marking an increase of 1.4% and 2.6% respectively, compared to 2018, when the total freight was 84,576 tonnes and total mail stood at 7,997 tonnes⁹⁹.

The AIA also aims to bring all stakeholders under one roof, by establishing a local cargo community through an efficient communication platform: the Airport Cargo Community Committee (ACCC). The ACCC was established in 2003, aiming at strengthening and enhancing the communication among all members of the cargo community, promoting synergies inside and outside the airport’s fence and reaching joint decisions on new projects and initiatives.



99. Cargo Uplift Development 2019, Athens International Airport (AIA), 2019

In 2015, the Fraport AG-Slntel Ltd. consortium was awarded the concession agreement for the operation of 14 Greek regional airports



The 14 Greek regional airports managed and operated by Fraport Greece are divided in two clusters:

- Cluster A** comprises of the Thessaloniki, Kerkyra, Kefalonia, Aktio, Zakynthos, Kavala, and Chania airports.
- Cluster B** comprises of the Rhodes, Samos, Skiathos, Mytilene, Mykonos, Santorini, and Kos airports.

The 14 regional airports have been renovated and upgraded between 2015 and 2021

- On 14 December 2015, the Fraport AG-Slntel Ltd. consortium signed the concession agreement concerning the upgrade, maintenance, management, and operation of 14 Greek regional airports.
- The consortium offer consisted of an upfront payment of €1,234b and an annual payment of €22.9m for the lifetime of the concession, annually adjusted according to the Consumer Price Index (CPI). The predominant objective of the transaction is the upgrade of the airports in need of significant investments, a development which has particularly important benefits for Greek tourism and the local development of the respective islands and cities throughout Greece.

The Fraport-led consortium had initially committed to invest an amount of €330m by 2021 (an amount that was readjusted twice, to be finalized at €440m), on top of the up-front payment of €1.2b to the Greek State. These planned investments (completed in January of 2021) aimed to upgrade the 14 regional airports in conformance with the most recent IATA standards (Level C), as well as to maintain them throughout the 40-year duration of the concession¹⁰⁰. Fraport's plan included projects and developmental works in order to upgrade the airports' facilities, aiming to improve the passengers' travel experience and increase traffic. The works were announced as finished ahead of schedule in

January of 2021¹⁰¹. During the 40-year concession, Fraport is going to implement additional maintenance projects, in order to increase the capacity of the airports and make any required upgrade works. Fraport Greece's major developmental works included building five new passenger terminals in the Thessaloniki, Corfu, Kefalonia, Kos, and Mytilene airports, but also implementing modifications in other airports. This resulted in an increase of 100,000m² in terminal size, compared to 2015, reaching a combined total of 300,000m² for all 14 regional airports in 2021.

100. Fraport Greece's Development Plan for the New Era at the Greek Regional Airports, fraport-greece.com, 2020
101. Fraport Greece: Έτοιμα τα 14 αναβαθμισμένα αεροδρόμια, protothema.gr, 10 February 2021

Fraport Greece has completed renovation and upgrade works at all 14 Greek regional airports it manages and operates. By December of 2020, works had been completed

at the airports of Aktio, Chania, Corfu, Kavala, Kefalonia, Zakynthos, Mytilene, Mykonos, Rhodes, Samos, and Skiathos. Kos, Santorini and Thessaloniki airports' works were

completed in January 2021, ahead of schedule and ready before the start of the tourism season of 2021¹⁰².

In detail, the enhancements implemented per airport (in alphabetical order) under Fraport Greece's investment plan between 2015 and 2021¹⁰³, include:

Aktion Airport (PVK)

- Terminal expansion by 2,381m² and refurbishment
- 75% increase in the number of check-in counters (from 8 to 14)
- 60% increase in the number of departure gates (from 5 to 8)
- Doubling the number of security check lanes (from 2 to 4)

Chania Airport (CHQ)

- Expanding the security control area
- Reorganizing the apron area
- 25% increase in the number of departure gates (from 8 to 10)
- Doubling the number of security check lanes (from 4 to 8)

Kavala Airport (KVA)

- Terminal expansion by 2,029m²
- Refurbishing and expanding the fire station
- Reorganizing the airport's apron area
- 20% increase in the number of check-in counters (from 8 to 10)

Kefalonia Airport (EFL)

- New terminal
- 71% increase in the number of check-in counters (from 7 to 12)
- 100% increase in the number of departure gates (from 3 to 6)
- Doubling the number of security check lanes (from 2 to 4)

Kerkyra Airport - Corfu (CFU)

- New terminal
- Expanding the terminal by 10,294m² and remodeling the current terminal
- 27% increase in the number of check-in stations (from 22 to 28)
- 33% increase in the number of departure gates (from 9 to 12)

- 33% increase in the number of security check lanes (from 6 to 8)

Kos Airport (KGS)

- New terminal
- 201% increase in the total size of the airport, at 24,000m²
- 75% increase in the number of check-in counters (from 16 to 28)
- 125% increase in the number of security check lanes (from 4 to 9)

Mykonos Airport (JMK)

- Expanding and remodeling the terminal - 50% increase in the total size of the terminal, at 13,350m², with the construction of a new terminal area
- 33% increase in the number of check-in counters (from 12 to 16)
- 17% increase in the number of departure gates (from 6 to 7)
- 25% increase in the number of security check lanes (from 4 to 5)

Mytilene Airport - Lesvos (MJT)

- New terminal
- New airport apron area
- 185% increase in the total size of the airport, at 7,185m²
- 29% increase in the number of check-in counters (from 7 to 9)

Rhodes Airport (RHO)

- 13% increase in the number of check-in counters (from 40 to 45)
- 13% increase in the number of departure gates (from 16 to 18)
- 71% in the number of security check lanes (from 7 to 12)
- 25% increase in the number of baggage reclaim belts (from 4 to 5)

Samos Airport (SMI)

- 19% increase in the total size of the terminal, at 9,605m²
- 40% increase in the number of check-in counters (from 10 to 14)

- 25% increase in the number of departure gates (from 4 to 5)
- 50% increase in the number of security check lanes (from 2 to 3)

Santorini Airport (JTR)

- 236% increase in total terminal space, at 15,640m², by replacing part of the current terminal and constructing a new terminal
- 113% increase in the number of check-in counters (from 8 to 17)
- 20% increase in the number of departure gates (from 5 to 6)
- 250% increase in the number of security check lanes (from 2 to 7)

Skiathos Airport (JSI)

- 39% increase in the total size of the airport, at 9,511m²
- 11% increase in the number of check-in counters (from 9 to 10)
- 33% increase in the number of departure gates (from 3 to 4)
- Doubling of security check lanes (from 1 to 2)

Thessaloniki Airport (SKG)

- New terminal
- Terminal expansion by 31,380m², including new landside access
- 47% increase in the number of check-in stations (from 30 to 44)
- 75% increase in the number of security lanes (from 4 to 7)
- 50% increase in the number of departure gates (from 16 to 24)

Zakynthos Airport (ZTH)

- Refurbishing and remodeling the current terminal
- Refurbishing the air traffic control tower
- 33% increase in check-in counters (from 15 to 20)
- 150% increase in the number of security check lanes (from 2 to 5)

102. Έτοιμα για "απογείωση" 11 αεροδρόμια της Fraport Greece, capital.gr, 16 December 2020
103. Fraport Greece's Development Plan for the New Era at the Greek Regional Airports, fraport-greece.com, 2020

Greek airports' passenger traffic rose to 65.4m in 2019, setting a new annual record¹⁰⁴

Athens International Airport

At this point, the increased attractiveness of Athens as a popular city-break destination, supported by common actions of the AIA, entities of the Greek tourism industry, and the local public administration, reflects on every aspect of the "Eleftherios Venizelos" airport, with the following distinctive examples:

- ▶ From 2013 to 2019, the airport marked an 105% increase in passenger numbers (from 12.5m to 25.6m passengers).
- ▶ In 2019, foreign passengers / tourists accounted for 6.4m, from just 2.6m in 2013, recording an extraordinary 146% increase over this period, and a 12% increase in comparison to 2018.
- ▶ In 2019, a record 25.6m passengers visited the Athens International Airport, surpassing the previous year's traffic by 1.4m (+6%). This outcome was solely driven by the large growth in international visitors (17,822,979, +1.4m or +8.6%), while growth in domestic visitors remained similar to past years



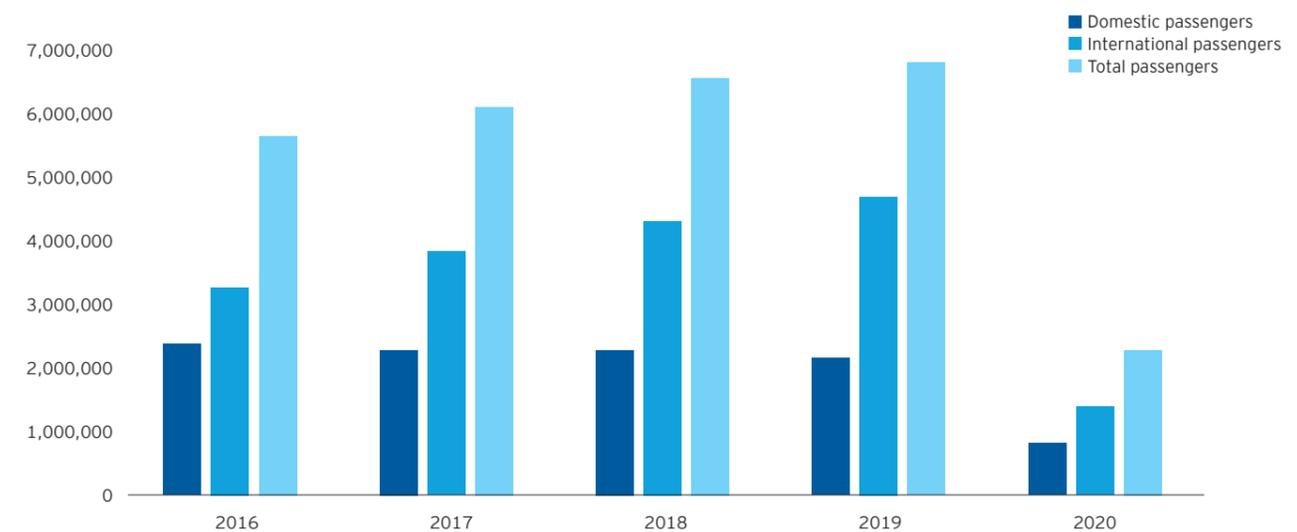
(7,751,014 in total, +0.3%). At the Greek airports as a whole, traffic hit a new record with a number of 65.4m passengers in 2019 (up by 5% compared to 2018).

However, traffic percentage decreased by 75% in the first half of 2020, due to the COVID-19 pandemic and its disastrous effect on the tourism industry^{105,106}.

Thessaloniki airport

International traffic at Thessaloniki's airport rose over the last years. In 2018, domestic passengers have decreased by nearly 0.8%, but international passengers have increased by 11.8%, raising total traffic by 7.1%¹⁰⁷. In 2019, the number of domestic passengers at Thessaloniki's "Makedonia" airport (SKG) was 2,164,242, recording a 7.3% decrease, while international passengers were 4,731,089, an increase of 8.6%. In total, passengers increased by 3.1% in 2019.

Makedonia airport passenger traffic



Source: Thessaloniki Airport Makedonia (SKG)

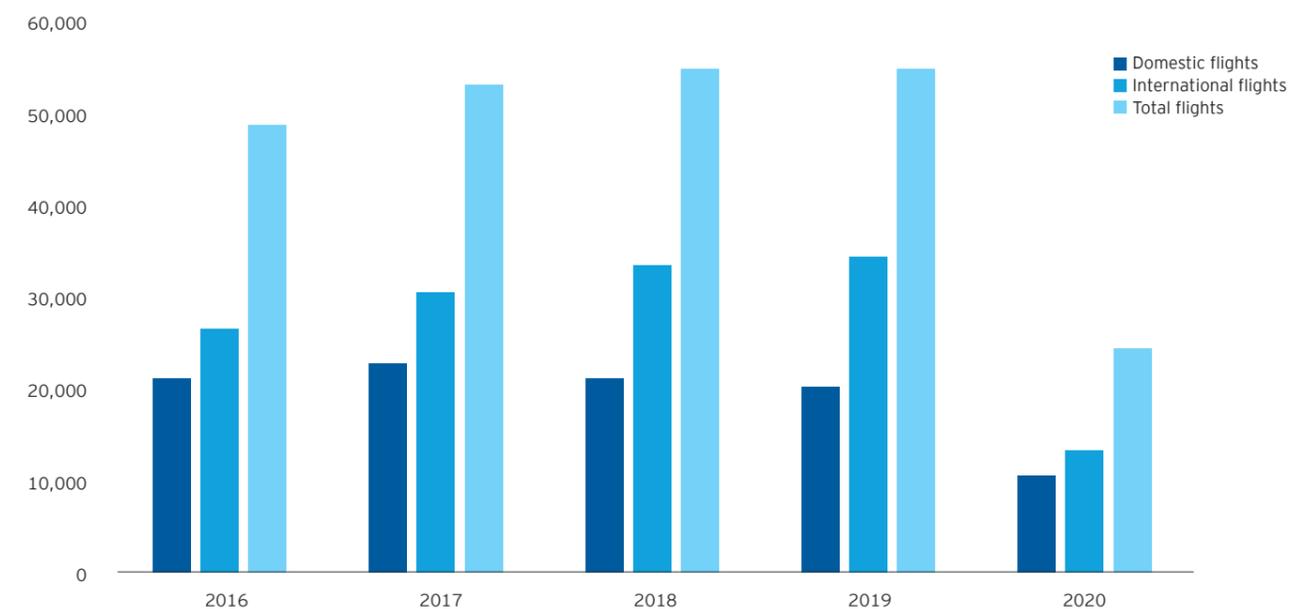
Domestic flights for the SKG fell by 4.8% in 2018; from 22,861 in 2017 to 21,764 in 2018. On the other hand, international flights recorded an 8.9% increase, from 30,809 in 2017 to 33,543 in 2018. Total flights in the SKG in 2018 were estimated at

55,307, compared to 53,670 in 2017, an increase of about 3.1%.

In 2019, domestic flights in the SKG were 20,665 and international flights were 35,065, totaling 55,730 flights. In 2020, due to the pandemic, the

number of passengers visiting the Thessaloniki airport dropped by 66.4% in comparison to 2019, to 2,317,336. At the same time there were 24,966 flights in 2020, a 55.2% decrease compared to 2019.

Makedonia airport flights



Source: Thessaloniki Airport Makedonia (SKG)

104. New record volume of traffic at Greek airports during 2019, tornosnews.gr, 15 January 2020
 105. 1st Infrastructure and Transport Review 2018-2019, metaforespress.gr and ypodomes.com, 2019
 106. Greek Airports: 75% Passenger Traffic Drop in First Half of 2020, news.gtp.gr, 21 July 2020
 107. Traffic Development Overview, fraport-greece.com, 2019



The 14 Greek regional airports operated by Fraport Greece recorded a slight increase of 0.9% in total passengers in 2019, compared to 2018, attracting 30,150,737 passengers. Domestic passengers were 6,902,786, recording a decline of 0.9%, while international passengers were 23,247,951, which constitutes an increase of 1.4%, compared to 2018.

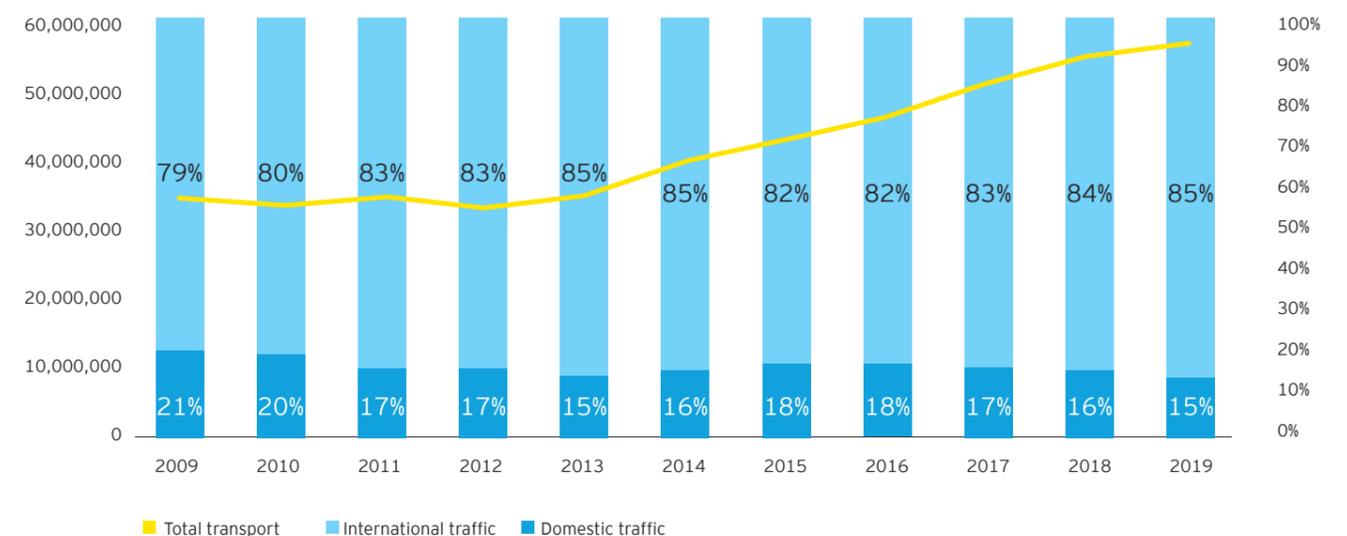
There has been a clear and significant upward trend in the number of passengers who travel by air via the Greek airports, within the last years. In 2018, air traffic through Greek airports increased by 10.1%, compared to 2017¹⁰⁸. In 2019, the number of passengers increased

by 3% compared to 2018. Greek airports not only managed to withstand the consequences of the global and national financial crisis, but also substantially improved their performance, with an impressive 26% growth between 2009 and 2015 - during the peak of the Greek economic crisis.

Intra-EU transport is the major component of the total air traffic in Greece, representing more than 66% of passengers travelling to / from Greece, without any large fluctuations throughout the years. Intra-EU transport is followed by national and extra-EU transport, which share similar figures, ranging between 15%-18% within the 2009-2015 period.

Although national transport sharply declined by 26% in the 2009-2013 period, it has managed to recover, recording an impressive growth of 44% between 2013 and 2015, exceeding its pre-crisis levels, with more than 7.4m passengers travelling from / to Greece. This dynamic trend continued in 2018, with a 10.9% growth and over 8m passengers in the first six months of the year. While domestic traffic grew slightly, there was a sharp increase of 16.2% in the number of international travelers. Additionally, in 2018, foreign nationals' international arrivals grew by 25%¹⁰⁹. In 2019, traffic increased even more, with over 56m passengers using the Greek airports.

Passenger traffic at Greek airports



108. Traffic Through Greek Airports Hits Historic High in 2018, news.gtp.gr, 18 January 2019

109. Athens International Airport undergoing expansion to keep up with high demand, greekcitytimes.com, 12 September 2018

Source: Eurostat, EY analysis

5 Public sector support

An investment-friendly and simplified administrative framework for the development of intermodal logistics hubs in Greece.



A comprehensive national framework, as a result of the ongoing dialogue between the public and private sectors

In recent years, the public sector in Greece has been in close collaboration with the T&L industry, developing a long-lasting transformational plan to support the sustainable development of the logistics market and international trade. The outcome is highly promising, since it combines investment planning and incentives for operators, with a comprehensive legislation reform and long-term commitments by policy makers, industry associations, and private stakeholders.

Law 4302/2014 ("Setting logistics issues and other provisions"), which was published in the Official Government Gazette of the Hellenic Republic in 2014, constitutes one of the most important outcomes of this approach. It is the result of the coordinated efforts and lobbying of the Greek logistics industry, as well as of the technical support provided by the World Bank. The law provides a holistic regulatory framework that explicitly defines the logistics sector and its operational aspects as a distinct and independent economic activity, different from the industrial or commercial ones. Since there is still limited international experience in this specific field of regulatory interventions, the complexity and importance of the task has been highly acknowledged by all national stakeholders and international organizations.

Reducing red tape in logistics installations permits

Law 4302/2014 is the main national instrument regulating logistics operations in Greece, in an integrating approach covering transport, warehouses, urban logistics, and intermodal freight centers.

The major accomplishment of this law was the removal of a series of red tape requirements and administrative barriers concerning the establishment and operation of logistics installations - in particular, freight centers and intermodal villages. Provided that the land use is appropriate, and that the logistics installation is constructed and operated in conformity with the applicable national legislation, there is no need for a specific permit to be granted by the competent authority.

Previously, the licensing of logistics installations used to be a time-consuming and costly administrative process, as well as a source of uncertainty in planning and developing large logistics projects. These administrative barriers and risks had reportedly led to the withdrawal of foreign or local investors from important developmental plans in the logistics sector. Since the law entered into force, the owner or the operator of a logistics installation is only required to notify the competent authority, verifying that the installation conforms with the applicable national legislation.

Moreover, the provisions of this law explicitly regulate the facilitation of investments for the development and operation of the two major intermodal logistics parks of national importance, namely Thriasio Pedio and the Gonos former military camp.

Taking into consideration these legislative innovations, the new framework is considered by the Greek logistics community to be a breakthrough, that has entirely transformed administrative procedures, establishing a transparent, efficient, and modern framework for interested investors and logistics operators.

Law 4302/2014 establishes a modern and integrated legislation framework for the logistics industry in Greece. To this end, the law integrates, amends, repeals or / and replaces a series of relevant acts, such as:

- ▶ Law 3333/2005 with regards to the terms and conditions for the establishment of freight villages.
- ▶ Law 3892/2011 with regards to the licensing of manufacturing activities, including business parks and warehouses.
- ▶ Law 4014/2011 and Ministerial Decision 1958/2012 with regards to the environmental licensing of works and activities.

World Bank indexes

Within the last five years, Greece has significantly improved its international ranking with regards to trade facilitation and trade competitiveness. The positive results and progress achieved over the past period are clearly depicted in several World Bank indexes.

The Logistics Performance Index and its indicators, The World Bank, 2018

According to World Bank's 2018 Logistics Performance Index (LPI), Greece ranked 42nd among 160 countries, rising from the 44th position in 2014 and the 47th in 2016. The LPI is an interactive, perception-based, benchmarking tool, created to help countries identify the challenges and opportunities they face in their performance in trade logistics, and what they can do to improve it, and is based on expert assessments from logistics professionals.

Greece ranked **42nd** among 160 countries in the World Bank's 2018 Logistics Performance Index

From 2012 to 2014, Greece's competitive position in the Logistics Performance Index improved by 25 positions. Moreover, results for customs in 2018 were overwhelming, with Greece climbing 52 positions (from 94th to 42nd), evidencing the extensive improvement in customs operations.

The Distance to Frontier index, The World Bank, 2019

In 2019, Greece scored 68 points on the World Bank's Distance to Frontier (FTD) index, occupying the 72nd place. In the past years, Greece scored 67 points from 2016 to 2018, occupying the 64th place.

Greece scored

68 points ↓

on the World Bank's Distance to Frontier index in 2019, occupying the 72nd place

(down from the 64th place in 2018)

The Ease of Doing Business index, The World Bank, 2020

Since 2012, Greece has improved its ranking in the World Bank's The Ease of Doing Business index, ranking 79th among 190 countries in 2020, having, however, regressed by 14 positions compared to 2015, when it held its record-high 65th place.

Greece ranked

79th ↓

among 190 countries in the World Bank's 2020 Ease of Doing Business Index

(down from the 65th place in 2015)

In greater detail, the improvement in the Trading Across Borders indicator set is very impressive. In 2016, the organization substantially revised the methodology for this specific indicator set - therefore, having a direct comparison with previous rankings is not possible. However, the set shows that Greece has stabilized its position among the top performers.

Being able to trade easily across the Greek borders via streamlined, efficient, and digitalized procedures, is of major importance for companies willing to either use Greece as their strategic logistics hub in Europe or get involved in trade with Greek organizations.

Facilitating trade and customs operations at the borders and the Greek ports, can considerably improve customer service for both export and import activities. Efficient pre-customs and customs clearance procedures can have a great impact in eliminating delays, reducing administrative costs, and improving supply chain predictability. Following the global economic crisis, as well as the consequent downturn of the Greek economy, Greek authorities committed themselves to implementing a simple, yet comprehensive national trade facilitation strategy.



Several administrative burdens and market inefficiencies are being constantly removed, to facilitate external trade and international logistics operations in Greece.

In a very short time, Greece made important progress in the implementation of a trade facilitation strategy, especially toward the simplification of customs and pre-customs procedures. By 2014, a significant percentage of the regulatory requirements were analyzed and simplified, and concrete steps were taken toward the integration of information flows within a paperless customs system. As mentioned earlier, this progress has been recognized by all stakeholders, evidenced by several international studies and reports.

Trading across borders emerges as a major competitive advantage for Greece

In fact, several trade facilitation initiatives have been implemented in Greece within the last seven years, with great emphasis placed on the simplification of customs operations, coordination among government control agencies, as well as on the digitization and automation of information exchange.

One major breakthrough was the implementation of the new Integrated Customs Information System (ICISnet) in 2013, which largely facilitated the electronic submission of customs declarations, as well as the integration of relevant stakeholders.

Other similarly important initiatives are:

- ▶ Incentives for the establishment of Authorized Economic Operators (AEOs; from six AEOs in 2010 and 37 in 2013, to 114 AEOs certified in 2016 and 188 in 2020)¹¹⁰.
- ▶ Development of suitable processes and capabilities to effectively implement a VAT relaxation regime, according to Article 42 on customs procedures.
- ▶ Integration of ICISnet with other sources of information.
- ▶ Implementation of the Union Customs Code (UCC) in early 2020.
- ▶ A Commission Implementing Regulation amended the procedural rules, to reflect the gradual deployment of Import Control System 2 (ICS2 - Articles 182 to 189), in order to determine which customs offices are competent to release certain low value consignments into free circulation (Articles 218, 220, and 221), and introduced some procedural rules for the use of EU / NATO Form 302 on the movement of military goods (Article 207, 220a, 220b, 285, 286, and 287). The new rules entered into force on 20 July 2020.
- ▶ Design and implementation of the NSW.

110. Authorized Economic Operators, Eurostat, 2020



Five Free Trade Zones and several customs warehouses have been established in Greece, where import duties, VAT, and other import charges do not apply for goods of foreign origin.

Greece's five Free Trade Zones provide clear benefits to importers and shippers

Four out of the five total Free Trade Zones (FTZ) in Greece have been organized in the major Greek ports of Piraeus, Thessaloniki, Heraklion (in Crete), and Astakos (in Western Greece), while the fifth one is located in Central Greece, at the industrial and logistics center of Boeotia.

Non-Community goods may be brought into these free zones without payment of import duties, VAT, or other import charges. Additionally, such goods stored in the FTZs are considered as not yet imported into the Community's customs zone, until they are released into free circulation. Import and export declarations need to be logged only when the goods are released into free circulation. In addition, if the foreign merchandise is exported or transshipped from the free zone, no customs duty is ever due.

Greece's Free Trade Zones



In addition to the FTZs, customs warehousing services are provided by the majority of the Greek logistics providers.

In addition to the FTZs, a large percentage of the 3PL providers and freight forwarders in Greece have been authorized to operate customs warehouses.

These customs warehouses have been organized either adjacent to the major international Greek ports, or inside the main logistics centers of Thrasio Pedio (1) and Oinofyta (5) around Athens, as well as at Sindos and Kalochori (2) in Thessaloniki. These types of warehouses can also support traders, for example, in cases where:

- ▶ Goods imported from outside the EU are liable to customs duties or import VAT.
- ▶ Goods are moved from another EU country in duty suspension.
- ▶ The final destination of the goods when they arrive in Greece is not known in advance.
- ▶ Import licenses or paperwork have been delayed, or a duty-relief quota is expected (for example, for agricultural goods).
- ▶ Another customs procedure is more favorable. For instance, when the goods are used or consumed within the free zone.

Free Trade Zones' advantages

There are many advantages and incentives to companies operating in the FTZs, which can be summarized as follows:

- ▶ Improved cash-flow, since no duty payment is required on merchandise brought into the FTZ, unless and until the goods enter the Greek territory or are removed.
- ▶ Ability to re-export goods from within the FTZ, without paying customs duties.
- ▶ Transit goods may be held in the FTZ, free of bond.
- ▶ Ability to track and monitor inventory more closely, also leading to the improvement of compliance and quality control.
- ▶ If goods are defective or damaged, no duty payment is owed while they are being tested, repaired, or stored in the FTZ.
- ▶ Repackaging, sorting, and relabeling operations may be carried out while the goods are in the FTZ.
- ▶ Documents related to the storage or transfer of goods within the zones, are also free from stamp taxes.
- ▶ Complete VAT-free import of foreign origin goods which are designated for another EU member country.

The reformed national legislation ensures the harmonized implementation of VAT exemption provisions, under Customs Procedure 42.

The legislative framework which regulates the application and control of Customs Procedure 42 concerning the VAT relaxation regime, was adopted a few years ago. The new framework has put in place clear rules and procedures for the efficient and harmonized application of the VAT relaxation regime by customs offices and relevant stakeholders across the country. The updated legislative framework is also supported by a set of documented guidelines and detailed descriptions of the VAT relaxation process, including, but not limited to, an analysis of the new legislation provisions, control activities and procedures, infringements of documentation requirements, etc.

Customs Procedure 42 is the regime an importer follows in order to obtain a VAT exemption, when the imported goods will be transported to another EU member country. VAT is not paid anywhere

in Greece but is due to the destination member country. The same applies to non-Community goods that are imported from outside the EU, which will be processed before they are re-exported outside the EU¹¹¹.

Customs warehouses

A customs warehouse allows traders to store goods, with suspension of duty or import VAT payments. Goods that are moved from another EU country in duty suspension, can also be stored in this type of warehouse.

Once the goods leave the warehouse, duty must be paid, unless they are re-exported or follow another customs procedure.

The amount of work or processing allowed on goods held in warehouses is limited, essentially to keep them preserved, with a view to subsequent distribution. However, it is possible to process goods at the premises of a customs warehouse, under inward processing or processing under customs control.

111. European Commission, ec.europa.eu website, 13 December 2011



International trade and customs operations are largely simplified with the appointment of reliable and experienced authorized economic operators.

3PL providers and freight forwarders take advantage of AEO privileges in customs facilitation

In recent years, a significant percentage of 3PLPs, airlines, and shipping companies in Greece, are certified as AEOs. AEOs benefit both from simplifications provided by customs rules, and / or from facilitations regarding security- and safety-related customs controls, depending on the type of certificate they obtain.

A critical mass of 188 AEOs actively operated in Greece as of October 2020, the majority of which are 3PL companies or freight forwarders that were certified more than three years ago. These economic operators have proved that they implement satisfactory management systems and follow appropriate safety and security standards, in relation to customs controls.

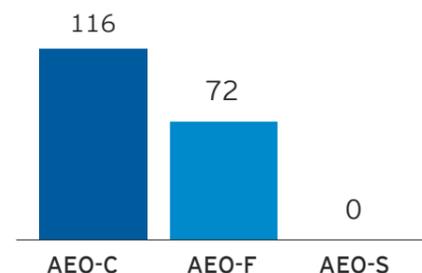
The Authorized Economic Operator concept is one of the main elements of the security amendment of the Community Customs Code. An AEO can be defined as an economic operator that is deemed reliable in the context of its customs-related operations, and, therefore, is entitled to enjoy benefits throughout the EU. Economic operators can apply for an AEO status in order to either have easier access to customs simplifications or / and to be in a more favorable position to comply with the new security requirements.

Ten years after the certification of the first AEO in Greece, Greek 3PL providers and freight forwarders have established themselves as reliable logistics and trade facilitation partners for major international shippers, manufacturers, exporters, and freight forwarders.

This trend constitutes a major improvement in the simplification of international trade in Greece - in particular, in the port of Piraeus - since it has helped companies considerably reduce the required paperwork and the number of actual inspections on their customs clearance procedures. Apart from this, AEOs are a core element in enhancing the security of the supply chain and in minimizing customs penalties and risk exposure.

However, the current number of existing AEOs can be considered insufficient, if we take into account both the estimated growth of container throughput in Piraeus and Thessaloniki, as well as the anticipated increase in transit flows toward Eastern and Central Europe.

Status of AEO certificates in Greece (as of October 2020)



As of October 2020, 188 companies in Greece operated as certified AEOs¹¹²:

- ▶ 72 have opted to be authorized only for various customs simplifications (AEO-F).
- ▶ None opted to benefit from facilitations related only to security and safety (AEO-S).
- ▶ 116 benefited from the various simplifications specifically provided for under the customs legislation, and from facilitations related to customs controls on security and safety (AEO-C).

Advantages of the AEO certificate



- ▶ Easier admittance to customs simplifications.
- ▶ Fewer physical and document-based controls, leading to reduced inspection time and lower costs.
- ▶ Prior notification in case of selection for physical or customs control.
- ▶ Priority treatment at customs clearance.
- ▶ Fewer delayed shipments, improved planning, and reduced theft and losses.
- ▶ Improved relations with customs and other government authorities.
- ▶ Possibility to request a specific location for customs controls; most of the transactions may be implemented in-house by the AEO and not in-customs.
- ▶ Possibility to fast-track shipments through special safety and security procedures.
- ▶ Opportunity to combine the import declaration with the declaration summary.
- ▶ Less and more privileged document controls or examinations.
- ▶ Possibility of making declarations with incomplete documents.

112. Ibid.

6 Evaluating Greece as a logistics hub



At this point, to better understand the total effect of the Greek logistics hub, we conducted an evaluation which illustrates its strongest and weakest links / knots. In order to conduct this evaluation, we collected the views of a sample of leading representatives from several sectors of the economy, who answered several questions regarding the accessibility, quality and connectivity of key infrastructure of Greece's logistics hub. We then proceeded to analyze their answers and came to some conclusions, which we present in the next few pages.

We collected the views of a sample of 142 leading representatives from companies operating in key sectors of the Greek economy, through a survey conducted between 1-22 June 2019. Based on the findings of our survey, we present an evaluation of the strongest and weakest links / knots of Greece's logistics hub. Overall, the Greek logistics hub, leaving aside the improvements in the Piraeus port and road infrastructure, still has a long way to go. More specifically:

Port infrastructure and operations

The Piraeus port has set the foundation for the Greek logistics hub to achieve excellence. The Thessaloniki port constantly progresses and is expected to become a strong knot of the hub. On the other hand, the regional ports in Greece have a long way to go.

Rail infrastructure and operations

Rail infrastructure in Greece is facing many challenges. Rail freight operations appear to be the weak link of the logistics hub, while it is evident that extended railway lines and better connectivity with ports, logistics parks, and the European rail network are required.

Air freight infrastructure and operations

Air freight infrastructure and operations appear to be a strong link of the Greek logistics hub. However, respondents perceive that better connectivity and collaboration with the ports and the railway are required for the Athens International Airport. Additionally, respondents suggested that improvement of connectivity and collaboration with ports and

the rail network, coupled with a general upgrade and optimization at Thessaloniki and other regional airports, are required.

Road infrastructure

Road infrastructure has developed substantially over the last years. However, respondents maintain that better pricing and incentives for road freight would optimize the country's road infrastructure.

Road transport

Road freight transport has ways to go before becoming a strong link of the logistics hub, with respondents being more optimistic for road transport development. Nevertheless, they suggest that better collaboration with ports and the rail network, coupled with a focus on transportation operations, are necessary.

Sea transport

Sea freight transport appears to be a strong link of the logistics hub. However, there is a need to create a link between various commercial ports and cargo ships / Ro-Ros.

Warehousing: Infrastructure, services, 3PL / 4PL

3PL / 4PL development remains stagnant, with no further progress observed, so far. Respondents noted that the development of logistics parks is required, while there is also a need for more synergies / collaborations and at a faster pace.

Customs infrastructure and services

Customs have still many challenges to overcome. Moreover, respondents suggest that digitalization is required, to decrease bureaucracy and simplify processes for all stakeholders.

A. Demographics

Our survey was conducted between 1-22 June 2019 and covered a sample of 142 leading representatives from companies operating in key sectors of the Greek economy.

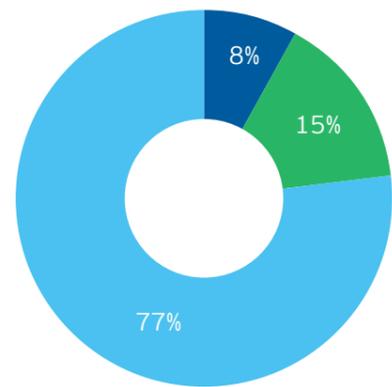
More than three quarters of the companies surveyed have been in operation for more than 20 years, 15% for 10-19 years and 8% for less than 10 years.

Companies surveyed represented a wide range of sectors, including 37% from consumer products, 14% from transport and 3PL, and 9% from retail.

The majority of respondents either trade (74%) or provide services (72%) within the above sectors, while 60% are manufacturers.

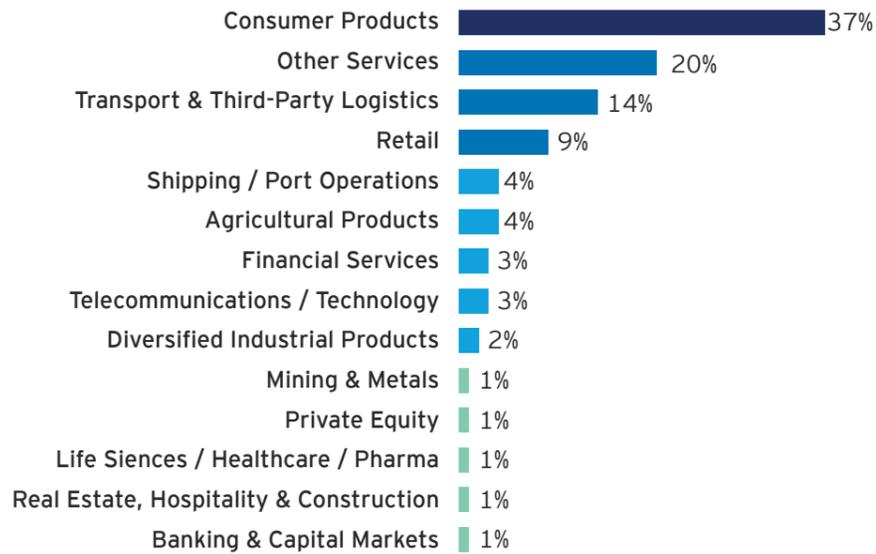
Respondents were asked to provide their assessment of infrastructure, operations, and future developments for Greek ports, rail, air freight, road and sea transport, warehousing, and customs.

Q: How many years does your company operate?

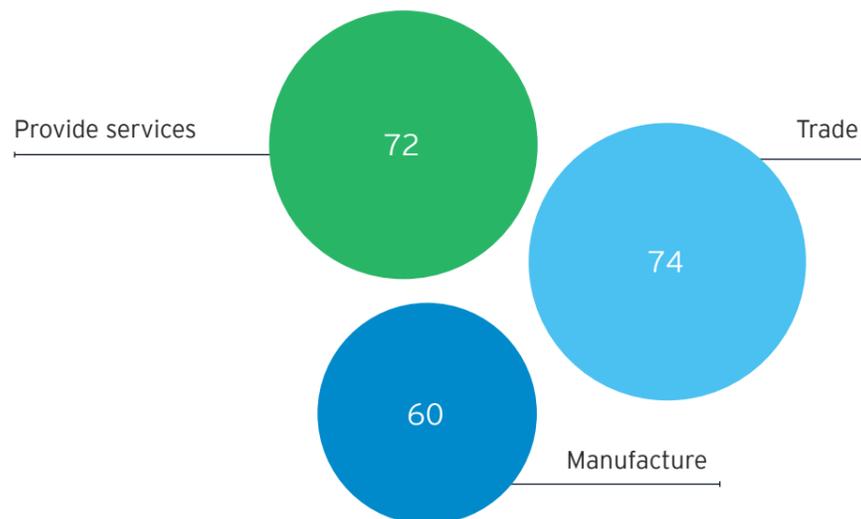


■ 0-10 years
■ 10-19 years
■ >20

Q: Which sector do you operate in?



Q: Do you manufacture, trade or provide services within the above sector(s)? If yes, at what percentage do you perform the aforementioned operations?



B. Port infrastructure and operations

Piraeus

The Piraeus port has set the foundation for the Greek logistics hub to achieve excellence. With regard to different aspects of the infrastructure and operations of the port, slightly less than half of the respondents believe that they meet standards. These include availability and capacity (45%), quality of infrastructure (47%), quality and reliability of services (43%) and efficient / effective collaboration (45%). Around 20% feel that these exceed standards or achieve excellence, while a smaller number

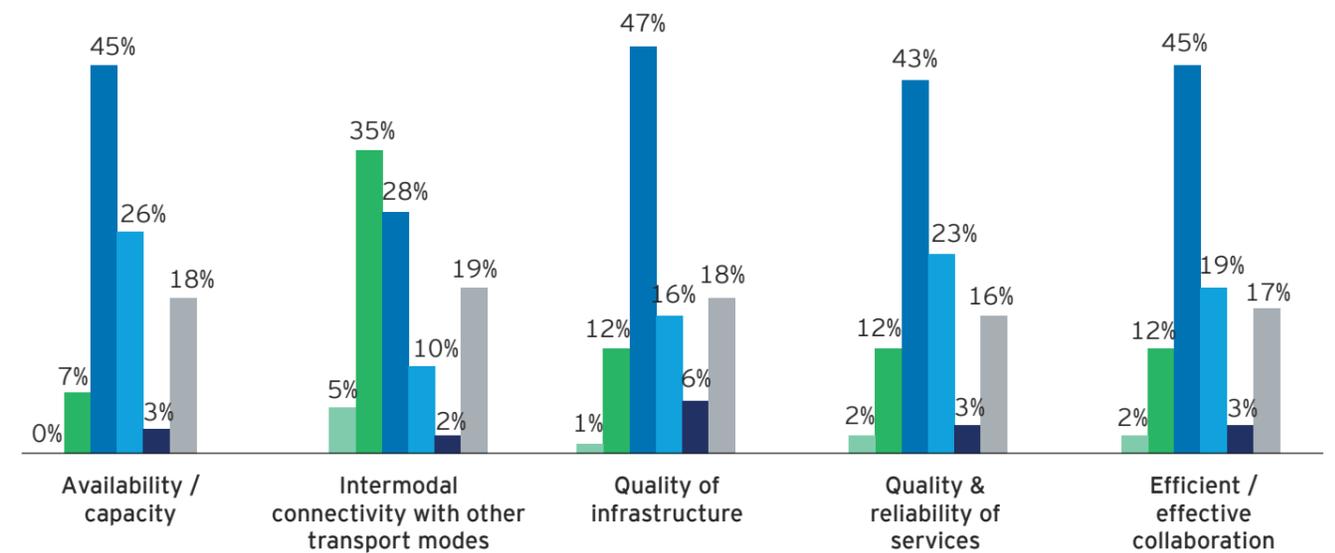
(7%-14%) describe them as "low" or "very low". By contrast, intermodal connectivity with other transport modes is seen as "low" or "very low" by 40% of respondents, with 28% saying it meets standards and only 2% that it exceeds them.

Overall, results show that port infrastructure and operations in Piraeus qualify, when it comes to the most crucial characteristics, embracing a positive outlook. However, the port of Piraeus needs to be further developed,

in order to be considered a global competitive maritime center.

The most influential factors downgrading the Piraeus port are: the lack of a stable regulatory environment, the lack of access to financial institutions, poor infrastructure, and tax issues. These factors hamper further progress in the Piraeus port, as already evidenced by EY's 2017 study, "Re-positioning Greece as a global maritime capital".

Q: How do you evaluate the Piraeus port's freight infrastructure and operations in terms of:



■ Very low ■ Low ■ Meet standards ■ Exceed standards ■ Achieve excellence ■ N/A



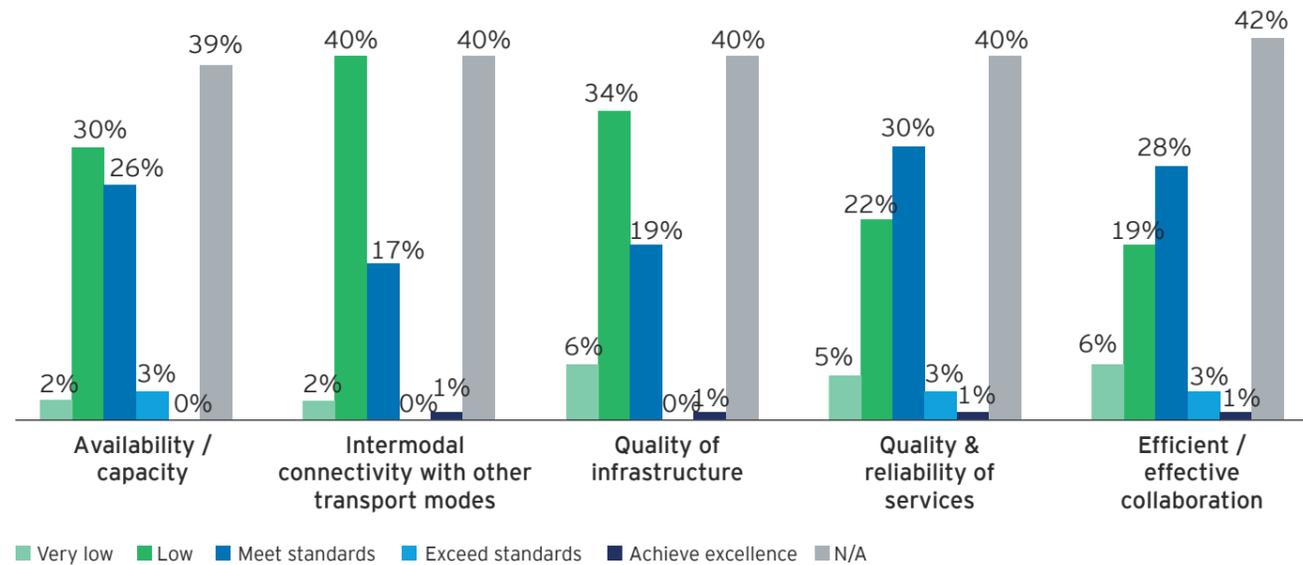
Thessaloniki

Thessaloniki plays a specialized role in the maritime sector (in comparison to the Piraeus port), mainly due to the importance of its port as a gateway to Southeast Europe, as well as the prospects created by its privatization¹¹³. The port's freight infrastructure and operations have been progressively improving. Despite

this improvement, it is noteworthy that around 40% of respondents refrained from expressing an opinion about the port. Of those who did express an opinion, a significant percentage (ranging between 25% and 42%, depending on the question) have a "low" or "very low" evaluation of its infrastructure and operations, while

those reporting that the port meets or exceeds their standards score between 18% and 34%, with only a very small minority (1%-4%) feeling that it exceeds their standards or achieves excellence. Once again, connectivity with other transport modes is the port's key weakness.

Q: How do you evaluate the Thessaloniki port's freight infrastructure and operations in terms of:



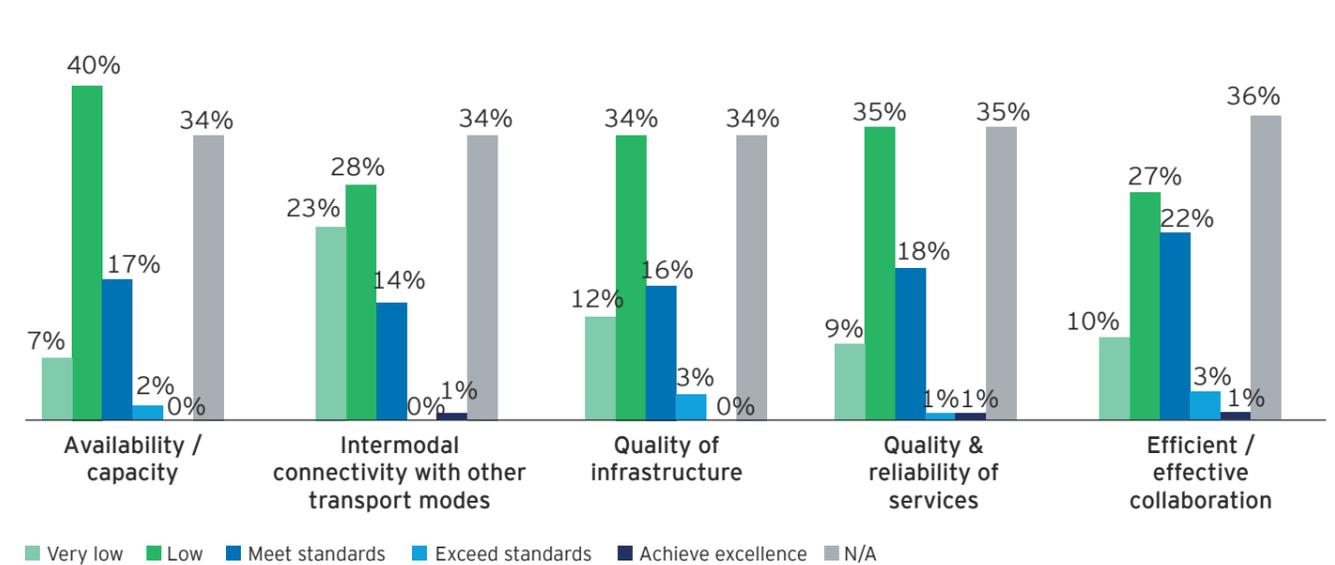
113. Re-positioning Greece as a global maritime capital, EY Greece, July 2017

Regional ports

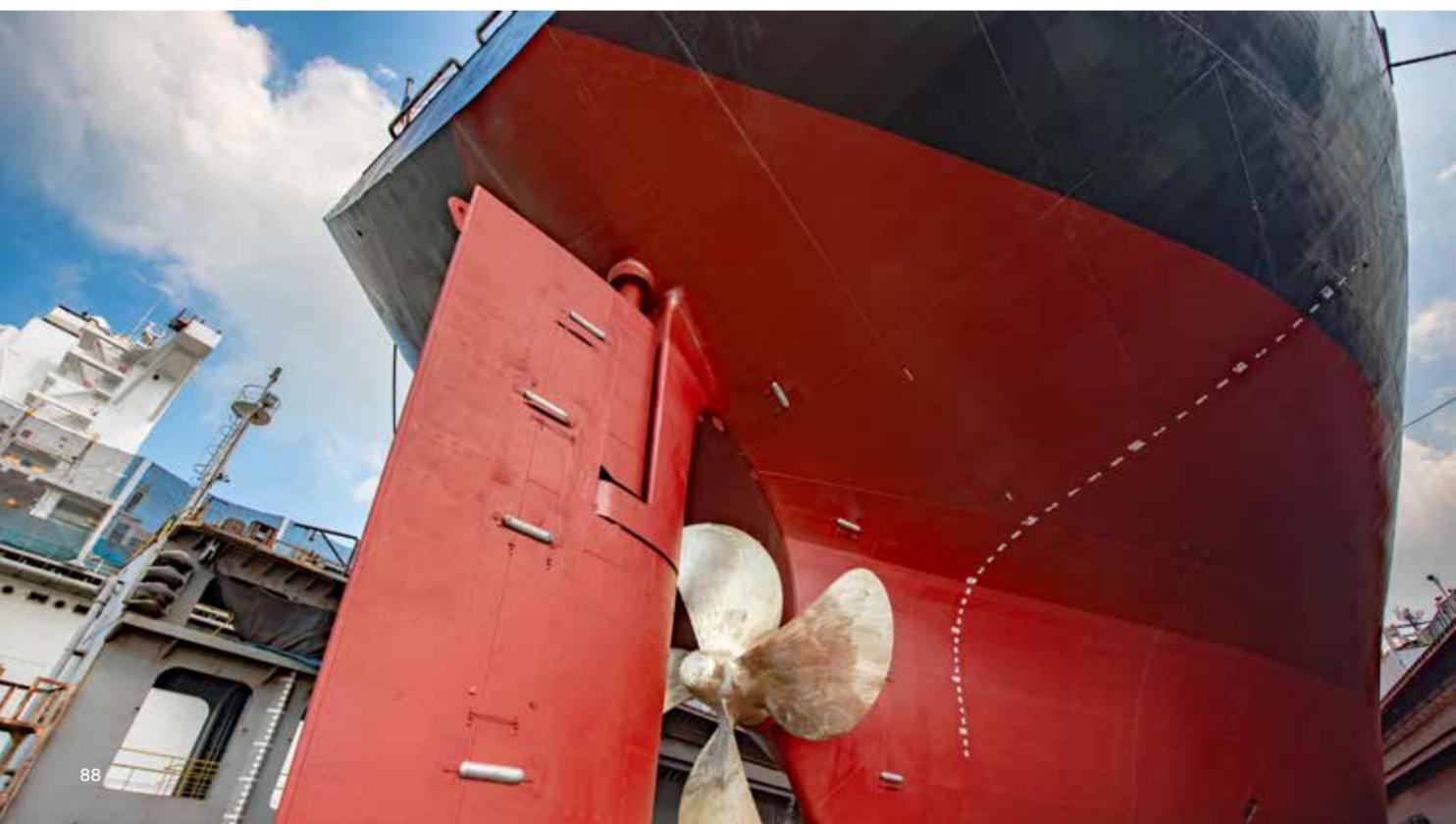
The Greek State's portfolio includes 10 ports: Volos, Rafina, Igoumenitsa, Patras, Alexandroupolis, Heraklion, Elefsina, Lavrion, Corfu, and Kavala. Already, strong investment interest has been shown for the Alexandroupolis port, both because of its strategic location and the employment opportunities created by the TAP project¹¹⁴.

The respondents' perception of the regional ports is somewhat more pessimistic, with those having a "low" or "very low" view of their various aspects, ranging between 37% (for efficient and effective collaboration) and 51% (for connectivity). 14%-22% report that they meet standards, while 1%-3% believe they exceed standards or excel.

Q: How do you evaluate the regional ports' freight infrastructure and operations in terms of:



114. Greece has high expectations for regional port privatisation, portseurope.com, 11 January 2018



Greek regional ports have a long way to go.

Our findings confirm that the regional ports' freight infrastructure and operations need to be greatly developed before they attain a satisfying performance level. According to respondents to this survey, privatizations, hinterland logistics development, intermodal connectivity, and operational synchronization, are the areas where future development of the regional ports should focus.

Q: Following the previous questions, would you like to make any suggestions regarding the further development of the ports' infrastructure and services?

- 1 Privatization of regional ports, similar to the case of Piraeus port, as there is a need for investment in their infrastructure and superstructure.
- 2
 - ▶ Updated design, quality control and engineering solutions.
 - ▶ Contractors need to emphasize on good quality instead of low price.
- 3
 - ▶ Better cooperation between the ports, in order to share best practices.
 - ▶ Implementation of a single window.
- 4 Intermodal connectivity (especially with freight trains).

C. Rail infrastructure and operations

Respondents to the survey confirm that the rail infrastructure in Greece is facing several challenges. More than two thirds of participants appear dissatisfied, having a "low" or "very low" opinion about intermodal connectivity (77%), accessibility (69%) and quality of infrastructure (69%), while only 13%-22% believe they meet or exceed standards.

However, there are plans for the upgrade and development of the Greek rail infrastructure, over the next years. Specifically, regarding Northern Greece, OSE has announced plans that include the interconnection of its railway network with various ports (Volos, Kavala, etc.) and the completion of the study on the new Thessaloniki-Amphipolis-Nea Karvali

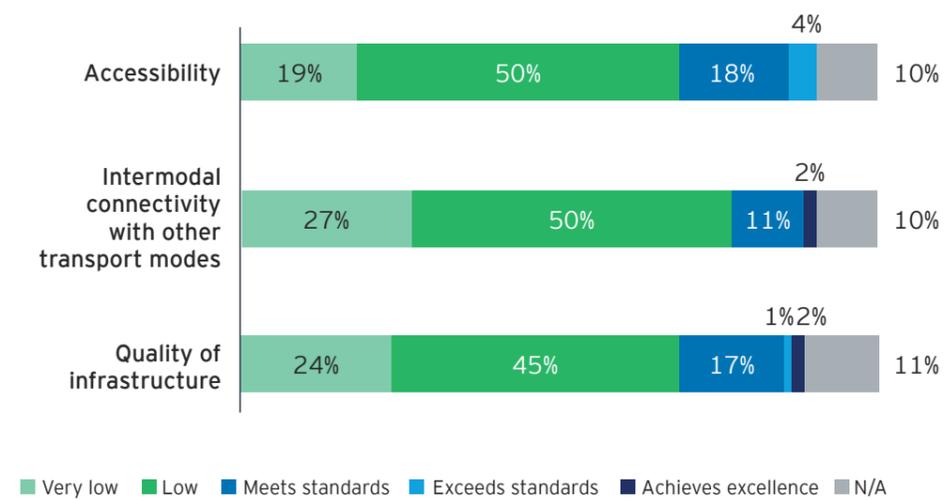
railway line. The organization is also looking into extending the suburban railway in Western Macedonia (Giannitsa, Edessa, etc.)

Respondents take an equally negative view with regard to rail freight operations. "Low" and "very low" evaluations exceed 60%, with those

concerning connectivity reaching 69%. Only one in five respondents reports that rail freight operations meet standards on most of the KPIs,

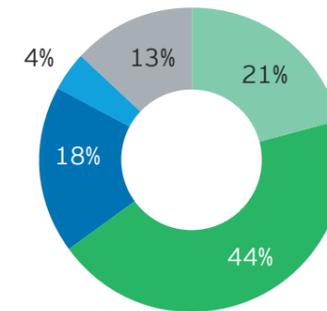
confirming the view that they need further development to be able to exceed standards and achieve excellence.

Q: How do you evaluate the current rail infrastructure in terms of:

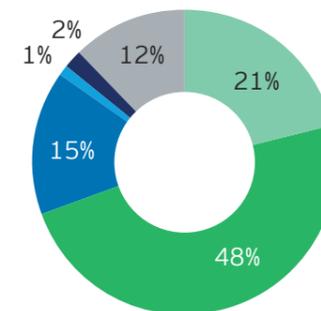


Q: How do you evaluate the current rail freight operations in terms of:

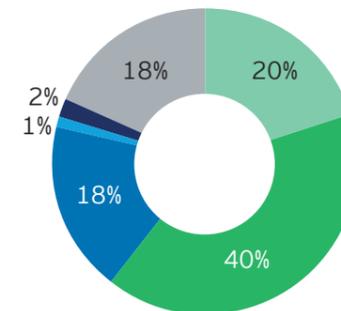
Availability / capacity



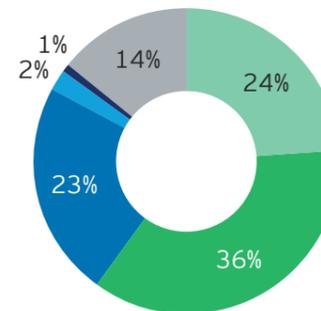
Intermodal connectivity with other transport modes



Efficient / effective collaboration



Quality & reliability of services



Very low Low Meet standards Exceed standards Achieve excellence N/A

Q: Following the previous questions, would you like to make any suggestions regarding the further development of rail infrastructure and services?

Connectivity with the European rail network and optimization of rail and road infrastructure, accordingly.

Standard cargo train timetable, collaboration with ports and logistics parks.

Broader railway lines, connectivity to the Piraeus port (activation of the Thrasio rail center).

Rail freight operations appear to be one of the weak links of the Greek logistics hub.
Participants suggest that extended railway lines and connectivity with ports, logistics parks, and the European rail network are the next steps for the further development of rail infrastructure and services.



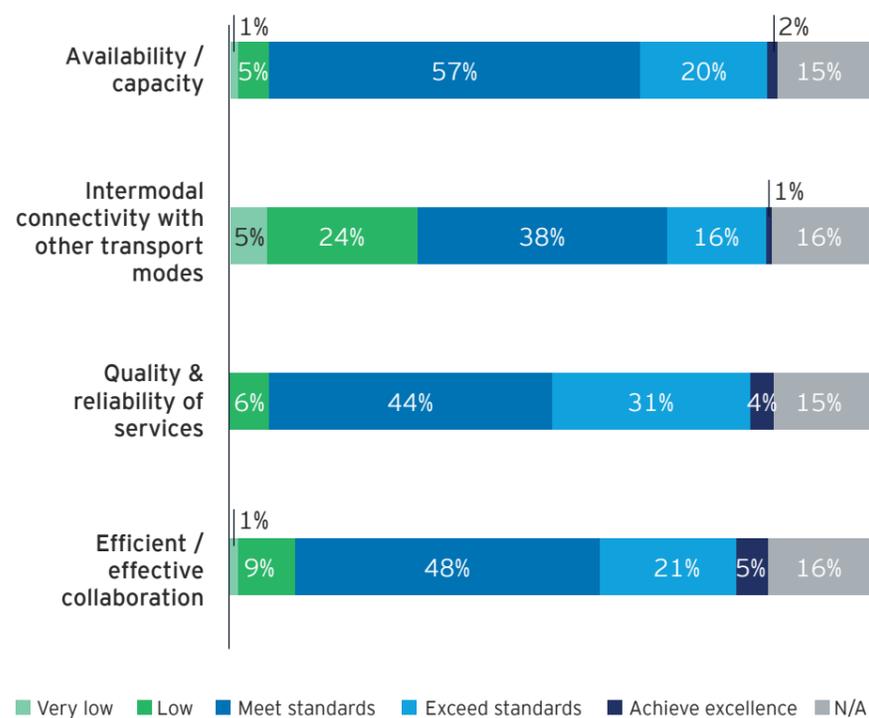
D. Air freight infrastructure and operations

Athens

Our survey shows that respondents are quite satisfied with the air freight infrastructure and operations of Athens, with the share of those stating that they meet or exceed their standards, ranging between 55%

and 79%. Dissatisfied respondents are limited to single digit numbers, with the exception, once again, of intermodal connectivity, where 29% describe the quality of infrastructure and operations as "low" or "very low".

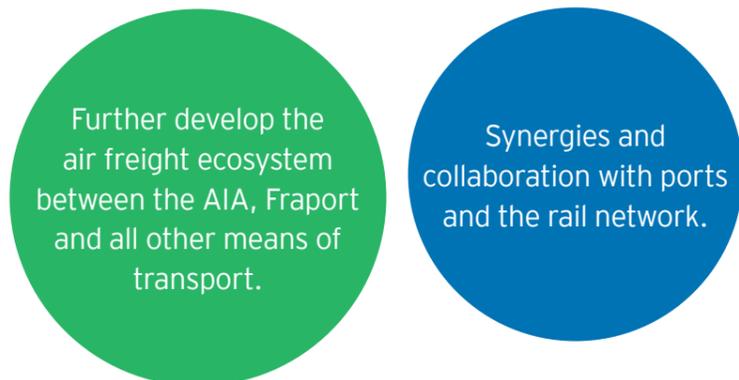
Q: How do you evaluate the air freight infrastructure and operations of Athens in terms of:



Athens's air freight infrastructure and operations appear to be a strong link of the Greek logistics hub.

Asked about the future development of the air freight infrastructure and services of Athens, respondents identify strengthening the ecosystem between the Athens International Airport, Fraport and other transport means, and increased synergies with ports and the rail network, as key priorities.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the air freight infrastructure and services of Athens?



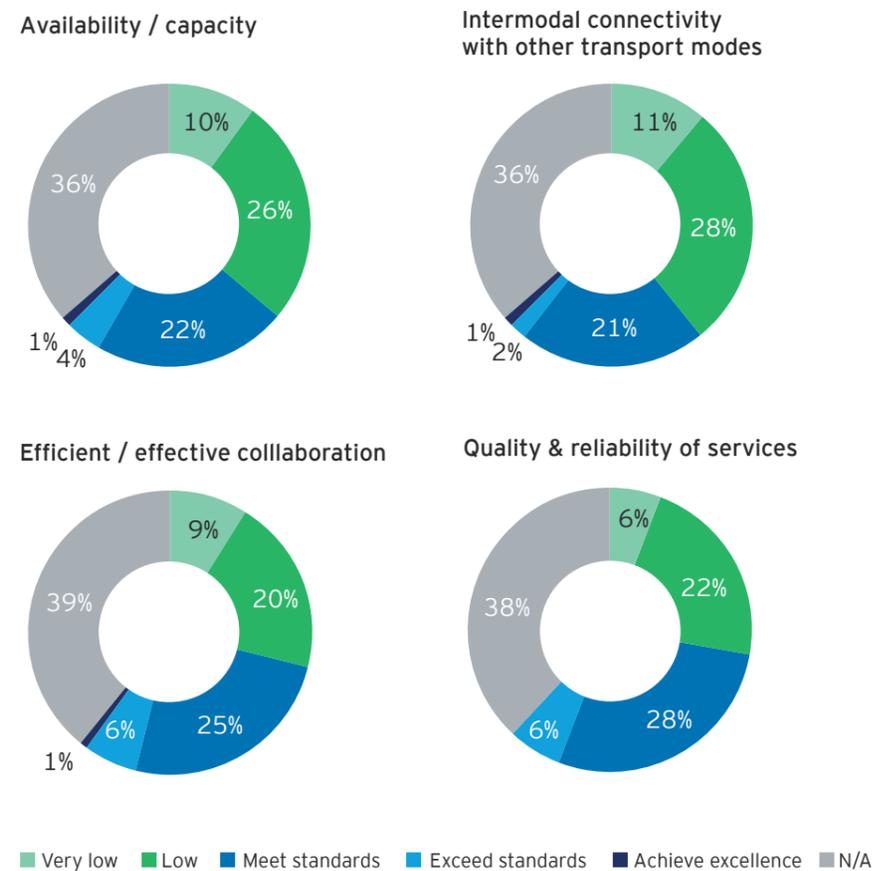
Thessaloniki and other regional airports

The level of satisfaction with air freight infrastructure and operations in Thessaloniki and other regional airports, is much lower compared to Athens, with those describing them as "low" or "very low" ranging between

29% and 39% - with a significant share opting for "very low" - while satisfied respondents (those who answered "meet" or "exceed standards") are no more than 34%. Availability, capacity, and connectivity are the weak points

of this group of airports. Once again, more than one third of participants chose not to express an opinion on the airport of Thessaloniki and the other regional airports, possibly because they have no first-hand experience.

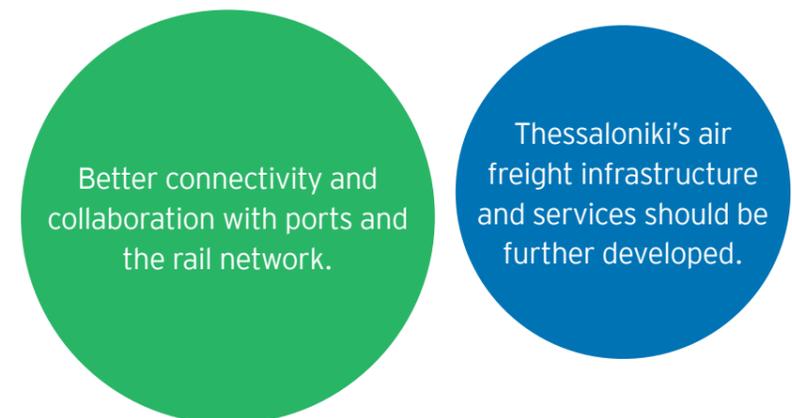
Q: How do you evaluate the air freight infrastructure and operations of Thessaloniki and other regional airports in terms of:



New investors should look to improve freight infrastructure and operations in Thessaloniki and other regional airports.

Respondents maintain that better connectivity and collaboration with ports and the rail, as well as the optimization of infrastructure and operations, can improve the regional airports' outlook.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the air freight infrastructure and services of Thessaloniki and other regional airports?



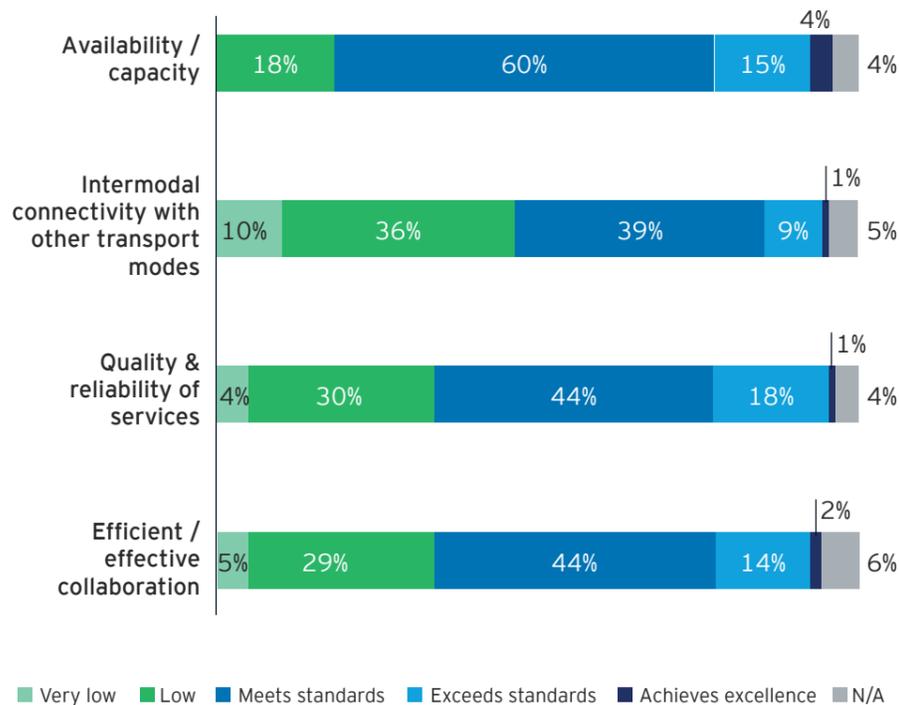
E. Road Infrastructure

Respondents appear rather satisfied with the current road infrastructure in Greece, which has developed considerably over the last few years. The majority of respondents estimate that the current road infrastructure

meets or exceeds their standards, or even achieves excellence (49%-79%). Availability and capacity is the strongest element of the road infrastructure, while, once again, the weakest - with 46% of participants

rating it as "low" or "very low" - is intermodal connectivity. Overall, these results are encouraging, while the progress that has been achieved is obvious. Road infrastructure is a growing field of development.

Q: How do you evaluate the current road infrastructure in terms of:



Road infrastructure has developed substantially.
Moving forward, respondents suggest that efforts should focus on rationalizing road freight transport costs, limiting toll stations to exit points, creating a road infrastructure grid that will bypass congested areas, and connecting infrastructure and smart means of transport.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the road infrastructure and road freight services?

- 1 Road freight transport costs should be rationalized.
- 2 Operation of exit toll stations only.
- 3 Need for a road infrastructure grid bypassing congested areas.
- 4 Connection of infrastructure with smart means of transport.

Better pricing and incentives for road freight are required.

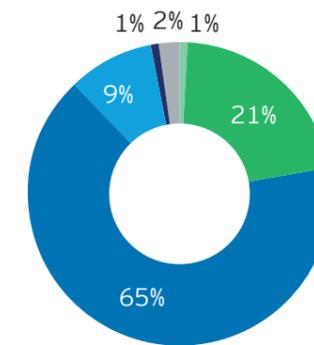
F. Road transport

Respondents appear to have a moderate overall opinion of road transport infrastructure and operations, as most of them (42%-65%) feel that they meet standards, but relatively few (9%-14%) say that they exceed them or have achieved

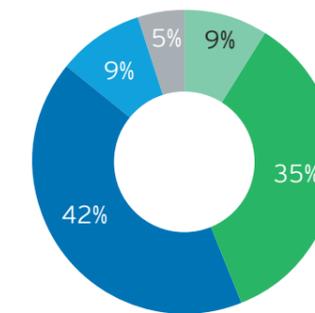
excellence. Relatively high shares of respondents (32%-44%) describe their level as "low" or "very low", with the exception of availability and capacity, which 22% describe as "low" or "very low."

Q: How do you evaluate the road transport infrastructure and operations in terms of:

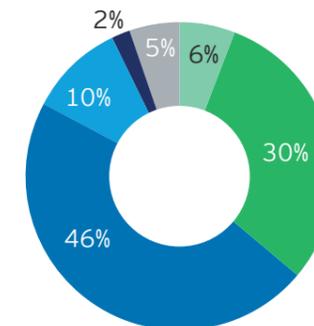
Availability / capacity



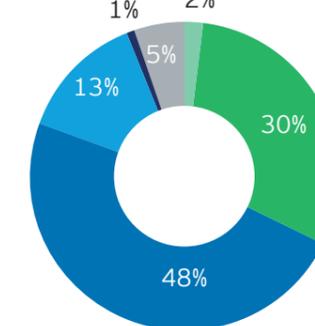
Intermodal connectivity with other transport modes



Efficient / effective collaboration



Quality & reliability of services



Very low Low Meet standards Exceed standards Achieve excellence N/A

Q: Following the previous question, would you like to make any suggestions regarding the further development of the road freight transport infrastructure and services?

Synergies and collaboration with ports and the rail network.

A focus on transportation operations - especially, door-2-door delivery.

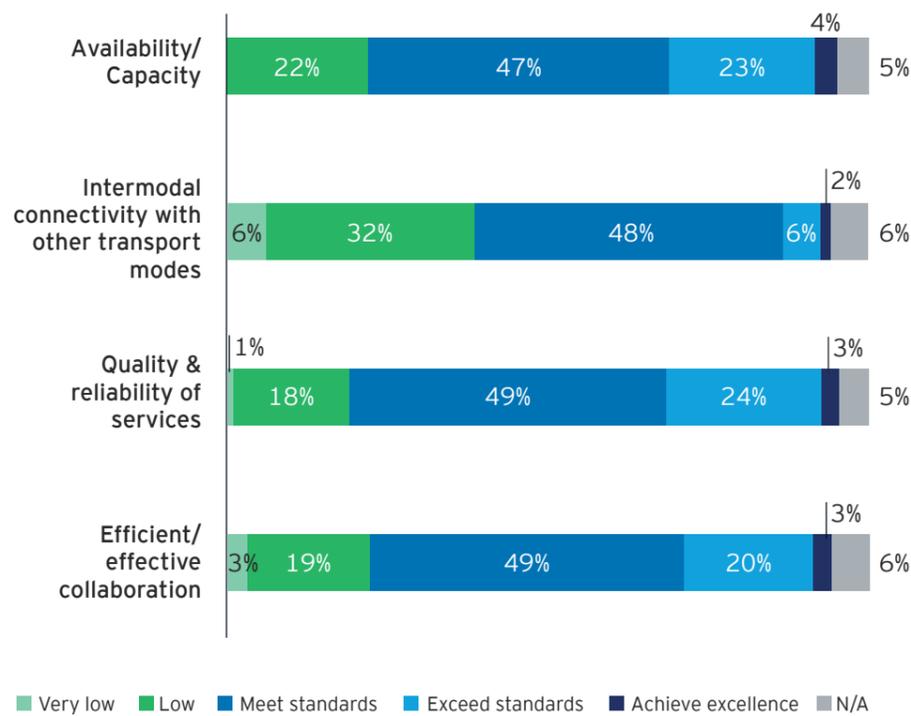
Road freight transport has ways to go before becoming a strong link of the Greek logistics hub.
When asked to suggest areas of future development, participants mentioned synergies and collaboration with ports and the rail network, as well as the need to focus on transportation operations and, in particular, door-to-door deliveries.

G. Sea Transport

Sea transport is a strong link of the Greek logistics hub. Almost three out of four participants have replied that sea transport meets or exceeds their standards, with a high percentage (20%-24%) opting for the latter. Once again, intermodal connectivity is seen as the weak link, with 38% evaluating

it as "low" or "very low". We conclude that most of the participants are satisfied from the sea transport infrastructure and operations in Greece. This is not at all unexpected, given that the Piraeus port's services have greatly developed over the past years.

Q: How do you evaluate the sea transport infrastructure and operations in terms of:



Sea freight transport appears to be a strong link of the Greek logistics hub.
With regard to potential improvements, respondents identify the need of linking various commercial ports with cargo ships and Ro-Ros.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the sea freight transport infrastructure and services?

Link various commercial ports with cargo ships / Ro-Ros.

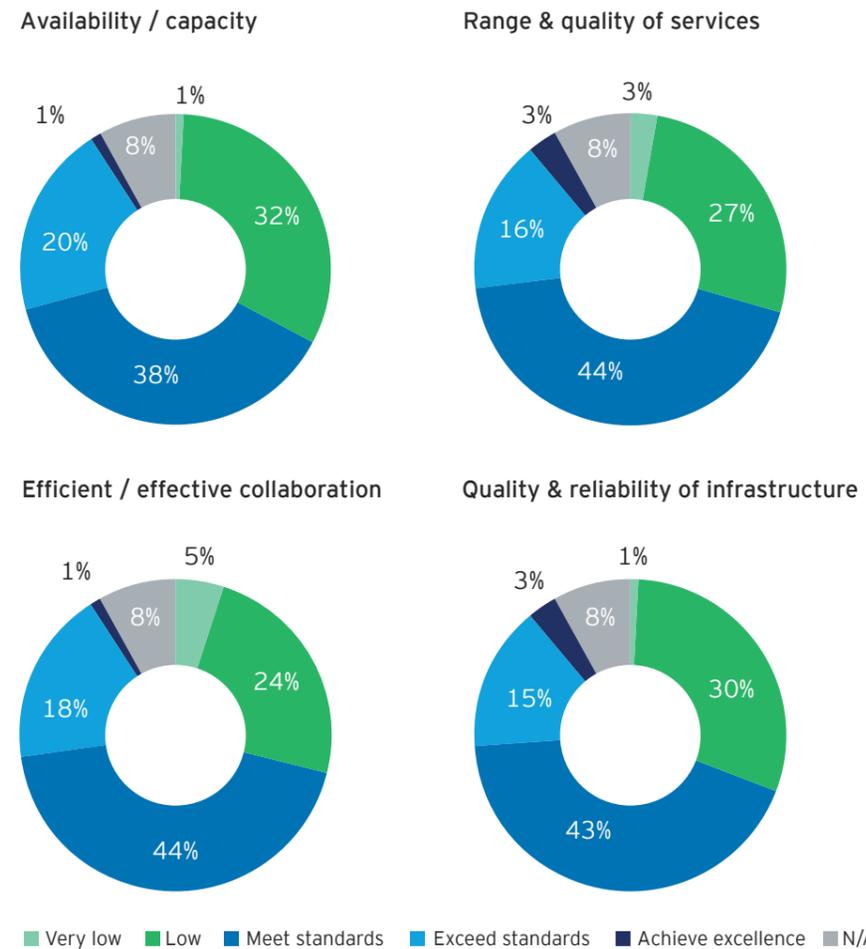
H. Warehousing: Infrastructure, services, 3PL / 4PL

3PL / 4PL infrastructure and operations present a mixed picture, with six in ten respondents stating that they meet or exceed standards, or even achieve excellence (59%-63%). However, this still leaves one third of the sample evaluating them as "low" or "very low" (29%-33%), while those

reporting that they exceed standards or achieve excellence are limited to a minority – between 18% and 21%.

Overall, however, warehousing has set the foundation for the Greek logistics hub to exceed standards in this field.

Q: How do you evaluate the 3PL / 4PL infrastructure and operations in terms of:



3PL / 4PL remain stagnant, continuing to be "just ok".
Respondents identify the need to proceed with a synergic concept at a faster pace, invest in logistics parks, and moving to larger organization schemes through collaboration and mergers of small companies, as key priorities.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the 3PL / 4PL infrastructure and services?

- 1 Investments in logistics parks
- 2 Need to proceed with a synergic concept at a faster pace.
- 3 Collaborations and mergers of small companies, under larger organization schemes.

I. Customs infrastructure and services

The level of satisfaction with customs infrastructure and services emerges as rather limited, with more than 40% describing it as "low" or "very low", a figure that reaches 50% with regard to efficient and effective collaboration. 27%-37% report that customs infrastructure and services meet standards, while 10%-12% say they exceed standards. In short, on

neither of the three questions is there a majority that describes the services as meeting or exceeding standards.

The customs' lackluster performance can be attributed to the extensive amount of bureaucracy one has to overcome, with processes being delayed due to the complexity of the Greek bureaucratic apparatus. The

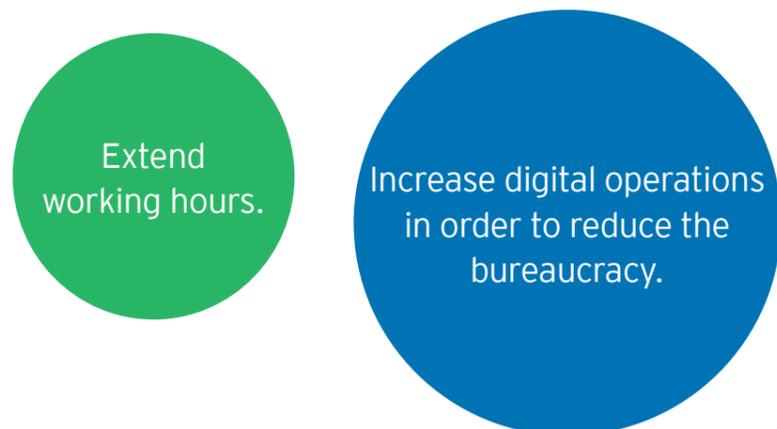
digitalization of customs is a pressing issue that concerns respondents. Indeed, it would be much easier for both companies and individuals if processes were resolved digitally, as digital operations and the reduction of bureaucracy would considerably improve the sustainability of the Greek logistics hub.

Q: How do you evaluate the customs infrastructure and operations in terms of:



Customs have many challenges to overcome.
Participants identify the need to extend working hours and increasing digital operations to reduce bureaucracy, as top priorities.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the customs infrastructure and services?



J. Progress over the last three years

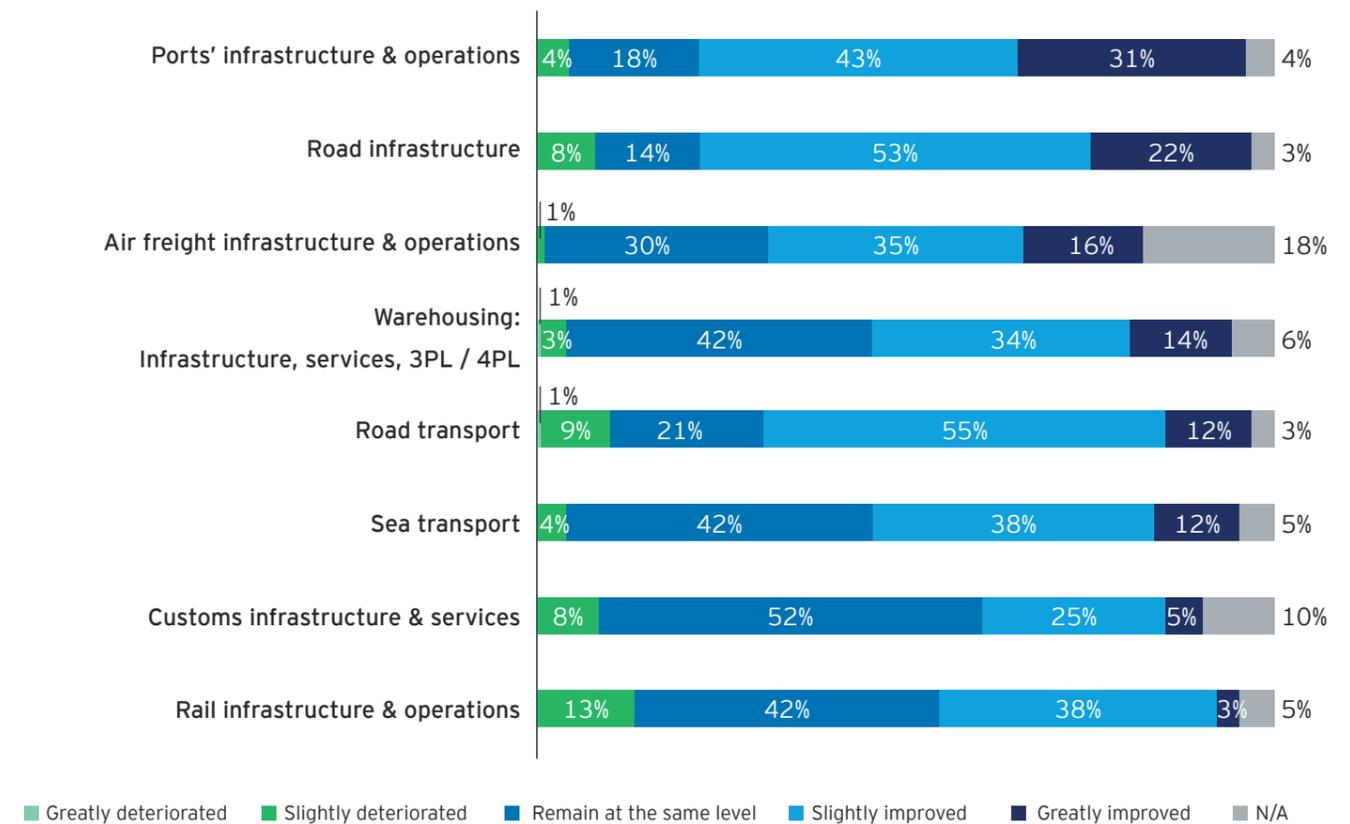
Respondents were asked to assess the progress recorded over the last three years in each of the different elements of the Greek logistics ecosystem. The overall picture that emerges is clearly positive, with participants agreeing that infrastructure and services have improved – in some cases substantially so.

According to our survey, the greatest progress has been made

with regard to ports' infrastructure and operations, as well as road infrastructure, with three out of four respondents acknowledging progress, of which 31% and 22% respectively report a high level of improvement. 67% of respondents see progress in road transport, 51% in air freight infrastructure and operations, 50% in sea transport, and 48% in warehousing and 3PL / 4PL services.

The picture is less optimistic with regard to rail infrastructure and operations, where 42% believe the situation has remained at the same level and 13% believe it has deteriorated, against 41% who see progress. Lastly, 52% of respondents have seen no change with regard to customs and 8% believe things have deteriorated, while only 30% have seen progress.

Q: In your opinion, have the following knots improved / deteriorated in terms of infrastructure and services over the past 3 years?



The knots of the Greek logistics hub have improved, with the Piraeus port being the high outlier, and rail and customs being the low outliers.

K. Overall assessment and suggestions for improvement

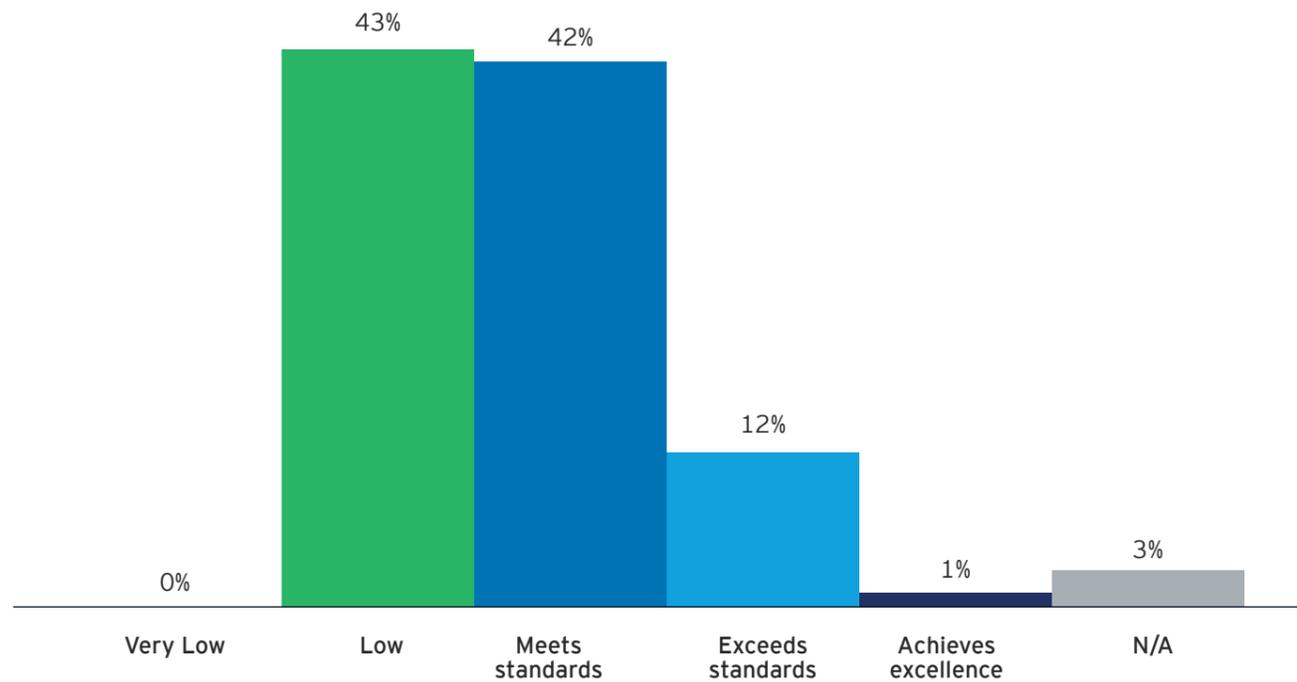
Respondents were asked to provide an overall assessment of Greece's logistics competitiveness as a regional European freight / transshipment hub. The response was mixed: while 55% reply that the Greek logistics hub's competitiveness meets or exceeds standards, or even achieves

excellence, a significant 43% rate it as low.

There is no doubt that progress has been made. However, we cannot overlook the fact that a considerable percentage of respondents still assess Greece's logistics competitiveness as

being low. There are various areas that need improvement. Only this way can the country achieve outstanding ratings and become an even more competitive regional European freight / transshipment hub.

Q: In your opinion, how does Greece's logistics competitiveness rank overall, as a regional European freight / transshipment hub?

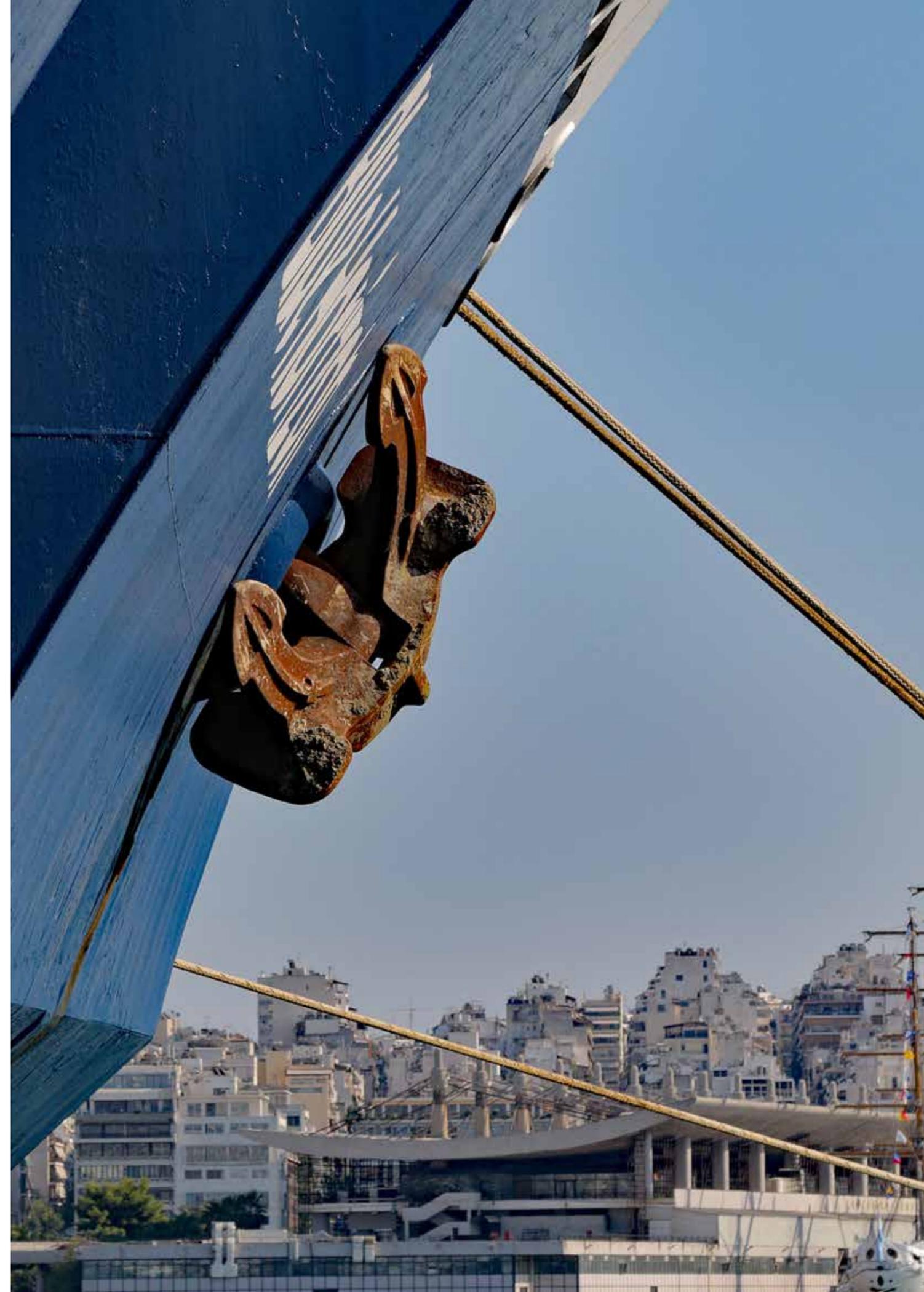


Moving forward, respondents identified four top priorities if Greece is to strengthen its competitiveness as a regional European freight and transshipment hub:

- ▶ Making the country's logistics a key priority, and developing and implementing a specific plan to upgrade infrastructure.
- ▶ Collaborating with and studying best practices from other countries.
- ▶ Developing international capabilities and improving the organization of customs.

Q: Following the previous question, would you like to make any suggestions regarding the further development of the competitiveness of Greece as a regional European freight / transshipment hub?

- 1 Logistics need to become a national priority. A specific plan for reinforcing the country's infrastructure must be developed and timely implemented.
- 2 Collaboration with other, more advanced countries, that can share best practices.
- 3 Develop intermodal capabilities coupled with the digitalization of customs.



7 Conclusion

Positioning Greece as an “international freight center” has been an objective of the Greek State, as well as all relevant stakeholders, for several years now. It is a realistic objective, offering substantial opportunities to all those involved in the sector, and clear and measurable benefits to the country’s economy and Greek society as a whole.

The purpose of this refreshed survey - the second of its kind, following the inaugural one published in 2017 - is providing a detailed overview of the state of the Greek T&L industry, right before the onset and in the midst of the COVID-19 pandemic.

Following a period of financial and socio-political crisis in Greece, the past few years showcased a turnaround in the country’s investment climate, something that is evident by the numerous investments in ports, airports and road transport.

In addition to the strides made in the country’s transport infrastructure, the Greek shipping industry still is, by far, the most extrovert sector of the national economy, a leading global player and a major source of income, wealth and prestige for Greece. It also constitutes the competitive advantage that currently places Greece among the leading maritime hubs of the world.

The current expectation is that competition among the major global freight centers will further intensify over the coming years. As global trade continues to pivot towards the Far East, it is very likely that, in the next twenty years, we will see a number of new freight hubs emerging as leading powers, outside Europe. This long-term trend may be affected, but will not be reversed by the recent (COVID-19-driven) shift that we see in the global production model and the trend for “near / local sourcing” of part of the production. Through Piraeus and other key ports, Greece will need to work hard if it is to retain or, indeed, strengthen its leading status - as will other traditional freight hubs.

There are four main factors that make a country or region attractive as an international freight center or a leading regional logistics hub:

- ▶ **Connectivity with global trade lanes and other hubs:**
Greece has improved drastically in recent years in this area. Of course, this progress can be – largely – attributed to the Greek shipping ecosystem.
- ▶ **Advanced port and logistics infrastructure:**
An area where significant private investments have been made, with upcoming investments in logistics parks looking to strengthen the infrastructure landscape as well.

- ▶ **Financial and business services:**
A strong financial ecosystem, along with the involvement of top tier global financial and legal players, is a key to complementing the above investments.
- ▶ **Technology / Innovation ecosystem and human capital:**
Technology and innovation are important, as long as there is an availability of capable and trained talent to contribute to developing new business models, and enabling the required transformation of supply chains.

A series of other factors associated with the broader financial, political, tax, and social environment, can contribute significantly to maintaining and boosting Greece’s competitiveness as an international freight center. While important steps may have been taken in recent years toward this direction, there is still a long way to go.

During the past decade, and despite the severe financial crisis, Greece has made tremendous progress in terms of its connectivity to the global shipping network - from the 69th place globally back in 2011, all the way up to the 20th currently, which also translates as the No 1 place in the Mediterranean region, according to the Liner Shipping Connectivity Index. This is extremely important, as it shows the untapped potential of the Greek shipping industry.

The geographical location and geopolitical importance of Greece give the country a significant advantage, especially as a trade route between Europe and Asia, compared to the rest of the Mediterranean and Northern European ports.

This has been illustrated by the continuous growth of Greek ports, with Piraeus being at the forefront. Currently Piraeus ranks as the top port in the Mediterranean and the 4th in Europe overall in terms of TEUs, despite the COVID-19 pandemic’s impact. The expected growth of Thessaloniki, with aggressive expansion plans in place to achieve a fivefold increase of current throughput (2.3m TEUs annually), means that Thessaloniki is likely to become the second success story after Piraeus, especially when sufficient progress is made with regards to the port’s interconnectivity with other intermodal forms of transport.

In general, there are four key takeaways that contribute greatly to the potential of Greece operating as a major maritime hub:

1. The savings (both in terms of time and cost) that Greece’s geographic location can offer to the cargo trade from China to Europe and vice versa.
2. The local presence of the world’s superpower in terms of controlled merchant fleet capacity.

3. The sizable number of ports that can play a key role in the cargo movement from Asia.
4. The large Intermodal logistics centers being developed at Thriasio Pedio in Attica and at the Gonos camp in Thessaloniki.

In parallel, the privatization of the Greek airport network in recent years has proven beneficial for the sector and, especially, for the growth of air freight. The capacity of the AIA is significant (while also undergoing considerable expansion works), along with the 14 regional airports being operated by Fraport Greece, where investments of €440m, following their privatization in 2015, have been completed in early-2021.

The T&L industry is also getting stronger, with the existence of five free trade zones (FTZ) established with customs and warehouses, that help strengthen the country’s position. Greece also has the most developed road network in Southeast Europe, that can serve as a getaway to Central Europe, and improves its relative positioning year after year on this front.

Despite the privatization of TRAINOSE, there is still a lot of work that needs to be done with respect to the rail network, in order to capitalize on Greece’s potential as a complete

intermodal hub toward Central and Northern Europe. The current connection of the rail network with the Piraeus and Thessaloniki ports, and the licenses given to new rail operators, are steps toward the right direction.

The 3PL / 4PL services sector is defined by stagnation and high fragmentation, with more than 100 3PL providers fighting for €368m revenue. This is a result of the sector’s “introvert” outlook, focusing mainly on providing services to the local market. Considering that supply chains today (and in the future) demand strong networking and technology-based excellence, the 3PL sector requires immediate transformation and important investments.

RECOMMENDATIONS

Related to ports



1 Further privatization of ports

Privatization has proven to be beneficial for Piraeus and Thessaloniki, and could assist other ports in achieving their maximum potential

2 Intermodal connection with air, rail and road

The intermodal connection of freight ports is crucial for their further development

3 Improve hinterland logistics in selected areas

Hinterland logistics infrastructure gives incentives to global players to evaluate Greece as an international freight center and start considering it

4 Single window implementation

Advancement of ports' community systems (PCSs), based on an integrated E2E approach

Related to air and sea freight transport



Air freight

Improve intermodal connectivity with "Seairgy"-type projects



Sea freight

Connect with an "intermodality" approach

Related to the road network

1 Rationalization of tolls

- Tolls need to be digitized
- Payment needs to be km-based

2 Improve connections with infrastructure

Connections need to be completed for important infrastructure, such as freight ports, industrial and logistics concentrations



Related to the 3PL / 4PL sector



Synergies

Create synergies and joint ventures between companies (3PLs and CEPS), in order to scale them up

Exports

3PL / 4PL companies need to focus on exporting their operations and become established players at selected Southeastern European markets

Digital transformation

Companies in the sector need to heavily invest in digitally transforming and automating their operations

Related to brand awareness

1

Brand awareness

Brand Greece as an "International Freight Center" (IFC) or/and as a "Trade Gateway from/to Central and Southeastern Europe"

2

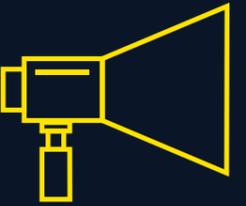
Study / Survey

Conduct studies and surveys that showcase how Greece has an economic and qualitative competitive advantage in the different sectors of the T&L industry

3

Promote

Host global roadshows that promote the brand of Greece as an IFC / Gateway to Central and Southeastern Europe



Related to the rail network



1 Intermodal connectivity

Finalize rail connection with all key / main freight ports, as well as with select freight centers and industrial areas. Interconnection with Central Europe via the Orient / East-Med corridor, and also through the upgrade / construction of essential sections

2 Offer E2E services

Rail companies should offer E2E services, including first and last mile

3 Electrification, ETCS and alternative technologies. Infrastructure upgrade and completion of maintenance works

Finalize investments in the electrification / e-mobility and signage of the rail network, as well as adopt the European Train Control System (ETCS), which will allow for cost reduction and productivity increase. Attend to all maintenance matters at hand. Consider appropriate technologies, complementary to e-mobility, such as hybrid and hydrogen

Related to customs

1 Constant availability

Customs need to operate 365/24/7 in all main gates of the country

2 Digitalization

Customs operations need to be 100% digital



Related to human capital in the T&L industry

Transform supply chain professionals

to "Value Stream Leaders"

Promote supply chain professionals as Business Partners

(Business Leaders)

Develop supply chain professionals who drive process excellence (Operational Excellence Leaders) and embed digital transformation (Digital Transformation Leaders)



Develop supply chain, logistics and transport professionals who "take the robot out of the human"

Final remarks

To summarize, in the years between the first publication of this study, in 2017, and this refreshed publication of 2021, the brand of Greece as an international freight center has further consolidated, with significant efforts in various sectors getting the recognition they deserve.

As we have had the opportunity to present in the preceding chapters, there remain quite a few points that need to be improved in the coming years. The COVID-19 pandemic has

disrupted global supply chains and has highlighted the need to invest in infrastructure and achieve digital transformation faster than expected. At the same time, it creates potential opportunities for Greece to build on the progress already made, and operate as a center of excellence and a recognized International freight center in this “re-designed” global supply chain.

In view of the years to come, Greece needs to capitalize on its prospects

and aim for solid targets, such as entering the top 30 countries in the LPI index in the next five years. At the same time, it needs to continue increasing its marketing and branding efforts, in order to become the gateway to Central and Southeastern European markets. This will have substantial benefits for Greece, and could help integrate it further and strengthen its contribution to the European economy.



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