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“Tell me and I forget.

Teach me and I may remember.

Involve me and I will learn.”

- Franklin, 2018

ABSTRACT

The present document deals with the involvement, the work and the impact of the stakeholders within the maritime industry regarding its environmental matters. More specifically, the thesis aims to gradually highlight the significance and importance brought to the ports by the correct stakeholder management of the port authorities, which is presented via a case study based on an actual sustainability project of the Piraeus Port Authority (PPA).

Firstly, the historical background of the maritime industry in Greece is stated, in order for the reader to understand the natural evolution of the stakeholders and to create a complete image of how did the stakeholder been created as valid factors that are essential for any maritime organization from the start of the times until now. A glimpse of the maritime industry and its economic impact is discussed as an extra example of why the maritime industry needs to remain intact. Also, after the historical rundown a lot of maritime organizations are analysed of their goals during the years, since they are still regulating the maritime industry and are part in most of the industry's projects. All the above combined create the very base of the required factors involved in any maritime project as per today.

Additionally, before the case study, a more analytical explanation is given regarding who are defined as stakeholders and why. Lastly, the case study focuses on an a sustainability action plan which took place in 2019 by PPA and showcases a project with its stakeholders involvement to it from day one until it is in motion successfully.

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1. The history of Greek maritime industry

1.1. Introduction

Greece is known to be one of the only countries to hold a discrete position in the world maritime trade and navigation in the industry, ever since the Pre-Hellenic historical period (Perdicas, 1939). Therefore, in this section an overview of the Greek maritime industry timeline during the centuries will be provided analytically from the point of view of management. This is in order to understand the vastness and the importance, which this industry offered and continues offering to Greece, but also the natural creation and contribution of the stakeholders during those times. Furthermore, the evolution of the maritime industry in Greece is unfolded until the 21st (twenty-first) century, in combination with the stakeholders involvement in it.

The many blessings of Greece as a country that allowed its people to adapt their lives almost entirely sea-based are first and foremost, referring to the views of Spyros M. Polemis, Greece is geographically positioned between the Mediterranean, Asia and Italy, near Egypt and Libya to the South, and next to the other Balkan countries to the North, which automatically made Greece a strategic, naval and economic importance crossroad for the shipping lanes. On top of geographical position, the Greek coastline covers the 92% (ninety-two per cent) of Greece's orders while its landscape only the one-fifth, which means it can only offer that much to the country's population. Therefore, the correct use of the sea activities offered a way-out of the previous poor life style. Supplementary, the climate plays also a very significant role to the successful implementation of shipping in Greece (Harlaftis, 2005).

Over and above that, Greece hosts a lot of natural harbours and deep bays, which made the transports of the ships practicable from the begging. More specifically according

to Dee White (2018), natural harbours are landforms, where part of a body of water is protected and deep enough to provide an anchorage. To give an illustration of natural harbours are Piraeus port and Kalloni port and both of them are categorized high in the list of the largest and more ancient natural harbours of the Mediterranean Sea (White, 2018).

Considering all the above, if we were to compare Greece to other countries, the country was given a heads start by the nature's advantages, which suggests that the evolution of Greece becoming one of the most influential countries in the maritime industry was inevitable and expected.

1.2. Evolution of the Greek Maritime Industry

In the Pre-History of Greece, which is estimated to be the period during Minos' realm, Mycenaean civilization, Ionian and Achaean tribes of Greece (Perdiccas, 1939), more than enough evidence had been registered that proves the existence of an organised maritime industry leaded by the Greeks, at least the last 11.000 (eleven thousand) years (Platonas, released 1993). Some examples of evidence that were discovered are findings of ships, some of which are considered to be the first ones and appear to be since 7,000 B.C. in the Aegean from the Cycladic ships that developed the first organized maritime action in the Aegean and the domination of the Minoans that followed.

Starting off with the first ones to appear in the industry, that are known as the Cycladic (3.000 – 2.000 B.C.). They were dominating the Greek seas for many years, but afterwards they gave their place to the Cretans of the Minoan era, who had the maritime base of the country as it was formed then (1.700 – 1.450 B.C.). Only a few years after, the explosion of the volcano in Santorini happen, more specifically in 1.470 B.C.. The huge disastrous event obviously, had a lot of consequences on the civilization, some of which were the extinction of the Minoan culture. Subsequently, the Mycenaeans enter the

maritime industry's picture that during the last decades only took action in the East-Mediterranean Sea, as it is known to us now from our current maps, but after the 9th century B.C. they dynamically expanded their "sea-campaign" in the waters of Corinth, Aegina, Samos, Corfu, Syracuse and of course in other smaller towns and islands of the Greek seas. Moving forward many years later, approximately around the 6th century B.C., the Athenians created their own naval fleet and conquered for only a while the Greek Mediterranean Sea (Stamkos, 2000).

In review, the Ancient Greeks when it came to their journeys, discoveries and as well as their freedom of thinking, they never set borders and boundaries. Therefore, they created a form of a sea-civilization, of which the main parameters were, the sea, the Archipelago, the naval fleet and the colonies, which allowed them to conquer their dreams. The outcome of this was, the expansion of cultures, civilizations and ideas, but also the transfer of goods, whether they were edible or other type of raw materials such as metals, which were very useful and valuable at the time being.

The evolution of the Greek maritime industry did not stop at the Ancient Greek times, but continued during and after the Byzantine Empire, which the following paragraphs emphasize on.

At the time of the Byzantine Empire, Greece had a powerful naval fleet, but after the fall of this era, the only way back to the Greek colonies and communities as free citizens and outside of the Ottoman nation, was the way of the sea. More specifically, the empowerment that the ships hold and the transportation that they could offer at the time being, since the Turkish were not familiar with the element of water and for that reason they did not attempt to go against the Greek when in water or intervene in their sea trades,

the Greeks were in an advantageous position. The key move was the creation of the Greek naval army, which won the Turkish not only one but multiple times in a row. This factor was the main contributor of interfering and blocking the supply chain of the Turkish troops, whose goal was to stop the ethnical outrage of the Greek. Perhaps, beholding the Greek maritime industry strong was the only way to survive as a nation, but also improve its economy and quality of life enough to be able to start the creation of the country. To come to the point, that the maritime industry contributed even strategically during very critical times for the nation and of course resulted to be saving.

Foundational to this, the Greek ports and islands started to get organized and controlled by the Byzantine port authorities, which means that they had full supervision of their functions and services. Likewise, as previously mentioned, the Turkish were not attached and familiar with the sea, as a result that they were incapable of getting involved in the management and development sectors. So, the local Greek authorities took it upon them and intervened, by creating laws and guidelines, in order to keep in track the good function of their ports. Moreover, they continued the registration of the ships by keeping analytical data, more specifically the sailing and the anchored ships, as well as the quantity of their good, which were transferred. Additionally, the causes and number of the shipwrecks got registered and of course the payments of the port taxes. The Greek local authorities were invested in keeping track of the analytical reports and data, which are known as "Neo-Catalogues" or "Ship Record", because they could manage in this way the economical income that this industry was offering and of course if the management was efficient and productive. For instance, from the incoming taxes the maintenance of old

lighthouses and the manufacture of new one got paid, in order to increase the safety of traveling for the seafarers.

Afterwards, the Greek local authorities, which were mentioned previously, successfully created a regime of a favourable and in-order system for the ever-evolving Greek maritime industry. They made sure that a strong groundwork was laid for the institutionalization of a unique legislation and a control management unit was conducted before and during the foundation of Greece as a country.

Some honourable mentions from the legislation are the ethical regimens of the strict obedience of the rules of the International Maritime Law, regarding the punishment of piracy and the respectful and neutral attitude to the ships of third parties, which were not involved during the revolution, as stated in the written records of the decisions-guidelines by the island's provosts for the war seafarers (Kremmidas, 1985).

As a result, after so many obligations became a necessary habit/ procedure, to manage and keep in-order the maritime industry, beside the created legislation, it only seemed fitting to establish a national Greek management group, whose task would be the decision making of the necessary legal guidelines, the supervision and control of the ships, ports, any shipping constructions and lastly they were overseeing issues regarding the employees of the shipping industry.

During the end of the Ottoman empire (1430 – 1821 A.C.) ruling in Greece, there was beholden a very strong competition for the dominance of the Mediterranean gulf between the English and French troops, more specifically the result showed in the 18th century A.C., during which was that the Greek maritime industry bloomed and its number of ships

increased rapidly as well as their capacity. In that period, besides the English and the French, the Russian expressed their interest also, since they already were involved in the competition with the English and French regarding the trading, with special interest in the shipping one. In the end of the 18th century A.C., Greece takes the side of the French and combined they go against the English with a successful outcome. At that time, according to Pouqueville, the number of ships owned by Greece in the year of 1813 A.C. was 615 hosting 37.526 employees.

Moving a little forward, after the period of revolution ended, the only economical sector of Greece that succeeded immediately to get-back on its feet and claim its previous validation unaffected from the various internal factors, which were obstacles in the development of the other economic sectors, was the Greek maritime industry. Therefore, the Greek government was really invested in encouraging the shipping sector, in order for it to develop continuously after the war. The support paid-off since in the registration report of 1834 A.C. by the Ministry of the Navy, the Greek flagged ships were 2.891, in 1838 A.C. they were 3.264 and in January of 1855 A.C. the ships were 5.063 hosting 30.000 employees (Papathanasopoulos, 1983).

Moreover, later the new united country issued regulations relating the maritime sector of Greece with the purpose of future evolution during the period of Kapodistrian government, of the regency and the early years of King Othoman's reign. More specifically, in 1828, the first Organization of Maritime Shipping was established, and at the same time, the newly formed Secretary of the Ministry of Foreign Affairs and the maritime industry was taken over by the chosen politician of the day, Spyridonas Trikoupis.

A very important factor was announcement of the NWs of 4-1-1834 "On the Organization of the Port Authorities" and the 15-12-1836 "On the Merchant Shipping Police", which are the first essential pieces of legislation that refer to the administration and ship, port, and coast authorities, and were passed a few years later in 1834 and 1836. The maintenance of the Greek flag on the ships of the Greek ship – owners, who were still in Turkish - occupied territory was a very basic matter that the Navy was called upon to solve by the Secretarial, the Greek Consuls, and the Navy Officers. It is remarkable to mention that at that time islands like Chios, Mytilene, and Samos, as well as ports like Smyrna, Thessaloniki, and other parts of Greece, were not yet considered as free land but they were under the control of the Turkish authorities. The difficulties were caused by the Turks' suspicions and, on the other hand, the suspicious interests of the great powers and their agents, as well as insufficient navigational facilities provided by foreign flags, particularly the Russian and Turkish, who wanted to entice their Greek ship - owners to Turkish - occupied areas rather than put their ships under Greek rule flag. These circumstances necessitated the provision of seating officers in Greek consulates to deal with Merchant Shipping matters and prepare the current Consular Port Authorities (Papathanassopoulos, 1983).

Following the previous paragraph, the then small Greek state, led by Eleftherios Venizelos, will unite with the greater Crete, triumph in the Balkan Wars, and fight alongside the Allies in World War I, while Merchant Shipping will mostly play out at that time, in the Mediterranean with the new steam technology, by 485 ships and tons of tonnage over 1,000,000 K.O.H.

Equally important is the period from the turn of the century until the eve of World War I, where the Greek Shipping industry was being managed up to 62 per cent of its

capacity by the Greek fleet companies headquartered in Piraeus, 9% in London, and 14% in Constantinople. Until the Mikra Asia disaster in 1922 and Constantinople was entitled and considered the capital of the Greek maritime engagements and exchanges. The port of Athens is a vital hub for Greek shipping. Skipping only to a few years later, in the 1930s and more specifically at the start of World War II some very important actions were taken. The first Greek shipping offices outside of Europe as well as the Mediterranean Greece's got activated with the entire Greek merchant fleet, by the eve of World War II, accounted for 3.5 per cent (724 ships) of global shipping with a capacity of 2.4 cm grt. Unfortunately, by the end of WWII, Greek merchant shipping is in a precarious position. In terms of ship count and tonnage, the Greek commercial fleet was reduced by three-quarters. During the reconstruction, Greek ship - owners were required to present only 120 ships weighing more than 500 tons with a total capacity of 500,000 grt. In addition, with the US government's decision to sell 4,500 state ships, including "Liberties" cargo ships with a capacity of 7,500 grt, in 1946; it was presented with a significant opportunity. With the assistance of the Greek government, Greek ship - owners were able to purchase 100 of these ships at reasonable prices, while 7 T2 type oil tanks were acquired in 1947. The Greek fleet numbered 531 ships in 1948, with a total tonnage of 2.3 million grt. From that point onwards, merchant shipping was a key sector in the backbone of the national economy, constantly contributing foreign exchange resources, employing a portion of the country's workforce, and generating a number of parallel activities (shipbuilding - engineering works, administrative staff shipping companies, ship operations, ship supplies, and so on).

Ship - building reached its peak in the 1950s, and until the 1956 Suez Crisis, the Greek fleet ranked third in the world, trailing only the United Kingdom and the United

States. In the same way, the Greek ship - owners followed a conservative policy of fleet expansion and renewal in the 1960s, while with the beneficial introduction of shipping currency, the shipping policy pursued after 1967 strengthened the wave of ships returning to the Greek flag and triggered the national economy. Meanwhile, Piraeus was becoming into one of the world's largest shipping hubs and maintaining its position.

Reportedly, in the early 1970s, a new wave of orders followed the previous decade's conservative policy. In 1974, a sharp decrease in crude oil exports, high inflation in industrialized countries, and exchange rate fluctuations boosted or even suspended the operations of oil tankers and, later, trucks. As a result, after 1975, it is apparent that the Greek ship - owners found themselves caught in the vortex of the country's general insecurity in the international economic balance. For that reason, in order to survive, they had to turn to open registers, where they could use cheap foreign crews while drastically lowering shipping costs. This is how the departure of ships from Greek registers and the reduction of the Greek flag from 42 million grt in 1981 to less than 20 million in 1988 are explained (Milonopoulos, 2004).

Remarkable was Greece's accession to the EEC, which dominated the 1980s. Next, the Greek ship - owners instilled a liberal spirit in the Community and played a key role in the design of the first package of Common European Maritime Policy Regulations, which was adopted in 1986. Moreover, with a few seasonal exceptions, the freight market maintained its upward trend in the last decade of the millennium. By happy chance, this time, the flow of good works has been continuous. At the same time, order - lists in its shipyards were growing, resulting in a market that could not absorb the beastly volume of new constructions in 1996. On the other hand, it should be mentioned that even though

there was a continuous growth in general in the sector, the collapse of the economies of the Far East did not hold – back and harmed the maritime trading effective and immediately. According to 1990s statistics, the Greek ship - owners played a minor role in the unwavering construction of new tonnage, which primarily preferred to renew their fleet by purchasing used ships following the war and it should be noted that Greek-owned shipping companies' use of convenience flags and the maintenance of offices in various countries makes it difficult to locate their registered office and property status companies. On a separate note, also other cities around the world, such as New York and Tokyo, were gradually added to the management centres of Piraeus and London (Papagiannoulis, 2002).

In brief, Greek maritime industry's history has shown how the natural escalation of the events led to the evolution of Greece to become one of the most dynamic countries in the worldwide shipping industry and affect its economy accordingly, which will be further elaborated in the upcoming paragraphs.

1.3. The Dynamic and the contribution of the shipping industry to the Greek economy

Greece is one of the world's most powerful shipping nations, and Greek shipping is one of the most dynamic sectors of its own economy. In terms of tanker, bulk carrier, and passenger ship capacity, Greece unquestionably leads the world. According to Lloyd's register of shipping, the Greek fleet numbered 1462 ships in 2000, with a total capacity of 45 million dwt (dead weight tons or Hellenistic tons of net weight) and ranked fifth in the world, after Panama, Liberia, the Bahamas, and Malta (Papagiannoulis, 2002). According to the Institute of Shipping Economics and Logistics of Bremen's, the shipping data, statistics and market review (SSMR / ISL) of the Greek ship – owners, regardless of flag - ships amounted to 3,222 with a capacity of about 135 million dwt during the same period,

representing 17.5 per cent of the world's total capacity. In terms of the percentage of the fleet participation under the Greek flag in the community, this would be as an amount of 42 per cent of the latter's total capacity, and Greece as a country ranks first among EU Member States.

According to Lloyd's register (1994) by Chapman, Greece ranks fourth in the world, in terms of fleet capacity (which is over 100gt), with 1529 ships flying the Greek flag and a total capacity of 28.678.240gt. According to the Bremen Institute of Shipping Economics and Logistics, Greece as a united country, ranked third in the world record, in terms of ship's capacity on January 1st, 2002, with the Greek flag waving on 1102 ships totalling 43,365,000 dwt. The previous numbers mentioned confirm the strengthening trend that has emerged in the last two years in the maritime industry of the country.

Moreover, the distribution of the Greek fleet is divided by ship type and based on the transport capacity of each category. So, concerning the Greek owned merchant fleet (including ships which have on them the Greek flag), it controls 3,480 tonnage of ships with a carrying capacity of 164,613,935 dwt and a tonnage of 98,195,100gt. The Greeks are regarded as the world's most important ship owning community, controlling 15.5 per cent of the global capacity (gt) in general and 17.8 per cent of capacity (dwt). According to the data from 2002, the number of Greek independent flag ships totals to 3,618, which was in total displacement 100 million cubic meters, which also translates to approximately 16 per cent of the whole world's shipping power. The fleet with Greek registration consists of 1529 ships with a total capacity of 29 million square meters, with double hulls accounting for 62 per cent of the Greek flag tankers (Sabrakos, 2002).

The Greek fleet consists of cargo ships, tankers, passenger ships, and other ship types. It primarily moves any type of product abroad, performing almost entirely overseas transfers for third country accounts, also referred as cross trader, but unfortunately Greece lacked of a significant transportation project that would manage correctly such a large capacity. As a result of being directly influenced by international economic factors (recession, changes in the state, etc.), the Greek ships are vulnerable enough and they accepted protectionist measures implemented by third countries to protect their shipping industry before any obstacles were created. The small number of ships in the Greek register is not surprising, given the fact that the necessary measures to improve the Greek register's competitiveness are still pending, and would create the appropriate conditions attracting the majority of the Greek owned fleet to its bays. The shipping industry has a complicated structure because each boat is owned by a different company. As a result of this fact, the assets of ship owners, who are not at risk of total claims in the event of an accident, are dispersed. Most businesses were established in countries with offshore corporate status and limited taxation based on capacity rather than realized profits, for a higher income of the trade made. In some countries, the only tax is the payment of a nominal registration fee. The Greek register provides a tonnage based taxation in accordance with a single table of rates that scales the tax rate of older ships to their age as an incentive to withdraw and renew the fleet. The issue with the Greek flag is that the taxation, even though it is not high, remains significantly higher than offshore regimes, and the Greek registry requires of the shipping Greeks to make up a significant percentage of the crew: officers, senior engineers, and a percentage of sailors.

However, due to the market downturn in 1998 - 1999, a large number of ships were transferred from the Greek register to other Mediterranean countries, particularly Malta and Cyprus. On the contrary, the Greek register increased its number by 54 ships in 2000, with a total tonnage of 2.36 million tonnes, and by 145 ships in 2001, with a total tonnage of 4.5 million tonnes. According to data from the annual report of the Greek Shipping Cooperation Committee, Lloyd's register, and Fair play, Greek has emerged as a leading force in world shipping by 2003. These specific data draws important conclusions about the trend and shaping of the Greek shipping profile and how it would escalate in the future even by then. As evidenced by its elements research, Greek owned shipping was turning into an acquisition of larger and newer ships as the number of ships decreased slightly, while total carrying capacity increased significantly at the same time as the average age decreased dramatically while the number of Greek flags decreased slightly but capacity and average age increased significantly. Specifically, in the shipping industry, Greek ship owners control 3,355 ships, over 1,000gt, 9.3 per cent of the world fleet or 18.3 per cent of global capacity in dwt or 15.9 per cent in gross tonnage. Concerning orders in shipyards, Greek interests have covered 8 per cent of the total "under construction" capacity in dwt, corresponding to 15.47 per cent of the total "under construction" capacity in dwt. There were 203 ships under construction with a total capacity of 10.8 million dwt under Greek flag and Greek interests among the 3,355 ships under Greek flag and other Greek interests. The number of ships, which were owned by the Greek flag, increased by ten per cent and was up to 929 (which means over 1000gt) in the year 2003, up from 939 in 2002. Also in the following recent years, the Greek fleet had been gradually renewed with modern ships. Therefore, the average age of ocean going ships, which enrolled in the Greek Register was 9.4 years, while the corresponding ones, which were the ones that got deleted, were 20.7 years.

Taking into consideration all the previous static data Greece's shipping community was increasing its strength with a stable pace even though there were some obstacles presented to them in some situations. The strength provided and showed by the previous data was also translated and obvious via the human resources growth as well, which is equally or even more important for the country's economy and society, which will be analysed in the following paragraph.

According to data from the YEN's Maritime Policy Branch, the human resources escalation of the shipping industry was as per the following information:

1. There were 65,550 retirees in 2002, compared to 65,078 in 2001.
2. The number of unemployed seafarers in 2002 was 854 compared to 880 in 2001.
3. The number of Greek sailors serving on Greek and Greek owned ships in 2002 was 18,562, representing a small increase (+0.6 per cent) over 2000 following a series of negative indicators after 1994 (29,440 by the year of 1990.)
4. Between 1988 and 2000, the number of Greek sailors fell by 14.02 per cent, while between 2000 and 2002; the number fell by -1.7 per cent.
5. The number of foreign sailors employed on Greek and Greek-owned ships was 11,770 in 2002, down from 13,717 in 1992. In 2000, there was a -19.1 per cent decrease in foreign seafarers, while in 2002, there was a +7 per cent increase.
6. The percentage of Greek sailors on Greek ships decreased from 73.7 per cent in 1992 to 68.9 per cent in 2002 (decrease -4.6 per cent). The proportion of foreign

sailors on Greek ships increased from 26.4 per cent in 1992 to 31 per cent in 2002 (an increase of +4.6 per cent).

In this point it is important to understand the fact that the empowerment of the human resources is the major key to a great management, in order to achieve the following goals of the country in the maritime industry but also the acknowledgment of them as a great asset to be used and cooperated with by the industry itself.

After analysing statistical data of both the growth of the number of ships and the number of the human resources, it is time to see the economic development that they provided combined to the country. Also, it is important to go back to the fact that Greece mainly did its trade with third parties, which means that the tracking made by the shipping authorities for the shipping companies 'income was made differently.

Firstly, worth mentioning is that the shipping company's main distinguishing feature is that it produces outside of Greece, and the shipping capital is any "injectable" capital from abroad. Its "injectable" capital had its own contribution to the Greek economy, based on the currency she provided. The shipping currency is considered primarily as a "pure" currency, because it is created without putting a strain on the state budget. Some important facts to state are firstly, that the vast majority of Greek ships are used in the transport of goods between third countries and are dependent on data and factors from the global economy and shipping market. Secondly, the wages of sailors, the ships, are considered naval currency remittances, the amounts paid for refuelling and repairs. Also lastly, the contribution of shipping to the creation and preservation of jobs, not only on ships but also on land, go hand to hand. For instance, ships generate 30 per cent of the net shipping value, while land generates 70 per cent. Greek ships employ approximately 18,500 Greek sailors,

accounting for approximately 1.5 per cent of the total workforce of the country, and provide financial resources to a significant portion of the Greek population. The operation of Greek shipping creates a significant demand for ancillary shipping services such as agencies, catering, financing, shipbuilding, repairs, banking works, charters, and so on, which is very important to take into account that all those operations are chained together in order to produce the final outcome of the shipping industry itself. It is estimated that the number of people employed in these services exceeds 150,000 people, covering a sizable proportion of the working population. Greek shipping makes an important contribution to national political and cultural promotion as well. For example, the shipping exchanges amounted to 8.5 billion euros in 2002, an increase of 343 billion euros more for the results of the year of 2001, when it stood at 8,156.7 million. This sums up exemplifies, in the strongest possible terms, the critical importance and catalytic role that Greek shipping plays in the country's economy.

In addition to that, it was noteworthy also that the amount of touristic foreign exchange entered at the same period was 9.5 billion euros. As a result, in the year of 2002, the foreign trade balance, services amounted up to 20.4 billion euros and its payments amounted up to 10.1 billion euros, figures in which the shipping currency predominated massively. The predicted outcome of which was that the maritime companies employed 10,922 people, with 9,644 Greeks and 1,278 foreigners making up the majority. When compared to the same period of the previous year, the influx of shipping currency increased by 7.8 per cent only by the first half of 2003. In more detail, it was 4,606.5 million euros in particular, compared to 4,269.9 million euros in the same half of 2002. Moreover, in June 2003, the influx of shipping currency was also 786.3 million euros up from 627.2 million

euros in June 2002 (Koutsis, 1994). Also, the National Bank of Greece had forecasted in its report that "by reaching 660 million is expected to increase the surplus from maritime transport in Greece's current account balance." As a result, the direct and indirect positive effect on the GDP growth rate in 2003 would be in the order of 0.6 percentage points. It is worth noting that this effect had compensated the 6 per cent reduction in tourism revenues. According to the EIB report back then, the Greek bank loans given to the shipping sector had also increased by 28 per cent over the last three years, totalling 3.8 billion euros (Koutsis, 1994), which was a natural outcome during the years of such massive changes in the sector of the maritime industry.

According to the ship owners of the Hellenic Association's annual report for 2003, the net contribution of shipping to the Greek balance of payments in 2002 amounted to approximately 10 per cent of gross current foreign exchange inflows for goods and services, while inputs from international seafood activity account were up to, approximately 5 per cent of total gross value added for the Greek economy (Annual Report of the Hellenic Ship - owners Association 2002-2003). It should be noted that the contribution of Greek seafaring, as well as coastal shipping, to GDP was less than 1 per cent than the Norwegian shipping, which accounts for only 9 per cent of the world's fleet (compared to 19 per cent of produces 9% of Norwegian GDP and English 5.4% of England's GDP and provides 800,000 jobs (Till, 2001) and the Mediterranean shipping contribute 0.54% to GDP.

So since the economic impact was proven to be major for Greece as a country, by multiple factors, it would be only fitting to analyse into an extend the rest of the chain which overviews all the operations mentioned above, all the organization that lead the bigger picture of the shipping and trade industry.

2. International Shipping Organizations

Commercial organizations in the shipping sector play the role of all parties' interests combined and play a vital part in the creation of shipping policy, management and its intergovernmental rules, as well as the transnational shipping organizations are to defend the interests of its private shipping companies (lobbies). Their economic and political interests are intimately entwined with state decisions and the overall marine policy followed by the various states of the world. Their goal is to achieve the most lucrative and affordable maritime business, while also strengthening their position in the international banking system. When it comes to private organizations, we can say that many of them, while operating in the interests of private interests, also contribute through their advisory and voluntary nature in intergovernmental and supranational bodies, such as the International Maritime Organization (IMO), the Economic Cooperation and Development Organization (OECD), or the United Nations Conference on Trade and Development (UNCTAD), which all will be examined in greater detail below. As a result, it is worthwhile to quickly highlight some of the most prominent private organizations, the critical role they play in international shipping policy, and the manner in which they are active in international and intergovernmental organizations.

a. Exchange of Baltic and Mercantile Shipping

Founded in 1744 in London, the main activity of its members, who are usually freight brokers and brokers specializing in the purchase and sale of ships in the dry cargo ships sector (Papagiannoulis, 2002), is the management of the basic global regulated fares market, which is distinguished for its developed prestige to account for 90 per cent of maritime freight transport, while also serving as an independent source of maritime market

information for the negotiation and sale of ships. According to the expansion, London obtained and has retained a vital place in the global system as one of the most important shipping centres in the world.

b. Groups for Protection and Compensation

These are associations of ship owners, who pool their insurance against third party disputes. The first of these was established in 1855 (Britannia Association based in London, 1855). Such organizations help to the global shipping by ensuring the stability and security of the global marine trade (Vlachos, 2007), but also by preserving security and enforcing environmental legislation in shipping, promoting common interests among ships, and therefore eliminating potential hazards.

c. International Classification Societies International Association of Classification Societies International Association (IACS)

Founded in 1968, its major mission is to promote maritime safety standards, to maintain strong collaboration among shipping companies, and to work with national and international organizations to achieve its objectives. In the context of such interactions, the Union serves as a vital advising partner to the IMO, contributing to the approval of many of the Organization's worldwide shipping norms.

d. International Maritime Chamber of Commerce (ICS)

The International Maritime Chamber was established in 1921 and is the most important business group among ship-owners. Furthermore, its members account for more than half of global capacity. It also represents the navy industry in questions of maritime and maritime policy, as well as technical difficulties. Naturally, it works with other

intergovernmental organizations (IMO, ILO, UNCTAD, OECD), as well as non-governmental groups, to affect in precision the international shipping in its whole. The International Chamber of Commerce (ICC) operates in a similar context, primarily for trade agreements and the definition of international investment and trade policy, as does also the International Maritime Bureau (IMB), which is an annex and significantly contributes to the upgrading of operational processes in the shipping industry, as well as the Assembly of Mediterranean Chambers (ASCAME), which was founded in 1982 on the initiative of the Chamber of Commerce and in which. Other private organizations work as consultants in the sphere of global shipping and collaborate with international and intergovernmental organizations, contributing to the decision making process and co-defining and formulating shipping and marine policy. More specifically, among them are the International Federation of National Unions of Shipbrokers and Shipping Agents (FONASBA), which was created in 1969 and promotes its procedures in such a way that they fully suit the needs of all its members. Furthermore, the International Maritime Federation (ISF) was founded in the year of 2000, to provide to the shipping industry with organization, management, training, advice, and technical support, thereby contributing to its global improvement. The International Maritime Forum (IMIF) was created in 1975 and is a private voluntary organization that works to maintain a healthy commercial and economic condition in all fields of shipping. The following international private associations operate and are active by sector: the International Association of Independent Owners of Dry Cargo or Bulk Cargo (INTERCARGO), which seeks cooperation between related shipping companies and organizations, the International Association of Independent Tanker Owners (INTERTANKO), which seeks a fair and impartial division of responsibilities; and obligations for tankers carrying oil and other chemicals, and finally Oil Companies International Marine Forum

(OCIMF), which arose out of general concern about marine pollution, particularly from oil transportation, and which covers safety issues, environmentally responsible hydrocarbon transport, and attempts to set standards for the continuous improvement of existing conditions in the maritime space through its operation.

2.1. Government and Intergovernmental Shipping Agencies

Governments and international organizations in the sphere of shipping play the most important roles in formulating maritime policy and making meaningful decisions on numerous maritime concerns. In this context, the following organizations will be distinguished: the United States of America's governmental mechanisms dealing with maritime affairs, the International Maritime Organization (IMO), the International Labor Organization (ILO), the Organization for Economic Cooperation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD), and the World Trade Organization (WTO), and which are worth mentioning in more detail.

a. Shipping Mechanisms in the United States and the Government

Because of its status as the global economic system's regulator, the United States can only play a prominent role in maritime policy. As a result, the United States has specialized services and processes to meet its interests and achieve its aims while preserving its dominating role in the international system. The US government agencies dealing with maritime affairs are the Senate, which has two subcommittees, the Commerce Committee and its Subcommittee on Merchant Shipping, and the Judiciary Committee, which has two subcommittees, the Judiciary Committee and the Merchant Shipping and Fisheries Commission, the Ministry of Transport, which plays a key role in maritime policy issues and

the relevant bodies, and the Ministry of Justice, which also deals with maritime issues (Papagiannoulis, 2002).

b. International Maritime Organization (IMO)

The Worldwide Maritime Organization (IMO Official Website) is a specialized organisation of the United Nations that is primarily responsible for setting international shipping rules. It was founded in the year of 1948 in Geneva, as the International Maritime Cooperation Organization and is known as per today from 1982. It is a global and intergovernmental organization based in London, with 170 Member States (Greece has been a member of the IMO since 1958) and 3 Associated States. In terms of structure, the IMO is comprised of three bodies: the General Assembly, which also serves as the Organization's ultimate body, the Council, and five Committees (the five Committees operating under the IMO are: the Committee on Maritime Safety, the Committee on the Protection of the Marine Environment, the Legal Committee, the Technical Committee and the Facilitation Committee), that operate inside it, as well as the Secretariat. The Agency's principal goal is to provide a fair and effective regulatory framework for the shipping industry that all countries may adopt and execute. To accomplish this core purpose, the Agency adopts International Conventions and Codes and then encourages its Member States to adopt and ratify these Conventions and Codes. The Treaty distinguishes itself not only from the Marine Life Safety (SOLAS) standards, but also from the Marine Pollution Reduction Treaty (MARPOL). Furthermore, the International Maritime Organization deals with matters of maritime safety, the protection of the maritime environment, the safety of navigation, and the implementation of measures in response to any illegal activity occurring at sea. The

IMO's function within the United Nations was significantly expanded after 1982, when it became more binding and specialized in maritime problems.

c. Organization for Economic Cooperation and Development (OECD)

The Organization for the European Economy Cooperation and Development was founded in 1948 with the goal of carrying out the Marshall Plan for the reconstruction of post war Europe. The OECD was created in 1961 with the membership of Canada and the United States, establishing the Council, the Committees dealing with matters related to the economy, commerce, research and education, employment, and financial markets, as well as the Secretariat. The Organization's overall objective is to promote policies that aim to improve the economic and social well-being of people all over the world. In terms of shipping, the European Union's Agency for Shipbuilding's strategy is characterized by features of protectionism, with a primary focus on state subsidies for shipyards, financing, and financial aid to ship owners (Vlachos, 2007). Furthermore, under the common shipyard policy, special attention is focused on the development of directives and the funding of initiatives. Moreover, the OECD has created international norms for aid and the treatment of unfair competition, with the Agency's Maritime Transport Committee playing a key role in talks on shipping concerns.

d. United Nations Conference on Trade and Development (UNCTAD)

The United Nations Conference on Trade and Development is one of the United Nations' specialized bodies, founded in 1964 at the Geneva Conference to promote international trade and investment and to expand opportunities for participation, particularly in poor countries. The Assembly, the Agency's top body, meets every four years, while the

Commission meets every two years. The Agency has made important contributions to the economic organization of global merchant shipping by defining an unified maritime policy and encouraging developing countries to participate in the sector of maritime transport. In the context of market globalization, UNCTAD maintained its Third World development agenda while also playing an important role in North-South cooperation (Vlachos, 2007). The Conference endorsed the "Sao Paulo Unanimity" at the Summit of 2004, putting the Organization at the core of commerce and development. Since then, it has placed a special emphasis on the liner market, holding regular liner shipping conferences, and controlling maritime and transportation monopolies. Furthermore, it carried out a wide range of activities in the field of trade and sustainable development while taking into accounts the demands and characteristics of developing nations.

e. World Trade Organization (WTO) - General Agreement on Tariffs and Trade (GATT)

The General Agreement on Tariffs and Trade is a United Nations specialized agency aimed at promoting freer and fairer trade. It is known as the Constitution of International Trade (Vlachos, 2007), because it comprises a system of principles and laws that govern its execution trade between the contracting parties. It was established in the year of 1948, but after the Uruguay Round negotiations in 1994, it was renamed as the World Organization. Trade, as well as broadening have tasks and capabilities. Therefore, the GATT's fundamental principles are the liberalization of international commerce, the elimination of discrimination between Contracting Parties, and, as a result, reciprocity in any concessions made between them. The World Trade Organization attempts to operate the free trade system and secure unfettered access to all markets, including a number of services (GATS) (Vlachos, 2007.), of an increasing number of countries in the sphere of trade, and therefore the shipping sector.

As a result, we can conclude that involvement and control of international trade, maritime transport, and the shipping sector as a whole are critical.

f. International Labor Organization (ILO)

Finally, it is important and must be mentioned, the International Labor Organization, which has made significant contributions to sectorial labor policy. The Worldwide Labor Organization (ILO), established by the Treaty of Versailles in 1919, has as its primary goal the development of international programs, agreements, and laws that contribute to the betterment of working conditions and the creation of new employment possibilities. The organization's ultimate purpose is to complete the training of a worldwide maritime labor statute.

The organization specifies in the shipping deals with all kinds of concerns directly or indirectly associated to seafaring, such as seafarer recruiting, age limits for the seafaring profession, education, pay, and working hours. A number of conventions have been drafted on these topics, such as the 2006 Maritime Labor Convention, which underlined the labor rights that should govern the shipping industry globally and helped to improve safety levels and the overall condition in the shipping industry.

2.2. The Maritime Chamber of Greece and main purpose and responsibilities of the Ministry of Shipping

In regards of shipping, the Hellenic Maritime Chamber serves as the State's official advisor. It is a Public Law Legal Entity (N.P.D.D.), whose aim is to defend and promote the interests of Greek Merchant Shipping through the united collaboration of all its members and sensible coordination of their actions. It was created in September 1936 with A.N. 191 in response to the necessity for a coordinating body to ensure a full investigation of all

maritime sectors' difficulties, as well as a valid opinion and recommendations to the respective governments. It is based in Piraeus and is overseen by the Ministry of Shipping and Island Policy.

Its members are all the ships under the Greek flag, which are represented by the following shipping associations:

- the Hellenic Shipowners Association,
- the Association of Short Ship Shipowners,
- the Association of Passenger Shipping Companies,
- the Association of Coastal Shipping Companies,
- the Association of Shipowners of Tugboats and Lifeboats,
- the Panhellenic Association of Shipowners of Tugboats and Lifeboats "Agios Nicholas", the Panhellenic Association of Cargo Ship Owners, as well as the Hellenic Tourist Boat Owners Association.

The Maritime Chamber of Greece is controlled by a board of directors comprised of 32 members, who represent all the types of ships under the Greek flag. Each member serves a four year term chosen by the elections that are held every two years for the renewal of 16 out of the 32 members, followed by the election of the chairman, two vice chairmen, and 4 members of the administrative committee by the board of directors. The Hellenic Nautical Chamber's work is supported by ten standing committees that are consisted as well with members of the board of directors and also with member of other maritime specialists, while the maritime arbitrators are selected by the board of directors directly to decide the appropriate disputes. Today, the Maritime Chamber of Greece, charged with supporting the project and the interests of the European Communities' and the world's largest shipping

industry, as well as the European Union, intensifies its efforts to shape maritime policy, while promoting issues of major concern to global shipping, such as ship safety and navigation, marine environment protection, maritime education, and the recruitment of young people in order for them to be introduced in the maritime industry.

Since its inception on September 30th of the year of 1936, until today, the Maritime Chamber of Greece has recorded significant activity in its assets, consistently fulfilling its statutory role as official advisor to the State regarding the shipping matters, always with the prioritising goal of protecting and promoting the interests of Greek merchant shipping. All important concerns concerning the various sections of the merchant fleet were thoroughly investigated, and the Hellenic Maritime Chamber's recommendations after various discussions are presented to the State, and objective and transcended are the particular interests of its members.

Purpose: The Ministry of Shipping and Island Policy is the main administrative body of Merchant Shipping and, on the other hand, has the mission of applying the law in its maritime area of responsibility such as ships, ports, and their land area, as well as other land, coastal, or maritime areas, through the Coast Guard / Hellenic Coast Guard, whose responsibilities are defined by article 6 of Law 4150/2013. According to article 1 of the Organization of the Ministry, PD 103/2014 (Government Gazette 170 A 'of 28.08.2014) its main mission is to plan the shipping policy in order to promote and defend the interests of the Greek commercial and its connection with the national economy, the development of maritime education and maritime work, concern for the protection of the marine environment, and the planning and implementation of an integrated island and maritime tour, the prevention and suppression of illegal actions in the Coast Guard's / Hellenic Coast

Guard's areas of responsibility, as well as the control of sea borders in accordance with Greek and Community legislation and international conventions, the formulation of port policy, the supervision of port infrastructure in all functional forms, the organization and administration of the navigation service, and the promotion of the national port system as a whole (P.D. 103/2014, Article 1 and FEK 170 A').

To carry out all of these fundamental obligations efficiently, the Ministry of Shipping and Island Policy is integrally tied to other competent Ministries and Services of the State, but it also cooperates with other social partners. In addition to, its central Services in Piraeus, have established 210 decentralized services in an equal number of ports throughout the country, as well as 24 consular ports in significant ports around the world. Finally, it should be mentioned that of the Ministry's three main General Secretariats (General Secretariat of the Ministry, General Secretariat of Ports, Port Policy and Maritime Investments and General Secretariat of the Aegean and Island Policy), only the General Secretariat of the Aegean and Island Policy has Mytilene and is responsible for implementing the policies envisioned for the long-term development of the Aegean islands.

It is safe to say, taking into consideration all the above analysis regarding the administrative aspect that Greece has created that the management might have come naturally for Greece as a country, or more specifically the implementation of a correct management system was mandatory for Greece, but the country took it upon them and provide trust worthy co-operations with national organisations by creating internally all the necessary ministries, secretaries and other administrative operations, that were keeping everything under control with the vision of a better maritime industry that would be able to continue to provide for its country. From all the efforts given by the Greek families that started as

small communities up to the final outcome of the big organisations, Greece has created a massive stakeholders system, which will be carried out in detail in the next chapter. The organisations are only a percentage of the stake of the stakeholder management and their position is more administrative than influential or consultation, for this reason more influential people are involved in the stakeholder management in order to be able to provide more efficient opinions from their experiences.

3. Greek stakeholders involved in the Greek Maritime Industry

3.1. Introduction

The business purpose goes to the heart of why a firm or an organization does what it does, guiding business decisions by building a framework that allows the organization to achieve its goal (the what) and vision (the why) (the where). Additionally, by outlining the organization purpose, which aids in guiding the enterprise towards the future, many beneficial and profitable outcomes may come to the organization. The purpose statement establishes expectations both internally (for senior leadership and staff) and externally (for the general public, for customers, investors, and partners). While purpose statements are mostly utilized internally, they can also help to be shaped by the externally, in case it would be necessary for an on-going project or governmental matters. A company or organization mission, as a created strategy, should evolve in tandem with the company's demands and changing market conditions. So, an organization or firm purpose statement basically shows how the organization will affect its external & internal factors, since it exists to deliver a product or service, its mission statement should reflect how the organization wants to better the lives of the people or businesses it serves.

Therefore, the organizations in general must recognize that they are accountable to a wide range of internal and external stakeholders when developing organizational strategies for upcoming projects. Each stakeholder group has a unique set of expectations for an organization's performance and outcome, especially if they are affected by it directly. These disparities in expectations may lead to conflict between the organization and its stakeholders. Because industrial marketers are more integrated with their customers and suppliers, two key stakeholder groups, such conflict can be extremely damaging. As a result, any strategic process that reduces potential conflict, such as stakeholder management, should be extremely beneficial to industrial marketers and the rightfully entitled stakeholders should be highly involved in the guiding and consulting of the project.

The concept of stakeholders dates back to 1963, when it was first time it was mentioned by the Stanford Research Institute Memorandum (Freeman, 1984). Since then, the stakeholder theory had grown in popularity in both the literature sector and the strategy development. Its numerous mentions had grown also since the seminal publication of the Strategic Management: A Stakeholder Approach by Freeman (1984), which went viral in the business industry. The stakeholder theory had been extensively researched, with over 100 articles and several books devoted to this specific subject (Donaldson and Preston, 1994). In more detail of all the researched done on the matter, much of the literature suggests that the stakeholder theory, enables organizations to consider a broader range of influences when developing a strategy, which the previous theories of the organizations did not consider or include all of the "groups" that are influenced by the organizational activities. Also, another external specialty, the marketers, has also identified that an existing organization theories are insufficient and advocate for a broader range of groups to be

considered (Polonsky, 1995). As a result, it appears that the stakeholder theory, as discussed in the management literature, has significant implications for the industrial marketers as well. Given the scope of this thesis, it is impossible to examine the evolution of the stakeholder theory in depth of management; rather, the goal of its work is to demonstrate how industrial maritime organizations can easily apply the stakeholder theory to a management strategy aiming for the sustainability and the development through a projects process.

Even though there have been any studies on the stakeholder theory, it has not been used extensively in the literature of the maritime industry and its strategies, let alone the newly emerging environmental and sustainability literature of this sector. While it has not been explicitly discussed, the stakeholder theory has been an implicit component of maritime related projects since the development and implementation of the sustainability of ports. A stakeholder approach is used in any situation in which a company adopts a philosophy designed to "...achieve an organization's objectives by anticipating customer or client needs and directing a flow of need-satisfying goods and services from producer to consumer" (MCCARTHY, 1993). Using stakeholders in the strategies of the upcoming sustainable projects for ports, maritime organizations and shipping companies, these organizations attempt to create a single strategy that meets the goals of three groups: consumers, the organization and the environment, which is the primary goal. It could be argued that the number of stakeholders involved in the process has been increased by the "environmental marketing philosophy," which requires that the organization's, consumers', society's, and natural environment's objectives be met, but is not a negative factor.

3.2. Theory of stakeholders

Following the previous paragraphs, where the general information of the organizations' point of views were discuss, it is now time to examine the literature's point of view for the better understanding of what is the stakeholder management. An examination of stakeholder management in the context of project management reveals that managing stakeholders is critical to the successful execution of a variety of standout projects (Xia, Zou, Griffin, Wang, & Zhong, 2018). Many project's problems can be avoided or mitigated by the observing stakeholders by identifying their expectations, consulting and planning how to meet them, because stakeholders can define a project's success (Eskerod, Huemann, & Savage, 2015) by providing their opinion from their professional experiences in the field. Understanding stakeholders and analysing their interests promotes better project management and aids in the creation and development of appropriate products (Elias, Cavana, & Jackson, 2002). Also it is important to mention, that Freeman (1984) as well, wrote a book that encouraged the management team of an organization to think about and analyse groups or individuals who can affect or could be affected by an organization's final goal. Stakeholder analysis was adopted by the project management theorists and practitioners, and this field of study has grown since then, which will be pointed out in the upcoming case study.

Stakeholder management encompasses not just one project area, but several, and is widely used in a variety of projects. One important application of the stakeholder management is in the field of megaprojects, whether public or private; managing stakeholders can improve project outcomes and impact on people and places (Di Maddaloni & Davis, 2018) and the outcome could be economical or environmental. More specifically, when applied to project research and development, stakeholder management theory can

stimulate interaction between stakeholders and the project team, resulting in a better understanding of mutual interests and teaching the team how to address those interests when developing new products (Elias et al., 2002). Non-governmental organizations work on complex projects that necessitate increased project management maturity; the ability to manage the stakeholders increases this maturity, paving the way for the project's short and long-term success (Golini, Kalchschmidt, & Landoni, 2015). Because of the technological changes, the risks for software projects are higher; stakeholders' expectations about software technology must be considered in order to build the bigger picture and manage risks effectively (Vrhovec, Hovelja, Vavpoti, & Krisper, 2015). As a result, managing stakeholders entails a significant number of goals, applications, and theories used by practitioners and researched by researchers, especially when it comes to projects that would affect positively or negatively the environment, which means that very delicate matters are at stake for the stakeholders to take into consideration during the implementation of the project.

3.3. Who are the stakeholders?

A stakeholder is someone who is effected by a company's or an organization's actions, such as port; they can be internal or external stakeholders. They may also be affected if something bad happens to the organization because they may have given and invested money in it, or they may simply be interested in it and use it frequently. The stakeholders can have either direct or indirect control of the business. In case of the internal control being the most common and the external control being the least common. Customers, employees, the government, suppliers, and the community are examples of key stakeholders because they provide resources such as money, supplies or consultation to the organization. Although stakeholders are people and communities that believe they are

stakeholders, for example, customers, who are interested in the business, different types of people and relationships, will have different values taken into consideration and of course not all cases are verified. Internal stakeholders' needs may differ from those of external stakeholders. A stakeholder who is an external one, for example based on customers, is entitled to customer service and high-quality goods, whereas an employee who is an internal customer may have considerations such as job security, good pay, and opportunities for advancement within the company.

Internal stakeholders:

These stakeholders are coming from within. Internal stakeholders are individuals or groups within a company, such as employees, team members, managers, and executives.

Owners and Shareholders Internal:

An organization ought to consider both owners and shareholders to be internal stakeholders. Because they are valuable to the organization, they may be given considerations and values that other people do not, such as dividends and profits. The board of directors usually decides how much they should be paid, or the law may decide how much they are entitled to. If a problem arises in the organization, such as the organization's operation failing due to a supply chain problem, for example a client no longer wishes to purchase or collaborate with them, the organization may pay dividends to shareholders to 'keep them happy' and to keep them from doing anything that would harm the organization.

Managers are also considered stakeholders in every organization; these are internal stakeholders who care about things such as good employees, good pay, in order for an

organization to keep its reputation, and meeting its targets. Managers are looking for employees in any department or job type at the organization. Moreover, managers would be interested in the work quality that their employees provide to the organization, so that they could monitor and evaluate the work of each employee. If they believe that some members of staff should be trained in a specific department if needed, they will contact the according department and make the necessary arrangements for them to be trained. On a separate note, employees would be hired and fired by managers.

Then again, managers are not only in charge of the employee management, but also of their pay. Managers of companies and organizations frequently examine and evaluate the wages that employees are paid by the company. If they believe it is too low or too high for the employee, they, along with other managers, have the authority to change the wages. It is critical to ensure that all employees are paid fairly and properly; otherwise, some lower-paid employees may question the pay roll provided.

In addition to all other aspects of staff management and compensation, they will focus and concentrate on the organization's reputation. Customers and other businesses may not shop or buy services from a company that has a bad reputation. For example, if another company offered to buy a massive amount of product and they were not successfully delivered, the company's supply chain reputation would suffer. In such cases, managers would have to ensure not only that these situations do not occur, but also figure out how to deal with them if they do eventually.

Managers would also want to ensure that Tesco meets the goals that are set for it each year. For example, if a meeting was held and the conclusion was to open three new shops in London, the manager would need to ensure that the target is on track to be met. If

the goal was to finish in three years, the manager could examine and survey the fact that a new shop would open in London every year for the next year.

Since managers have been given more responsibility inside of the organizations, they created as a result of recent 'redundancies', which means that a system design is implemented by the organization, in which a manager is duplicated so if they fails there will be a backup person to take their place instead. From an economical point of view when it comes to redundancies, the organization in the grip of the recession may wish to reduce staff employment because they cannot afford them or because they do not want their take-
ins to be reduced. As a result, because other managers have been laid off, they may give managers more responsibilities once again. This may imply that they will have to manage and evaluate more staff, team leaders, as well as assess more people's wages and report them back to higher authorities. They may have less assistance in maintaining the organizations reputation and operation. Lastly, they may also be required to attend additional meetings and evaluate additional targets that the organization must meet.

Taking all the above into consideration, the person in the position of a manager, is a very important stakeholder since they have good knowledge of the organization itself and they could be an asset by providing their consulting when it comes to problems, projects or decision making.

Employees – Internal:

The employees of an organization are also internal. They are primarily concerned with features such as job security, good pay, the environment in which they work, their pension and perks (holidays), and available promotions.

Employees value much their job security because it ensures that they have and can keep their current position. People who do or already have jobs want to know that they can keep their job and not live in fear of being laid off in these days when people are struggling to find a job. Employees with a high level of job security can be assured that they will not be laid off by their employer. The organizations that cannot and do not provide a high level of job security may find it difficult to attract employees; however, when people are struggling to find work, they may not mind taking any job offered to them; however, their loyalty to the organization and the work given to the company may be low, which is going to reflect back at the organization.

Moreover the job security considers not only how likely an employee is to stay with their current job, but also how hard they will work for the organization. As a result, job security is frequently impacted by economic expansion or recession. In general, the greater the organization's need for an employee, who may have hard-to-find skills for the organization, the greater the employee's job security. Some employees can increase their job security by negotiating contracts with their superiors; this could be the organization's manager as previously mentioned.

Employees' pay and wages are just as important as their job security and the holidays they receive. To begin, organizations must determine how the employee will be compensated, whether by the hour or by salary. Workers who are paid on a salary have different rights and conditions than those who are paid by the hour. This includes breaks, time off, and the amount of time they work for the pay they receive. On the other hand, the salary workers are exempt, which means that hourly laws and wages do not apply to them. Furthermore, if a worker at an organization was paid eight euros per hour, he or she would

receive eight euros for every hour worked. As a result, if they worked for five hours on a Saturday, they would be paid forty euros in total. Why is it important to mention those conditions; because the worker who is paid on an hourly basis, if they miss a day of work due to illness, they will not be paid because they did not complete any hours on that day to be paid for and that would affect highly the economic outcome of the employ and his experience of his job security will shift. On the other hand, if a salaried worker is paid eight hundred euros per month by the organization and misses a few days of work due to illness, the amount of time missed will not be deducted from his pay because he is on a salary. However, in this instance the company may require the employee to work extra hours to make up for lost time. The company may limit when salaried employees can take holidays, such as Christmas and Easter, and when they can take breaks during the day, such as two hour lunch breaks and half an hour morning breaks. An hourly employee would take breaks during their working hours, so the company would not compensate them for their breaks and time off.

Workers' efforts, time, and overall loyalty to the company can be influenced by the environment in which they work. According to research, money is only one aspect of employee motivation and overall loyalty to the company. More specifically, employees' work for the company is heavily influenced by their emotional and physical comfort in the workplace. Nowadays, it is believed that the environment in which employees work will alter and change their productivity. Some businesses are creating work environments that encourage employees to increase and maximize the amount of work they can do. Many organizations and companies, for example, have been completely renovated to keep employees happy and motivated throughout the day.

Employees, who work for a company and in which they are given poor working conditions, will be unhappy. The consequence will be the negative impact on the work they produce. This could mean the difference between the company's earnings at the end of each year. Most organizations are massive and powerful corporations with connections all over the world, so it would be unlikely that the employees would work in a bad working environment without such factors coming for the organizations name. According to a 2001 study published in "Fortune" magazine, companies included in the "100 Best Places to Work For" had 50% lower employee turnover than their competitors. Lower turnover and the ability of these environments to attract high-quality employees, according to Levering, has a direct and positive influence on the companies' productivity.

Moreover, in general, a pension is a financial arrangement that provides people with an income when they are no longer receiving wages and benefits from their jobs. Saving for retirement is a top priority for all salaried employees. The variety of retirement savings options complicates the process, but the company's employee pensions and savings plans are among the most valuable benefits it can provide to its employees. Employees may become very angry if a company decides to cut outgoing costs by reducing the pension that employees receive. Employees may begin to strike and leave the company if they are not provided with a satisfactory pension plan, and they may begin to fall short in the amount of work put in to the company, resulting in long-term consequences for everyone.

When employees begin working for at an organization, they want to be able to and know that in the future, they will be able to increase their pay without having to find a different job with a different company; thus, employees want promotions available to the companies for which they work. Some businesses have a promotion policy, which simply

indicates to their employees that they recognize and reward excellent performance. This not only gives the company's employees something to work for, but it also motivates them to do well in their current position in order to be promoted to a higher position. Employees would be given more authority and a higher salary as a result of this. Depending on the company's policies, they may also receive a larger pension fund. Especially when an organization has so many departments, such as ports do, there may be numerous roles and opportunities for advancement.

As all of the highly positioned staff are put under increasing pressure to increase and maintain their take-ins, employees and workers may lose their jobs and be required to meet certain standards in order to keep their job security at a high level. Their pay may be reduced, and the quality of the environment may be budgeted as well. Their pensions and benefits may also be reduced as their chances of promotion dwindle.

External stakeholders:

External stakeholders, as probably expected, are individuals or groups who are not affiliated with the company directly at least. For example, customers, users, suppliers, and investors, which all are included via indirect ways to any organization.

It is only natural that the stakeholders are not always on the project manager's side. Needless to say, this can add an additional layer of complexity, as the board members of each organization must be able to communicate with people at all levels of the organization and with varying degrees of engagement, influence, and interest for a common outcome.

Customers – External:

Customers are one group of a company's external stakeholders. They keep the companies afloat by purchasing their services from them. Companies need always a strategy plan that must have the features of 'return", which will make the customers coming back for more and to keep them buying the services provided by the company. Those customers are considered as loyal to a company. In order to achieve that, the customers must be satisfied with the company's customer service, quality products, connivance, and low prices in order for them to remain loyal and stakeholders.

Customers expect good customer service when they shop at large retailers like shipping companies. When it comes to attracting more customers into the shipping industry, customer service is critical. More specifically, customer service can have a significant impact on how a customer perceives and feels about a company. Also, customer service is the direct representatives of a company and must do their best to meet the needs and satisfactions of their customers. This could range from assisting customers who are having difficulty carrying their purchases to showing people what specific services are provided and which of those would be suitable for them and beneficial.

Customer service is also concerned with factors such as providing the best deals to their customers and out-pricing their competitors with the prices they offer. They also manage the biggest percentage of the company's reputation, with the assistance of the manager and their detailed training. To maintain the company's reputation, they must keep their customers happy at all costs in order to compete with their rivals. It is well known in all the markets that provide services or products, that a customer will not appreciate good service but will remember bad service and spread it via the internet, resulting in a negative reputation for the company, regardless of the situation.

When customers purchase, they expect high-quality products/services, especially when it comes to shipping companies or ports where more than one factors are at stake. For example, a shipping company will be responsible for shipping a huge amount of a client's product which needs to arrive at its destination safely and successfully; therefore the service provided must be excellent. It is then up to the businesses to provide this to their customers. Customers, for example, will be dissatisfied if they discover their products even though they got to their destination but they were broken and damaged goods, which mean that they would have a big economic damage and unsatisfied customers of their own. After all, customers are what keep any company running and it is critical that they do get for what they are paying for, but in case they do not that would very well jeopardize the company's reputation in an instance. Customers will also stop doing business with the company if mistakes are repeated because then things could get a different turn where the client could have a lawyer intervene. In these difficult times, it is critical for customers to want to get the most out of the things they pay for, especially if the goods they purchase are of high quality.

People will pay the extra cost to buy services that are quicker and efficient these days, as people who work at large companies, have lives that became increasingly hectic in order to provide the necessary amount of product, so organizations like ports recognize that these convenient companies they place can be potential 'gold mines.' Customers also request port's convenience as an organization. The location from which a convenience port is functioning is crucial to its success. The location is important for multiple reasons such as accessibility, capacity of ships and storage.

It is critical for businesses to accurately determine a company's location. If a port was settled at a narrow, small and isolated location, there would simply be too many problems ahead that will make its use very difficult. The larger the port, the more it has to offer the customer, and the customer is aware of this. Also, a very important factor for the ports is that even though they need to expend in large areas in order to have the right amount of places, capacity & storage but also port's stakeholders recognize that if there are no nearby shops for the clients, access will be much more difficult and the port will be in isolation with no direct communication with the cities that provide the clients. Customers of the port are the ones that shop the largest amount of product from the other companies around the port area, which has a positive outcome for both the port and the society and the stakeholders are very invested in that. Unfortunately, this situation is being taken advantage of the locals and very high prices are set on the products. People are discovering that they want the best for the least amount of money as time goes on. Companies are now competing with one another to demonstrate to their customers or potential customers that they have the best prices available. Customers are external stakeholders to the company, and they will leave Tesco if another supermarket offers the same goods at a lower price.

Suppliers – External:

Suppliers are external stakeholders for any company. They frequently make prompt payment for products, and can provide them with what they require in terms of product, such as large or regular orders, which can lead to good contracts. They have the ability to form positive relationships and share an organization's values.

Suppliers are critical to especially for ports, because they provide all of the products that are sold. In difference with a regular company, which its supplier would only supply

them in order to sell directly to its customers, a port is complex of suppliers ready to distribute all over a country or even outside of it, which makes them very important external stakeholders. Also, suppliers understand and know exactly how important they are as stakeholders to a port that fully relies on them to keep supplying them with products, so they expect payments with no problems. Ports of course have grown significantly over the years, becoming the world's largest and most powerful trading organization chain, if one supplier only supplied one company, then the ports must supply even the suppliers of each company, creating an unending chain of supplier and customer and vice versa.

A port accepts regular and large orders from suppliers via the different types of ships that are hosting products from all over the world. These can range from hundreds to thousands units per ship in a day. Port's suppliers in order to create a good and efficient bond between them and the port they must regulate correctly their ships arrivals and distribution. This does not only create a good relationship between them but also they both avoid the so called "chaos", which could influence multiple ports, ships, journeys and products in case it happens. More specifically if "chaos" erupts in a big and significant port then the only explanation of why it happened is if the port regulators accept more ships than the port can host at the same time, which means that some ships need to be prioritized and others to be put on hold or if ships have been late from another port due to same similar situation, with result to creating a domino effect for all the following ports. Therefore, shipping companies need to provide better service to the ports than their competitors, such as on-time deliveries. Since the ports are no ordinary organization but one very important for each country, it must work efficiently in order to keep the economy stable. If a huge budge of product from the suppliers will not make it to the next

distributors-suppliers then, that product will be considered for the area as “extinct” and it going to be overpriced if a client will be able to find it and since it is going to be so overpriced it is going to be considered as a now luxurious item. Therefore, the suppliers are one of the most important stakeholders since they keep a much larger portion of the economy at their hands.

Government – External:

External stakeholders include the government, since the government is both influencing and affected by any company or organization, especially when it comes to ports, because ports are either fully or partly owned or managed by the government itself. When it comes to a normal company then the government’s primary responsibility is to collect taxes, ensure that the company is operating legally, and that the company is providing jobs. As times worsen, with higher taxes and people unable to find work, the government is evaluating business performance to ensure that they are acting in their rights (legally) and providing jobs to people. When it becomes more difficult for people to find work, companies may assess the performance of large corporations like COSCO to ensure that they are providing jobs to the local community, but also the government will sometimes try to help businesses and unemployed people by enacting regulations. Ports’ relationship with the stakeholder, the government, is very different. Ports co-operate with them, because ports are one economical dynamic of the country and in order to restore the ports, pay the employees and maintain a good management there must be a way of earning money. So, as previously mentioned ports are usually owned by the own country so one of the ways that they earn money is partially from the regular taxes or special taxes inserted in the prices of passenger’s tickets or shipping companies ‘payments.

Local Communities – External:

One more external stakeholder is the local communities, which usually are directly or indirectly affected by an organization's functions. The positive perspective of is that the people of the local community usually want the local jobs that are provided by the large organizations, such as ports, and the convenience of living nearby. Moreover, they are also concerned and involved in matters such as pollution, conservation, and improved infrastructure, noises and a lot more. The communities that surround ports are the ones that usually keep them running. They do not, however, have control over what any company or organization can or cannot do, such as being environmentally friendly and allowing customers to litter everywhere without hiring staff to clean it up. Local communities may be dissatisfied with these things, which may result in complaints and a bad reputation for the company. As a result, the company must change and do what the public wants them to do; changing times necessitate changes, or the company will fail. That is the reason why local communities are as well a very strong stakeholder, because even though they do not have such economic power as the suppliers, but they keep the money-flow active and of course they offer their work services in order to keep the organization and companies running as well. Of course, mostly everyone within the local communities would want to have access to local jobs, for their own convenience. Unfortunately, this may become difficult during these difficult times, as many jobs are difficult to come by these days. This means that people must work harder and be able to provide the necessary skills, which could include experience or management degrees.

Litter, oil, air and noise pollution can irritate or even harm the local community, especially if it is left as it is without any action to prevent, decrease or clean it, by the

company or organization that caused it. For instance, ports may not have a lot of trash and pollution created by them directly, but their suppliers (ships) or clients who deliver goods or clients (ship-passengers) may. This garbage must be removed by the company or else the rest of the external stakeholders will begin to complain, resulting in a negative reputation for the company, which causes a lot of problems at the expense of others or the environment. Ports besides having hired people to clean up the trash that is thrown by travellers for example, they have people that are having meetings with all the representative stakeholders in order to create a sustainability project that will balance the ports' functions with the wellness of the environment and the benefit of the local communities. This enhances their reputation for caring about the community in which they live and for caring about what their customers think of the company. Acts like this improve a company's reputation in the community.

Local communities are also concerned about the preservation of the environment in which they live. As bigger the ports are built to serve an ever-increasing population, local communities are concerned that more and more greenhouse gases will be released into the atmosphere. This means that ports are to blame because they consume a lot of energy, resulting in more lorries on the road and more electricity being used.

This can help the local community by implementing conservation practices and demonstrating to them that a port cares about the environment. Local communities may be more willing to work with and use the company if their actions benefit the conservation area and the world. Even those who are uninterested in the area's conservation can get a good feeling from the company knowing they are doing something good for the environment.

The ports are nowadays built with better infrastructure to help the environment and the local communities' feelings. This could range from making the organization completely eco-friendly to making it look a lot nicer. As time passes, unsightly and unappealing structures are demolished to make way for newer, more appealing structures. This is due to the fact that people care about how buildings look as well as what they do for the environment.

3.4. Benefits of stakeholders' involvement

Involving internal and external stakeholders in defining and planning the scope aspects for a building project yields significant benefits. In general, the literature shows that participation leads to improved management practices through a variety of channels. Certain behaviours will grow where, engagement and detailed interaction between all project stakeholders are combined with a grasp of each individual's interests and concerns in the project. Positive attitudes and communication among project stakeholders throughout the early stages of a project can help to strengthen relationship building, trust, understanding, cooperation, interaction, and management capacity, resulting in a better project outcome (Beierle and Konisky 2001; Brody, 2003). Construction companies, ports and government agencies can use this technique to identify the best solutions to address community needs (Marshall and Jones, 2005). This procedure also allows professional external players, such as an architectural and engineering consultant or contractor, to propose better solutions to any technical challenges that may develop. Construction organizations and public sectors can receive information and insight into their surrounding environment and related experiences by including external stakeholders, which can improve the quality of planning (Mitchell, 2005) and establishing the project scope aspects.

The concept of risk is associated with the actions that result from decisions made throughout the project scope defining process. The outcomes of these actions may differ from the expectations of stakeholders (Loosemore, 1999). These discrepancies occur when stakeholders disagree, i.e. when conflict ensues. Conlin (1996) define conflict as a significant difference between two or more opinions, concepts, or interests. A higher level of procedural justice during project planning is linked to less disagreement and greater peace among stakeholders throughout project implementation (Alexander and Ruderman 1987). Collaboration amongst project stakeholders is essential to resolve conflicts during the project scope definition process (Yu and Shen 2013).

Innes (1996) discovered through case studies that participation and collaboration not only help to increase trust, communication, and the development of internal and external stakeholder networks, but also result in stronger plans that meet a broader range of interests and are beneficial to the project's outcome quality. Another significant advantage of integrating external stakeholders in the pre-project planning process is that it helps minimize costly delays later in the project's life cycle (Irvin and Stansbury 2004). As a result, early participation can boost the efficiency of feedback integration, allowing construction companies and government agencies to be proactive in lowering stakeholder unhappiness and resistance to the project's outcome.

Participation in public projects is vital for the participant to create and sustain a sense of identity, which comes from having authority in decision-making. Participation benefits both the individual and the community's health by allowing a person to have an impact on his or her surroundings. Participation also promotes self-development and increases one's sense of efficacy within the community, which supports the community's

long-term viability and vitality (Smith 1973). Rich (1995) emphasized the interdependence of community empowerment and capability. The community might be viewed as stakeholders in the context of construction projects. According to Rich (1995), stakeholders' capacity can only be realized when they are empowered to produce desirable outcomes. Participation is one method of empowering stakeholders to specify and design project scope items. The involvement of all stakeholders, particularly internal stakeholders, in the planning and decision-making process increases individuals' sense of ownership over the project and ensures that all relevant interests and requirements are included in the final plan (Innes, 1996). This plan is the collection of project scope specification items in a construction project.

The concept in a self-directed destiny is a typical motivator for external stakeholders to participate in defining and planning a project scope. In other words, when stakeholders believe they have a level of influence over their own futures that matches their needs and requirements, they become more actively involved in the defining and planning process. According to Manzo and Weinstein (1987, p. 678), "the conviction that one has influence over one's own fate, as well as the sensation that one has the power to offer ideas and develop policies, appears to enhance true participation."

People are more satisfied with outcomes when they believe they have a role in doing something positive. According to Shapiro and Brett (1993), participation effects are strengthened when people believe their opinion is crucial in moulding the results of a problem. Even if their contribution has little or no influence on the outcome, people cherish the opportunity to share their opinions (Lind et al. 1990). Furthermore, because participation satisfies basic goals, it encourages further engagement. People's attitudes and

values motivate their innate motivation to make a decision as part of a group. The more driven people are to participate, the more honestly they join in organizations for their own advantage, without fear of being exposed to risk and without the need for direct rewards (Tyler and Blader, 2003).

3.5. Summary

In this chapter was introduced the literature and the understanding of the involvement in company owned project of the stakeholders. It came into an understanding that because an adequate project definition necessitates the participation of multiple stakeholders, the proposed theoretical framework in a company's research linked the two domains of a project scope definition and stakeholder management using social psychology theories, which describe people's behaviour in relation to decisions that affect them and require their input. This behaviour has a substantial impact on project success and stakeholder satisfaction.

People, regardless of the nature of the outcome, tend to accept the outcomes of processes in which they have been sufficiently involved. This is contingent on stakeholders considering the decision-making process as fair and on all stakeholders participating adequately in shaping decisions. This is because people feel more fairly treated when they have the opportunity to participate in making decisions regarding their problems and concerns by expressing their ideas and thoughts about what should be done. Participation of stakeholders in the early stages of a project can reduce stakeholder disagreements and unhappiness throughout project execution and enhance acceptance and satisfaction with the project's end. Even when persons obtain unfavourable outcomes from decisions, their view of procedural justice has a positive effect on outcome satisfaction.

The typical planning method, in which choices are made by a relatively small number of top management, including owners, eliminates the benefits brought about by the contributions of varied stakeholders. To allow all stakeholders to participate in the planning process, the decision-making structure must be changed from hierarchical to a multilevel network planning decision structure. Stakeholder involvement and contributions that are successful are decisive elements in improving project results and stakeholders' positive perceptions of project success. Both project success criteria and project management success must meet the expectations of stakeholders, with their wants, preferences, and requirements represented in the project outcome. Furthermore, stakeholder participation provides a variety of social benefits, such as empowerment, motivation, and knowledge transfer, particularly for external stakeholders. The next paragraphs describe the role and influence that the stakeholders can have on a project, when it comes to the sustainability of it and why it is important, since previously it was mentioned that ports in fact affect their surroundings in an unhealthy way from their operations.

4. Port Sustainability and Stakeholder Management

4.1. Port sustainability

Many publications have addressed sustainable management in the port business, however many of them do so as part of maritime logistics, shipping, and supply chain management (Ng and Song, 2010; Berechman and Tseng, 2012; Bergqvist and Egels-Zandén, 2012; Hou and Geerlings, 2016). More specifically, the increased volume of maritime transit has resulted in the expansion of port facilities and resources associated to port activities, which has frequently resulted in significant environmental damage (e.g. Rao et al., 2000). Water is charge, effluent discharge, noise, dust, greenhouse gas emissions, and dredging

spoil disposal are all operational outputs in port areas that have had negative environmental consequences as well as security, safety, and health issues for employees (UNCTAD, 1993; Peris-Mora et al., 2005; Acciaro et al., 2014). These concerns have heightened the necessity for the port sector to embrace a sustainability strategy.

Port sustainability is founded on three pillars of sustainable development: environmental, social, and economic objectives (AAPA, 2007). Its fundamental goal is to find a safe, socially acceptable, energy-efficient, and environmentally sustainable port management system while also maximizing revenues (AAPA, 2007; Hakam and Solvang, 2013). Practical and multidisciplinary management strategies are necessary to combine socioeconomic, legal, technical, and environmental practices, as well as to analyse the performance of sustainable obligations using relevant data of sustainability components (Wooldridge, 1999).

Firstly, the environmental sustainability entails minimizing the negative effects caused by a wide range of operating and shipping activities in and around ports (Narula, 2014; Shiao and Chuang, 2015). Secondly, the social sustainability: enhancing people's quality of life by supporting port activities that meet socioeconomic priorities such as employment possibilities, education for employees and communities, and increasing the social stability of the area surrounding ports (Narula, 2014). Lastly, the economic sustainability is defined as maximizing economic performance as a result of implementing sustainable development initiatives without jeopardizing social and environmental development (Gabezas - Basurko et al., 2008)

Ports are natural complex systems that are interconnected with multiple internal and external aspects, as well as larger port functions such as socioeconomic difficulties

(Parola and Maugeri, 2013). Indeed, each port develops and implements unique operational management techniques based on geographical location, size, ownership, policy, administration, and stakeholder preferences (Abood, 2007; Li and Yang, 2010; Dinwoodie et al., 2012). The ecology of port logistics systems (Li and Yang, 2010; Martinsen and Björklund, 2012; Psaraftis, 2016); the environmental effect costs of shipping operations (see Ng and Song, 2010; Lun et al., 2016); the investigation of exhaust emissions from vessel operations (Abrutyt, 2014; Winnes, 2015; Papaefthimiou, 2016); as well as the viability of legislative and political frameworks for environmental port management (sooldridge, 1999; Gilman, 2003).

Ports must consider incorporating environmental issues into their operations (Beleya, 2015; Roh, 2016). In order to comply with sustainable development rules, policies, and guidelines, environmental sustainability is a key component of sustainable business strategies and operations in the port sector (Puig, 2015; Kim and Chiang, 2017; Rocha, 2018). This is especially noticeable in port activities including dredging, material disposal, and cargo loading and unloading. In this regard, port sustainability research has focused on such daily port activities as waste oil processing, exhaust emission reduction, renewable energy generation, energy efficiency initiatives, and noise, waste, and other polluting substance reductions (Bateman, 1996; Rao, 2000; Lashin and Shata, 2012; Beleya, 2015; Di Vaio, 2018).

In a variety of methods, research has proved sustainable port operational systems. (I2S2, 2010; Homsombat et al., 2013; Shiau and Chuang, 2015). Abood (2007), for example, studied and classified sustainability projects involving port construction and operational activities using a green rating system. Recently, Kim and Chiang (2017) used semi-structured

interviews to conceptualize the structures and features of sustainable practices connected to port operations. In terms of study on port sustainability practices, most attempts to comprehend their intricacies, and in many cases, several conceptual frameworks have been presented in order to achieve sustainable port growth (Acciaro, 2014; Hou and Geerlings, 2016). Port sustainability research has lately increased, demonstrating the relevance of port sustainability (Park and Yeo, 2012; Liao, 2016; Puig, 2015; Wan, 2018). Gonzalez - Aregall et al. (2018) investigate port sustainability in the context of port-to-port interactions by identifying unique green initiatives and measures used at 76 ports. The authors emphasize the significance of environmental measures implemented as part of hinterland activities in achieving successful sustainable development methods.

Ports are operated and administered globally under various systems of port administration and ownership. Some ports are managed by the central government in a fashion that encompasses all regulatory and landlord functions, while others are managed by a mix of public and commercial service providers. In the Western world, ports are often entirely privatized, with all regulatory and operational tasks moved from the public to the private sector, with the goal of maximizing profits with minimal financial input (Van den Berg and De Langen, 2017; Baird, 2000; Cullinane and Song, 2002; Brooks, 2004). The ultimate goals of every port, regardless of its governance form, are to maximize operational productivity and efficiency, as well as to maximize overall direct and indirect economic advantages. The mechanics of this are achieved through operational efficiency and financial stability, as well as the development of sustainable revenue sources within a limited resource base and budget. On the one hand, the concept of sustainability has been identified as one of the key factors influencing the improvement of port competitiveness

(Woo, 2011; Park, 2015; Parola, 2017); on the other hand, sustainability is required to remove or minimize risk, abandoning short-term gains inherent in, for example, committing to additional investment, and bearing additional external costs such as environmental costs associated with CO₂ emissions (EC, 2003; Tichavska and Tovar, 2015). As a result, one of the essential goals for port authorities is sustainable economic growth, and an on-going debate has centred on the balance between environmental and social concerns, as well as economic importance (Nebot, 2017).

However, assessing sustainability performance or establishing evaluation criteria is a difficult process because sustainability is intertwined with a plethora of internal and external elements (Robert, 2005; Magee, 2013). This complexity has contributed to the development of a wide range of quantitative indicators to assess sustainability performance in the context of ports (see Lirn, 2013; Puig, 2014; Roos and Neto, 2017; Oh, 2018), as well as the weighting of these indicators using tools and evaluation methods such as Environmental Management Systems (EMS), Analytic Hierarchy Process (AHP), and synthetic index calculation methods (see Chiu, 2014; Le, 2014; Liao, 2016; Lu, 2016b; Laxe, 2017; Jiang, 2018). Furthermore, in order to determine the economic efficacy of sustainability objectives, port sustainability performance has had to account for complementary and diversified methodologies. Cheon (2017), for example, examined the socioeconomic effects of port activities, whereas Asgari et al. (2015), Laxe et al. (2016), and Cheon et al. (2017) investigated the relationship between economic and environmental performance. Although sustainable port development appears to be becoming more important, there is still a paucity of literature addressing sustainability challenges in port operations when compared to other modes of transportation such as road and urban transportation systems (Cabezas-

Basurko et al., 2008). As previously stated, systematic literature review publications in the domain of port sustainability have not extended to incorporate social and economic dimensions, an issue that this research now tackles. Furthermore, the challenge in comprehending the structure of port sustainability performance has been highlighted since port sustainability encounters complicated decision-making processes (Mansouri et al., 2015). Despite the fact that a wide range of topics has been addressed and useful insights have been presented in the literature, an integrated framework for evaluating port sustainability performance has yet to be developed.

4.2. Stakeholder management for sustainable ports

Following the previous paragraphs but expanding a little further the horizons of the discussion, ports are represented as networks of actors that collaborate and share resources to carry out a variety of activities in the supply chain. The sustainability of an organization in a supply chain is dependent on the effective use of its resources, and this is especially true for ports, which serve as vital links in logistics networks and supply chains. Port infrastructure and superstructure elements, equipment and information and communication technologies, financial assets, and human capital are the primary resources at ports (Karatas - Cetin and Cerit, 2010).

Critical assets that are irreplaceable, unique, and scarce will serve as the foundation for chain power, value generation for the entire chain, and sustainability. Another point is to form interorganizational alliances and acquisitions to ensure that the needs of customers are met. According to the resource dependency theory, the relationship between resources and organizational relationships can be stated in such a way that the interorganizational relationships between ports and supply chain stakeholders are the most relevant strategic resources because they allow ports to access the resources of other stakeholders in the

supply chain (De Martino and Morvillo, 2008). According to the resource dependence theory, three organizational resources are required to implement the integration of port and supply chain stakeholders: (a) financial and human resources, (b) organizational relationships, and (c) the willingness and support of the top management team (Woo and Pettit, 2009).

The ability of a port to be included in successful networking in and between ports in terms of required foreland and hinterland connections, the ability of a port to manage the iteration of green pressure groups, the availability of port capacity due to the absence or refusal of support by local communities, and the ability of a port to integrate itself into a network of business and community relations are considered basic prerequisites for ports' integration in supply chain sustainability.

Interorganizational links between shipping companies and terminal operators are viewed as joint ventures, strategic alliances, mergers and acquisitions, consortia, and conferences aimed at pooling resources in order to compete. However, as port customers, these new maritime industry formations become more powerful than port authorities. According to Mindlin and Aldrich's (1975) findings, the degree of dependence between a focal organization and its customer is directly proportional to the percentage of the organization's output consumed by the customer and/or the percentage of the customer's supplies furnished by the focal organization. In this sense, ports that serve large and powerful shipping lines have less bargaining power with these parties and are thus more strategically dependent on them because they provide the primary input, financial resource.

The greater the level of coordination and integration among port and supply chain stakeholders, the greater the sustainability of the entire supply chain (Carbone and De

Martino, 2003) and the port. A port's economic and societal sustainability is associated with close coordination with logistics actors outside the port perimeter, as well as an integrated approach to port infrastructure and resource planning (Notteboom, 2009). Carbone and De Martino (2003) discovered that organizational relationships between the port operator and the focal firm in the supply chain are one of the most important management components when analyzing a port operator's involvement in an automated supply chain. Organizational interconnections between port and supply chain stakeholders give ports access to critical resources such as technology, markets, capital, and know-how.

The motivations for integration strategies between ports and land-side supply chain stakeholders are as follows: demand complementarity, increased bargaining power vis-a-vis shipping lines, improved quality of integrated logistics services, and lower total logistics costs through shared resources and expertise (Woo and Pettite, 2009). The coordination of actors, including terminal operators, freight forwarders, container operators, and the port authority, is critical to the quality of port and supply chain stakeholders associations and port-hinterland relations (Van der Horst and De Langen, 2008). The strategy of developing port networks with hinterland nodes and dry ports has become widely accepted as a viable strategic option for port economic and social sustainability (De Langen and Chouly, 2004).

Harbour specialists and terminal administrators supply chain techniques include "inclusion procedure" by attracting lines through concessions or leases, "integration technique" in arrange to diminish exchange taken a toll and give more productive administrations by advertising intermodal exchange conceivable outcomes and by compelling arrive is arranging (Notteboom, 2009) and "dominance procedure" in arrange to capture haggling control by demonstrating specialized and devoted terminals and vertical

and even harbour specialists, terminal administrators and shipping lines, are a implies for harbour specialists to tie shipping companies to terminals and hence diminishing the deal control of these lines certainly in the event that there's competition between distinctive terminal administrators (Heaver, Meersman, Van de Voorde, 2001) interdependency among harbour specialists and terminal administrators comes from the concession assertions.

According to Meersman et al., (Meersman, Van de Voorde, and Vanelslander, 2009) study, supply interrelationships are highlighted between two parties, port authorities and terminal operators, who form the key port actors. Within resource dependence theory, the influences of port supply chain stakeholders on port sustainability are built around the main themes of interdependence, power imbalances, and strategic options. Furthermore, the chosen strategic instruments for managing dependency and strategic options are drawn from the shipping and port literature.

As the first theme, the types of interdependence among each pair of stakeholders are described using Pennings' (1981), Frooman's (1999), and De Martino and Morvillo's (2008) classifications of horizontal, vertical, pooled, and indirect interdependence. As the theory's second theme, power imbalance in the port environment is related to horizontal and vertical integrations among supply chain stakeholders, particularly shipping lines, which are the primary clients of ports. The fundamental assumptions linked with power and control is resource availability and resource control. Ports that control the combination of financial, human, and organizational relationships as vital assets wield power and govern the supply chain. However, the availability of resources is inversely proportionate to power and control. The greater the power of port stakeholders, the more pressure they exert on

ports. This pressure manifests itself in three ways: economic, social, and environmental factors, in accordance with the triple bottom line philosophy of sustainability. While supply chain stakeholders with whom ports conduct business, such as shipping lines and shippers, exert economic pressures due to competing commercial objectives, community and public stakeholders impose social and environmental constraints as a result of port negative externalities. The third topic of resource dependence theory employs the insertion, integration, and dominance tactics proposed by Jacobs and Hall (2007), which form the strategic alternatives that stakeholders pursue.

Aside from the constructs reflected in the framework, crucial components of stakeholder relationship management for port authorities to consider include a clear mission statement and strategic intent, senior management's abilities, and succession in collaborations. Ports and their stakeholders should address the needs for long-term stakeholder relationships, such as sharing information and the same corporate philosophy, collaborative spirit, mutual trust, and keeping stakeholders' common and conflicting interests at a manageable level. The overall evaluation of stakeholder management capability, effective stakeholder communication and consultation, stakeholder involvement in port-related decisions, stakeholder durability and stability, stakeholder satisfaction and commitment in the stakeholder relations management process may all contribute to port sustainability.

4.3. Summary

The preceding paragraphs' major objective is to present a different viewpoint on the port sustainability idea in terms of stakeholder relations and influences, because organizational interrelationships are recognized as one of the essential assets in today's corporate climate. One of the most significant conditions for sustainability is the ports'

ability to exploit interorganizational long-term partnerships with various supply chain parties. Although the constructs are discussed independently in recent literature from various disciplines such as strategic management, social responsible marketing, political economy, supply chain, shipping, and port business, they are integrated within the framework to indicate organizational interrelationships and strategies. Port authorities can consider the managerial implications of these paragraphs by taking on a collaborator and integrator role by developing platforms facilitating collective action and managing common interests of different stakeholders regarding performance issues, networking and cooperating beyond port boundaries, ensuring information exchange by investing in port community systems, and strategically collaborating in supply chain networks to achieve their goals.

5. Case Study: PPA Stakeholders & Sustainability Action Plan

5.1. The port of Piraeus

The Piraeus port is one of the largest ports in Europe and the largest natural port of Greece, as well as it is Piraeus's first port. In terms of maritime travel, it is also regarded as an entry and exit point for Greece. It is one of Europe's oldest ports, with operations dating back to roughly 2000 BC. Because of its strategic location, the port of Piraeus has been in continuous operation since antiquity and has contributed to Greece's consolidation as a major naval force. In modern times, the port of Piraeus has grown to encompass the entire shoreline from the school Dokimon in Piraeus to the port of Perama.

Moreover, Piraeus' port has a significant strategic importance. After the Suez Canal, it is regarded as the European Union's first port. Furthermore, the port is situated in the heart of the region of south-eastern Europe and the Black Sea, providing access to three

continents (Asia, Europe and Africa). Another benefit is that it is in the midst of the Aegean and can serve all shipping routes to the islands. It is also only 10 kilometres from Athena's core and part of a larger urban region with a population of 4 million people (Vaggelas, Tsatsaronis, & Pallis, 2019). The current port of Piraeus is divided into the following areas:

- Central Port - Shipping Port
- Cruise Port
- Port Car Terminals
- Container Station (SEMPO)
- Shipbuilding and repair zone

The passenger port was the main port and the cruise port. The commercial port is the SEMPO and the Car Terminal.

In more depth, the port of Piraeus and in general PPA (the port authority of Piraeus) has the following infrastructure in terms of passenger and commercial areas.

Starting with the passenger area, the port of Piraeus served as the primary link between Greece and the Aegean islands and Crete. Piraeus is Europe's largest passenger port and the first port for passenger traffic (about 20,000,000 passengers per year), bringing in over 9.7 million euros (PPA, 2015). There were around 2.5 million automobiles in the passenger port as well (PPA, 2015). The port is linked to fixed modes of transportation like as electric and suburban. For passenger service, the port has four air-conditioned passenger stations. There is a ferry connection from the port on a daily basis (PPA, 2015). PPA also has a bus for passenger transportation within the port, which is given free of charge (PPA, 2015). There is full-length internet access available via Wi-Fi (PPA, 2015). Furthermore, the

port cruise of Piraeus has the benefit of being placed in the heart of the Mediterranean's tourist destinations (PPA, 2015). It is also near the vast island complexes of the Aegean and Ionian seas. Piraeus' cruise port is home to over 600 cruise ships (PPA, 2015). It includes three cruise passenger stations totalling 13,000 square meters and 200 parking spaces (PPA, 2015). The port is open 24 hours a day and provides guests with free PPA bus service within the port (PPA, 2015). Also, the cruise port is ISO9001 & 2008 accredited in passenger management (PPA, 2015). In 2014, the port of Piraeus handled over 1.9 million cruise passengers, generating 11.9 million euros in revenue (PPA, 2015).

Moving forward to the commercial area of the port, the port of Piraeus is a centre for car transshipment in Eastern Europe, particularly at commercial ports and car stations (Car Terminal) (PPA, 2015). Its facilities include two piers with a combined size of about 190,000 square meters and a length of 1.5 kilometres. The Car Terminal is linked to a railway line that connects the train station to the town of Thriasio Pedio. Car traffic is estimated to be over 500,000 automobiles per year (PPA, 2015). The ship's port service system such as water supply, repairs and the waste management are provided in addition, to the index of car terminal losses is lower than the national average (PPA, 2015). Worth mentioning is the fact that in 2014, 359.6 thousand vehicles were traded, bringing in around 11.9 million euros. The Container Station is made up of three piers. Pier 1 is operated by PPA, Pier 2 is administered by S.E.P. (Container Station Piraeus), a COSCO subsidiary, and Pier 3 is a substructure (50 per cent built) (Vaggelas, Tsatsaronis, & Pallis, 2019) SEMPO's port is one of the busiest in terms of cargo movement (PPA, 2015). It serves as a transshipment hub for goods in the Mediterranean and the Black Sea (PPA, 2015). It also has train connections to Eastern Europe and the Balkans. For ships, SEMPO has an integrated

port management system (water supply, repairs, garbage management, and so on) (PPA, 2015).

The port as a company & its management: The Piraeus Port Authority was the port authority in charge of the Piraeus port. Following a friendly settlement, the Greek government handed over operation of SEMPO's pier 2 to the business SEP, a subsidiary of the Chinese company COSCO, in 2013. Following an international public tender, the Greek state sold a majority holding (64 per cent of the shares) in COSCO held by the business PPA for 250 million euros in 2016.

The organization chart of the PPA consists of:

- 2 General addresses
- 14 addresses
- 3 services
- 51 sections

PPA employs over 1250 people in various categories (PE, TE, HR), which is a very important factor for the local communities. In the departments of coastal shipping, car terminal, and freight management, the organization works with a total of ten shipping companies “We work with ten cruise lines on the cruise” (PPA, 2015). PPA has also received Lloyd’s certification in solid and liquid waste management ISO 14001: 2004 and ISO 9001: 2008 (PPA, 2015).

Sustainability Port Piraeus: Combining the information analysed in the previous chapters and the general information for the port in discussion, there is almost everything mentioned before diving in the main part of this case study, the only thing missing is an

overview of the current state of the port's sustainability. As previously mentioned in the "stakeholders categorise", there are a lot of environmental consequences that all the living species around the port are getting effected by the port, and in the paragraph below PPA actions are mentioned, all of those actions were project materialised by the PPA and its stakeholders, because the connection between the port sustainability and the stakeholders is more a necessity than an voluntary cause.

For PPA S.A., protection and preservation are concepts inherent in the port's development and sustainability strategy, and they thus take all necessary preventive and corrective measures required by relevant legislation, and in fact go above and beyond with the important collaboration with the stakeholders, implementing a series of actions in this direction. They are committed to improving the quality of services provided, their environmental and energy performance, and establishing quality, environmental, and energy objectives for the management of significant risks and opportunities, key environmental aspects, and key energy uses in accordance with PPA's Unified Quality, Environment, and Energy Policy. These goals are constantly checked and reviewed. Internal inspections are also conducted on a regular basis, and the Management reviews the performance of the Unified Quality, Environment, and Energy Management System, the attainment of the objectives set, and supports steps to ensure continuous improvement through the Reviews. Their performance and achievement of their goals are communicated externally to all stakeholders as well as internally to ensure that all employees are kept up to date. Electricity, for example, accounted for 58 per cent of total energy use in 2019, falling to 57 per cent in 2020. Also diesel fuel, which is used by cargo handling gear, accounts for 35% of total energy used, in both 2019 and 2020. Electricity usage fell by 6% in

2020, as projected owing to the COVID-19 epidemic. One of the projects that helped this outcome was the installation of photovoltaic power plant, for power generation as well as the availability of energy derived from renewable sources. The installation of a photovoltaic power plant provides enormous benefits to society, the energy market, and the natural environment.

Concerning pollutant emissions from the port, they conduct an integrated program for monitoring air pollution via a specific monitoring station to identify the company's emissions of gaseous pollutants. Also, the restoration work on the Container Terminal building's planted roof was commissioned in 2020, under the supervision of the PPA's Administration Department. A total of 1,800 new plants were planted on an area of 800m², and an appropriate automatic irrigation system was built. Furthermore, regarding the waste generated from the operation of port facilities, PPA S.A. bears full responsibility for the handling of all its trash as part of its efforts to conserve the environment and protect it from any unwanted impacts. Household waste, recyclable packaging materials (blue bins), hazardous and operational waste taken for reuse/recovery (given to collective alternative management systems, etc.) are all examples of waste. Household waste is eventually landfilled, recyclable waste is transferred to Recyclable Materials Collection Centres for reuse, and operational waste goes through separate recovery and reuse processes.

All of those actions were not simple decision to be made. Those projects required budgets that needed to be handled with a strategic approach in order to get the correct and efficient results needed. A very good example of lower categories stakeholder involvement in a project is the PPA's "Atmospheric Environment Quality Monitoring Programme". PPA S.A. has been implementing an integrated air pollution monitoring programme through a

dedicated monitoring station since 2009, in collaboration with the National Technical University of Athens, in order to determine, assess, and quantify the port's gas emissions and to develop appropriate actions and operational techniques for the protection and improvement of air quality in the port area. This collaboration is important for all the participants; PPA S.A. will receive fresh ideas from the university, new methods to improve, and the university as a stakeholder is heard, has the chance to actively participate and of course help the port go green (PPA, 2020) This is just a small example of how the stakeholders collaborate with companies.

All the general information above, for the port of Piraeus, mean only one thing that this port is continuously evolving. During all of those years, the PPA had, has and will have on-going investment programs for its sustainability and expansion.

5.2. The action plan for a sustainable and low-carbon port of Piraeus

Having introduced the main purpose of combining forces of port authorities and their stakeholders, it is time to assess the procedure from the beginning of when a company states a project idea, to how are the stakeholders chosen, how do they communicate and what are the stages in general before a project is approved and put into action. The project picked as a base for this case study is the “The Action Plan for a Sustainable and Low-carbon Port of Piraeus”, which took place in 2019.

Part 1: Firstly, any action plan must establish the right context for a full discussion and understanding between of the two interventions on which PPA will concentrate. Also, for both interventions, a detailed mapping of existing port activities is usually carried out in order to assess existing inefficiencies and gaps with the stakeholders, and the selected measures and technologies are to be presented after a carbon footprint and energy

assessment is elected, taking into account all available planning instruments at the local and regional levels. This is the requested form of an action plan, which is ready to be presented and approved. In order to get this form multiple formal authors are required, as well as a partner who is responsible for the supervising.

In order for everyone involved to understand what project needs to be created, firstly the problem and its theory must be fully examined. In this case, the definitions are “sustainable port” and “how big is the ports operations?” in order to understand the scale of the pollution. For that reason within the action plan a full description of the current port’s operations need to be mentioned. For instance, as per the previous paragraphs were the terminals of the port were discussed. It is important in the report to be mentioned all of the PPA’s facilities, such as the ones from the coastal shipping and cruise terminal, whose volume in 2019 was about 20 million passengers per year (including ferry traffic between Salamis and Perama, which has a throughput volume of about 8 million passengers per year), and it serves as the main link between the mainland and the Aegean islands and Crete, as well as the European Union’s main sea gate at its southeaster edge. Another essential point for the report is while mentioning the operations to mention as well the opportunities that are offered, as can be said in the 2019 PPA report, the cruise sector has 11 spaces for vessels to berth at the same time and can accommodate even the largest cruise ships, that may imply the possibility of bigger pollution than expected from a sustainability point of view, but it also means that it would benefit the national economy since the creation of new job opportunities and an increase in revenue from tourist exchange currency.

These are very important factors that need to be taken into consideration once the action plan will be presented. As mentioned throughout this thesis the sustainability does not aim only at the environmental situations, it is a combination of safe and health, environment, climate and energy, but also people & employment.

Moving forward, the action plans analyses the activities of the rest of the terminals, such as the container, the general cargo and the car terminal. A general overview would be that the container terminal in 2019 PPA SA's freight activity, with an annual capacity was 1.000.000 TEUs, since there are three berths: East1 (500m length and 18m depth), East2 (330m length and 11m depth), and West (320m length and 12m depth). In the same way the general cargo terminal is presented, as well as the car terminal.

Then again, besides the terminal status presentation, it is necessary to take into consideration and address the general utilization of land areas, for example how many cafes or any other shops are in the area, as well as the ship repair zone. The Piraeus Ship Repairing Zone, resulting in the continuous use of floating and dry docks and the establishment of approximately 475 relevant companies (200 steel and piping, 80 mechanical works, 70 painting & sandblasting, 50 electrical works, 20 wood works, 30 other, 25 yacht and mega-yacht shipyards), totalling approximately 5,000 employees, with an annual turnover of approximately 500 million euros in 2011.

In brief, part 1 of the action plan is setting the foundations for how big the problem is, what resources are available to be use by the future team, how far may the problem extend, which results to who will be considered as the stakeholders of this project and what justifies there involvement.

Part 2: Subsequently, the sustainability report must be introduced right after part 1, mainly what part 2 is including, is an overview of the sustainability projects, actions and their results of the port, as it was presented in the introduction of the port of Piraeus. These factors contribute to the creation of a SWOT analysis in which the main focus is on the two environmental interventions that were selected by PPA for its action plan.



Figure 5.1 SWOT analysis for two environmental interventions covering carbon footprint and energy management, (Sustainable and Low carbon Port Action Plan, PPA, 2019)

Practically, this SWOT analysis is the general outcome of all the results from the sustainability aimed projects and actions of the PPA, which also completes the foundations

of the needed information in order to start part 3 which is the stakeholder process of the action plan.

Part 3: Prior to getting into the information of the stakeholders mentioned within an action plan, some further things should be acknowledged.

Originally, a port's stakeholder is defined as any person (including a partnership, an association, a body corporate, or an individual) or organization that uses the port for economic purposes, offers services directly or indirectly at the port, or may be influenced by any on-going port activity. The applicant is the person or entity in responsibility of submitting an environmental project permit application to the PPA S.A. on behalf of the person or entity with lawful tenure on the subject port authority land. While port-related activities may provide local, regional, and national benefits, the port authority acknowledges that they may also have an impact on stakeholders who live, work, or operate in or near port areas. The port authority may seek input from stakeholders, which may include municipalities, industry organizations, port tenants, and other agencies that may be directly impacted or have a specific interest in a proposed project, as part of the environmental evaluation process. As part of the port's environmental evaluation process, all stakeholder consultation activities will be led by port authority workers, with the applicant's participation. As part of the environmental evaluation process, public and aboriginal consultation may be required.

The upcoming steps after the stakeholders have completed their application process, are firstly, the inaugural SUPAIR project activity, the first meeting between operators and PPA SA, which took place on April 23, 2018 at the latter's facilities. The meeting's major topic was the challenges and opportunities involved with implementing efforts to make

ports more sustainable and less carbonized, which is all the information mentioned in part 1 and part 2 of the action plan. Mr. Elias Bellos, a journalist from a national newspaper with vast expertise in the sector and true competence in managing round tables and interactive forums, moderated the discussion.



Figure 5.2 Relevant stakeholders for the implementation of the Piraeus Port's Action Plan

Next, the Focus Group Agenda was created with the primary goals of developing a carbon-footprint system and managing energy in the port region in mind. It was made up of four discrete seminars that covered carbon footprint and energy management in a 5-step process: “1) identify and present the impact of port environmental issues to stakeholders directly or indirectly related and/or affected by them, 2) assist in the management of

environmental issues and needs as part of a corporate responsibility commitment, 3) gain support and enhance cooperation introducing common measures of actions with stakeholders, 4) provide greater understanding of the effects of environmental performance on a port, local, regional and national level, 5) potentially improve port environmental measures and adapt new ones taking into account additional external impacts.” (Sustainable and Low carbon Port Action Plan, PPA, 2019). The Sessions presented were the following:

- “• Session I - SUPAIR Project: Presentation of the SUPAIR project and the strategies and priorities of PPA towards a more environmental friendly management system

- Session II - Development of a carbon footprint system: Presentation of existing practices within PPA and future planning strategies, analysis of optimised applications and techniques

- Session III - Development of an energy management action plan: Presentation of existing practices within PPA and future planning strategies, analysis of optimised applications and techniques

- Session IV - Concluding discussions: Discussion on the main items presented and comparison analysis of the various techniques presented in the two sectors.” (Sustainable and Low carbon Port Action Plan, PPA, 2019)

Thematic Session I: Information about the project SUPAIR
• Presentation of SUPAIR and its main targets
• Presentation of the Focus Group's objective
• Presentation of PPA's priorities - Identification of port harmonization issues and strategic plans
• Presentation of participants
Thematic Session II: Development of Carbon footprint system
• Presentation of environmental port activities - Port-Ships
• Applied practices for the reduction of pollution - Deficits and Prospects
• Investigation of best practices to reduce pollutants
• Environmental objectives and solutions of modern port organization, operation and development
• Discussion – Challenges and opportunities
Thematic Session III: Development of Energy Management Plan
• Existing energy management of PPA
• Energy management at regional level
• Energy management of ports
• Implementation of technologies for the improvement of energy efficiency – electricity
• Implementation of technologies for the improvement of energy efficiency – renewable forms of energy
• Discussion – Challenges and Opportunities
Conclusions
• Presentation of meeting results
• Planning of next steps

Figure 5. 3 The detailed agenda of the SUPAIR project sessions, (Sustainable and Low carbon Port Action Plan, PPA, 2019)

The outcomes of the Focus Group Meeting aided in the creation of the "Guidelines for Sustainable and Low-carbon Ports" (Deliverable T1.2.1). The meeting brought together a diverse range of actors, all of whom are involved in the disciplines of carbon footprint and energy management, and who were able to cover various elements of the implementation of plans and actions connected to the port's priorities. During the discussion, several points of view were expressed when discussing the difficulties and potential for sustainable and low-carbon ports, as well as the coordination of port strategies with relevant local strategic plans such as regional transportation plans, SEAPs, SECAPs, and SUMP (existing or under preparation). During the discussion, the dynamics of the PPA were unearthed for both the passenger and container sectors, demonstrating the critical need for long-term interventions, measures, and plans for the port.

1. Development of a system for the detailed calculation and assessment of the carbon footprint of port activities, with the aim to define existing inefficiencies and gaps and investigate, through a best practice review, appropriate measures for addressing them. Special attention will be paid to equipment fuel consumption and alternative fuels (e.g. CNG, LNG, etc.) while for the selected measures, the technical feasibility and financial sustainability will be assessed.
2. Establishment of an energy management plan, with the framework of which an energy mapping and consumption assessment process will be undertaken, enabling to identify the port's main energy consumers and define and prioritize, as a next step, promising technologies that can be implemented for improving the port's energy efficiency. Special attention will be paid to electrification (e.g. use of electric vehicles serving passengers from the cruise terminal) and the wider exploitation of RES (e.g. solar covering the energy requirements of port activities / buildings, etc.).

Figure 5.4 The two important interventions on which the Port of Piraeus Action Plan concentrated on, (Sustainable and Low carbon Port Action Plan, PPA, 2019)

Furthermore, one of the most important factors influencing environmental performance at the port as a whole is the lack of trustworthy recording data on which future port actions and policies can be based. In terms of the carbon footprint system, there is a need for a hybrid system that combines pollution measurements and computations to address the issue of inaccurate data.

Following the conversation, PPAs indicated demands for an efficient carbon footprint system and an effective energy management plan and for its creation many aspects were stressed out, such as carbon energy management, ship electrification management, use of alternative fuels and many more.

All of the aforementioned difficulties necessitate the cooperation of various organizations and specialists in order to produce the desired results; thus, all participants emphasized the importance of proper coordination and collaboration amongst concerned bodies. An examination of where each stakeholder will contribute and in which needs, is evaluated, and with this information the framework evaluation will be discussed in the following paragraphs.

Part 4: Diving in the evaluation framework, which serves as the foundation for accurate reporting and enables the identification of best practices and bottlenecks, which can be used to develop new Action Plans as well as to adjust and tailor existing Action Plans and strategies. The evaluation framework is a vital planning and management tool that should be shared with port workers as well as important stakeholders and policy decision makers. It should support the design and review of defined objectives as well as the process of continuous learning. As a result, it enables PPA and the stakeholders, to discover areas where they may have failed to make an impact or where they may have had an unintentional negative influence. As a result, the proposed evaluation framework is comprised of seven core steps, which are listed below:

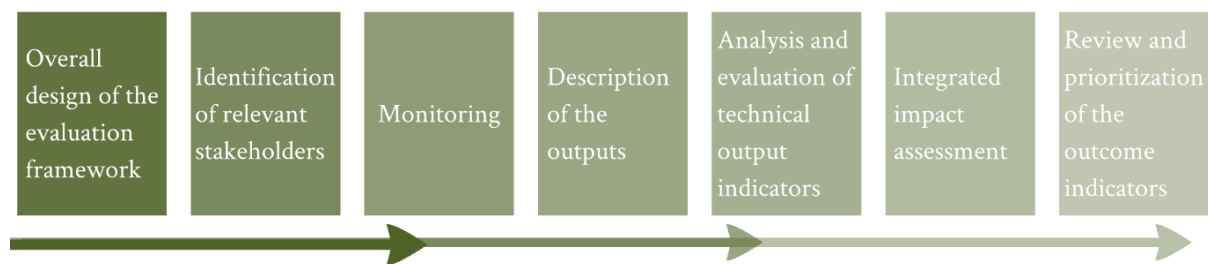


Figure 5.5 Evaluation Framework Methodology, (Sustainable and Low carbon Port Action Plan, PPA, 2019)

Also, in order to ensure its effective deployment, the aforementioned of the above evaluation framework is divided into three distinct phases, which are the preparatory phase, the implementation phase and reporting phase.

One of the essential points of part 4 is that the first step of the suggested methodology is the overall design of the assessment framework and the identification of the relevant activities and instruments within it, which is critical for the efficient monitoring and evaluation of the produced Action Plan. Following the deployment of the assessment framework, the overall design is the identification of the target. The major goal is to create a

financial, socioeconomic, and environmental impact assessment for the suggested action plan in order to demonstrate its efficacy and highlight the best practices and problems that have been exploited and faced, respectively. The output indicators that will be used for the evaluation and assessment process should then be identified. For example the net purchases of energy, electricity consumption kW in buildings, electricity consumption kW on site, energy consumption on site, energy cost, fuel consumption, fuel cost and many others.

Following that, one or more milestones can be defined to aid in monitoring the progress of the Action Plan during its implementation. A milestone is an expected intermediate value of an indicator at a pre-defined point throughout the monitoring and evaluation process's implementation. According to the nature of the indicators, the milestones will be set quarterly and annually. Indicators that change quickly will be measured every three months, whereas indicators that change slowly and have a supportive function will be measured once a year. Afterwards is in line the monitoring process, which is required to check how the planned actions are moving, in order to discover the operational challenges that come up, and to alter as many operations as needed to achieve the set goals. Monitoring is intended to improve the efficiency and effectiveness of the action plan, as well as to ensure that proposed actions result in results/outputs. During the implementation of the action plan, the monitoring procedure will be carried out. Moreover, four steps are left the description of the outputs, the analysis and technical evaluation of output indicators, most importantly the integrated impact assessment and the review and prioritisation of the output indicators. A few words on what is the integrated impact assessment, it is the immediate outcome of the action plan on the financial, socioeconomic, and environmental sides are studied in this step of the evaluation framework. The impact

assessment's goal is to provide a set of quantitative and qualitative characteristics that will guide and support PPA in making further choices following the implementation of the action plan and in combination with the review process the action plan remains efficient.

Part 5: In this part of the action plan, the solution design is presented following 3 main pillars which are legislation – best practices – PPA priorities, and of course via the approach of plan – do – check – act.

Focusing of the 3 pillars firstly, with the "legislation" pillar takes into account energy, environmental, transportation, and other related legislation, which are categorized as International, European, and National Regulatory Frameworks, such as Paris Agreement, IMO 2020 Sulphur Regulation, Directive 2018/844 (EU), Greek Law 3855/2010 and there are many more. In the second pillar PPA priorities, a detailed analysis was presented demonstrating PPA's actions and how they impact the environment and the quality of life in the local community. Lastly, the "Best Practices" pillar tracks the growth of other ports and stays current on new technologies and practices aimed at "low emissions" ports through corporate alliances and communication, as well as participation in national, European, and worldwide seminars and conference. The most applicable best practices have been identified, evaluated, and incorporated into PPA's goals and priorities. It should be noted at this point that the engagement with relevant stakeholders and professionals was extremely beneficial in providing important input about present practices and prospective innovations, as stated directly from PPA.



Figure 5.6 The approach of plan – do – check – act (Sustainable and Low carbon Port Action Plan, PPA, 2019)

The system described above will identify the primary energy sources in the port, provide real-time consumption data, and analyse the energy-saving potential of recommended actions. Following that, the action plan will introduce measures to improve the PPA's energy efficiency, such as the use of LED lighting for indoor and outdoor lighting with control systems, the use of renewable energy resources to cover a portion of the energy demand, the electrification of port equipment, and energy saving interventions in buildings, both active and passive energy systems.

Part 6: The action plan measures in this part will be designated and implemented in accordance with the Deployment Strategy, allowing PPA to achieve successful

implementation and maximize the projected results. The diagram below depicts and sums up the steps required to be put-in the chosen measures into action.



Figure 5.7 Deployment Strategy for the Action Plan (Sustainable and Low carbon Port Action Plan, PPA, 2019)

Part 7: It is very important for PPA before and during the implementation of the action plan, to be in constant coordination with relevant plans. More specifically, a succession of development plans have been carried out in accordance with local, national, and international principles in order to identify, analyse, and create interventions for the city-port of Piraeus with the goal of increasing the attractiveness of Piraeus and improving life quality. Recognizing that the port of Piraeus is located within the city, all plans have taken into account the functions that define the city's interface and interoperability with neighbouring municipalities, as well as port functions (e.g. traffic infrastructure and flows, repair and manufacturing activities, logistics, supplies, development and management of

the "maritime cluster", utilization and reuse of industrial zones and large public real estate, etc.).

The current development plans in the Piraeus area were reviewed inside the SUPAIR Action Plan, and an alignment with their scope was assured, so the plans' priorities have been carefully considered in the suggested actions, to the extent that the port's needs are also adequately met. The picture below depicts the many local Preparation Plans that were considered in the development of the SUPAIR Action Plan.



Figure 5.8 Development Plans for the Piraeus (Sustainable and Low carbon Port Action Plan, PPA, 2019)

Part 8: This last part intends to help PPAs and policymakers better understand the proposed PPA Action Plan. Sustainability Impact Assessments (SIAs) will offer stakeholders with a thorough examination of the potential economic, social, and environmental

consequences of the SUPAIR Action Plan actions. In greater depth, SIAs serve numerous functions, including:

- “• Providing information for the recommended actions.
- Assessing the actions from an economic, social and environmental view.
- Providing solutions for possible negative results.
- Ensuring that the related policy choices are optimised.” (PPA, 2019)

In this phase the stage the stakeholders’ part is the "delineation analysis" and refers to the involvement of their various stages of the sustainability impact assessment process. In greater detail, stakeholders will be involved in three ways in this stage, interviews, questionnaires and focus group meetings.

6. Conclusion & Recommendations

The stakeholders became a valuable part for each and every profitable organization. According to the history background and the extended explanation of the stakeholder theory previously, the understanding of it was that even before the term of “stakeholder” existed its meaning did. More specifically, from the early prehistoric ages in Greece, in order to keep the maritime industry active, there were a lot of members (sailors, fishers, traders etc.) that were co-organized so that they would all have a positive outcome from the industry. The same image is seen nowadays as well, but in a much broader extend. The fact that throughout all the years subconsciously the stakeholders gave their advices, shared experiences and provided to the Greek maritime industry, as they could is a very strong base to why they continue to be valuable advisors to problem solving and brainstorming for any project. They bring to the table, each one

based on their specialty, practicalities that a port would not be able to identify on its own.

The action plan break – down, helped to identify the exact stakeholder management process by a port whole through an action plan. Questioned like “Where are the stakeholders useful? Why are they included in the process? Or How are they included and in-contact with the port authorities?” where answered. There are no obvious results in the numbers of any monitoring process during the action plan that the stakeholders are of use, but their results are shown by the efficiency and the smooth flow of the process of the action plan. They make sure no problems come up and if they do, they make sure to identify them on time and come up with the best solution.

In my opinion, in our nowadays society in Greece the term and power of the stakeholder management is not widely spread. The citizens, especially the ones settled near the port areas, are not well educated on the matter. They usually are not even aware of the on-going projects. Therefore, the maritime industry lacks of a percentage of people that could be proven very helpful in some future project, and the unaware citizen is “denied” the option of helping and being part of it. There are a lot of stakeholder communities not yet identified due to the fact of people not being educated on it. This knowledge should not only be spread through the universities that the students attend but also via other ways, for example community events to raise awareness or advertising the upcoming projects in order to attract people into learning more about it.

Any community that is profiting from a large port such as Piraeus port, instead of only taking what the port is offering and making the port authorities to take care all the

consequences of an over-used port, in order for it to keep proving, the community should as well give back.

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