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Seaplanes operations assessment: strategic plan for application to Greek regions

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BUSINESS
SCHOOL

Department of Marketing, Strategy and Operations

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To all the special people who were there to support me

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Resumo

A seguinte dissertação será apresentada segundo a forma de um plano de negócio inovativo com o objetivo de estabelecer um negócio rentável de operação de hidroaviões para aumentar a conectividade entre as várias ilhas presentes na Grécia.

De forma a atingir os objetivos propostos na tese foi elaborada uma extensa revisão de tópicos importantes ao tema entre os quais a conectividade dos transportes, a integração dos hidroaviões ao sistema de transportes e estratégia de negócios. Estes temas garantem um profundo conhecimento inicial sobre os temas a serem estudados servindo como uma forte base para a elaboração do plano. A tese apresenta um background específico para o país em estudo no qual são apresentadas algumas deficiências com o sistema nacional de transporte e como os hidroaviões podem contribuir para melhorar o mesmo.

Serão ainda apresentados casos de sucesso noutros países que servem como guia para a elaboração do plano estratégico. Neste é apresentada a análise global do mercado e ainda a análise interna e competitiva que é essencial para a empresa. Para melhor guiar a estratégia foi ainda realizado um inquérito a uma amostra de residentes gregos e pessoas que já estiveram no país.

O plano conta ainda com a formulação da estratégia e da definição dos valores empresariais que servirão como guia para o sucesso do negócio, os fatores críticos de sucesso, e a forma de como proceder à implementação deste. A tese culminará com a apresentação do balanced scorecard que servirá para assegurar o controlo da estratégia implementada.

Palavras Chave: Hidroaviões, Estratégia, Plano Estratégico, Grécia

JEL Classification System: M13, L93

Abstract

The following dissertation will be presented in the form of an innovative business plan aimed at developing a profitable seaplane operation business to increase connectivity among the various Greek islands.

To achieve the proposed objectives of the thesis, an extensive review of key topics was carried out, including transport connectivity, integration of seaplanes into the transport system and business strategy. Such topics provide a strong initial understanding of the theme to be studied serving as a strong basis for the elaboration of the plan. The thesis offers a specific background of the country under consideration where some deficiencies are presented regarding the national transportation system and ways in which seaplanes can improve it.

Successful cases are also presented for other countries providing a guideline for the development of the strategic plan. In it, the global analysis of the market is presented, as well as the internal and competitive analyses essential for the company. To further drive the strategy, a survey of a sample of Greek residents and past visitors was conducted.

The plan includes the formulation of the strategy and the definition of the business values that will contribute to the achievement of the company targets, the critical success factors, and how to proceed with its implementation. The Strategic Plan will culminate with the presentation of the balanced scorecard that will be used to ensure control of the strategy implemented.

Keywords: Seaplanes, Strategy, Strategic Plan, Greece

JEL Classification System: M13, L93

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CHAPTER 1

Introduction

1.1. Background

The aviation market is a highly complex industry which has experienced gigantic growth in recent decades. Already entering a slower growth in more developed regions such as Europe and the United States, it has received significant annual growth rates in the Asian market and most recently in the African market (IATA, 2018). Supported by the increase in household income, lower travel prices resulting from increased competitiveness in this market and more efficient use of routes the growth in regular aviation raises certain challenges. Some airports face capacity problems as stated by the International Air Transport Association, (2018) which are called to solve by expanding their facilities while others are no longer able to expand any further thus creating the necessity of building a new major or secondary airport.

However, some countries can invest in other modes of transportation operating as an alternative or as a complement to the already existent national transportation system, one of them being the seaplanes. Seaplanes allow connecting by air regions close to the water, be it sea, oceans, rivers or lakes. Many journeys that are currently done by planes could perfectly well be made by this type of vehicle, freeing up ground airports for long-distance travels.

Such travels occur mostly in remote regions such as islands and areas where the construction of an airport is seen as an unnecessary cost or even impossible such as in several areas in the North American continent. With the use of seaplanes and the construction of seaplanes bases, regions that once lacked connections are provided with an important facility enabling them to have a better connection to other geographical locations. In addition to giving the population of these regions greater connectivity, it also encourages more visitors to these areas, thereby fostering economic growth through an increase in the number of tourists.

In terms of environmental benefits, the results of the fuel consumption of seaplanes are encouraging as, when compared with aeroplanes, their fuel consumption is significantly lower due to the slower speed of this mode of transport, resulting in less fuel being consumed and therefore less pollution (Gobbi et al., 2011). The same authors further note that in comparison to boats it is estimated that a seaplane is more polluting per minute of flight but on the other hand its speed is faster than boats which leads to the travel being considered less polluting overall.

There is still insufficient research on this subject at the European level, lack of regulatory framework at the European level and not enough incentives to invest in this mode of transport. Contrary to the North American continent in which this mode is widely used by its citizens regularly and in

countries such as the Maldives in which it acts as the preferred mode of transport to take visitors from the airport to the resorts where they will spend their vacations.

Due to the little research developed at European level on this topic and given the extended coastline of European countries, it is intended with the elaboration of this thesis to increase the knowledge that can serve for the development of seaplane businesses.

1.2. Objectives and Methodology

As previously mentioned, this research aims to analyse the operation of seaplane through a case study focusing on the introduction of a possible strategic plan for the establishment of a seaplane network in Greece considering the challenges attached to its development but without neglecting the potential offered by this transport mode.

This area has been under-researched by both scientific and industrial communities, and for this reason, the plan intends to contribute to this early stage of considering seaplanes as a mode available in transport /mobility systems.

As it will be discussed in Chapter 2, the major highlights of academic research on seaplanes are based more on the mechanical and technical level of the infrastructure required for operations such as the design of seaplane bases and at the level of the aircraft itself with a special emphasis on the development of seaplanes powered by renewable energy. Furthermore, other research has been carried out on the routing and commercial potential of these routes in Europe and Asia but limited research has been carried out in the development of a strategic plan that can serve as a basis for the development of seaplane operations.

The methodology of the work was built by combining research from various research projects that served as the basis for understanding the key points of this industry, the strengths and the challenges it has to overcome. In this type of research, the study funded by the European Commission "Future Seaplane Traffic" is highlighted since it brought together several key inputs for a comprehensive understanding of the industry at the European level. In addition to the topics directly related to the seaplane industry, the best strategic tools for the elaboration of the strategic plan are explored in conjunction with the project's implementation and control. The subjects of transport planning and its management are therefore merged in the thesis.

To analyze the potential of this new transport mode and the perceptions of potential users, data was collected through a survey distributed to the Greek population regarding the willingness to use this service, the features they valued the most and the value they would be willing to pay for the use of this service.

1.3. Structure

This thesis is developed in four distinct chapters. The first chapter refers to the "Introduction" currently under consideration and intends to clarify the purpose of choosing the topic, the objectives intended with the elaboration of the thesis, the methodology to be used and finally the structure of the thesis.

The second chapter "Literature Review" presents a review of essential literature already developed by other authors in the past and focuses on the themes of "Transport Connectivity"; "Seaplane Business and Integration to Transport Systems" and "Business Strategy".

The third chapter "Business Development of Seaplane Transport in Greece" aims at presenting the current transport system in Greece and its infrastructure, followed by the elaboration of the strategic plan for seaplane operations in the country. The strategic plan will include the analysis of the global environment, analysis of the seaplane industry in Greece, the transactional environment, internal analysis, and then the product and marketing mix. Finally, this chapter will also have a market demand analysis to understand how this product can be put on the market.

The fourth chapter "Insights for Strategy Implementation and Control," will present how this service can be implemented in the Greek territory and how to control of the strategy in the country and suggestions for future research to be developed in this topic.

The fifth and final chapter of the thesis “Conclusion and Suggestions for Future Research presents the final thoughts and main conclusions of the thesis and suggests what should be better researched in the future on this subject.

CHAPTER 2

Literature Review

2.1. Transport Connectivity

The scope of this thesis is the development of a Strategic Plan to link remote regions through seaplanes that unite regions by air in Greece. Air transport can also be carried out through various other modes of transport such as planes, helicopters and even through drones in a near future. All that remains then is to comprehend what air connectivity means.

Burghouwt & Redondi (2013) define connectivity as the degree to which various points in a network are connected. As such, the greater the connectivity the more users will be connected to the external communities. A similar notion is shared by the OECD as referring to air connectivity as network connectivity representing the availability of flights of a single airport or system of airports (International Transport Forum, 2019). It is assumed that in this case not only the number of flights but the destinations of these flights are relevant as well. However, this definition by itself will not be sufficient to establish if an airport provides a high degree of air connectivity and therefore some variables need to be used to further understand this concept. Air connectivity can be assessed in three distinct ways: (a) direct for flights from the airport of origin to the destination without any stops; (b) indirect for flights with one or more stops, and finally (c) connectivity of the Hub in the case where the airport is acting as a transfer point between two networks nodes (International Transport Forum, 2019). Factors such as the average route velocity compared to the optimal route, average travel costs and the number of direct and indirect routes that an airport provides allow therefore to measure the aerial connectivity (Burghouwt, 2017; International Transport Forum, 2019).

The relationship between transport connectivity in terms of GDP and improving the quality of life in society has been highlighted (Eddington, 2006). Expanding the supply of workers and reducing travel times contribute to increasing productivity while investment in transport services generates welfare gains as it makes society more mobile (Eddington, 2006).

Van Houts (1984) argued that the increase in international trade and the refinements in commercial air transport in the 1950s, including lower ticket prices, comfort and speed, were the major drivers of mass tourism. interVISTAS (2015) further added that the liberalization of aerial transportation has led to an increase in volume passenger traffic. This increase in air traffic generates benefits in terms of production, international business and commerce and most importantly in the growth of GDP (interVISTAS, 2015).

McQuaid et al (2003) emphasize the role that air transport plays in globalisation, stressing out that companies increasingly need to be located near airports given the growth in international trade. The

proximity to airports and good air connectivity allows the business fabric of cities to develop as it stimulates foreign investment and significant gains in terms of tourism (McQuaid et al., 2003).

IATA (2018) forecasted a 3.5% annual growth in air traffic over the next two decades which would mean a doubling of the total number of passengers by the end of 2038. This forecast creates a challenge for the industry, which is starting to experience overcrowded airports with less room for expansion and the need to make intelligent strategic decisions to cope with this growth (IATA, 2018). This estimation was done before the COVID-19 pandemic so it is natural that this forecast may not match the future reality.

Several studies have been made regarding the effects of the increase in air connectivity. Gobbi et al. (2011) studied the effect that the increase in tourist numbers in Kenya due to better air connectivity would have on the improvement of welfare in different households concluding that improvements in GDP and social welfare would be generated by increased spending by tourists. They also found that these increases would be more visible in urban than rural regions (Tchouamou Njoya et al., 2020). Taking into account the factors of congestion of the aerodromes a viable alternative would be the growth of small airports importance which are accustomed to carrying a reduced number of passengers. Redondi et al. (2013) calculated the loss of accessibility if small airports in Europe were to close their operations concluding that overall the loss of connectivity that such airports generate in average travel times would not be of major significance since passengers would travel to airports with greater traffic but having at the same time better connections and consequently shorter average travel times. Moreover, only passengers' costs would become significantly higher if small airports were to close due to factors such as fuel costs and other modes of transport fares involved in reaching farther away airports (Redondi et al., 2013).

One of the reasons that have also contributed to the discussion of seaplane operations is indeed the congestion of airport capacity combined with the need for direct connections between remote regions (Vidan et al., 2016). Likewise, India perceives that seaplanes offer significant potential for the connectivity of its regions. According to the UDAN Scheme (part of India's national transport plan), it foresees the development of the airline network by creating not only new regional airports but also water aerodromes relying on the versatility of seaplanes (The Economic Times, 2019).

Given the importance of good air connectivity and the benefits it can bring to different countries and communities, the development of this connectivity for remote regions should be highlighted.

2.2. Seaplanes Business and Integration to Transport System

2.2.1. Remote Regions

Although there is a perception of what a remote region is, there is no single definition of what it is. Remote regions may contain valuable natural resources and industries connected to the urban areas

hence the reliance on air connectivity can be high however generally the low number of residents in these areas results in insufficient demand to justify the existence of airline operations in such regions (Braathen, 2011).

According to Fageda et al. (2018), a remote region is an area that due to its constraints requires a third party involvement for connecting the region to a more populated or developed area. This third party involvement is the responsibility of the government and can be done in various ways. A region to be remote has to be not only remote in geographical terms but also cultural and institutional terms (Leven, 1986).

Remote areas have not yet been specifically defined and can be defined as isolated regions, financially unattractive regions or remote regions, these terms being often mentioned with the same objective by governmental entities (Fageda et al., 2018). It is then in these regions where the impossibility of developing an infrastructure for rail and road transport due to their geographical constraints that seaplanes have a high potential to become competitive (Castelluccio et al., 2016).

To unite these regions, airlines are usually given benefits to offer and maintain routes to communities that would not otherwise have them, and these are called Public Service Obligations (PSO's) (Wittman et al., 2016). In the United States, this program exists intending to link small communities to the national transport system under the name of essential air service - EAS - (US Department of Transportation, 2016). In Europe, countries have the authority to determine some of the variables in the establishment of public service obligations such as routes and fares, yet countries are required to follow the general legal regime of the European Commission in respect to this service (Fageda et al., 2018).

The areas that receive this type of services are usually areas that do not obtain economic viability all year round or even never and therefore need support. These areas can be islands, outermost territories or regions with political requirements (Fageda et al., 2018).

Fageda et al (2018) argue that as air transport is subject to high fixed costs, it is not profitable in all regions under a liberal market. In remote regions reaching sufficient demand for air services is difficult to make them profitable. Bråthen (2013) believes that air services should only be discussed in those regions that require the involvement of a third party to make this type of service financially profitable. The government may choose to provide the service itself using its funds or to finance a private company to make the provision of the service financially attractive to this entity. This type of transport services intended to cater to a high volume of passengers have already proved inefficient. Therefore the market calls for new, more flexible and personalized services that go beyond the use of fixed networks.

Several regions in Europe have therefore the need for the provision of these services when it is socially necessary for these services to be provided but not financially profitable. Reynolds-Feighan & McLay (2006), argued that the member states of the European Union should then receive provisions for the performance of public bond services.

An example of the advantage of reduced fares from government agencies has been made in Norway, where the finding was that the increase in subsidies given to the population in remote regions would result in a rise of the people willing to travel, as well as surpluses for both companies and the consumers paying less for their ticket and travelling in greater numbers (Braathen, 2011).

2.2.2. Mode co-existence: Competition and Multimodality

After reviewing some of the relevant topics for the paper it is still necessary to understand the advantages to be gained by using seaplanes in competition with other means of transport, whether they are also aerial or not.

Some factors such as low demand in the off-season, adverse weather conditions, high operating costs and insufficiently developed infrastructure affect both air and sea transport (Iliopoulou et al., 2015). Usually, due to economic factors, boat travel is still prefered to aeroplane operations regarding island to island connection (Rigas, 2009). However, other factors such as distance, existent demand and infrastructure or even sea conditions can make the use of a flight route a better alternative (Rigas, 2009).

Another competitive alternative to seaplanes is the helicopters. Castelluccio et al. (2016) studied the potential benefits of helicopter operations as they do not require a highly developed infrastructure to operate and can also transport passengers and in those regards, they are similar to the seaplanes. Although Seaplanes offer comparative advantages especially in terms of speed, comfort and flexibility as they can be functional at sea they do lose out to helicopters in terms of requiring favourable weather conditions, especially in more volatile areas concerning waves and winds (Castelluccio et al., 2016).

Gobbi et al. (2011) highlighted that a seaplane journey is on average 6 to 10 times more expensive than other alternatives such as boats and for some regions high-speed trains. This evidence was proven in Canada in which a trip from Vancouver to Victoria lasts around 30 minutes with an average fee of 150 Canadian dollars (around 100 euros) if it is done by seaplane. In turn, if the journey is by ferry it has a cost of 17.20 Canadian Dollars (about 12 Euros) and lasts on average 1 hour and 35 minutes. The financial proportion is about ten times greater for a seaplane journey, which is more costly but bearing in mind that the same journey is made in about one-third of the time.

According to Gobbi et al. (2011), this ratio was similar when it came to the journey between Malta and Gozo by seaplane with a cost of 5 euros for a ferry journey while the plane voyage was approximately 50 euros, however, there was no evidence that this ratio would remain as the journeys between Malta and Gozo by seaplane are currently at a standstill. Given these arguments, Gobbi et al. (2011) stated that it is unlikely that a network of seaplanes will be successful over short and medium distances since the opportunity cost of losing a few more minutes does not justify the increase in money spent. This factor is even more important when transport networks through other means such as boats, trains and buses already exist (Gobbi et al., 2011).

A prime example of seaplanes' potential for complementarity with other types of transport is found in the Maldives. The establishment of new luxury resorts far from Male airport resulted in the

introduction of seaplanes as an alternative to speedboats (Kundur, 2012). Being introduced in 1997, having already a fleet of 57 seaplanes and transporting more than one million passengers this company "Trans Maldivian Airways" makes the transfer of passengers arriving in Male's airport to the resorts where they will be hosted (*Trans Maldivian Airways*, 2020).

Therefore, provided that the market is large enough to justify the operation of a network of seaplanes, a peak ratio of 10 times is expected to permit service demand. It will also always be necessary to take into account the duration of the journeys and therefore it is expected that short distance journeys will not justify to passengers the increase of their expenses with the acquisition of a seaplane ticket.

2.2.3. Seaplane Base

Seaplane base or seaport is defined as "A designated area of water used or intended to be used for the landing and takeoff of seaplanes and shore side access. It also may include water taxi channels, anchoring locations, ramp service, and possibly on-shore facilities for pilots, passengers and aircraft needs (Federal Aviation Administration, 2018). Quilty et al. (2015) simply defined a seaplane base as a transition area for seaplane operators allowing the planes to change over from sea to land such as the reverse.

These definitions are not very explicit as to whether complementary infrastructure is required or only the body of water is required for the seaplane base to exist. (Seaplanes Pilots Association, 2019) defined the operating water area including landing and departure routes, a water lane to allow for the arrival and departure of seaplanes and ashore link as the basic requirements for a public seaplane base. However, other structures may also be present such as mooring devices, repair shops, anchoring areas, administrative stations, among others (Gobbi et al., 2011).

Quilty et al. (2015) defined three possible goals for seaplane bases, the former being the contribution to the national transport system, the second as a recreational activity for users and lastly the development of local economies with a special focus on remote regions.

Although the requirements may change depending on the country or even region there are common factors that need to be taken into account for the construction of a seaplane base. Factors such as sea currents, the state of the sea reflected and its waves, the average sea level, wind intensity and protection of natural habitats for biodiversity are some of the factors that should be taken into account before construction (*AC 150/5395-1B - Seaplane Bases*, 2013, p. 1). If the construction of the seaplane base will affect its biodiversity as plants and animals, such as seabirds and geese, the project might not be feasible (Gobbi et al., 2011).

Gobbi et al. (2011) emphasized the flexibility of construction of the seaplane bases since they can be built in lakes, rivers or oceans and this, combined with the low investment required, is, therefore, one of the advantages offered. Nevertheless, the lack of standard norms creates challenges on the requirements in the building.

Seaplane bases can be set offshore or onshore and with each of these options, various forms of parking of seaplanes arise. These planes can be parked through mooring buoys or through the use of an anchor in case it is an offshore base (Federal Aviation Administration, 2018). The plane by being stationed at sea brings benefits as not only does it make the process easier, less expensive and allows the process of embarking to be done faster since the plane is already ready to fly (Odedra et al., 2004).

Moreover, when it comes to a shoreline base, the parking of the planes can be done in more ways, such as fixed and floating docks and even onshore in hangars, with the planes departing from the sea through ramps in most cases (Federal Aviation Administration, 2018). The seaplane must be amphibian in these cases so that it can be removed from water through the ramp.

Among the seaplane bases, there are the sea lanes which correspond to the area where the aircraft may take off and land. Pilots usually prefer not to restrict the area as it enables more freedom but within the United States, the demarcation of these areas is necessary for the bases to obtain airport status (Federal Aviation Administration, 2018).

Wagner et al. (2011) highlighted that one of the major problems of seaplane operations in Europe is still the long bureaucratic process and the lack of well-developed and uniform European legislation on the requirements of pilots, aircraft and seaplane bases. In the United States too, although this process is easier, it still takes time, since the development of bases requires coordination of federal, state and local agencies, and the basic requirements for bases may be different, which leads to a prior awareness of the places where pilots may or may not fly (Quilty et al., 2015).

Considering the current literature on this subject, it can be seen that an opportunity exists for different operators to leave their own identity as the demands for the construction appear to be rather flexible except for a few items raised and can therefore vary depending on the perspective of each operator. However, some challenges must be taken into consideration as well as their risks, such as factors related to the water environment and biodiversity and also the high bureaucracy and lack of existing legislation.

To meet these challenges the development of an appropriate strategy to mitigate the risks of failure in implementation is essential. To build an appropriate strategy, the knowledge provided by some authors on this topic must be reviewed, and as such, it is the topic that follows.

2.3. Business Strategy

Strategy is a concept that is naturally present in the lives of all human beings from a very tender age. A strategy is with the available resources at any given time attempting to achieve the final targets which have been proposed. The transitory stage between the beginning and the final objective can be understood as a strategy. Strategy is not a time-bound concept, the external environment ensures that even if the ultimate goals remain the same, how they are achieved can be altered.

It was during World War II that the concept started to gain traction applied to business. Bracker (1980) referred to the rapid change from a stable environment to a chaotic one of warfare led to the

development of the business strategy concept. Bracker (1980) added that this instability brought by the war led the companies to develop a business strategy to anticipate changes to combat external threats, with technological developments resulting from investments in instruments for anticipating these changes.

One of the most important authors on the subject Mintzberg (1987) described that there was not a single strategy definition, criticizing the necessity of attempting to create a unique definition for the topic since the context in which it is adopted has various meanings. Hence, the five p's of the strategy has been developed, consisting on plan, ploy, pattern, position and perspective, while reinforcing that these p's can be used with each other collectively or individually. Plan means a set of actions previously determined to deal with a situation, strategy can be used as a ploy to deceive competitors, actual use of the strategy can be understood as pattern founded on learning and repeating behaviours, positioning is the location of the organization in the external environment and, finally, perspective as the organization's internal vision (Costa et al., 2019; Mintzberg, 1987).

Porter (1996) conceived strategy as the process of making difficult choices about what an entity wants to do and how it will do it. These choices represent a differentiation either in how the activities will be done or in the type of activities that will be performed. Porter (1996) further stated that a difference between operational efficiency and strategy existed, emphasizing that lowering barriers to competition led to a hyper-competition in which the pursuit of maximum operational efficiency resulted in many businesses attempting to be strong across all areas, thus losing the uniqueness of each company and thereby distancing themselves from a strategy.

Both Porter and Barney have formulated models of an ideal strategy to generate value by establishing two different schools of thought. J. B. Barney & Hesterly (2010) perceived strategy as a theoretical concept based on achieving competitive advantages vis-à-vis its rivals and that the aim of strategic management, therefore, was to define and implement strategies that would guarantee the creation of superior economic value compared to its competitors. Barney developed the resource-based approach that was focused particularly on the potential of the resources held by a company in generating value and attaining competitive advantages. Porter conceived the positioning approach developing the 5 forces of competitive advantage framework which focused on the competitive environment to assess the strategic potential and importance of strategic positioning as a tool to achieve competitive advantage.

Michael Porter's insights into management and strategic thinking prevailed until the 1990s. The acceleration of technologies led to an ever-changing environment, resulting in increasingly short-term competitive advantages for companies. It was then in the '90s that a paradigm shift occurred concerning strategic thinking that was based on resources and to which Barney is credited as the major contributor to this school of thought.

The RBV (Resource Based View) model emerged during the last 30 years as a distinct school of strategic thinking. For Barney (2010), to conceive and implement strategies valuable resources are needed which can be assets (tangible or intangible) or capabilities that allow the company to manage

the organizational assets optimally, detained by an entity. Several criticisms have been brought to this theory. Costa et al. (2019) argue that one of the problems with this theory is that it is not thorough in dealing with the subjectivity surrounding the notion of a valuable resource and how a company succeeds in creating further valuable resources. Furthermore, the managerial role and the company's function are put in second place and several authors consider that the creation of valuable resources is a consequence of the manager's role, therefore, refuting this theory.

2.4. Conclusion

Taking into account the valences and insights provided by the different contributors of this subject, several of the tools developed by the contributors will be used, due to the complementarity of different frameworks.

The various topics covered in this chapter reinforce the importance and benefits that air transport has in the development of the localities in which it operates. Due to globalisation and the consequent increasing need for mobility of people and goods, the growth and expansion of this type of mode of transport is becoming more important for the growth and economic development of these areas. Some of the less developed and isolated regions have low demand levels which result in low traffic, making the construction of airports and the operation of routes by airlines unprofitable. To tackle this issue and not hinder accessibility for residents of these regions the state assigns PSO's to encourage mobility. Government grants usually exist in such remote regions where the population lacks accessible connectivity and despite the possibility of being granted to various modes of transport, they are mostly linked to air transport due to the fast connection it offers.

Nevertheless, because of certain issues arising from this mode of transport, including airport congestion and the fact that airports cannot be built in all areas (such as some islands), there is a need for reconsideration of the allocation of subsidies to alternative transport modes. Ferries have certain limitations, such as the long travel times, making this mode of transport less appealing, particularly between geographically distant regions. The potential of seaplanes is therefore shown by the fact that they are faster compared to ferries and the flexibility that aeroplanes do not possess as they may land on the sea. Consequently, subsidies for the isolated regions where some islands of the territory are located could be attributed to seaplanes over alternative means of transport, especially for short and medium-term journeys.

Finally, taking also into account the literature review on the requirements for the construction of seaplane bases and their operation and the strategy topic, the knowledge acquired during this chapter will be transferred to the design of a possible strategic plan for the operation of seaplanes on Greek territory as presented in the next Chapter.

CHAPTER 3

Business Development of Seaplane Transport in Greece

3.1. Seaplanes Technology Background

A seaplane is a particular type of fixed-wing aircraft capable of landing on bodies of water and thus being able to take off and land in oceans, seas and lakes. A seaplane has several features common to a regular aircraft except for being able to land at sea. In contrast, compared to aeroplanes it achieves lower speeds and has a shorter flying range.

This mode of transport may have two specific types depending on whether the fuselage comes in contact with the water surface or not. If the plane takes off and lands at sea using floats or pontoons it is referred to as a floatplane (Figure 1).

Figure 1 - The Floatplane

Source: Unsplash, 2020

Figure 2 - The Flying Boat

Source: Unsplash, 2020

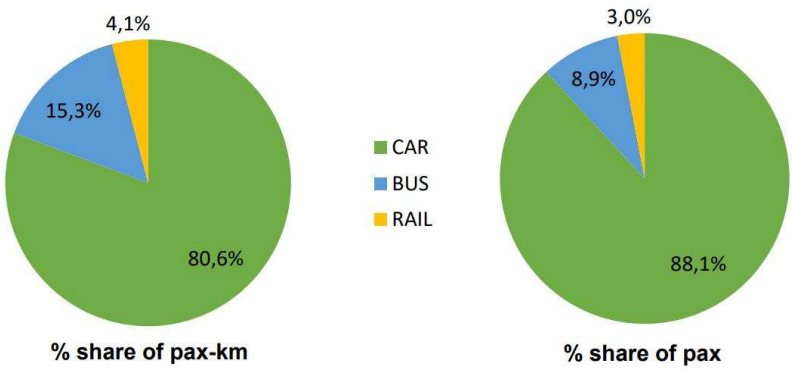
The other type of seaplane is called a flying boat (Figure 2) and lands through its fuselage, which is similar to the hull of a boat and it is through the fuselage that the boat is moored in the bodies of water.

Both types of seaplanes may be equipped with a landing gear that allows the aircraft versatility of also being able to take off and land on the land and thus are referred to as amphibian seaplanes.

3.2. Greek Transport System and Infrastructure

To have a better grasp of the issues and challenges involved with the Greek transportation sector, the Greek National Transport Plan (2019) was studied. The issues addressed in this report are intended to guide the country's transport strategy for the medium (2027) and long term (2037), (Greek Ministry of Infrastructure and Transport, 2019).

Figure 3 - Greek modal split of inland passenger transport, 2019



Source: Greek National Transport Plan, 2019

As can be seen in Figure 3, the most used means of land transport by the Greek population in their daily lives is not surprisingly passenger cars (88.1% share of pax), followed by buses (8.9%) and finally rail transport (3%). This dominance of road transport is due to the poor quality of the public transport services offered and also to the features of the terrain.

Besides inland transportation, Greece, due to its geography and number of islands, requires a developed maritime and air transport that provides good access to its citizens, allowing them to travel between islands as well as between countries. According to data from Eurostat (2020), Greece is the second EU Member State (second only to Italy) which carries most passengers annually by sea (72.520 thousand passengers). This strong demand is driven by strong tourism leading to congestion of some ports during the summer months (Annex A).

Like maritime transport, the importance of aviation is also considered by allowing international and intranational mobility of tourists and residents. The country is the sixth in the European Union with more millions of passengers carried annually and also the fifth country with the highest percentage of national flights, 16% compared to the total number of flights in the country (Annex B).

Nevertheless, the transport network development has not been able to follow the pressures derived from the growing number of passengers and tourists, which brings with it several problems shown in Table 1.

Table 1 - Main problems of Greek Transport Network, by mode of transport

Mode of Transport	Problems
Road	Underdeveloped data-collection tools at the road level and its conditions
	Old-fashioned, under-developed fleet and mainly composed of petrol vehicles
	Bus prices in average 2 to 5 times higher than in most EU countries
	Poor road safety ranking as one of the countries with the highest number of road accidents in Europe
Rail	Poor interconnectivity with other modes of transport (only Alexandroupoli, Thessaloniki and Piraeus ports are connected)
	Low electrification of trains on the rail network
	Reduced rail access especially in the West and South-West part of the country
Maritime	Limited level of intermodality with land transportation
	Poor conditions in many of the ports on the islands requiring changes
	Ferry ports congestion during the summer
Aviation	Some airports are unprofitable and need PSO contracts to generate revenue
	Small airports have poor connectivity with other modes of public transport, which makes it difficult for passengers to access them and increases their costs
	Some of Greece's regional airports face overcrowding during the summer months due to the high number of tourists arriving in the country

Source: Greek National Transport Plan, 2019

Five primary goals were set to improve upon areas in which shortcomings persist and should be improved to make this sector mainly more competitive and sustainable within the period established. These goals are grounded on (a) Promoting economic growth and efficiency in the development and operation of transport systems; (b) Improving transport connectivity between the various islands and the different modes of transport; (c) Contributing towards an environmentally friendly sector; (d) Fostering accessibility and social inclusion and lastly (e) Maintaining a safe and secure transport sector.

Taking into consideration the above-defined goals in the report, it can be observed that the introduction and investment in the seaplanes sector in the country may contribute to the achievement of these proposed goals. Regarding point (a) some of the problems that led to the creation of this goal are related to the existence of assets (transport and infrastructure) that are old and costly; the little variety and low level of existing transport services and the expensive costs that are taken into account in travel. The development of the seaplanes sector can contribute towards solving some of those problems by providing an alternative to the already existing modes of transport especially for transport between the various islands and the mainland part of the Greek territory. It can also allow the government to rethink its public service obligations strategy by subsidising this mode of transport rather than regular aviation services for journeys of shorter distance, enabling the Greek state to save financial resources.

About the other objectives, point (b) refers to problems in the coordination of transport between islands and multimodality/interconnectivity between the different modes of transport services. In this area, the development of seaplanes operations will also be relevant bearing in mind that for transport between islands this service is done either by regular aircraft or by ferries. The underlying issue is that for the larger and more populated islands it is possible to operate flights due to the existence of airports, but for the smaller islands the service is provided to either exclusively by ferry, which present problems including the long travel times or by air service operations that are not economically viable. Seaplanes can complement this market segment by competing with these two modes of transport. One solution for its operation and complementarity with the other modes of transport is for them to act as a link between the Hub airports and smaller islands, with passengers arriving at the country main airports being subsequently transported to the seaplanes bases at which they then fly to these smaller islands. This prevents the usually more expensive aeroplanes from having to offer this type of journeys and being replaced by seaplanes.

In terms of sustainability (c) seaplanes are considered a fairly eco-friendly mode of transport with lower pollutant emissions compared to aeroplanes (Gobbi et al., 2011). If compared with ferries they cause more greenhouse gas emissions, however, it should be noted that a seaplane journey takes considerably less time than a ferry and it is here that the seaplane gains advantage. It should also be stressed out that electric-powered seaplanes have already begun to be tested, and are expected to be marketed faster than regular aeroplanes. When compared to other modes of transport such as trains and

buses, seaplanes are naturally more polluting but are considered not to be direct competitors as they serve different needs from those of the potential consumers of this service.

Finally, points (d) and (e) are the areas in which the potential for seaplanes operations is not so evident. Concerning (d), seaplanes may contribute to the issue of increasing social inclusion since the populations living on smaller islands are generally less connected both to other islands and to the continental territory, therefore, the development of seaplanes can contribute towards bridging this gap and enhancing social inclusion. However, in terms of contributing to the improvement of accessibility for people with reduced mobility, seaplanes are not going to be the best available options like the limited amount of seats and space available within the seaplane will not lead to significant improvements. Considering the safety issues in point (e), given the limited number of flights carried out, no definitive conclusions can be drawn about their security. However, journeys on other continents tend to show that seaplanes are a safe mode of transport with a low number of accidents. Furthermore, this point is more related to road transport and its improvement since Greek roads are considered to be some of Europe's least safe ones (Greek Ministry of Infrastructure and Transport, 2019).

Considering the safety issues in point (e), given the limited number of flights carried out, no definitive conclusions can be drawn about their safety.

To consolidate these objectives, 9 investment pillars have been established (Annex C). Here too the seaplanes are predominant as they are included in the objectives of Pillar 4 "Supporting Tourism Sector" and Pillar 9 "Exploring Further Opportunities". Beyond these two pillars, seaplanes can also contribute to fulfilling the objectives set out in Pillars 1 ”Enhancing Safety, Sustainability, Efficiency and Competitiveness of Transport”; Pillar 5 “Enhancing Connectivity to the Greek Islands” and Pillar 8 “Fostering Regional Mobility and Growth”. This proves the country's seaplane potential is recognized especially at the touristic sector through its ability to link the several islands of its territory, thus increasing the country's overall connectivity.

3.3. Strategic Business Plan Development

3.3.1. Business Idea

As it has already been briefly explained in the introduction, the aim with the development of this thesis is to elaborate a strategic plan for the operation of a seaplane network in Greece. The structure of this plan may be replicated when considering other countries in which a similar project can be developed.

Greece offers a great prospect for the development of seaplanes as it has approximately between 150 and 200 inhabited islands, 13.780 km of coastline and over 100 ports. Its vast maritime land territory allied with a large number of islands provides a strong indication of the potential of seaplanes in this country.

With the development of legislation in Greece, which will be presented in more detail later on, a suitable atmosphere has been established for this process. The flexibility of seaplanes will develop as a

transport alternative to long-distance ferries and to aeroplanes that tend to not be cost-effective over short distances. Although seaplanes are not necessarily the cheapest transport mode, they can offer a convenient and faster way of transportation than ferries for travelling between islands.

Greece, being a country heavily dependent on tourism, will have a favourable aspect, as it will be able to obtain for this segment of the population a group which is generally more disposed towards spending money than the local population. Furthermore, it will also contribute to the Greek population living in isolated and remote regions by promoting the development of these regions through improved accessibility.

Seaplanes do not possess requirements that are too different from those of the aeroplanes. However, they must also meet maritime standards. Such versatility is a double-edged sword as seaplanes have to comply with both air and maritime regulations and in most countries, there is not sufficiently developed legislation to meet their requirements.

The specificities of the operation will be explained in more detail throughout the project.

3.3.2. Seaplanes Market Overview

The main seaplane operators can be found in North American countries. Seaplanes are seen as common by the inhabitants of Canada and the United States of America. The Canadian based company "Harbour Air Seaplanes" is the biggest seaplane operator on the North American Continent. With approximately 450.000 yearly passengers and circa 300 daily flights, the company represents a successful example in this country. In the United States companies such as "Kenmore Air" and "Seattle Seaplanes" control the Washington state, whereas in Alaska companies such as "Alaska Seaplanes" and "Wing Airways" dominate passenger traffic.

In Australia and New Zealand a large number of seaplane carriers are also operating, including "Sydney Seaplanes"; "Melbourne Seaplanes" and "Auckland Seaplanes" providing charters and tour flights. Headquartered in Puerto Rico, "Seaborne Airlines", winner of the "World's Leading Seaplane Operator" award in 2016, is currently operating flights for 12 distinct routes involving both seaplanes and regular planes. Its seaplane fleet consists of 2 Twin Otters from "De Havilland". For the United Arab Emirates "Seawings" offers scenic flights in Dubai, Abu Dhabi and Ras Al Khaimah.

However, it is in the Maldives where the largest seaplane operation in the world is found at "Trans Maldivian Airways". The result of the merger with "Maldivian Air Taxi", its formerly main competitor at the time of fusion, holds nowadays approximately one million yearly passengers.

The issue that arises from this data is how there is not a noticeable success and a continued investment in such services across European countries. Despite the attempts and interest of a few countries including Italy through "Aqua Airlines" or Malta through the now-defunct "Harbour air Malta", few are the countries that are currently operating this market. Scotland is one of these countries that through "Loch Lomond Seaplanes" operates a sightseeing service along the lake and around some

Scottish islands. Furthermore in Norway seaplanes are also represented by providing a range of services via booking arrangements with the firm "Scandinavian Skies".

When considering the primary country being researched in this project, Greece, one may wonder as to why success has not been achieved yet. Looking at the Maldives, the number of tourists from both countries can be briefly analysed. Greece is among the countries with the highest number of tourists in the world with much of its economy depending on this industry. For the year 2018, the total number of international arrivals in Greece was 30.123 million as compared to just 1.484 million in the Maldives (World Tourism Organization (UNWTO), 2019). Given these figures, the success of this market will not depend solely on the number of visitors. This situation is not only found in Greece but also in other countries with a significant number of tourists, including Spain, Italy and Turkey, amongst others.

In 2011, a survey was conducted among several operators and seaplane pilots regarding the state of this mode of transport in the country/continent of origin. Only about 8% of the seaplane operators were located in Europe (Mohr & Schömann, 2011). Today this figure is expected to be even lower as some operators active in Europe at the time are no longer active. From the surveyed sample it was concluded that only 16% of the total number of carriers operated scheduled flights, with the majority of the carriers operating charter and tourist flights (22%) (Mohr & Schömann, 2011). Problems at the European level related to the availability of pilots which has been identified as a critical challenge by all European respondents. Mohr & Schömann (2011) further concluded that the certification processes were also highly criticised by the operators, who complained that the lack of standardised European legislation, at the expense of national laws, made certification processes more demanding and challenging to achieve and demanded a greater EASA concern with this transport mode.

3.3.3. Global Environment

3.3.3.1. PESTLE Analysis

To effectively understand the type of market in which the company plans to operate, the analysis of the surrounding context is a powerful tool. It enables managers to better understand threats and opportunities which a company will face and if needed to readapt its strategy. It is important to note that the following estimates were made before the outbreak of Covid-19 and it is therefore likely that some of them will not be achieved.

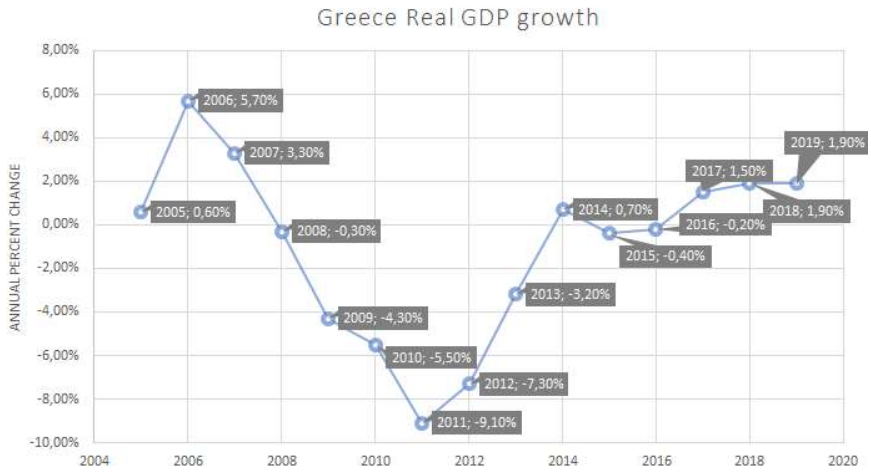
3.3.3.1.1. Economic

In the last decade, Greece has experienced one of the darkest moments in its economic history with the greek Sovereign-debt crisis, resulting in austerity packages, severe GDP falls and record unemployment rates across the country. However, after a very adverse period, Greece is finally showing brighter results.

Regarding real economic growth, Greece has been facing a mildly steady growth in most recent years, compared to the negative record of 2011 with a real growth rate of -9.1% (Figure 4). There are

signals that the economy is slowly recovering, registering positive levels of real growth in recent years (1.5% in 2017; 1.9% in 2018; 2% in 2019) and with a forecast of 2.2% real growth in 2020 (Greece and the IMF, 2020; Wolf, 2019).

Figure 4 - Real GDP Growth in Greece (growth rate, as a percentage)



Source: International Monetary Fund, 2020

The Greek unemployment rate peaked in 2013 at 27.5%. A favourable reduction has occurred in recent years, but this data continues to be worrying, given that the unemployment rate of 16.5% is the highest in the European Union, which averages at 6.6% in 2020.

Greece is a member of the European Union and is also a member of the eurozone and therefore has adopted the euro as its currency. The EUR/USD exchange rate has been volatile over the last decade. Reaching a historical value of EUR/USD 1.592 in 2008 at the height of the major financial crisis of the United States, it has again dropped in value over the last few years, standing in 2019 at EUR/USD 1.112.

The tourism sector continues to grow and Greece relies heavily on this industry for its GDP. This is a positive factor as tourists are going to be important users of the seaplane service.

3.3.3.1.2. Political-Legal

Since the 2008 financial crisis, Greece has faced a climate of high social instability not only for its population but also for its governing bodies. Several changes of prime ministers (eight prime ministers including caretakers since 2009) demonstrate this instability, which has been the result of the debt crisis.

During the period from 2010 to 2018, Greece was under troika financial rescue packages through 3 sets in 2010, 2012 and the latest in 2015. Among these package measures were wage cuts, severe tax increases and raise of the average retirement age.

Greece is now on the road to stability with the election of the new prime minister Kyriakos Mitsotakis in 2019, who won the elections with 39.85% of the votes against Alexis Tsipras' opposition of 31.53%.

The aviation industry is subject to extensive regulation monitoring. With the establishment of the European internal market for aviation in 1992, market liberalisation took place for European Union Member States, enabling the creation of new routes and the entrance of additional companies to the market. The European Commission believes that the opening up of the market has enabled not only state-owned companies but also private companies to access new routes, determine prices and the volume of trips. In 2013, Aegean Airlines and Olympic Airlines merged and the former air carrier was renamed from Olympic airlines to Olympic Air.

The launching of seaplane businesses is heavily bureaucratised. The lack of government permits for the legalization of waterways in various regions has postponed the start of operations. This bureaucracy jeopardizes the risk of project investors since a similar project has already failed for such reasons in Greece.

To solve this issue the Ministry of Infrastructure and Transport launched at the end of 2019, a draft law, aiming to simplify the licensing process for the operation of the waterways in the country. This law allowed to train pilots by credentialed private companies and not just by the government agencies and also the establishment of a committee for the inspection of waterways (Paravantes, 2020). Law 4663/2020 includes important information for the operation of maritime airports and also includes other measures such as environmental requirements, flight conditions and general provisions. This Law complements and amends law 4568/2018 which had already given some consistency to the projects, thus serving as an important basis for the development of seaplane projects.

3.3.3.1.3. Social-Cultural

Socioculturally, the country has been affected, like many European countries, by a reduction in the total number of inhabitants. In 2011 the population figure was 11,123.392 million inhabitants while for the year 2019 it was already down to 10,724.599 million. This represents a drop of 0.15% in comparison to 2018 (10,741.165 inhabitants in 2018).

In terms of tourism, Greece is one of the countries with the greatest number of tourist arrivals in the world (14th in 2017) and it's Gross Domestic Product is highly dependent on this sector and therefore constitutes a major economic asset. In recent years the country has had a very positive development, with approximately 30 million tourists in 2018 (World Tourism Organization, 2019).

There has been a steady growth in the dependence of the active population for the country's reflected in the rise in the age of dependency ratio that stands in 2018 with a value of 55.585% according to the World Bank (2020) meaning that about 11 dependents (people under 15 and over 64 years of age) are relying on 20 individuals at working age, as opposed to the value of 45.996 registered in 1999 (in which the same 20 people would only be responsible for 9 dependents).

3.3.3.1.4. Technological

The aviation industry has seen interesting technological developments as a result of the environmental requirements agreed in Protocols. Aircraft have had to change due to the need to comply with procedures on noise and environmental pollution with greenhouse gas emissions.

At the technological level, one of the great changes we have seen is the attempt to switch fossil fuel consumption in modes of transport to fuels based on renewable energies, in which electricity stands out. Greece can stand out in this market since projects are being tested in the North American market to change the engines of seaplanes to become fully electric therefore reduce operating costs as electricity is much cheaper than fossil fuels.

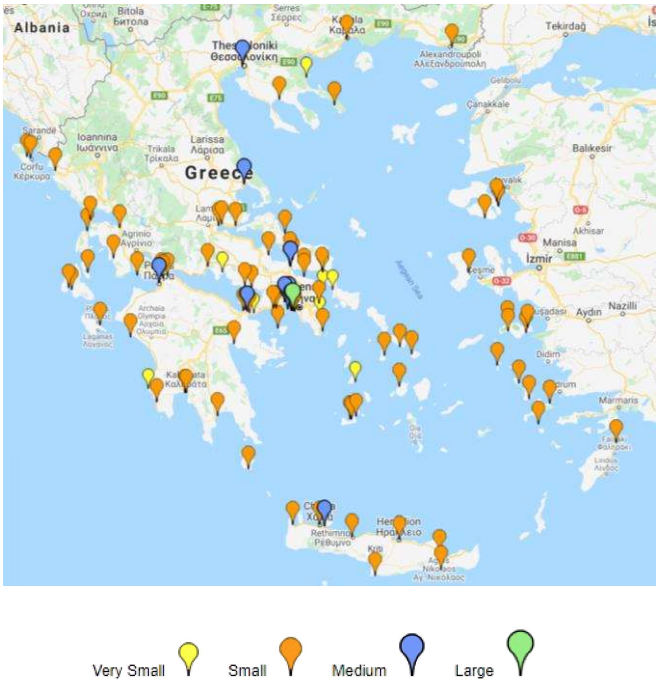
Internet access is one of the most important factors to measure a country's technological environment since it is one of the most important mechanisms in modern times for communication and working globally. Surprisingly and following Eurostat, Greece is one of the countries in the European Union where Internet access is the lowest, having in recent years even reduced these figures. In 2019 fifteen out of every 100 companies of 10 or more workers still did not have such access.

This is not only true for businesses, but also for households in which Greece also has one of the lowest Internet access figures in the European Union (79%), only higher than in Bosnia-Herzegovina, Montenegro and Bulgaria (72%; 74%; 75%; respectively). It should be noted, however, that this figure has undergone a positive change in the last decade, registering in 2010 a percentage of only 46%.

Jets have also regained consumer attention and it is hoped that its development will contribute to capturing and creating new markets for the transportation industry. Furthermore, one technological factor that shows the high potential is the development of drones. Currently, it does not exist a lot of legislation regarding drones due to the various types that exist and its need to have different legislation as opposed to standard aircraft. The development of drones is showing potential in European airspace and the short term may serve for search and rescue missions. In the medium to long term drones can eventually serve to transport goods and even people.

Greece besides having numerous islands in the country also presents several ports, over 100 (as can be seen in Figure 5), of which some are the largest in Europe as is the case of the port of Piraeus in Athens. With the development of Greek legislation, a new decisive path is opened that allows the construction and operation of waterways in more areas besides ports and lakes, such as marinas. Currently, only 3 waterways are licensed in Patras, Corfu and Paxos that already signed the agreement but there are several others already in the process, including 8 in the Ionian Sea and 33 more in the South Aegean region.

Figure 5 - Ports locations in Greece, by size



Source: World Port Source, 2020

3.3.3.1.5. Environmental

Two factors have to be studied carefully in this market. One of these is greenhouse gas emissions and the other is the pollution of the bodies of water.

Under European legislation, more specifically through the Water Framework Directive, the country has to meet requirements to keep its various bodies of water clean, fit for consumption, and hygiene purposes. The pollution of such bodies of water is usually a result of agriculture, urban areas and industry. As regards to nitrates derived from agriculture, 30 areas have been defined as susceptible to this type of pollution and adequate work has not been done since, although these areas have been defined, Greece has not yet set in motion the action programmes to deal with them. Therefore the country has been the target of a complaint by the European Union to the Court of Justice in 2019 and a fine may be imposed if Greece loses the case.

Several studies indicate that marine pollution from seaplanes is very low and that no major control measures are needed. However, under the maritime ministry and island policy, the spillage of fuel and oil using absorbent materials on waterways should be restricted.

Aviation is a very polluting industry and due to the growth in passenger numbers flights the control of these polluting factors will have to be taken into account. It is crucial to take into account GHG emissions and noise pollution from aircraft. Greece was one of the countries that signed the Paris agreement in 2015 and, as such, has committed itself to combat greenhouse gas emissions. It is currently estimated that the industry is responsible for 3% of total carbon emissions, 3.6% of total greenhouse gas

emissions in the EU28, representing a total of 13.4% of transport emissions (European Union Aviation Safety Agency, 2019). Although technological improvements have contributed to a reduction in noise pollution from individual aircraft, the increase in the number of flights has contributed to its overall increase. According to the defined standards the values should not exceed 55 decibels per day and 50 decibels at night (European Union Aviation Safety Agency, 2019).

Startups and existing companies have already begun to study the possibility of introducing hybrid and electric planes to reduce the emission of polluting gases. The company that can develop this technology more quickly will have an opportunity to advance in the market. For the seaplane market, it is still necessary to take into consideration the possible maritime pollution as seaplanes will land and take off from a body of water.

3.3.3.2. The Seaplane Industry in Greece

The development of a seaplane network has been among the main objectives for the transport industry in Greece. The development of such a network is established as a key focus as a complement to the already existing tourism infrastructure. This mode of transport aims to unite and create an inter-island transport network in Greece. These measures are included in the national tourism programme discussed above (Papadimitriou et al., 2019).

The first seaplane operations started in 2005 through the company AirSea Lines with an investment of approximately 20 million euros. It was also in this year that first legislations were enacted (3333/2005) focusing on points such as charter flights, seaplanes usage for medical emergencies and the limit of three daily flights per destination. Among the legal bodies, bureaucratic challenges caused substantial delays in drawing up the definitive measures, resulting in the company bankruptcy, particularly as it was unable to establish a seaplane base in Athens (the main tourist destination) and the increased operational costs.

Amendments were implemented concerning the maximum number of flights in authorized seaports. but these measures were not optimal for the operators. Those had acquired a high number of seaplanes via leasing contracts and thus were not willing to be restricted in respect to the maximum number of flights permitted. This measure was only fully withdrawn during 2008 when the liberalisation of the maximum number of flights in authorised seaports was approved.

The last legislation adopted has been an important basis for the development and encouragement of operations. In 2018, Law 4568/2018 was approved, which provided favourable terms for operations. This law was amended in 2020 and is in the process of being approved. (GTP, 2020; Papadimitriou et al., 2019).

Currently, two companies based in Greece continue to work daily and are pending for the government's green light to start their operations. These companies with the names "Hellenic Seaplanes" and "Greek Water Airports" are expected to be the main competitors for market share. Greek bureaucracy has been slowing down the operation, with the lack of permits for the legalization of Water

Ports and as such the few legalized ports have yet few destinations and little room for the business to become profitable. Both companies plan to offer similar services including scheduled flights, transfers between resorts, recreational landscape flights and also serve for rescue and medical emergencies.

3.3.3.3. Porter's Five Forces

One of the strategy's biggest concerns is how to deal with competition, but in reality, it is not only the competitors who matter in the search for profits but also the power of suppliers, buyers, the threat of substitute products and new entrants, all of which are also competitive forces (Porter, 2008).

So when looking into a market it is therefore very important to analyse the power that each of these five forces has in industry competitiveness and potential profitability.

3.3.3.3.1. Rivalry Among Existing Competitors

The business rivalry is a competitive force that can constrain the profitability of a market. This strength is influenced by several factors such as the number of companies in the market, the growth of the market, prices charged by other companies, standardization of products or services and exit barriers.

Although there are still not many companies in the field of seaplanes, those companies entering this market similar to the aviation sector tend to remain for a long time. The upfront investment that is required just to enter the market and also the difficulties involved in leaving a market extend their stay.

The developed seaplane markets tend to have different companies offering travel from the same origin to the same destination having to compete on some factors such as price, the comfort of travel and functionality. The market is expected to show an interesting growth, due to the establishment of two companies that will serve as direct competitors but may lead to the increase of passengers using this type of service which can be beneficial.

For these reasons, the power of rival companies in the industry is medium (Annex D).

3.3.3.3.2. Power of Suppliers

The power of suppliers varies according to the number of available providers in the market as if there are few providers in the industry, companies will become more dependent on them and thus allow suppliers to increase their production costs. If new competitors cannot enter the market easily, the power of the suppliers is increased just as when switching from them which also involves high costs.

For the seaplane market, the competitive strength of suppliers is high. The production costs are quite high and there are not many players on the market who can produce the necessary parts and aircraft to operate. The most prominent companies in the seaplane market that are capable of developing this type of aircraft are Dornier Seawings, de Havilland and Cessna Aircraft.

In terms of labour supply, the strength of those who can operate and control the aircraft is also high. For flying the seaplanes specialised pilots with high skills and high flying hours are required. Due to this pilots manage to receive high salaries being well paid and protected professionals. An equally

important pressure factor is the fuel suppliers for the flying of the aircraft. Until the aircraft moves to electric-powered engines, it will be dependent on the supply of fuel from the oil companies. This issue creates a heavy dependence and may be volatile depending on oil price fluctuations. For all these reasons the power of the suppliers is medium-high (Annex E).

3.3.3.3.3. Buyer Power

The buyers are the people acquiring the goods or services that the business is either selling or providing. The more companies offering the same type of service the more power buyers have since competition from companies leads to cost reduction. This arises in circumstances in which the products being marketed are standardised enabling consumers to change their options easily, whereas in the case in which companies offer differentiated products customers have lower power given that they are less willing to switch from the firm.

Tickets-price represents a significant cost and is of paramount relevance to consumers. Customers are ever more becoming price-sensitive therefore pricing is extremely important. Transaction brokers such as Skyscanner and Momondo are helping consumers find cheaper and smoother travels and may soon start to present seaplane flights. This leads to customers to become more efficient in pursuing better prices and increasing customers power. Some companies have customer loyalty programs with mileage accumulation programs, which can result in shoppers always using a particular company. However, in most situations, customers are not bound by these programs and therefore change airlines accordingly to their requirements.

However, consumers are still going to need to use this product in the case they need to fly. Due to this and having in mind the industry scope the importance that each consumer will represent for the industry is low since each one represents a very small part of the company's total earnings lowering customers power.

Considering the above points the power of this force is medium (Annex F).

3.3.3.3.4. Threat of Substitutes

The threat of substitution is present in situations where an alternative can be a replacement of a part or more of a product or service. Substitutes are always there even if some are not as clear as others. If the threat of replacement is high, the revenue for industry will be lower as the industry will not be able to set the prices it desires, as in that case consumers will prefer to opt for the alternative option. If a substitute is attractive in terms of both price and performance, the threat of substitution is higher. Such a threat is further increased if the cost of switching to the alternative is low.

For the seaplane industry, the threat of substitution can be regarded as high. There are alternative forms of public transportation to this transport including aeroplanes, buses, trains, boats as well as private cars. However, the use of seaplanes is done for a specific type of travel which can only be done by ferries or aeroplanes which lowers its probability of being substituted. The cost of seaplanes is

expected to not be cheap and more expensive than most alternative modes of transportation, nevertheless, the industry will still be favoured in comparison to the other modes, particularly for short to medium distances over bodies of water.

The rapid development of telecommunications and the use of the internet has also diminished the number of journeys to many destinations. Videoconferencing is an alternative to some otherwise necessary flights for business meetings and professional interviews.

Another key driver of this competitive force is the low costs required to change from one type of transportation to the other or access an internet-connected device.

Since this replacement cost is low, the risk of substitution is higher.

The power of this force is medium-high (Annex G).

3.3.3.3.5. Threat of New Entrants

Companies can feel threatened when the entry of new firms into the same business is relatively easy. These new entrants feel encouraged as they enter the market and try to obtain market quota creating competitive pressures for those companies already operating in the market.

When the entry threat is low companies tend to be sloppy since even if they are not performing their activity very effectively the difficulties of other players entering the market does not create great concern. On the other hand, if entry barriers are reduced companies will have to remain competitive by investing more and maintaining their prices low. Examples of entry barriers are mature economies of scale, firms requiring large investments to commence their activity, government restrictions and even companies that by being the first to carry out an activity hinder the entry of others into the same activity, such as train operators.

The initial capital required to enter the market coupled with the high expertise of the crew ranging from aircraft maintenance personnel to the actual pilots of the aircraft creates challenges to new entrants. Governmentally this is a sector which is highly regulated and it is rather complex to tackle such legislation. A further relevant factor which makes it challenging for new entrants is the time needed for a new company to win the trust of their customers as safety is very present in their minds and initially there might be some unwillingness in travelling with unknown carriers.

The threat of new entrants for this market is medium-low (Annex H).

3.3.3.4. Transactional Environment

3.3.3.4.1. Competitors

The competitors are the major threat for companies as it is them that compete for market share on a common market. The more firms exist in a particular industry, the lower their profits are usually going to be. Firms compete with each other on several aspects, including price, quality of service, differentiation of service, speed of service, level of innovation.

The Global aviation market has experienced sustained growth in recent years as a result of lower prices largely due to the introduction of Low-Cost Airlines. Regarding seaplanes at European level, there are not many operators since countries are normally well-equipped in terms of local airports, bureaucracy is lengthy and there is public fear regarding their safety. However, Greece has been one of the countries which have been trying the most to implement seaplane operations in its country, given its large number of islands and tourists.

Hellenic Seaplanes - Established in 2013 the Company is expected to provide scheduled flights, transfers between resorts, governmental assignments, sightseeing tours among other services. The company plans to have more than 100 water aerodromes linking the various islands and regions of Greece. The fleet of aeroplanes consists of 12-seat Dornier Seastar CD2 and 19-seat De Havilland Twin Otter DHC-6 seaplanes.

Greek Water Airports - Also founded in 2013 this enterprise assumes to have competent Staff in its structure as one of their main forces responsible for the creation, licensing and control of the first 12 Water Aerodromes in Greece between 2004 and 2008. The main focus is on the transportation of the local island communities as seaplanes can be one of the very few means of transportation that can be used.

3.3.3.4.2. Suppliers

Suppliers have a key role in proper operational performance since it is through them that different businesses obtain all the necessary resources to fully develop their activity. In this instance, given that the company does not produce the aircraft itself, the process will occur at the level of the activity it performs (provision of a service) and not in the transformation of raw materials into finished products.

The main requirement in terms of operationalization of the activity involves seaplanes since otherwise the activity could not be carried out. There does not exist many manufactures for this type of aircraft and therefore every effort shall be done to establish an excellent working relationship with the suppliers since the dependence on them is very high. Some of the most renowned manufacturers of this category of aircraft are the firms "Beriev Aircraft Company"; "Dornier Seawings"; "Cessna Aircraft" whereas in the second-hand market the renowned "De Havilland".

Despite studies and testing being carried out concerning the transformation of seaplanes into electric engines, for now, fuel for these vehicles will be derived from fossil fuels and as such, to maintain the aircraft operational, the companies providing regular aviation fuel (Jet A and Avgas) will need to be used. Once the transformation and replacement of the seaplanes with electric motors has eventually taken place, the fuel suppliers will be battery manufacturers and electricity suppliers.

3.3.3.4.3. Clients

Clients are a group of individuals who will consume the product or service provided by the company. Therefore, the accurate analysis of their needs and maintaining customer satisfaction to maintain a high number of sales of goods and services is of utmost importance.

For this service, the clients that purchase journeys to commute between the various seaports of a region will be final consumers. The consumers of the service are going to be the tourists and local inhabitants, particularly those living in remote regions. The local inhabitants currently experience difficulties in moving away from such regions given the transport gaps in their localities so this service may serve to narrow those gaps. The other target group are the tourists that when visiting the country seek to travel not only to the most urban and touristic areas but also to the remotest and least visited regions. This is the result of the growth of nature and rural tourism. Furthermore, they are also one of the groups of people who have more tendency to expense and spend.

3.3.4. Internal Analysis

3.3.4.1. Mission, Vision and Values

One of the fundamental principles of an organisation is the pursuit of a well-founded concept to which a company is committed and to which it should remain faithful in the long-term. Vision, mission and values are the principles under which the people within the company are guided and are defined as their core values (Bowen, 2018; Brătianu & Bălănescu, 2008).

The company vision is an optimal scenario established by the creators of an enterprise concerning what the organization is committing itself not only to the present but particularly towards the future (Brătianu & Bălănescu, 2008). It is the fundamental root of the company that is essential to support it for the rest of its life. The company's vision is to promote the union of the various remote regions and their communities with the national transport system.

A company's mission reflects its commitment to what it strives to do to turn the company's vision into a tangible reality for its stakeholders by generating value and demarcating the company from its competitors (Bowen, 2018; Brătianu & Bălănescu, 2008). The mission is constructed to prioritize the stages of how the vision will be achieved. This company has the mission of promoting the potential of the various remote regions and islands of the country through accessible seaplane flights allowing not only the attraction of tourists but also by giving these remote communities a sense of belonging through greater union with the other regions of the country while delivering high standard customer experience.

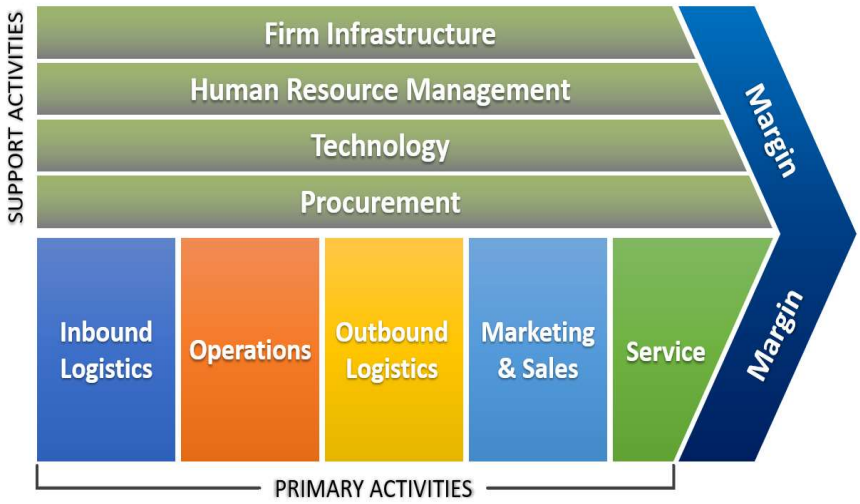
Values are a set of factors that are acquired by an individual as a result of his or her experience in society and education. In other words, they are the beliefs under which their behaviour is based. A company is composed of several individuals each with different values. However, a company can also be seen as an "individual" being able to influence the various stakeholders to absorb that set of values and thus create a collective core of values to their identity. These values are crucial for the company as

it will be through these values by which the company will make its business decisions. Hellas Seaflying's values are the *commitment to sustainability* by progressively reducing fossil fuels consumption, *integration of isolated communities* through improved transport connectivity, *operating with ethics, truth and transparency* for all stakeholders involved.

3.3.4.2. Value Chain

According to Porter (1985), the Value Chain allows the representation of all the activities necessary to perform a business activity from its conception until the sale and subsequent support of the product (Figure 6). It is a powerful mechanism as it enables managers to simplify how they analyse the various steps in which companies create value based on competitive advantages for buyers, while at the same time permitting the analysis of the components in which costs are generated for the company (Porter, 1985). The margin is, therefore, the difference between the value paid by consumers and the business cost incurred in selling the product or service.

Figure 6 - Michael Porter's Value Chain



Source: Slide Hunter, 2020

3.3.4.2.1. Primary Activities

Inbound Logistics: Inbound Logistics consist of the elements related to the reception, storage and inventory control required to provide the service. In this field online and physical ticket sales, fuel, acquisition of seaplanes and Seaports agreements are some of the usual features.

Operations: They consist of the activities related to the transformation of raw materials into the final product. For this company, route planning, scheduling, coordination with other modes of transport, sales platforms, demand and price management, seaplane bases, maintenance services, onboard service, check-in operations are required.

Outbound Logistics: Activities relating to the collection, storage and delivery of the processed products to the final customer or subsequent servicing following the provision of the main services. In this type of industry, these activities are for instance baggage claims, transfers between flights or between other means of transport such as seaplane - ferry.

Marketing & Sales: Activities linked to making the product known to consumers, encouraging the sale of the good or service to the final consumer via marketing strategies as well as establishing the schemes through which they can acquire them. Promotions, advertising, loyalty cards, miles, physical tickets and electronic tickets are some of these activities.

Service: Service consists of complementary activities needed to create, reinforce or sustain the value of goods or products such as repair or installation of new equipment or functionalities. Lost luggage service, repair and maintenance of seaplanes and customer service offices are some of the examples of these activities.

3.3.4.2.2. Support Activities

Procurement: Activities concerning the function of purchasing inputs needed for the correct performance of activities of the company's value chain. Fuel purchase required for flying, aeroplane acquisition, passenger transport to terminals, onboard sales and partnerships negotiation is the primary procurement activities.

Technology: Technology development consists of the set of activities intended to improve the product and production process, extremely important in generating competitive advantages encompassing not only engineering-related activities but all the activities belonging to the value chain. This support activity includes baggage tracking systems, trip booking systems, routing management systems, product development and setting up a multimodal platform.

Human Resource Management: Set of activities related to hiring, training and development of employees and their compensation. In this group, we have HR - Recruitment, communication, pilot training, in-flight safety training, compensation systems.

Firm Infrastructure: Set of business functions supporting the company's primary activities such as general management, planning, finance, accounting, legal and government affairs. The activities in this sector are Financial Management, accounting, legal department, planning and control.

3.3.4.3. VRIO Analysis

Barney (1991), developed the VRIO model which established that for a company to have a sustainable competitive advantage it would need to have a resource or capacity that was valuable, rare, inimitable and that the company should be completely organized to fulfil the resources or capacities potential. This framework assumes right from the start that to have a competitive advantage, whether temporary or not, the rarity of the resources is essential (Barney & Hesterly, 2010).

Because of the resources, the VRIO framework was created. The framework was developed to evaluate the potential of existing resources and capabilities detained by an organization to obtain competitive advantages. These enable the company to differentiate itself from its competitors. VRIO is just an acronym of four words on which questions are asked. Whether the company can generate value, whether the resource produced is rare, whether it is easy to imitate and finally, whether the organisation is using its resources most efficiently.

Concerning the first question, it is necessary to analyse if the company has resources that allow it to generate value. Although it is not always an easy question to answer, it is possible to assess that a company has resources that allow it to generate value if it enables the company to exploit an external opportunity or neutralize an external threat.

When it comes to the question of rarity, a company is considered to have a rare resource or capacity when there are not many competitors with the resources already detained by a company. If companies with the same capacities already exist in the market, it is unlikely that this indicator will generate a competitive advantage.

The third question is the question of imitability. An organisation may possess resources or capabilities that are valuable and rare, but these two conditions alone are not enough. These resources or capacities must be difficult for other organisations to imitate. If another company is at a cost disadvantage in acquiring a resource it is difficult to imitate.

Finally, we have the question of whether the organization is organized in the best possible way to achieve the effective exploitation of its resources. In the case the company is not properly structured, the potential of its resources are not going to be exploited to the fullest, which may lead to failing to exploit the competitive advantages previously generated. This organisation is carried out through the formal structure, formal and informal management control systems and its remuneration policies.

If a company has resources that validate these four parameters, it can be stated that it possesses a sustainable competitive advantage. Yet the existence of valuable resources that are rare but easy to imitate is another common situation in some companies, where they are under temporary competitive advantage.

The company's strategy focuses on developing resources and capabilities that will result in competitive advantages in the Transport sector and its players. *Hellas Seaflying* will have the resources to ensure sustainable competitive advantages. Operating seaplanes on the Greek islands via a route network is a valuable service as it will shorten distances and provide an alternative solution to existing modes of transport. The assumption of rarity is also met since the supply of experienced pilots to fly this type of seaplanes is limited. Facing the imitability issue the organization will have an important advantage by being the first player to enter this market capturing the initial demand for this service. The high initial costs lead to potential new entrants facing cost disadvantages. The company's organization will be prepared to leverage all these resources to the maximum, with a dynamic and innovative team

of young workers at its core, allied to more experienced workers with a high degree of expertise in the field of business.

3.3.5. Competitive Analysis

3.3.5.1. SWOT Analysis

SWOT analysis is an important tool that helps managers in the elaboration of strategic plans by studying two distinct areas that complement each other. These two separate areas are the internal analysis of the company which is done by evaluating the strengths and weaknesses of the organization and by examining the external market and identifying the opportunities and threats to which the company is exposed. The combination of external and internal aspects enables the manager to analyse the company's context in the market more effectively helping it to plan his decisions in the future as well as the strategies to employ thus having a substantial tool to increase the company chances of being successful.

In Table 2 it is possible to observe the application of this tool to the seaplanes business and the *Hellas Seaflying* company.

Table 2 - SWOT Analysis of Seaplane Operation in Greece

SWOT	Beneficial	Harmful
Internal	*Strengths*	*Weaknesses*
	S1: Travel speed compared to other modes of transport; S2: Comfortable seating and stunning views create a pleasant experience; S3: Experienced pilots transmit safety to passengers; S4: Allows to link regions next to the sea fostering connectivity of such areas S5: Cleaner mode of transport than its direct competitors S6: No major infrastructure required for construction	W1: Transportation suffers from high seasonality with low demand in the winter months; W2: Large upfront investment and high maintenance cost W3: Several stops to destination W4: No reputation. W5: External financing requirement W6: Uncertainty about when electric powered seaplanes will be available W7: Low recurrence frequency of this type of trips.
External	*Opportunities*	*Threats*
	O1: A large number of islands and coastal regions encourage this type of transport; O2: Greek Travel & Tourism Sector has a growth of 7% per year; O3: Low accessibility to airports in some islands; O4: Development of environmentally friendly seaplanes making them sustainable in the future. O5: Synergies with other public modes of transport	T1: Fuel-related cost volatility; T2: Lack of established regulations for the operations due to the high level of Greek bureaucracy; T3: Availability of cheaper transport substitutes; T4: Misconception regarding the insecurity of this type of transport among most consumers. T5: Lack of many seaplane success stories in Europe T6: Standardisation of remote working can reduce the need for such travels

Source: Elaborated by the author, 2020

3.3.5.2. SWOTi Analysis

In addition to the existing SWOT analysis, the ISCTE IUL teaching team linked with the strategic area developed the so-called SWOTi analysis (SWOT ISCTE Business School). SWOTi allows basing all the strategy developed in the SWOT analysis on three strategic pillars under which the company's strategy must be developed. It is up to each organization to define within this matrix which strategic pillars were chosen and cannot be separated from the already aligned strategy. SWOTi, therefore, allows the development of strengths, weaknesses, opportunities and threats contextualized in the three strategic pillars chosen.

This matrix is focused on the values related to sustainability as a result of the growing awareness of this issue among managers. Nowadays, while various organizations defend the concern with sustainable values, their actions do not always reflect the promoted speech. The three core values usually defended by organizations are based on environmental, social and economic concerns. However, when faced with market pressures, organisations tend to prioritise the economic aspects since it is through this that organisations can remain in the markets in which they operate and consequently carry on their operational activities. It is important to reinforce however that it is not the market that forces organisations to neglect the sustainability focus and it is therefore up to decision-makers to choose whether or not to implement this dimension.

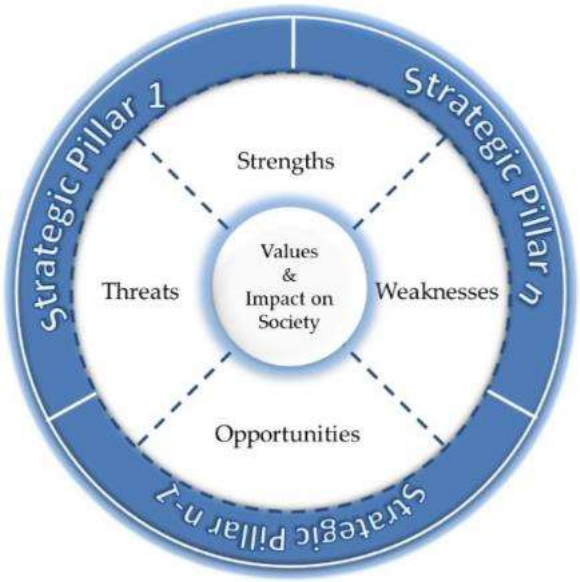
In short, with the elaboration of SWOTi, the emphasis is therefore given to values at the heart of strategic formulation, creating the need for managers to ask themselves whether their decisions are based on these strategic pillars or not. To do so, managers must therefore ask themselves whether the actions taken are based on their organisational values in the first place and secondly the impact of these actions. These actions may bring benefits or consequences about social, economic and environmental environments aspects or will foster more severe problems in society, such as the increase in social inequalities, the creation of hunger, the excessive depletion of natural resources and the growth of climate change.

This company's primary focus is to create an alternative for the crossing of the different Greek islands and the communities around them. Some Greek islands have no airports so the only way to reach the other regions is through ferry. With concern for sustainability, the company intends to stay on the edge of the latest innovations and strongly invest in electric powered seaplanes when feasible. This way the company aims to be perceived as an eco-friendly solution for the Greek region whilst keeping their different stakeholders, such as employees, customers and suppliers, dealt with through maximum respect and transparency.

The three strategic pillars of SWOTi analysis on which the company is going to focus on are: (1) Develop sustainable economic growth through the progressive reduction of fossil fuels consumption; (2) Contribute to the improvement of the connectivity between the isolated communities and their subsequent economic development; (3) operate with maximum consideration for its stakeholders by

ensuring ethical and transparent practices so as to improve the environment in which the organization is based.

Figure 7 - SWOT ISCTE



Source: Strategic Plan ISCTE, 2018-2022

3.3.5.3. Dynamic SWOT Analysis

Following the internal analysis of both positive and negative factors within the company as well as the weaknesses and threats arising from the external context of the market, it is vital to combine these different factors. The development of a dynamic SWOT enables these factors to be brought together reducing threats and mitigating risks through the use of internal capacities and the opportunities provided by the market.

Table 3 - Dynamic SWOT Analysis of Seaplane Operation in Greece

Dynamic SWOT		**Internal Analysis**	
		Strengths	*Weaknesses*
External Analysis	*Opportunities*	Tourists seek comfort and distinct experiences while travelling; The population of the islands needs to arrive in advance and must travel significant distances to reach their airport as these are far from the residential areas and might prefer to go by seaplane due to its speed and comfort.	Take advantage of the high number of islands and create multiple routes with fewer stops and greater route repetition; Tourists are more likely to visit Greece during the summer and as such, this should be exploited.
	Threats	Employ an experienced team of pilots and reinforce their flying skills to give customers a better sense of safety concerning seaplanes; Emphasize seaplane speed and higher network flexibility as a major strength to obtain market share against its competitors and substitutes.	Contribute to the development of the Greek seaplane legislation gaining a reputation among the Hellenic population; Design an appealing website on which the company's safety procedures at the various stages of the operation are presented for reinforcing passengers' safety; Operate a circular route where passengers are picked up and dropped at the various stops to reduce prices and obtain more customers.

Source: Elaborated by the author, 2020

3.3.6. Market Demand Assessment

To substantiate the strategic plan's value proposition, a survey was carried out for people who had travelled between Greek islands (including residents of Greece and visitors). For anyone who did not meet these requirements, the survey would end.

The survey was shared through social networks and was preferably circulated in social groups made up of Greek residents, former residents and non-residents who had previously been in the country.

Table 4 - Sample Socio-demographic Data

Socio-demographics		
Variable	*Alternatives*	*% of the sample*
Gender	Male	40,52
	Female	58,62
	Other	0,86
Age	Less than 21	0,00
	21-34	64,66
	35-44	16,38
	45-54	10,34
	55-64	4,31
	65+	4,31
Highest Level of Education	High School Graduate	6,03
	Bachelor Degree	30,17
	Master's Degree	53,45
	Doctoral´s Degree	6,90
	Other	3,45
Current Professional Status	Student	10,34
	Worker	75,00
	Unemployed	9,48
	Retired	5,17
Currently living	Greece	40,52
	Other	59,48

Source: Elaborated by the author, 2020

1. The sample of the survey is constituted of a total of 116 individuals, of whom 47 are resident in Greece and the remaining 69 are ex-residents or non-residents. Of the respondents, 58.62% are female, 40.52% are male and 0.86% are from another gender(s).
2. Most of the respondents, a total of 75, are aged between 21 and 34 years and the remainder are represented in Table 4.
3. Regarding educational qualifications, more than 50% of respondents have a master's degree and approximately 30% a graduate degree.
4. 75% of those questioned are currently in the labour market (either self-employed or employed).

Table 5 presents data exclusively for residents of Greece (whose sample corresponds to the 47 individuals mentioned above).

Table 5 - Greek Residents Data

Trip Characteristics for Residents		
Variable	*Alternatives*	*% of the sample*
Residence	Continent (East Macedonia and Thrace, Central Macedonia, West Macedonia, Epirus, Thessaly, Central Greece, Attica, West Greece, Peloponnese)	89,36
	Islands (Ionian Islands, Crete, South Aegean, North Aegean)	10,64
Travel Frequency	Never	8,51
	Once per day	0,00
	2-3 times a week	2,13
	Once per Week	0,00
	2-3 times per month	4,26
	Once per month	4,26
	Once every 2-3 months	10,64
	Once every 6 months	25,53
	Once per year	29,79
	Less than once per year	14,89
Likelihood of Using the Service (Net Promoter Score)	0 to 6 (Detractor)	36,00
	7 to 8 (Passive)	21,00
	9 to 10 (Promoter)	43,00
Trip Purpose	Leisure/Recreation/Holidays	68,09
	Professional/Business	44,68
	Visiting Family/Friends	46,81
	Humanitarian Actions	21,28
	Health	23,40
	Other	0,00
Mode of Transport Most Frequently Used to Travel Between Islands	Ferry	77,78
	Plane	20,00
	Other	2,22

Source: Elaborated by the author, 2020

1. 89% of respondents live on the mainland of Greece and the remaining 11% on islands.
2. The continental part comprises the following Nuts: (East Macedonia (...)); of the islands, the following Nuts form part: ([...]).
3. Over half of the residents surveyed, 55.22%, travel between islands once or twice a year - 25.53% undertake two trips per year and 29.79% make one trip between islands per year.
4. 43% of the respondents were enthusiastic about the possibility of using seaplanes as a mode of transport for inter-island journeys and 21% were open to the possibility; on the other hand, 36% answered between 0 and 6, which suggested that they would most likely not be interested in using this mode of transport.
5. Concerning the purpose for which seaplanes would be used as a mode of inter-island transport, the majority of the respondents (68.09%) replied that it would be aimed at leisure/recreational purposes and a considerable share for professional purposes or visiting family and/or friends, respectively 44.68% and 46.81%.
6. The vast majority of respondents answered that the most commonly used mode of transport that they used to travel between islands is currently the ferry (77.78%).

Table 6 presents data exclusively concerning non-residents of Greece (whose sample corresponds to the 69 individuals mentioned above).

Table 6 - Non-residents Data

Trip Characteristics for Non-residents		
Variable	*Alternatives*	*% of the sample*
Likelihood of Using the Service (Net Promoter Score)	0 to 6 (Detractor)	27,54
	7 to 8 (Passive)	40,58
	9 to 10 (Promoter)	31,88
Trip Purpose	Leisure/Recreation/Holidays	97,22
	Professional/Business	41,67
	Visiting Family/Friends	30,56
	Humanitarian Actions	16,67
	Health	13,89
	Other	0,00
Mode of Transport Most Frequently Used to Travel Between Islands	Ferry	75,36
	Plane	21,74
	Other (Cruise, Shipping)	2,90

Source: Elaborated by the author, 2020

1. The responses from non-residents show several similarities compared to those from residents. At the NPS scale, this group of individuals also showed enthusiasm for the possibility of introducing the service of seaplanes as a way of travelling between islands. 31.88% of respondents gave a response between 9 and 10, while 40.58% of the sample registered a response on the scale between 7 and 8 regarding the likelihood of using the service.
2. Regarding the reasons that led the sample to make the trips between islands, 97.22% said that usually make trips for recreational purposes/vacations. These results were expected since this part of the sample counts mostly with tourists. The motive they least carried out these trips was for health reasons.
3. Once again similar to the residents, this sample also used ferries as the most frequent mode of transport between islands (75.36%). The group of people that picked the *Other* option travelled through cruises and shipping.

Table 7 and Table 8 highlight the importance given by residents and non-residents respectively to the attributes presented for travelling between Greek islands.

Table 7 - Features Importance for Residents

Features Importance for Residents					
Features	*Not at all Important*	*Slightly Important*	*Moderately Important*	*Very Important*	*Extremely Important*
Comfort	2,22%	8,89%	37,78%	35,56%	15,56%
Waiting Time	2,22%	6,67%	20%	46,67%	24,44%
Trip duration	2,27%	11,36%	36,36%	25%	25%
Transport Conditions	2,22%	13,36%	22,22%	31,11%	31,11%
Price	4,44%	8,89%	8,89%	42,22%	35,56%
Trip Convenience	2,22%	6,67%	22,22%	44,44%	24,44%
Included in a Travel Pass	31,11%	22,22%	28,89%	17,78%	0%
Ease of Boarding	4,44%	17,78%	35,56%	26,67%	15,56%

Source: Elaborated by the author, 2020

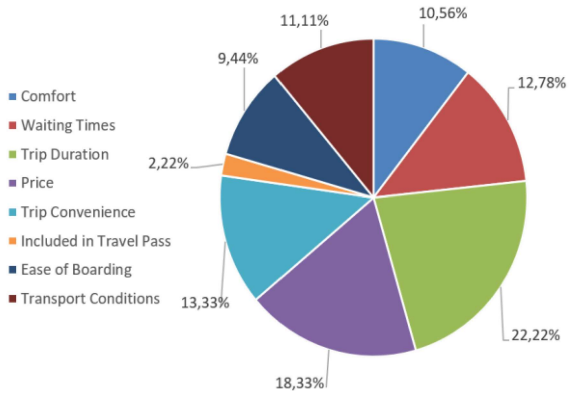
Table 8 - Features Importance for Non-residents

Features Importance for Non-residents					
Features	*Not at all Important*	*Slightly Important*	*Moderately Important*	*Very Important*	*Extremely Important*
Comfort	5,80%	14,49%	42,03%	28,99%	8,70%
Waiting Time	1,52%	9,09%	31,82%	39,39%	18,18%
Trip duration	5,88%	4,41%	23,53%	48,53%	17,65%
Transport Conditions	1,56%	17,19%	34,38%	34,38%	12,50%
Price	1,45%	2,90%	14,49%	52,17%	28,99%
Trip Convenience	2,94%	7,35%	27,94%	41,18%	20,59%
Included in a Travel Pass	42,65%	29,41%	14,71%	11,76%	1,47%
Ease of Boarding	10,14%	23,19%	37,68%	17,39%	11,59%

Source: Elaborated by the author, 2020

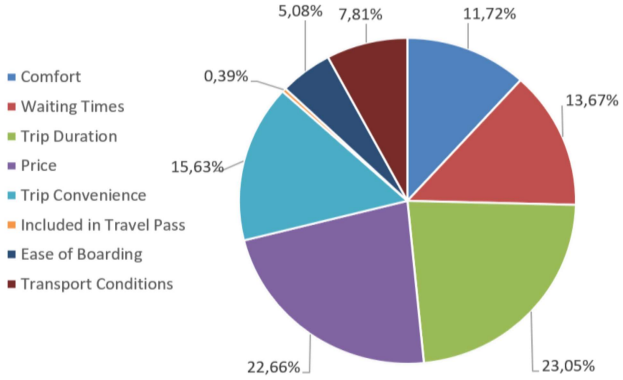
1. Taking into account that the observed results for the two groups showed few differences, table 7 and table 8 will be discussed together.
2. The feature that was considered less relevant by both groups was the inclusion of seaplane trips in a travel pass (weekly, monthly, yearly). For the resident group, 31.11% of them considered this feature to be unimportant, while for non-residents it represented 42.65%. This difference is expected to occur as the group of non-residents is expected to stay less time in the country and hence the need for a travel pass is reduced.
3. The price was the most important feature for the tourists since 81.16% of them stated that this feature was either very important or extremely important. For residents, the answer to the same question was 77.78% showing that also the people currently living in Greece perceive the price as a feature of extreme importance. However, 13.33% of the respondents considered that this feature was not at all important or not very important.
4. The waiting time was considered the second most important characteristic for the residents with 71.11% of the respondents considering the characteristic very or extremely important. For the non-resident group, this choice fell under the trip duration of which 66.18% of the surveyed regarded as a very or extremely important feature.

Figure 8 - Most important items that would lead you by seaplanes (Greek Residents)



Source: Elaborated by the author, 2020.

Figure 9 - Most important items that would lead you by seaplanes (Non-residents)



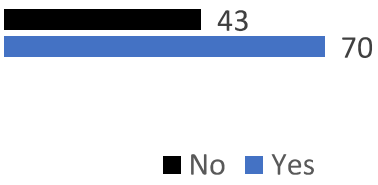
Source: Elaborated by the author, 2020.

1. When asked about what would be the 4 most important factors that would cause them to travel by seaplane, the respondents stated that the most significant motive was the trip duration.
2. Secondly, both the residents and the non-resident's group considered price as the second most important characteristic with (18.33%) and (22.66%) percentage of responses respectively.
3. Travel convenience and waiting time have been considered as the third and fourth most important features.
4. The inclusion of the trips in a monthly pass was considered as the least important feature in both groups amounting only to 2.22% for residents and 0.39% for the group of non-residents.

Finally, respondents were asked whether they would be interested in continuing to travel by seaplanes if the journeys started to take place on routes with intermediate stops. For this matter, the journeys instead of taking 40 minutes would last 2 hours.

Responses to this question have been more mixed, but most respondents showed their willingness to continue using this service at a lower price but with a lengthier duration.

Figure 10 - Willingness to use the service



Source: Elaborated by the author, 2020

From the respondents' answers, we can understand that there is a willingness on the part of both residents and non-residents to have a service offering seaplane journeys between islands. There is also considerable interest in the possibility of longer journeys and operating via routes with intermediate stops. However, this interest is reduced, with some respondents saying that they would not be as keen to use the service if it took longer in exchange for the cheaper trip.

3.3.7. Strategy Formulation

3.3.7.1. Dynamic Capabilities

Given the highly innovative environment and the competitiveness between the different companies in the market, a need arose for the development of a concept that would enable companies to adjust their available resources to the dynamic needs of a market.

Teece et al. (1997) defined dynamic capabilities therefore as the ability of companies to adapt their resources to the dynamic changes in the market through integration, construction and reconfiguration of these assets. Similar ideas are advocated by Costa et al. (2019) who argue that for companies to survive and thrive in shifting environments organisations need to have dynamic capabilities to create, extend and change its internal structures.

Even though several authors advocated the need for dynamic capabilities and their purpose it becomes unclear how these capabilities are created and what they consist of. To resolve this uncertainty Meirelles & Camargo (2014) proposed an integrative model of several definitions and studies on this subject in which they clarified that dynamic capabilities were created by organisations through the articulation of behaviours and skills; routines and processes; and mechanisms of learning and knowledge governance that would enable them to adapt, respond and survive in volatile periods of change and innovation. A key factor in the different contributors' approaches and the common denominator is the focus on the organization's resources and consequently on the resource-based view, which, as already presented, highlights the resources and how different organizations maximize them to ensure competitive advantage. Based on this idea Costa et al. (2019) argued that the dynamic capabilities are therefore focused on resources, competencies and purposes and that this dynamism is linked to the manipulation of organizational resources, in an intentional and controlled way, requiring expertise by the members of the organization which are a human resource.

Taking all these factors into account, dynamic capabilities allow an organization to create a safe structure which allows a flexible response in changing environments, based on learning, with the cohesiveness of the various employees so that intrapreneurship is more easily achieved. Dynamic capabilities are therefore a set of intentional premeditated measures taken by organizations to cope with change and innovation which can be learned by the collaborators individually or collectively.

In the case of *Hellas Seaflying* and the sector in which the company is located, its dynamic capabilities will include a close look at new market needs such as new routes and new consumption patterns, a preference for more sustainable options and a search for convenience. Furthermore, it needs to be aware of its competitors and new entrants by tracking its prices and by analysing and reacting to the competition's actions. The company follows a traditional organisational structure but oriented towards innovation that incentivizes all departments to share their ideas for the future of the company so that it can anticipate new trends in the sector.

3.3.7.2. Critical Factors for Success

Critical success factors constitute a limited set of core areas in which satisfactory results are essential to guarantee the successful performance of an individual, department or organization (Bullen & Rockart, 1981). Such factors are extremely vital and the key to the company's strategic plan and therefore should be constantly targeted by managers as negative results in these areas can have devastating consequences for the organization.

Critical success factors are distinct from company to company and between industries. Even a management change within a company may lead to the definition of different factors. Nevertheless, critical factors in the industry a company is inserted often serves as a reference point for defining them.

Considering the industry in which the "*Hellas Seaflying*" operates, the critical success factors are the following:

***Location*:** Achieving the main hub seaport located near Athens is essential for the success of the project, since Athens is the most populated city in Greece, as well as being the capital of the country, resulting in a greater influx of people supported by high tourism demand.

***Obtaining the operating licenses*:** Overcoming bureaucracy in this field has been a constant issue for the several companies that have tried to penetrate this market. For this business to be successful, it is vital to obtain permits to build seaplane bases in the various islands and regions, as well as a set of legislation that coordinates the procedures to be adopted during operational activity.

***Pilots' expertise*:** While all the staff must show their competence and professionalism, it is the pilots who assume a fundamental role as they play a key part in the service, which is the transport of the passengers. A team of experienced pilots guarantees passengers trust and confidence by the safety these pilots provide on their flights.

Closeness to other transport services: The construction of seaplane bases near other modes of transport is key to ensuring that passengers seeking these services can travel smoothly both before catching the flight and after the flight.

Relationship with suppliers: Ensuring a healthy relationship with suppliers has greater importance since, given the specificity of the industry, there are few suppliers of seaplanes and components for repair and maintenance of these products.

Cost-effective strategy: The company intends to differentiate itself from its competitors by offering a service at a low price based on the use of routes and possible intermediate stops to the destinations of its customers. To ensure that these fares can be charged, maximum operational efficiency at the level of the routes defined, the number of trips offered and resources used to provide these services is of paramount importance.

3.3.7.3. Company Goals

Any goal of a company must be aligned with its mission and vision defined as well as comply with the values of the organisation. Setting these goals is essential to outline the business strategy for the present and its future.

There are two types of objectives that a company should consider in its strategic planning. The medium and long-term goals called "Big Goals" and the more specific goals aimed at acting more quickly and accurately "SMART Goals" (Doran, 1981). It is these SMART objectives (specific, measurable, achievable, relevant and time-based) that, when well defined, are going to assist the organization to formulate its goals and consequently achieve its Big Goals.

3.3.7.3.1. Big Goals

- Becoming the top of the mind company in the Greek seaplane industry;
- Provide global coverage of their services to most of the Greek territory;
- Increase operational efficiency (cost reduction, shorter boarding time and route optimisation);
- Expand its Business Model to other European countries (Portugal, Spain, Italy, Croatia);
- Becoming an eco-friendly company by gradually switching from a fleet of fossil fuel-powered seaplanes to electric ones.

3.3.7.3.2. S.M.A.R.T Goals

- Beginning the company's operations in Athens in the summer of 2022;
- Achieve a market share of 20% by the end of the third year of operation (2024);
- Convert and retain 30% of users of alternative modes of transport (ferry and plane) to users of company services by 2025;
- Have a fleet of a minimum of 12 seaplanes at the beginning of the company's activity (2022);
- Attain an average load factor of at least 75% in the first three years of activity;
- Implement a secondary hub in the city of Thessalonica, as it is the second most populated Greek region, until 2025.

CHAPTER 4

Insights for Strategy Implementation and Control

4.1. Marketing Strategy

4.1.1. Portfolio and Product Mix

4.1.1.1. Product Features

The solution to the problem which the company's product seeks to resolve relates to the supply of flights between the different islands on Greek territory. Greece is a country with hundreds of islands, a significant part of which is inhabited and with touristic activities. Because of this situation, many of the inhabitants of these islands are isolated from the continental territory. Some of the main islands have airports built and allow air transport connectivity. Others do not have airport facilities and the only way to get to and from the islands is via ferry transport, which has substantial lengths and is unappealing for long distances particularly.

It is shown in Table 9 the five product levels that reflect the value perceived by the consumers regarding a product.

Table 9 - The Five Product Levels

Product levels	Description
Core Benefit	To enable users to have greater connectivity between the various Greek islands and regions, including the most isolated ones, through the provision of seaplane flights.
Generic Product	Passenger transport between the various Greek islands through seaplanes.
Expected Product	Offer fast, convenient and competitively priced travels in comparison to existing modes of transport.
Augmented Product	Possibility of purchasing intermodal tickets (complementarity with other means of transport) at a discounted price if using the service
Potential Product	Increase of routes, creation of new seaplane bases hubs in different cities and replacement of the fleet by a 100% electric-powered fleet.

Source: Elaborated by the author, 2020

4.1.1.2. Brand

Hellas Seaflying will print in its name the greek spirit via the reference to the country where it operates. "Hellas" is Greece's native designation for the country, while "Seaflying" instantly links to the service offered by the firm.

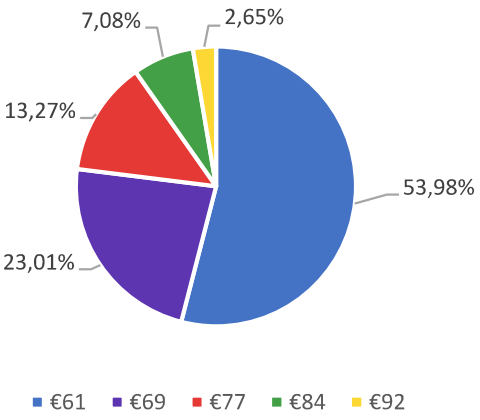
Through its strong connection with the Greek population, emphasised by the company's name, it seeks to position itself as a top of the mind brand in the transportation sector. *Hellas Seaflying* aims to contribute to the country by contributing for the development of an intermodal network, bringing proximity to other modes of public transport and providing complementary services to the ones that are currently being offered and at competitive prices. The company distinguishes from the competition by offering links to the main airports in the country providing an intermediate connection through flights over the sea between those airports and the neighbouring islands. Moreover, its ambition is to have a fully electric-powered and environmentally friendly fleet of seaplanes.

4.1.2. Marketing Mix

4.1.2.1. Price Mix

The price of the service will be defined by using the "Cost-plus pricing" strategy. In the absence of data from the competition, this pricing strategy is adequate and is carried out by calculating the production costs of the goods or services and adding a markup rate. The price will differ for different distances and it is taken into account all the costs related to the operational activity and adding a 20% markup rate to determine the price. To understand what consumers were willing to pay, the survey questioned what the consumers were willing to pay for this service. The respondents' answers are presented in the following figure.

Figure 11 - Willingness to pay for the sample



Source: Elaborated by the author, 2020

Out of a total sample of 116 respondents, 113 answered the question by stating that for a 40-minute seaplane journey they would pay an average value of EUR 67.41 (standard deviation of 8.4). However, most respondents (53.98%) replied that the amount that would make them choose to travel by seaplane would be EUR 61 for a 40-minute journey. The presented options are based on the suggested values by Pagonakis (2016) in which he proposed a pricing system for seaplanes taking into account the costs they would have to incur. This strategy will be based on the DHC-6 (De Havilland Canada DHC-6 Twin Otter) seaplane model.

Pagonakis (2016) carried out in his research a pricing model based on 6 variables (Annex I).

1. Fuel costs - Cost of fuel consumption, per hour of flight, during its flight since take-off of the seaplane until its landing;
2. Pilots costs - Payment costs for pilot and co-pilot per hour flown;
3. Leasing and mechanical maintenance costs - This variable consists of the cost per hour flown for the leasing contract and the respective maintenance cost for each hour;
4. Fare tax - Tax imposed by the state for each flight performed;
5. Waterway fees - This variable is linked to waterway operating costs and is broken down into landing fees, docking fees, and flight service fees; (related to the provision of basic services such as check-in and boarding and disembarking of passengers);
6. Passenger occupancy rate - Percentage of passenger occupancy needed to achieve break-even between earnings and expenses.

This comprehensive equation with the variables that constitute the cost of travel (Annex J) was further completed by Ballis et al. (2018) and for this specific example was solved for a value of 40 minutes (2/3 flight hour).

$$K_{FI} = K_{VAT} * (S/v * (K_R + K_P + K_L) + K_m + K_B + K_{R.0}) \text{ (1)}$$

Replacing the parameters:

$$K_{FI} = 1{,}05 * (2/3\,H * (400 + 94{,}47 + 216) + 100 + 100 + 50) \text{ (2)}$$

The total cost of the trip:

$$K_{FI} = 759{,}99 \text{ (3)}$$

Individual ticket cost assuming 15 passengers:

$$759{,}99/15 = 50{,}67 \text{ (4)}$$

Individual ticket price by adding up the markup rate:

$$50{,}67 * 1{,}2 = 60{,}8 \text{ (5)}$$

Individual ticket cost assuming 19 passengers

$$759{,}99/19 = 40 \quad (6)$$

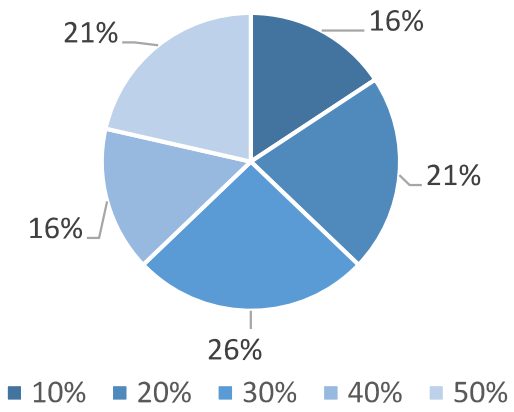
Individual ticket price by adding up the markup rate:

$$40 * 1{,}2 = \ 48 \quad (7)$$

The conclusions reached were that the travel cost per person for a journey taking only 15 passengers should be EUR 50.67 (final consumer price of EUR 60.8 assuming a markup fee of 20%) and EUR 40 for a travel of 19 passengers (final consumer price of EUR 48).

For seaplane flights to be viable for the entrepreneur, the routes to be operated must be thoroughly studied in detail in order to understand how to ensure that flights have a minimum passenger load factor of 80% (around 15 passengers) in a 19-seat De Havilland Canada DHC-6 Twin Otter.

Figure 12 - Value reduction for continuing to use the service



Source: Elaborated by the author, 2020

The last element that was questioned to respondents was whether they would be willing to make seaplane journeys even if the journey lasted for two hours instead of 40 minutes. In return the consumer had the cost of his journey diminished. As already explained above, 70 of the 113 people in the sample that are interested in taking seaplane trips replied to this question. The percentages are given above and as the legend shows, it represents the portion the responding sample would like to see reduced in the price of their fare to remain interested in undertaking the two-hour trip. 26% of respondents replied that they would be keen to make the trip by the circuit if they had a 30% discount to compensate. The remaining percentage of breakdowns are also indicated.

4.1.2.2. Distribution Mix

The distribution consists of the set of variables associated with the placement of a company in the market and how customers will be able to reach the products and services offered by a company. This service is aimed at anyone who wants to make a trip between the Greek islands of seaplane and is therefore operating in B2C (Business to Consumer) as the end customers are people and not companies. Such service will enable the Greek population as well as any visitor to have an alternative system of transport for travels overseas particularly between the different islands of the country.

The service will operate by building several seaplane bases along with various locations on the different Greek islands. The service will initially be concerned with the filling of the Greek territory in the Aegean Sea with its main seaplane base located close to Athens (Lavrio) and functioning as a hub of the various defined routes. Additionally, depending on the success of the project, another main seaplane base should be built in Thessalonica permitting modification of the routes to reduce travel times and reach other islands ensuring the same financial profitability.

4.1.2.3. Communication Mix

Communication is how companies inform and persuade target consumers to look for their products or services. By having a strong communication strategy, the company can generate awareness of the brand and its products in the market, thus obtaining a greater number of sales and generating higher profits.

This service is essentially intended to serve residents living in islands and remote regions with poor accessibilities as a target and also to tourists visiting the country. To create awareness, the company will initially focus on mixed communication (both above the line and below the line) and the following channels will be used for the implementation of the strategy (Table 10 and Table 11).

Table 10 - Launch Communication Strategy, per Channel

Launch Strategy		
Channels	**Actions**	**Goals**
Outdoor	- Mupi and Billboard: Mupis display on the islands where the service will be available as well as a billboard in Athens.	- Create awareness in the local and tourist community; - Generate word-of-mouth.
Online	- Use of the website to present the company's history, mission and values; - Enabling customers online booking; - Introduce business updates and special opportunities.	- Increase customer engagement with the company and the service.
Online	- Social Media: Presence on the most influential social networks including Facebook, Instagram, Linkedin, Twitter and Youtube.	- Increase the engagement with customers and notoriety; - Delivering the news to followers and subscribers and having content shared.
Online	- App: Creation of an app where consumers can log in to their accounts, schedule trips and receive exclusive discounts in case of having a membership card.	- Provide convenience in service purchase; - Promote engagement and loyalty.
Sales Promotion	- 20% direct discount on the first flight (promotion applicable in the first 3 months of the service launch).	- Attract a sizeable number of clients to try the service offered during the launch months; - Achieving customer loyalty.

Source: Elaborated by the author, 2020

Table 11 - Post-Launch Communication Strategy, per Channel

Post-Launch Strategy		
Channels	Actions	Goals
Direct Marketing	- Send emails directly to customers who have registered on the website and used the service with requests for experience evaluation and personalized offers according to travel history.	- Create a relationship and retain consumers.
Partnership	- Partnership with national transport networks.	- Facilitating customer accessibility to seaplane bases pre and post-flight.

Source: Elaborated by the author, 2020

4.1.2.4. People Mix

The success of a business is highly dependent on the people who make it up since they are the first contact between consumers and the organisation. It is, therefore, necessary to ensure a competent team, who can provide customers with a quality service and capable of meeting their expectations.

A large part of the success of this business must be associated with safety and in this field, it is the pilots who bear the brunt. It is extremely important to ensure the recruitment of an experienced team of pilots who, in addition to providing customers with the necessary safety, can train younger and less experienced pilots to ensure the sharing of know-how and best practices.

The customer service will be fully provided online with a team that is going to be responsible for supporting customers and any questions that arise within business days during the service opening hours. This team aims to provide swift responses to customers, offering support both before the purchase of the ticket and after-sales. This team is made up of people with practical knowledge in the technology field as well as problem-solving and attentive customer service. Initially, this team will also be responsible for the development of a chatbot that will answer frequent questions and be available 24 hours a day.

4.1.2.5. Process Mix

To provide maximum convenience for its customers, the company will offer two distinct formats for service acquisition. The first format will be secured through an online platform (company's website and mobile application), which allows users to search and book flights. Upon choosing the destination, date, schedule and typology (one way or round trip), users will be redirected to the payment method, where

they will be able to finalize their purchase by choosing the desired method of payment as well as filling out their details. After the payment has been verified, an email will be sent with a confirmation of the payment, as well as the corresponding ticket.

The second format will be ensured through the sale of tickets at physical stations. At first, these stations will be available only in the most affluent seaplanes bases (such as Lavrio, Heraklion and Rhodes), subsequently expanding the number of stations along with the extension of the seaplanes network.

The purchased ticket will contain the passenger information and route, as well as a QR code that will be used when boarding.

The passenger should arrive at the boarding place about half an hour in advance. When boarding, the User must present the ticket accompanied by his identification that will be validated by the co-pilot before entering the seaplane.

Upon boarding, the passenger shall go to his/her seat and settle down complying with the safety rules.

During the flight, the following stop will always be announced, as well as the estimated travel time until it. In case the passenger arrives at his destination, he must leave the seaplane. If the stop is only an intermediate stop, the passenger should remain inside the seaplane.

After the completion of the travel, the customer will receive in his email a brief survey in which the service provided can be evaluated, as well as any comments and suggestions.

4.1.2.6. Physical Evidence Mix

4.1.2.6.1. Website and Mobile app

Both the Website and the Mobile app will be designed with a minimalist and intuitive design. In addition to its functional component (booking and purchasing tickets), it also possesses an informative component featuring the company's history, mission and goals, as well as the latest updates containing promotions and company announcements, such as new destinations and routes.

4.1.2.6.2. Seaplanes

As mentioned earlier, the fleet of seaplanes will be composed mostly of "De Havilland Canada DHC-6 Twin Otter" seaplanes with a maximum capacity of 19 passengers and 2 cabin members (pilot and co-pilot). The seaplanes are characterized by being comfortable and reliable.

4.1.2.6.3. Seaplane Bases / Terminals

Hellas Seaflying will feature three different types of seaplane bases according to the cities in which they are situated. Athens, by being the capital, the city with the highest traffic and the place where all the routes are going to end will have a seaplane base with the “metropolitan typology” (Figure 13).

For the other main regions and islands, the focus will be the development of seaplane bases of "Central typology" (Figure 14). Lastly, for the smaller islands and regions with low traffic, "Regional bases" ((Figure 15) will be created. The principal changes concerning these three categories of seaplane bases are the number of seaplanes that they can park. The "Regional terminals" can accommodate 1 to 5 seaplanes, the "Central terminals" have a capacity of 3 to 10 planes whereas the "Metropolitan terminal" can accommodate more than 10. The planes will remain at sea when not in service attached to docks at the terminals. The regional terminals will have a resting area equipped with Wi-Fi, where customers will be able to charge their electronic equipment, seats, and digital boards continuously updated on the latest flight data. The terminal will have vending machines (containing food beverage and coffee) as well as a small car parking space. The central terminals and the metropolitan will feature the same facilities as above, in larger dimensions, as well as a bar and a convenience store.

Figure 13 - Metropolitan Seaplane Base

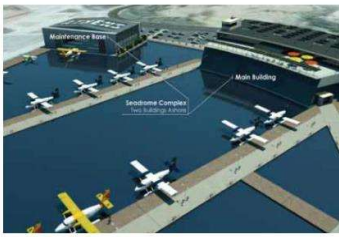


Figure 14 - Central Seaplane Base

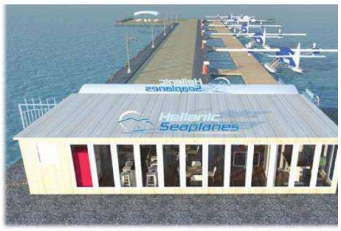


Figure 15 - Regional Seaplane Base

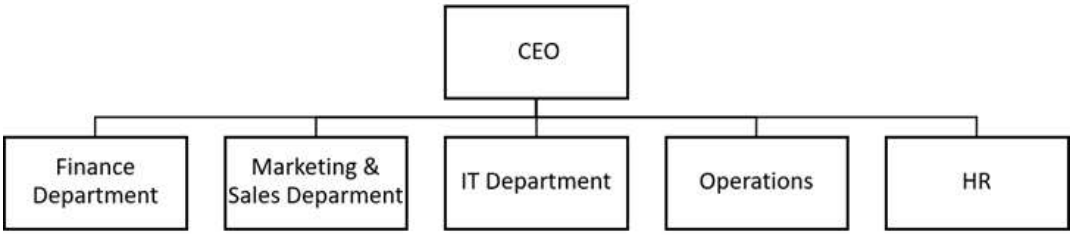
Source: Pagonakis, 2020

4.2. Resources

4.2.1. Company Organizational Chart

For the business strategy developed to deliver results, the organizational structure must also be well defined and articulated to be able to comply with this strategy. The formal structure of an organization presents the different departments present in an organization as well as their hierarchy and the way departments communicate. The company will initially have few departments and will start on a small scale. The different departments will have the responsibility to fulfil their tasks and present results to the CEO who will have the responsibility to make the final decisions. The organizational structure type is functional and is separated into five departments (Figure 16).

Figure 16 - Company Organizational Chart



Source: Elaborated by the author, 2020

Firstly, the Finance department will be mainly responsible for managing the company's funds and seeking investments. The Marketing & Sales department will have the function of promoting the company, creating awareness and getting potential customers to acquire the services via appropriate support before and after-sale. It will also have the responsibility to negotiate with the different suppliers ensuring that there are strong relationships with them and seeking the best opportunities for the company's operations.

The IT department will be responsible for ensuring that the internal communication channels are functioning correctly as well as providing repair in the event of malfunctions. Besides, the IT department will manage the online platforms for customer contacts, website and mobile applications. The Operations department is related to the performance of the company's main activities including the operation of flights, scheduling of flights, the establishment of new routes and new seaplane bases.

Finally, the Human Resources department which will have the function of recruiting new workers and evaluating them, salary processing, staff training and handling staff and company interactions.

4.2.2. Human Resources

Human resources constitute all the workers that are part of a company in the performance of its activities. All companies regardless of their size need to have a strong team of workers. It is the staff and each person who is part of it that contributes to shaping the organizational culture and promoting its proper functioning. Workers are entrusted with the performance of the roles and responsibilities for which they have been hired.

The human resources division will have in its hands the important task of choosing individuals who demonstrate the capacity to be valuable, ambitious and fit in with the company's values. In addition to this, pilots need to be experienced to transmit to their passengers a sense of security.

The company will start with the following *staff*:

A strong flight crew including *pilots*, *co-pilots* and *reserve pilots*;

Ticket sellers in the most affluent seaplane bases;

IT technician responsible for the maintenance of the communication channels;

Customer Service for helping customers on business days;

Maintenance crew for assuring that the seaplanes are ready for flying;

Air traffic controller to monitor the routes;

Human Resource Manager accountable for sustaining and increasing the healthy working environment;

Financial Manager responsible for the financial health of the organisation;

Marketing & Sales team responsible for attracting customers to use the service;

Business Manager who meets periodically with the various departments and takes final decisions concerning the business;

Network Planner responsible for establishing the routes to be operated by the company;

Transport Planner Responsible for planning and improving both existing and new transportation systems.

4.2.3. Material Resources

Material resources are the physical resources held by a company to be used during its operations. Acquisition of this type of equipment is crucial then since the business is not able to provide the service in the absence of such resources. The material resources that *Hellas Seaflying* will need are the following (Table 12):

Table 12 - Hellas Seaflying's Material Resources

Material Resources	Description
Aircraft	The company will purchase via leasing 14 DHC-6 Twin Otter seaplanes as they are modern, fast and versatile. While initially only 11 seaplanes will be needed to tackle defined routes, 3 more will be acquired to cope with possible maintenance.
Physical Place	The company will have to build seaplanes of various sizes in the various locations where the seaplanes will pass. The seaplane bases shall be constructed in ports next to the water bodies.
Office Supplies	Office equipment will be acquired to enable the support team to perform their activities, such as chairs, desks, file cabinets, computers and all other hardware for each desk, telephone, as well as the main printer.
Resting Areas	For customer resting areas, sofas, tables, electronic devices charging sockets as well as coffee machines and vending machines will be acquired. The larger seaplane bases will also feature a bar and a convenience store.
Aircraft Maintenance	Construction of a warehouse capable of storing some of the seaplanes and allowing the mechanics to inspect and repair them in case of problems.

Source: Elaborated by the author, 2020

4.2.4. Sales Force

Sales are the cornerstone of all businesses as this is where money flows into an organization and income is generated. Without sales, businesses simply do not survive.

The company will have in its Marketing & Sales team the staff that will promote its service to the customer. To do so, the team will rely on different advertising channels, including outdoor and online advertising via paid advertising and email marketing to potential and regular customers. If potential customers are looking for particular details they can leave their contact details to be contacted.

The sale of tickets will mainly be done online through the website or the application which will be set up ensuring comfort for its customers as they will not have to go directly to the points of sale. Alternatively, there will be ticket booths at some of the larger and more affluent seaplane bases. Consumers will be able to buy tickets irrespective of their place of origin at any of the available booths.

4.2.5. Accounting and Legal Support

Hellas Seaflying will initially not have in its organization an accounting or legal department opting to outsource these activities to third-party entities. The accounting department will provide the financial department with additional information to facilitate decision making and prepare the required financial statements. For legal matters and given that the market is a complex and has undergone various amendments recently it is advisable to rely on professionals that can ensure that the company undertakes all the legal procedures necessary for a successful performance of its business activities.

4.3. Implementation Plan

After identifying the required resources for the proper functioning of the business, it is essential to plan the various steps that must be taken to implement the project. By using the Gantt Chart tool, the main tasks necessary for the implementation of this project will be set and the corresponding initiation and time allocated for its execution (Table 13).

Table 13 - Gantt Chart - Hellas Seaflying

Task Name	Q3 2021			Q4 2021			Q1 2022			Q2 2022			Q3 2022		
	JUL	*AUG*	*SEP*	*OCT*	*NOV*	*DEC*	*JAN*	*FEB*	*MAR*	*APR*	*MAY*	*JUN*	*JUL*	*AUG*	*SEP*
Analyse the strategic plan															
Examination of legal requirements															
Seek investment for the project															
Negotiate port licensing contracts with the Minister for Infrastructure and Transport and with the port authorities															
Acquisition of equipment (negotiation with suppliers)															
Construction of the necessary infrastructure for the operation															
Staff recruitment and training process															
Perform test flights															
Implement the launch strategy															
Commencement of operations															
Control of operations															

Source: Elaborated by the author, 2020

Activities will begin in July 2021 where the strategic plan will be reviewed again to check all the details and undertake the appropriate changes. The following month, the legal requirements for the business will be assessed.

During September and October, Hellas Seaflying will seek out potential investors to raise capital for the company to set up its business. Considering the long bureaucracy involved, the two following months will be used for negotiating the permits to operate in the ports with the regulatory authorities.

The first quarter of 2022 shall be used to negotiate with suppliers and acquire the necessary equipment to operate. This is also the period where the construction of the facilities will begin.

In the month of March, the recruitment of the staff will begin to assure the correct execution of the project. Among the staff are the pilots, mechanics, the management team, the planners and the rest of the staff who will contribute to the success of the business in achieving its proposed objectives in the set period. The chosen staff will undergo their training throughout April.

The selected pilots must have prior experience leading them to be ready as soon as possible to perform the flights being tested in May and June. The management team will also launch the marketing campaigns to create awareness of the business and the company at this point.

The operations are scheduled to start in July with the launch of the service to the community and the monitoring procedure will start as soon as the first flights take off.

4.4. Strategic Control

The control and implementation of a strategy are just as important as strategy planning as the planning is of no value to the management unless the implementation is carried out.

According to Jordan et al. (2008), management control is the set of mechanisms designed to motivate the managers of an organization to achieve the strategic goals set in due time, with priority being given to action and decision making as well as the delegation of power and accountability to the remaining members. To implement an efficient control system, three different types of management control instruments apply (1) Guiding instruments that provide updated and real-time input to help decision making about the direction of the company; (2) Behavioural instruments that provide orientation and influence on the behaviour of managers towards reaching the organisation's objectives and (3) dialogue instruments that are based on communication forms such as reports, maps and meetings. These instruments allow managers to lay down goals, plan how they are going to be achieved and also control and evaluate the achievement of objectives.

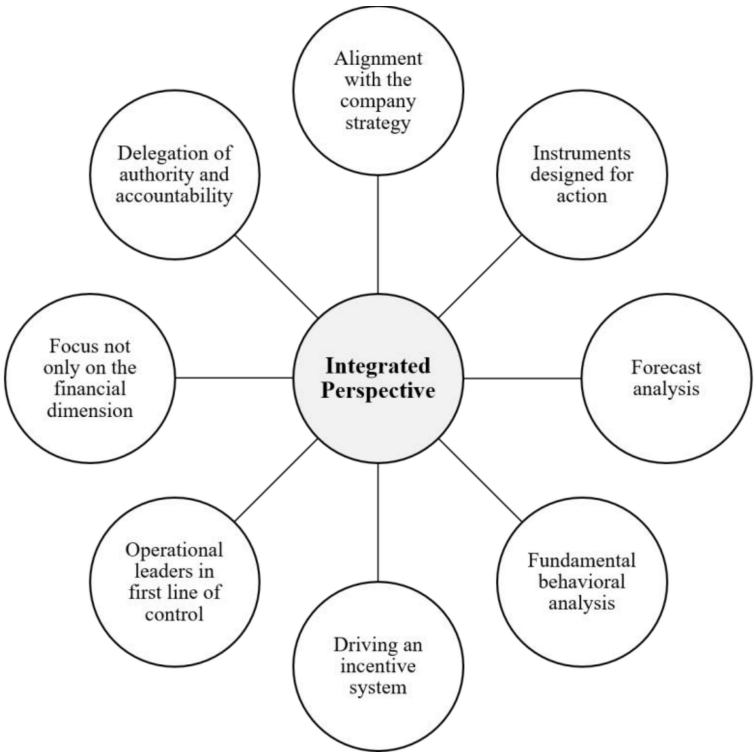
To further its definition Jordan et al. (2008) established 8 principles for an efficient management control system:

- Management control instruments must consider both financial and non-financial objectives;
- There must be decentralisation, delegation and accountability;
- A convergence must occur of the individual interests of each sector with the strategic objectives of the organisation.
- Management control instruments must act as catalysts for actions and not merely be documents or bureaucracy;
- Deal with historical management information but, above all, focus on the future;
- Management control is primarily behavioural, i.e. it influences people's behaviour.
- Management control leads to a scheme of incentives, through a system of sanctions and rewards.

- The first line performers are the operational managers as opposed to the management controllers.

Based on these principles Lopes da Costa (2012) designed a framework with the 8 principles, as can be seen in Figure 17.

Figure 17 - The Eight Principles of Management Control Framework

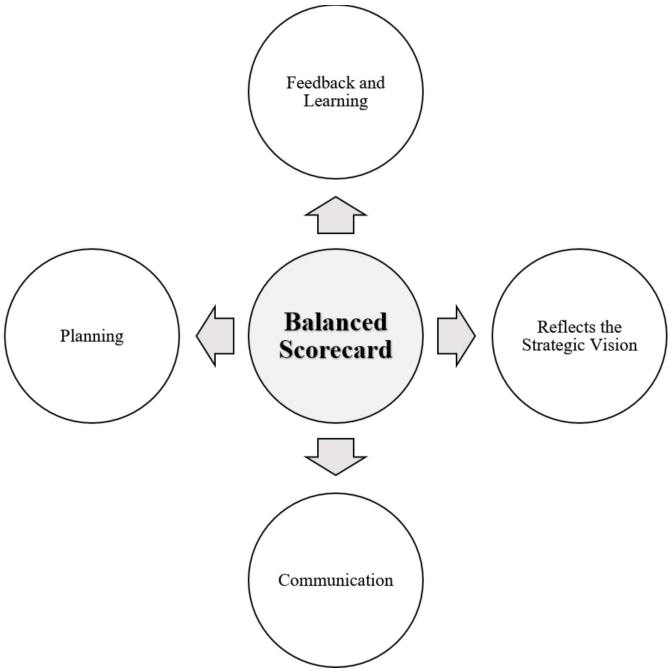


Source: Lopes da Costa, 2012

4.5. Balanced Scorecard

Balanced Scorecard is a strategic management methodology that permits to transfer the strategic planning of a company towards its activities passing through the various members of the company to achieve the expected results. This methodology evaluates the performance through key indicators of a company allowing the worst performing sectors to be improved. BSC presented in figure 18 is a performance metric that allows to determine and improve several internal business areas and their external outcomes by focusing on four separate areas: (1) feedback and learning processes; (2) alignment with the company strategic vision; (3) efficient and effective communication and lastly (4) correct planning (Costa et al., 2019).

Figure 18 - Balanced Scorecard Framework



Source: Lopes da Costa, 2012

The development of the BSC is associated with Kaplan & Norton (1997) who emphasized that the framework provided managers with the instruments required to attain future business success. To achieve such success the BSC enables companies to have an in-depth knowledge of the organisation and convert the business mission and strategy into a set of performance metrics to be used for organisational management. These performance metrics focus on the performance assessment of the organization, taking into account not only the financial performance but also other key metrics such as customers, internal business processes and learning and growth (Kaplan & Norton, 1997).

Drawing up the BSC should stimulate the managerial aspect to connect the financial objectives to strategy. Each indicator in this framework has the aim of enhancing the financial performance of an organization and therefore this is the final focus of the BSC. Defining financial objectives should be different according to the different business units and also following the business life cycle stage that a company finds itself in. However, each organization has to focus on three aspects: growth, profitability and value creation.

Table 14 - The Financial Perspective

	Critical Factors for Success	Performance Indicators	1	2	3	4
Financial Perspective	Growth Company Expansion	- Rate of growth activity - Turnover - Market Share				
	Profitability	- Return on equity - Profitability of sales - Earnings per share				
	Value created: Capabilities to generate value for the shareholders	- CVA (Cash Value added) - EVA (Economic Value added) - NI (Net Income)				

Source: Lopes da Costa, 2012

Businesses started giving greater importance to their clients by shifting from emphasizing the performance of their products and innovation to highlighting the value that their products gave to their customers. The customer perspective enables the main metrics of customer performance to be in tune with the targets defined and market segments chosen. This metric is evaluated through four main indicators: Retention, loyalty, profitability and satisfaction.

Table 15 - The Market Perspective

	Critical Factors for Success	Performance Indicators	1	2	3	4
Market Perspective	Improve Customer Satisfaction	- Satisfaction index (surveys) - Waiting period - Claims				
	Degree of the loyalty of current clients	- Growth rate of turnover in current customers - Number of customers per year "Repeat Clients"				
	Ability to innovate on offer Acquisition of new customers	- Turnover - Market Share -Number of differentiated offers in the market				
	Yield	- EVA (Economic Value Added) - Return on Sales / Customers				

Source: Lopes da Costa, 2012

The internal business process perspective is where companies identify the most vital internal processes that must be properly executed to meet their customers' needs and to satisfy their shareholders - the financial perspective. To achieve these results, companies develop internal metrics for these processes which will result in the attainment of the previously set objectives both for the client and shareholder. Despite the unique set of internal processes for value creation that each company has, the development of a value chain provides a simplified and customizable model to assist in the definition of the metrics. It is crucial to ensure that there is a space for innovation in Value Chain to investigate the needs of consumers and provide quality assurance through the optimization of the operational processes, as well as support the customer in the after-sales of a product or service acquisition. The critical factors for success that should be analysed in this dimension are rationalization, efficiency, quality and organization.

Table 16 - The Internal Process Perspective

	Critical Factors for Success	Performance Indicators	1	2	3	4
Internal Processes Perspective	Rationalize Elimination of non-value-creating activities	- Product unit costs				
	Efficiency analysis Resource optimization	- Productivity - Tax capacity utilization rate - Absenteeism				
	Quality Ensuring a high level of acceptance of the products/services	- Rejection Rate				
	Organization Improve service delivery	- "Lead time" or deadlines - Waiting time				

Source: Lopes da Costa, 2012

The final aspect presented in the Balanced Scorecard is the Learning and Growth and it will be used to reach all the other metrics present in this Framework. The objectives included in this section are the drivers to reach outstanding performance metrics in the other indicators. For companies to succeed it is vital to not only invest in material assets and R&D but also three aspects - the staff, systems and processes.

Table 17 - The Organizational Development Perspective

	Critical Factors for Success	Performance Indicators	1	2	3	4
Organizational Development Perspective	Innovation: Employee capacity to generate new ideas	- Number of new ideas taken - Number of new products or services				
	Satisfaction: Guarantee high levels of motivation and commitment	- Satisfaction index - Amount of awards and incentives				
	Qualifications: Ensure knowledge levels of employees that enhance their performance	- Number of qualified staff - Number of training hours				
	Technology: Harnessing the technological potential	- Average investment per employee - Number of computerized activities				

Source: Lopes da Costa, 2012

CHAPTER 5

Conclusion and Suggestions for Future Research

The purpose of this strategic plan was to assess the Greek potential for developing a seaplane network operation. Some arguments were raised in support of the idea, considering the unique specificities of the country being addressed. The vast number of islands and extensive coastline indicates that there is room for operating this mode of transport. Seaplanes also seem to be able to cope with the issues raised by the lack of connectivity of the remote regions felt by their population. However, it is worth reinforcing that the high bureaucracy involved in the business process and the difficulty of obtaining licenses may serve as a major obstacle to the correct implementation of the strategy. It is also important to bear in mind that this type of operation will always require a considerable financial effort and initial investment, therefore it is necessary to resort to external investors, creating a strong initial pressure on project managers.

Seaplanes offer several benefits in terms of environmental impact and versatility as compared to the usual modes of transport used to make journeys between islands. They are significantly faster than ferries but more expensive. It is a mode of transport which, apart from all the advantages already presented, enables passengers to enjoy beautiful landscapes on Greek territory, providing further incentives for the numerous tourists of the country to travel.

Despite the existence of various success stories, few of them have occurred on European territory concerning their operations. These findings have unfortunately led to difficulties in obtaining financial information and market trends at the European level. It is also relevant to introduce specific European legislation for this mode of transport by the relevant bodies to facilitate licensing procedures. However, the country due to the existence of some companies that have tried to enter with little success in this segment of the market has been over the last 15 years introducing new legislative measures to foster the greater success of the operations such as the abolition of restrictions on daily flight limits and a further smoothing of the negotiation processes for obtaining licences. Despite the benefits these regulations provide for the establishment of businesses, they also lead to increased competition with two companies already close to starting operations. The initial delay to the competition, however, allows learning from potential mistakes of their competitors. To cope with this competition the company intends to offer flights on circular routes enabling passengers to board and leave at stops during the journey to minimise costs and get more customers to use the service.

The proposals presented in the strategic plan were based on research, literature review, analysis of how these businesses usually operate and how they should be set up.

The survey conducted among residents and former residents/visitors to the country has shown there is the market potential for such operations to be carried out with a large percentage of respondents

expressing interest in using this service. Furthermore, the survey also concluded as to what they would be willing to spend on seaplane travel, what they considered to be the most important aspects of their trips and the main reasons why they needed to travel. It would have been of interest to have received a greater number of responses to ensure that the results were more credible.

At the end of the thesis, there are still questions that need to be further studied in the future, such as what European standards apply to this type of transportation, the actual costs of this type of travels and the prices that need to be practised to be cost-effective in different contexts, and the identification of profitable routes to allow operations to succeed.

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Annexes

Annex A– Seaborne passengers embarked and disembarked in all ports, 2015-2018

Seaborne passengers embarked and disembarked in all ports, 2015-2018
(thousand passengers)

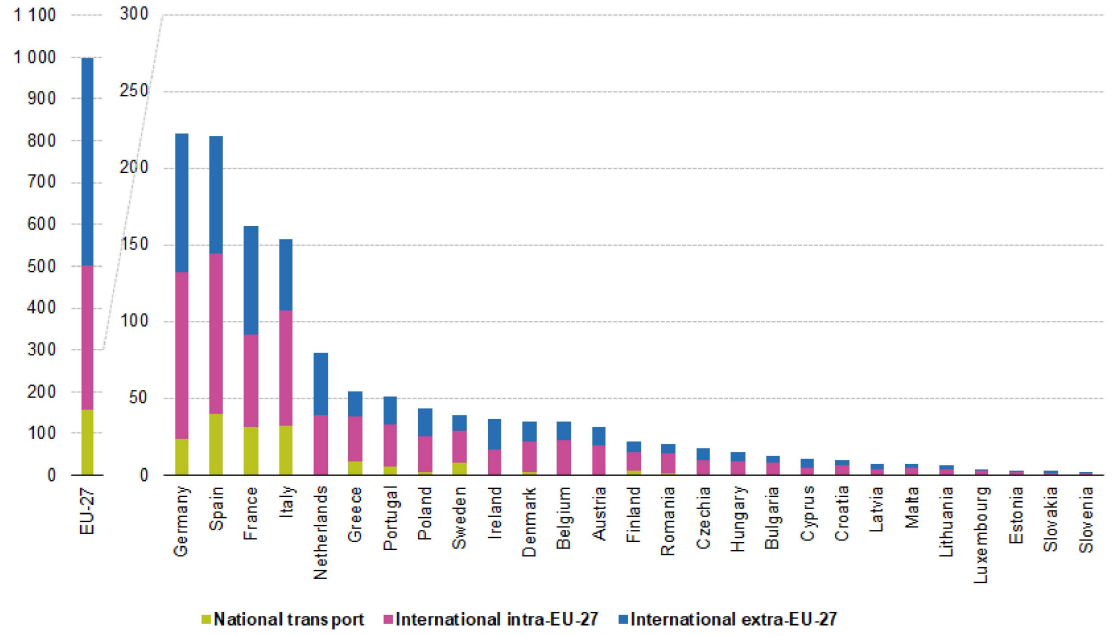
	2015	2016	2017	2018					Change 2018/2017 (%)
	Total	Total	Total	Inwards	Outwards	Cruise	Non cruise	Total	
EU-27	367 627	369 636	388 427	205 822	204 390	13 723	396 490	410 213	5.6
Belgium	844	1 118	1 270	562	565	792	335	1 127	-11.3
Bulgaria	2	3	2	0	3	0	3	3	20.9
Denmark	41 647	41 583	42 851	21 947	21 827	410	43 364	43 774	2.2
Germany	30 087	30 849	30 774	15 304	15 383	2 340	28 347	30 687	-0.3
Estonia	14 164	14 333	14 850	7 390	7 447	13	14 824	14 837	-0.1
Ireland	2 751	2 717	2 774	1 386	1 365	41	2 711	2 751	-0.8
Greece	65 680	65 248	70 023	36 277	36 243	476	72 044	72 520	3.6
Spain	24 522	26 323	27 899	16 345	16 249	3 527	29 068	32 594	16.8
France	26 133	24 514	25 093	12 947	12 785	849	24 883	25 732	2.5
Croatia	27 271	29 661	31 327	16 557	16 101	66	32 591	32 658	4.2
Italy	70 268	67 273	73 876	42 773	42 609	4 826	80 556	85 382	15.6
Cyprus	68	59	72	14	15	2	26	28	-60.9
Latvia	661	723	994	521	542	0	1 063	1 063	6.9
Lithuania	286	303	297	154	169	0	323	323	8.6
Malta	9 910	10 690	11 286	5 992	5 986	156	11 822	11 978	6.1
Netherlands (')	1 910	1 906	1 928	996	984	0	1 980	1 980	2.7
Poland	2 421	2 602	2 585	1 360	1 360	0	2 720	2 720	5.2
Portugal	583	679	740	379	378	60	698	757	2.3
Romania	1	0	0	0	0	0	0	0	-100.0
Slovenia	34	28	31	12	12	0	24	24	-21.1
Finland	18 884	19 222	19 489	9 668	9 551	9	19 210	19 218	-1.4
Sweden	29 500	29 800	30 265	15 236	14 819	157	29 897	30 055	-0.7
United Kingdom	27 805	26 887	26 336	13 246	13 429	2 208	24 467	26 676	1.3
Iceland	737	544	917	403	403	0	806	806	-12.1
Norway (²)	6 714	6 266	6 352	3 091	3 257	181	6 167	6 348	-0.1
Montenegro	99	110	119	45	54		98	98	-16.9
Turkey	2 233	1 250	1 377	688	695	141	1 242	1 383	0.4

(') Data exclude cruise passengers.
(²) Data on international maritime passenger transport only.
Source: Eurostat (online data code: mar_mp_aa and mar_mp_aa_cphd)

eurostat

Annex B - Air passenger transport by type of transport, 2018

Air passenger transport by type of transport, 2018
(million passengers carried)



Note: the national aggregates and total intra-EU-27 aggregates for EU-27 exclude double counting (it includes only departures declarations).

Source: Eurostat (online data code: avia_paoc)

eurostat

Annex C - Nine strategic pillars for transport investment and development for Greece

1. **Enhancing Safety, Sustainability, Efficiency and Competitiveness of Transport**
   This pillar is a fundamental element of the transport strategy as the proposed measures aim at enhancing the efficiency, sustainability and safety of the transport sector mainly through improvements in regulation, funding and data management.

2. **Making PATHE an Efficient Multimodal Corridor**
   The PATHE corridor is the key multimodal corridor for domestic and international transport, connecting the ports of Piraeus, Patras and Thessaloniki with central and south eastern European markets. The high-speed rail corridor is finalised up to Attica, while it is expected soon to reach up to Patras. It carries low volumes of freight and passengers, but the level of service is expected to improve. PATHE motorway is also the main passenger transport corridor between Athens and Thessaloniki, serving close to 75% of Greek population, main Greek ports and is potentially a competitive gateway to south east Europe: all conditions are now present to make it work efficiently. Additional institutional and organisational measures that foster multimodality in all transport operations, such as rational planning of land passenger transport and associated logistics/ freight transport measures, can considerably support the efficiency and sustainability of this major transport corridor.

3. **Building Stronger International Land Connectivity**
   Greece trades around 4500 million tonnes of freight with EU neighbours on an annual basis, and a further 1800 million tonnes with the Western Balkans[7]. Despite this, routes by road and rail remain weak, with areas of poor infrastructure and with long and unreliable border crossing times. It is necessary to improve this connectivity so as to improve the range of trade routes to, from and through Greece, and to create synergies with neighbouring freight nodes on the European network.

4. **Supporting the Tourism Sector**
   Tourism is one of the main economic sectors of Greece creating a wide number of direct and indirect jobs. It has been growing during the last years, also due to a lower attractiveness of other destinations around the Mediterranean. Though tourism has concentrated mainly in summer season and in the islands, close to saturation, observed trends are showing an increase of the duration of the touristic period, development of other types of destinations together with the development of tourism in mainland Greece. Also, the improvement of the economic situation is favouring an increase of domestic tourism. However, infrastructures, level of service and competitiveness of the transport sector (all modes) are to be improved. It is noted that most of the proposed soft and hard measures that improve regional connectivity and accessibility (land, sea and air) will also have positive impact on the tourism sector.

5. **Enhancing Connectivity to the Greek Islands**

Greece has more than 150 inhabited islands and providing reasonably good access to them, both for inhabitants as well as for tourists, is a key issue for Greece. State subsidies are being provided so as to provide an acceptable connectivity level, while in summer season, the system, as operated, is facing capacity issues and poor level of service and facilities. The objective here is to rationalise the connection to islands and propose solutions to improve services without increasing State support. This pillar is strongly connected to the previous one, especially with regard to the touristic and economic development of the Greek islands.

6. **Improving the Efficiency of Logistics Sector**

Despite being a gate to Europe and especially to the Balkans and with a wide number of ports, two of them being of major size, the Greek logistics sector is poorly developed, having relatively few and small logistics centres over the country. Some of the reasons are related to the legal framework. Also limited investments and few business developments in the sector have led to such situation. The proposed measures are closely linked and compliant to the recently completed National Logistics Action Plan.

7. **Developing an efficient Urban and Suburban Public Transport System to support National Transport System**

Although urban areas cover only 15% of the geography, they account for more than 75% of the total population of Greece. However, accessibility via public transport to several bus terminals, ports and rail stations is poor, especially for Persons with Reduced Mobility (PRM). Measures that will facilitate such access will not only increase the use of public transport on short journeys but also for longer distance. In addition, the urban bus fleets are old and continue to use environmentally damaging diesel technology.

8. **Fostering Regional Mobility and Growth**

Having most of the population living around PATHE corridor, together with a difficult terrain, the rest of the Greek regions are facing low economic development and poor mobility levels. This pillar aims at developing a programme of actions to improve transport infrastructures, and thus enhance the levels of mobility, accessibility and economic growth in more remote mainland regions, especially Peloponnese, north-western, western and north-eastern Greece.

9. **Exploring Further Opportunities**

This pillar entails additional infrastructure developments that could lead to other unidentified growth opportunities, mostly within the rail sector. They are included in the Plan as future concepts that should be subject to preliminary exploration.

Annex D - Quantitative Analysis of Rivalry Among Existing Competitors

Features	Rating					Comments
	1	2	3	4	5	
Frequent price reduction actions				X		
Frequent product introductions			X			
Intense advertising campaigns				X		
High level of regularity of actions and reactions				X		
Numerous and well-balanced competitors		X				
Moderate industry growth				X		
Little product differentiation			X			
Capacity increased in large increments						Non-applicable
Major strategic interests			X			
High fixed and storage costs		X				
Sufficient production capacity			X			
Sufficient production capacity						
High exit barriers					X	
Average	3,4					Medium threat of rivalry (medium attractiveness of the industry)

Annex E- Quantitative Analysis of Power of Suppliers

Features	Rating					Comments
	1	2	3	4	5	
Supplier concentration level				X		
Low differentiation of products/raw materials		X				
Industry as an important customer for suppliers			X			
Existence of competition from substitute products				X		
Low risk of vertical integration				X		
Low switching costs					X	
Average	3,7					Medium-high threat of power of suppliers (medium-low attractiveness of the industry)

Annex F – Quantitative analysis of buyer power

Features	Rating					Comments
	1	2	3	4	5	
Customers in large numbers but dependent on large surfaces		X				
Standardised or poorly differentiated products				X		
Products sold to consumers carry significant weight in costs (production or logistics)						Non-applicable
Buyers make high profits						Non-applicable
The buyer is not a threat of IV upstream						Non-applicable
Few or no switching costs				X		
Purchase volume in the industry is significantly higher than supplier sales						Non-applicable
Buyer with full industry information		X				
Average	3					Medium threat of buyers power (medium attractiveness of the

Annex G – Quantitative analysis of Threat of Substitutes

Features	Rating					Comments
	1	2	3	4	5	
Existence of many substitute products					X	
Favorable substitute value against performance/price ratio				X		
High-performance rate of the substitute			X			
High level of buyers' propensity for replacement				X		
Substitute as fashion/style		X				
Average	3,6					Medium-high threat of substitutes (medium-low attractiveness of the industry)

Annex H - Quantitative Analysis of Threat of New Entrants

Features	Rating					Comments
	1	2	3	4	5	
Existence of legal and regulatory barriers		X				
High entry costs		X				
Existence of economies of scale	X					
Low product differentiation			X			
Existence of cost advantages regardless of scale		X				
High capital requirements	X					
High rates of anticipated retaliation		X				
Pricing wars			X			
Impossibility of access to distribution channels						Non applicable
High switching costs				X		
Average	2,2					Threat of new entrants medium-low

Annex I - Estimation of Service Costs and Average Occupation

	Variable	**Assumptions**	**Comments**
1	Fuel costs	615€	Fuel costs may vary depending on the suppliers
2	Pilot costs	30,77€	Cost of both pilots
3	Leasing and mechanical maintenance costs	410€	350€ of seaplane leasing per hour + 60€ of maintenance per hour
4	Fare tax	105%	Value added tax per ticket
5	Waterway fees	100€	Average prices of total charges per flight
6	Passenger occupancy rate	75-80%	Estimation of average occupation

Annex J – Cost of Flight Determination and Variables

$$K_{Fl} = K_{VAT} \times (S/v \times (K_R + K_P + K_L) + K_m + K_B + K_{R.0})$$

where,

S : Distance of the flight

v : Average speed of the aircraft (assumed as 230 km/hr)

K_{Fl}: Cost of flight

K_{VAT}: Correction factor for additional tax (in Europe zone) taken as 1,05

K_R: Cost of fuels for "en-route" flight assumed to be 400 €/hr for the seaplane Twin Otter that consumes 600Lbs/hr

$K_{R.0}$: Cost of fuels for take-off and landing (alighting) tasks, assumed to be N*50€ for the seaplane Twin Otter that consumes 600Lbs/hr during flight. N is the number of take-offs and landings (alightings). N equals to 1 in "sight-seeing" flight types, to 2 in "aller-retour" and more than 2 in "see & stop" flight types, depending on the number of intermediate stops

K_p: Cost of crew (pilot and co-pilot) per flight hour (assumed to be 9.000 € per month for the pilot and 3.500€ per month for the co-pilot. For 132 hours of flight each, one hour of flight will cost 94,7 €)

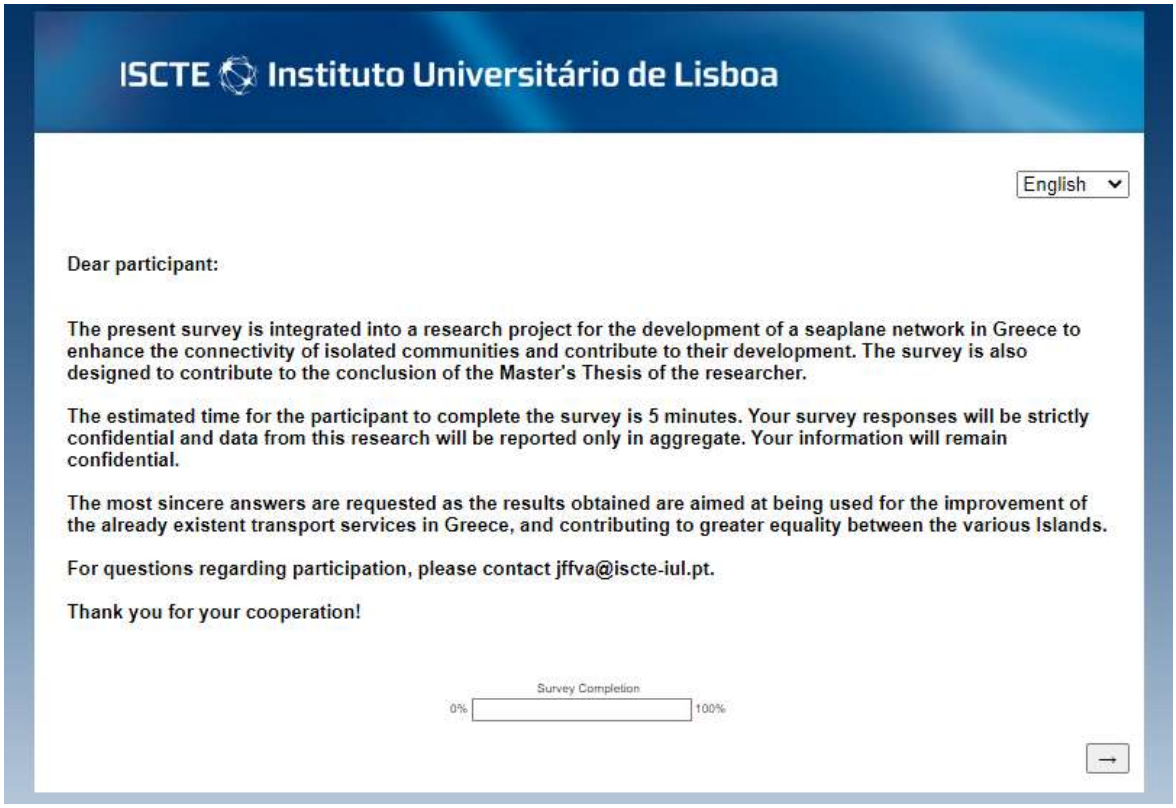
K_L: Cost of seaplane leasing per flight hour that depends on the size of the seaplane and the power of seaplane machinery (assumed to be 216 €/hr for 208 hours of flight per month)

K_m: Cost of maintenance per flight hour that includes the cost of the spare parts and the labor cost for the maintenance activities (assumed to be 100 € per flight hour)

K_B: Seaplane base fee, includes the docking fee, pay-to-stay fees, ground handling charges, etc (assumed to be 100 €).

The investigation of various scenarios shows that the seaplane services are feasible yet at a high utilization rate (around 80%). This required an effective route and timetable planning to maximize seaplane transport capacity during daily operations but also during week (different excursions to attract customers that intent to fly more than once).

Annex K – Survey Introduction



Annex L – Survey Demographics

What is your gender?

- ◯ Female
- ◯ Male
- ◯ Other

What is your age?

- ◯ Under 21
- ◯ 21-34
- ◯ 35-44
- ◯ 45-54
- ◯ 55-64
- ◯ 65+

What is the highest level of education you have received?

- ◯ High school graduate
- ◯ Bachelor's degree in university
- ◯ Master's degree
- ◯ Doctoral degree
- ◯ Other (specify):

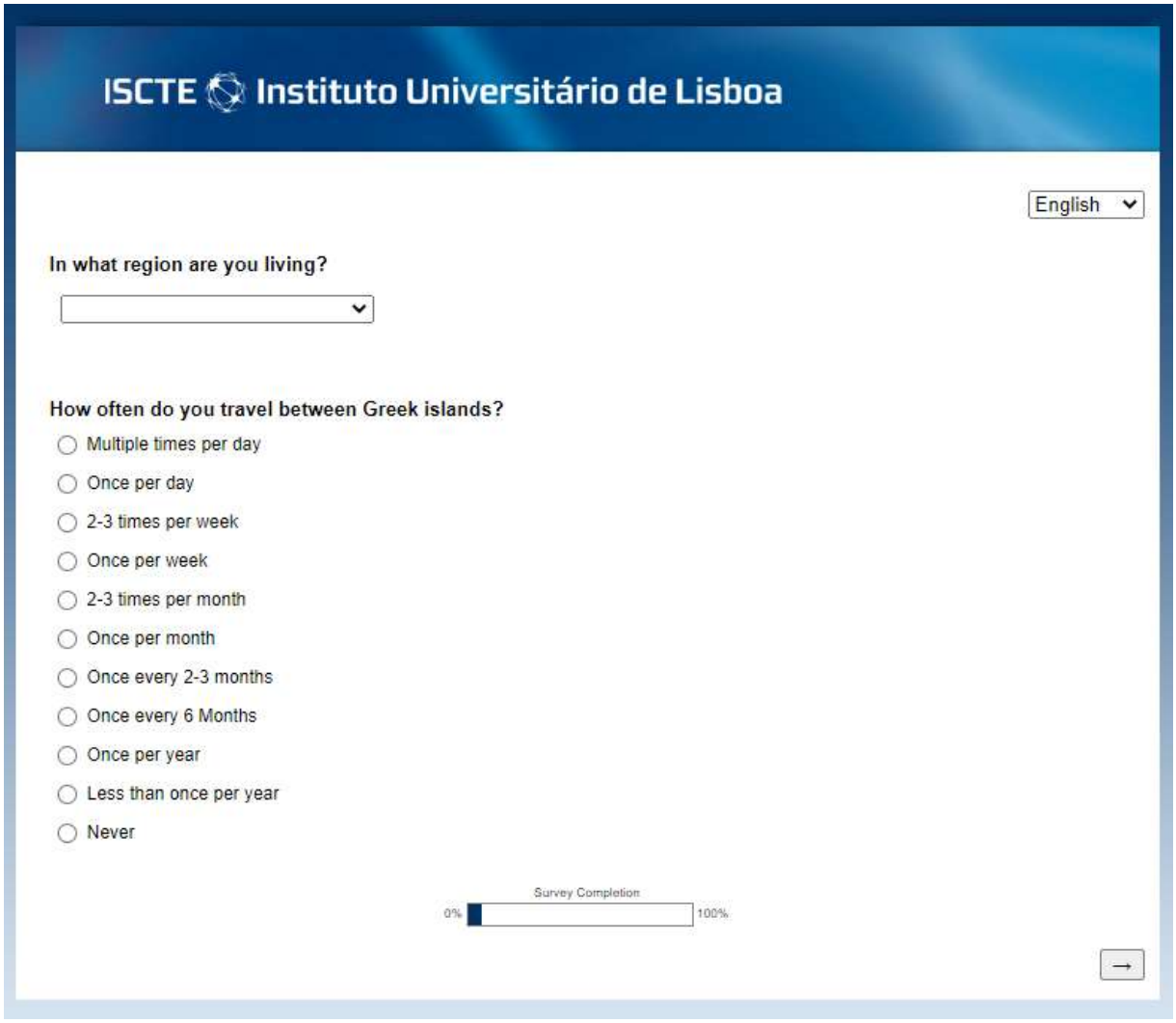
Which statement best describes your current professional status?

- ◯ Student
- ◯ Worker (Employed or Self-employed)
- ◯ Unemployed
- ◯ Retired

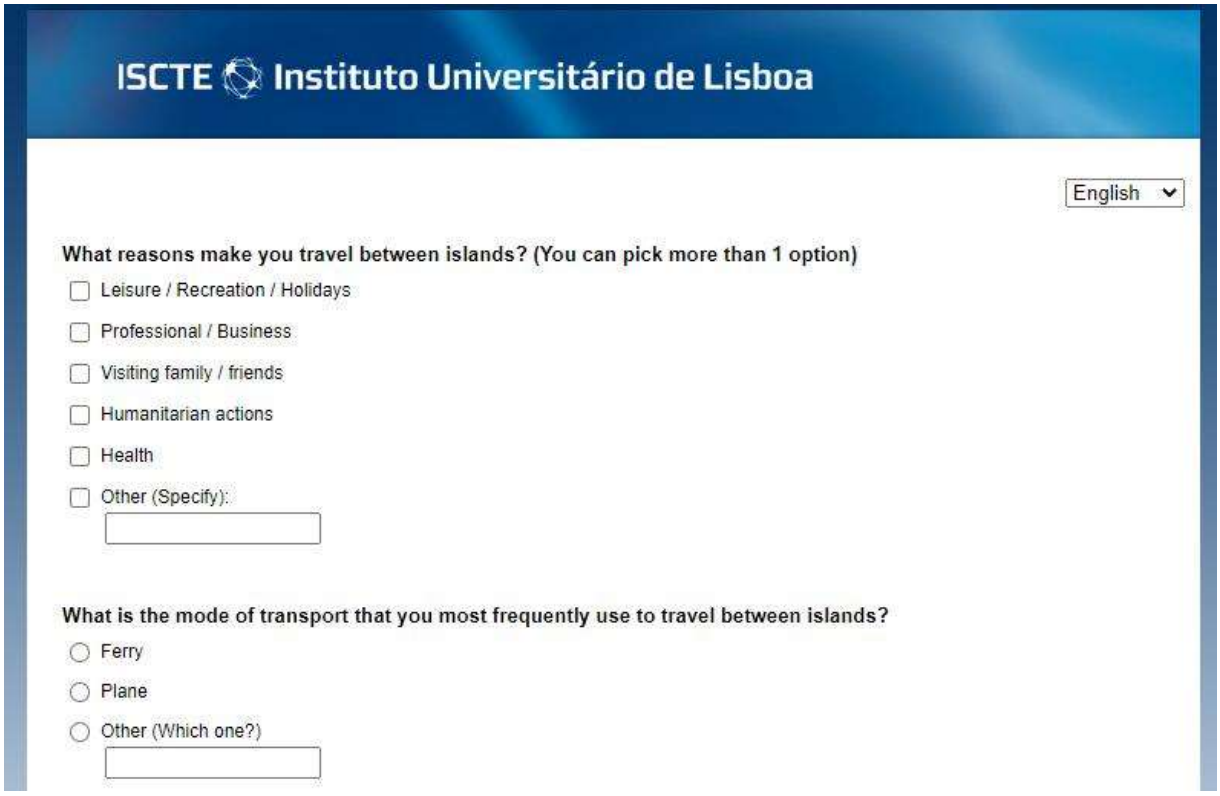
In which country were you born?

Are you currently living in Greece?

Annex M – Region and Travel Frequency



Annex N – Travel reasons and frequent mode of transport



Annex O – Features Importance and average expense

Assess the following features given their importance in the choice of mode of transport to travel between islands:

	Importance Rate				
	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Comfort	○	○	○	○	○
Waiting time	○	○	○	○	○
Trip duration	○	○	○	○	○
Transport conditions (Maintenance, Appearance)	○	○	○	○	○
Price	○	○	○	○	○
Trip convenience	○	○	○	○	○
Included in a travel pass (Weekly, Monthly, Annual)	○	○	○	○	○
Ease of boarding	○	○	○	○	○

Now assess the following features given the rate of satisfaction with the mode of transport you most frequently use to travel between islands:

	Satisfaction Rate				
	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Comfort	○	○	○	○	○
Waiting Time	○	○	○	○	○
Trip duration	○	○	○	○	○
Transport conditions (Maintenance, Appearance)	○	○	○	○	○
Price	○	○	○	○	○
Trip convencience	○	○	○	○	○
Included in a travel pass (Weekly, Monthly, Annual)	○	○	○	○	○
Ease of boarding	○	○	○	○	○

How much do you spend on average per trip between islands?

- ○ Less than 20 € (specify in euros):
- ○ 20 € to 40 €
- ○ 41 € to 60 €
- ○ 61 € to 80 €
- ○ 81 € to 100 €
- ○ More than 100 € (specify in euros):

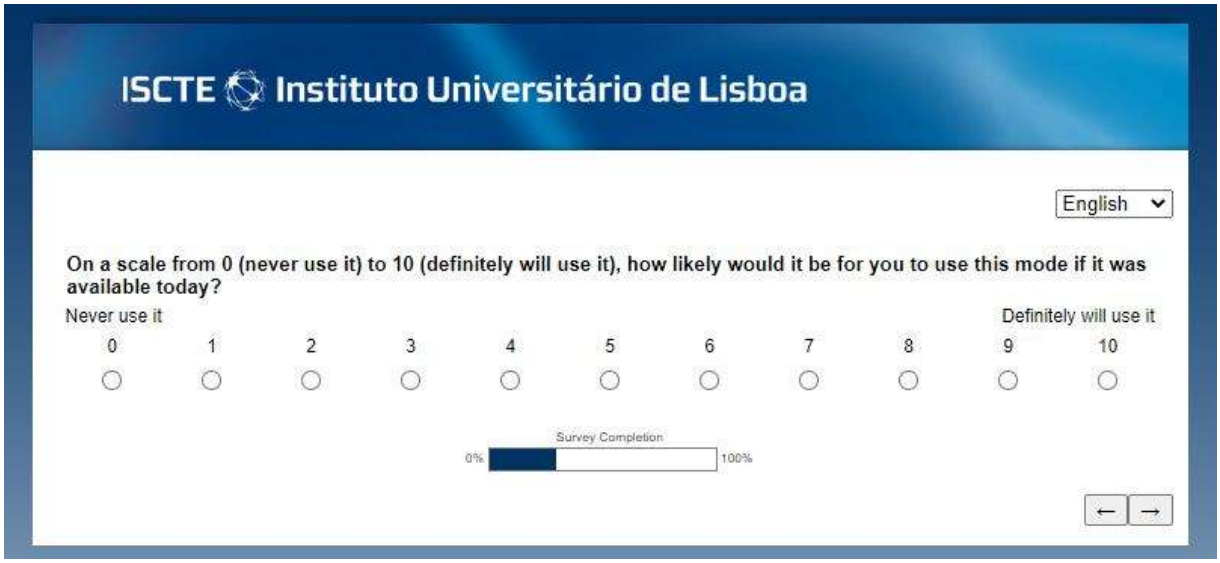
Survey Completion

0% 100%

→

Annex P – Introduction to Seaplanes to the respondents

Annex Q – Likelihood to use the service



Annex R – Consumer Purchase Intentions

For what type of trips would you use this service? (You can pick more than 1 option)

- ☐ Leisure / Recreation / Holidays
- ☐ Professional / Business
- ☐ Visiting family / friends
- ☐ Humanitarian actions
- ☐ Health
- ☐ Other (Specify):

Please drag to the box the 4 most important items considering what would lead you to choose to travel by seaplane and rank them (1 - Most important to 4 - Less important):

Items	Please rank the 4 most important items:
Comfort	
Waiting times	
Trip duration	
Transport conditions (Maintenance, Appearance)	
Price	
Trip convenience	
Included in a travel pass (Weekly, Monthly, Annual)	
Ease of boarding	

Imagine you want to make a trip between islands for which you have the following cost and travel time by boat and airplane:

- by boat lasts 3 hours and costs approximately 30 € and
- by airplane lasts 40 minutes and costs approximately 80 €

What would be the value that you would be willing to pay to travel the same distance by seaplane knowing that the trip would last 40 minutes?

- ○ 61€
- ○ 69€
- ○ 77€
- ○ 84€
- ○ 92€

Annex S – Circuit Route intention and value willing to pay

English

Imagine you want to make a trip between islands for which you have the following cost and travel time by boat and airplane:

- by boat lasts 3 hours and costs approximately 30 € and
- by airplane lasts 40 minutes and costs approximately 80 €

Suppose that now the seaplane service would operate through a circuit, possibly having to make stops until its final destination and at lower price and for this reason traveling between islands last 2 hours.

Would you still be interested in using this service?

- ◯ Yes
- ◯ No

Considering the travel from between islands as described above what would be the price that would make you interested in continuing using this service?

- ◯ 55€
- ◯ 49€
- ◯ 43€
- ◯ 37€
- ◯ 31€

Survey Completion

0% 100%