



WINDSAIL SOLUTIONS PTE. LTD.

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AIRBUS



EOI Escuela de
organización
industrial



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ABSTRACT

World economy is growing every day more, with new players, new market and new products exchanged in it, reaching the volume of over 13 billion tons of goods moved worldwide last year. More than the 80% of this volume is carried on board of ships and handled by seaports, that means in value the 70% of the world's trade, namely 20.000 billion\$ in 2017.

According to shipping industry data, the seaborne trade is expected to growth of more than 3.5% in next years, especially pushed by emerging countries such as those of Asia Pacific, which are becoming even more big and influent players of the market, being crucial hubs of goods export and import.

These factors lead the maritime industry to face with new challenges to ensure the continuous transit of cargo ships in a sustainable and profitable way. New issues related to fuel costs and ecological risks are arisen, bringing under reflectors the need for new solutions to reduce costs and environmental impact.

According to that, WindSail is an innovative service company which provides sustainable technical solutions to shipping industry companies for saving fuel consumption costs and reducing the polluting emissions effect on environment.

WindSail offers a complete customizable service, allowing ships to cut operational fuel related costs up to 20% with consequent reduction of emissions, by using a cutting-edge technology that exploits wind forces in a fully sustainable way and optimizes fleet performances.

Efficiency, economic and environmental sustainability, in addition to a continuously improved customer experience, are the main benefits delivered to the clients through a well-defined commercial plan and supported by an operational plan designed to assure the best quality of WindSail service.

The company bases its strength on team and its commitment and knowledge in the different areas such as Operations, Marketing, HR, Legal and Finance, in order to ensure the profitability of the business to investors by the implementation of strategies focused on continuous improvement.



I. INTRODUCTION

I. BUSINESS OPPORTUNITY

In a world, every day more connected, where economic, cultural and social distances have been more and more reduced by the globalization process, people can dispose of every kind of good, wherever and whenever they want. Nowadays, world is a unique big market, where merchandises move from a part of the globe to the other continuously by overland, sea and air transport.

With more than the 80 per cent of global trade by volume and over 70 per cent of its value carried on board ships and handled by seaport worldwide, the maritime transport has a central importance for trade and development.

The industry, which counts on a global fleet of over 25.000 vessels, is now facing big challenges mainly related to fuel consumption and environmental problems, with new restrictive regulations about emissions and energy pollution.

Considering this actual challenging situation, WindSail Solutions is born to respond to these problems offering to the maritime transport industry an innovative service that allows ships to move in a more efficient and sustainable way.

By using an innovative technology that exploits the wind energy, we provide a new way to move goods by sea, making ships reducing fuel consumptions, harmful emissions and related costs.

In order to explain the business opportunity detected, in this work will be described the analysis conducted, both external and internal, as well as our mission, vision and the development of the different plans that brought the abstract business idea into the concrete reality of WindSail Solutions.

II. MISSION

Our mission is to offer an innovative, efficient and sustainable solution to maritime transport problems, giving to shipping companies a complete customizable service to reduce fuel and emission costs.



III. VISION

Our vision is to create a new way of thinking the maritime transport, using a 100% green energy through an innovative technology. Customers can enjoy of a full personalized service, having a 24/7 complete assistance, to ensure the most efficient, cleaner and safer solution to move goods all around the world.

IV. COMPANY VALUES

WORK TEAM

In WindSail we deeply believe in the power of union. Team work is a basic factor for success and cooperation is the key to overcome limits that could be impossible for a single person.

A collaborative work environment stimulates people, enhance motivation and make big dreams come true, developing a winning and ambitious thinking in each worker.

In our company the pillars are people, their knowledge, their motivations, ambitions, dreams and feelings. Create a positive atmosphere makes work easier and more efficient, this is why what we look for WindSail are people with different backgrounds, experiences and ideas, but the same collaborative spirit to work like a family.

SUSTAINABILITY

WindSail is strictly related and sensible to the theme of sustainability, looking for solutions that have a positive impact in environment, taking advantage of it in a cognizant and friendly way.

Our company is involved in making the maritime trade a greener business, spreading the awareness that environment has to be used in a correct and sustainable way, exploiting the natural resources with rationality, in order to preserve them for actual and future generations.

CONTINUOUS IMPROVEMENT

WindSail is a dynamic company, continuously looking for solutions to solve problems actually faced with a no sustainable approach.



The spirit of our company is outstretched towards future, always seeking to improvement and development. People, technology, service, all the factors involved in WindSail are constantly aimed to growth, to progress and moved by the motivation that the best is yet to come.





II. EXTERNAL ANALYSIS

The first step to understand where born the need for WindSail Solutions and the context in which it operates, is to well define the sector in which we move and have an overview of it, going progressively more in details.

I. MARITIME TRANSPORT INDUSTRY

As aforementioned, our company's scope is the maritime trade transport industry, a crucial sector for the different economies of the world since it allows the moving of more than 11 billion tons of good around the world, for a value of over 20.000 billion \$ last year. It consists basically in the transportation of any kind of goods (petrol, oil, chemical materials, electronics, food, etc.) in different ways and through many types of vessels.

Shipping Industry is a vital part of the global freight transportation system. The industry accounts for transporting 80% of the world trade. It is the most affordable and efficient mode of transporting goods, given the large volume of goods these vessels can carry for long distances at a fraction of a cost of other modes of transport like rail, roads, air etc.

Last year, demand for shipping services improved as response to the increasing of world trade. In 2016, world seaborne trade volumes expanded by 2.6 per cent, up from 1.8 per cent in 2015. Total volumes reached 10.3 billion tons, reflecting the addition of over 260 million tons of cargo, about half of which was attributed to tanker trade. Also, for the close future, projections point to continued expansion, with volumes growing at an estimated compound annual growth rate of 3.2 per cent between 2018 and 2022. Cargo flows are set to expand across all segments, with containerized and major dry bulk commodities trades recording the fastest growth.

The world shipping fleet provides not only transport connectivity to global trade but is also a big gathering of employments to those working in maritime businesses. Numbers shows that in 2016, world fleet capacity increased by an estimated 3.2 per cent, down from 3.5 per cent in 2015. Dead-weight capacity of the world commercial fleet was 1.86 billion dead-weight tons (DWT) in early 2017, worth \$829 billion.

The shipping business involves lots of countries specialized in different maritime subsectors, as building, owning, registering, operating and scrapping ships.



As described above, the industry is growing as a reflection of world economy but, at the same time, new challenges are arising, first of all those regarding the environmental sustainability, that will be imperatives in next years, offering a big opportunity for our WindSail Solutions business.

II. WORLD ECONOMICS FACTORS

World seaborne trade is highly dependent from developments in the world economy and trade. Despite the relationship between economic output and merchandise trade seems to be shifting, with an observed decline in the growth ratio of trade to gross domestic product (GDP) over recent years, the demand for maritime transport services remains strictly related to the performance of the world economy.

As shown in figure below, while industrial activity, economic output, merchandise trade and seaborne trade shipments may be growing at different speeds, these variables remain positively correlated on factors relating to the index of industrial production of the Organization for Economic Cooperation and Development (OECD) and world indices.

This can be explained by factors such as a weak global investment environment, limited growth in world merchandise trade, increased trade policy uncertainty and the continued negative impact of low commodity price levels both on investment and the export earnings of commodity-exporting countries.

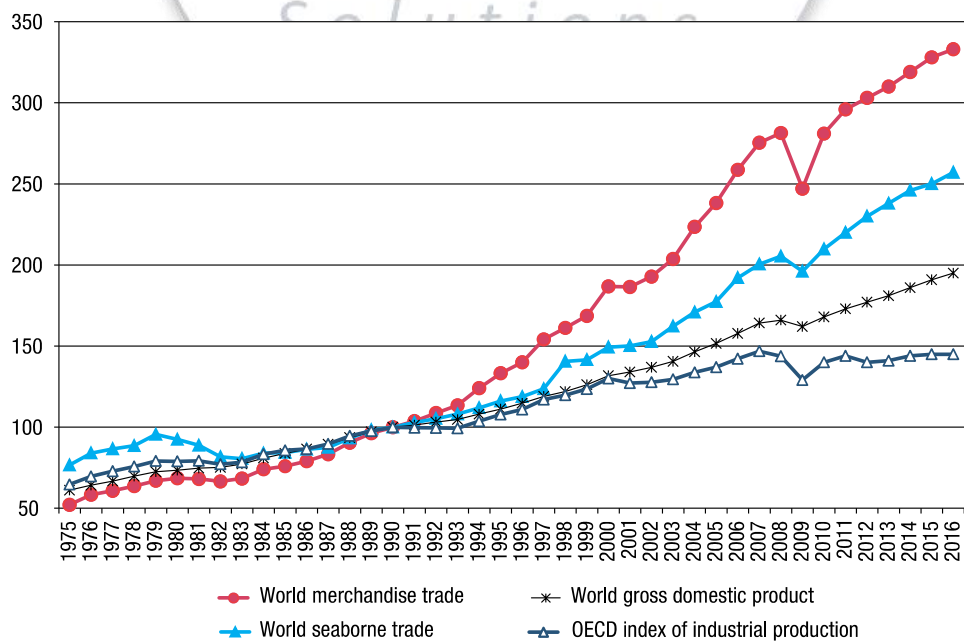


Fig. 1 Economic output



Giving a look at the economic output, as reported in table below, in developed economies, it dropped from 2.2% in 2015 to 1.7% in 2016, reflecting slower growth in the European Union (1.9%), the United States (1.6%) and Japan (1%). In the developing economies, GDP growth fell to 3.6 per cent, down from 3.8 per cent in 2015. Despite a firm GDP growth of 6.7 per cent – supported by government– China continued its gradual transition towards a consumption-driven economy powered by its own internal growth. In India, strong GDP growth (7 per cent) continued but at a slightly slower pace than in 2015, while in the least developed countries, GDP growth expanded by 3.7 per cent in 2016.

Region or economic grouping	2001–2008	2015	2016	2017
World	3.2	2.6	2.2	2.6
Developed economies	2.2	2.2	1.7	1.9
<i>of which:</i>				
United States	2.5	2.6	1.6	2.1
European Union 28	2.2	2.3	1.9	1.9
Japan	1.2	1.2	1.0	1.2
Developing economies	6.2	3.8	3.6	4.2
<i>of which:</i>				
Africa	5.7	3.0	1.5	2.7
Asia	7.3	5.2	5.1	5.2
China	10.9	6.9	6.7	6.7
India	7.6	7.2	7.0	6.7
Western Asia	5.8	3.7	2.2	2.7
Latin American and the Caribbean	3.9	-0.3	-0.8	1.2
Brazil	3.7	-3.8	-3.6	0.1
Least developed countries	7.2	3.6	3.7	4.4
Transition economies	7.1	-2.2	0.4	1.8
Russian Federation	6.8	-2.8	-0.2	1.5

Table 1 World Economic Growth

After a growth of world GDP by 2.6 per cent in 2017, the value in 2018 is around 3.7%, considering a growth of 2.1 in developed economy and a 4.7 growth in emerging countries. This result is mainly due to the expansion in Eastern and Southern Asia, with developments in China remaining a key determinant of the outlook. In line with GDP growth, world merchandise trade volumes have grown of 2.6 in last year.

In this framework of growth, some uncertainty is related to the continued rebalancing of the Chinese economy, the new policy framework in the United States and the



negotiations between the United Kingdom and the rest of the European Union and their future economic and trade relations after the Brexit.

Element as the rise of trade protectionism, moving production closer to home, shortening supply chains, a growing aversion to trade liberalization and the failure of regional trade agreements such as the Transatlantic Trade and Investment Partnership can have a negative impact in shipping industry, reflecting this effect on our business since there could be less investment in new technology solutions and in R&D field in general.

III. WORLD SEABORNE TRADE

According to the development in the world economy, also demand for shipping services improved in last years, reaching the 11 billion tons in 2017. World seaborne trade expanded by 2.6 per cent last year, especially thanks to the strong import demand in China, which has continued to support world maritime seaborne trade. As figure shows, the main ships for maritime transport are represented by container, bulks, dry cargo and oil and gas cargo.

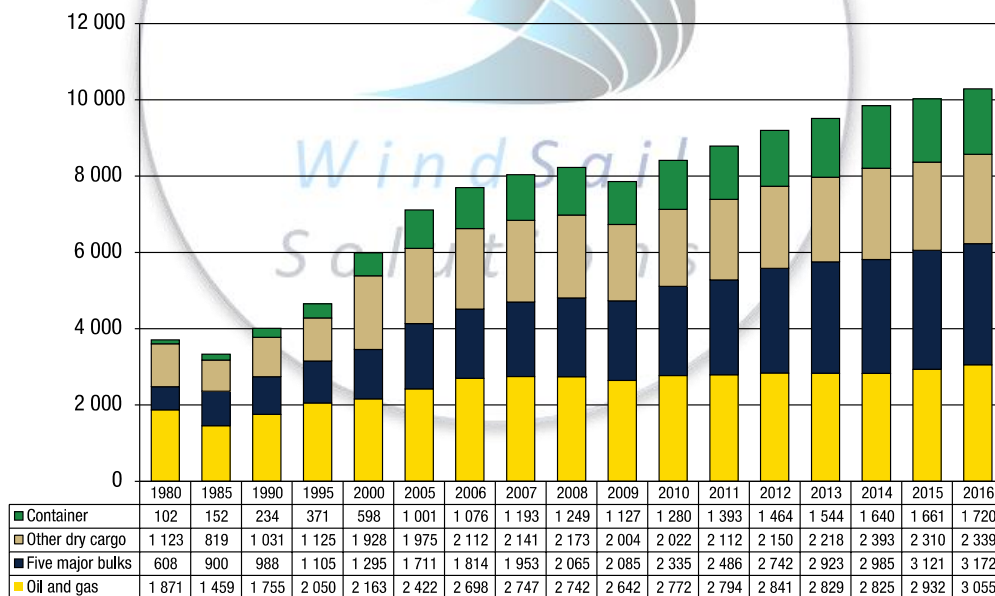


Fig. 2 International seaborne trade (Millions of tons loaded)

Despite the particularly weak import demand and limited exports in many economies, developing economies as a group continued, nevertheless, to account for most of world seaborne cargo shipments in 2016.



As shown in figure below, developing economies accounted for 59 per cent of world goods loaded (outbound/exports) and nearly two thirds of goods unloaded (inbound/imports), respectively, led by Asia, who represents the most interesting market.

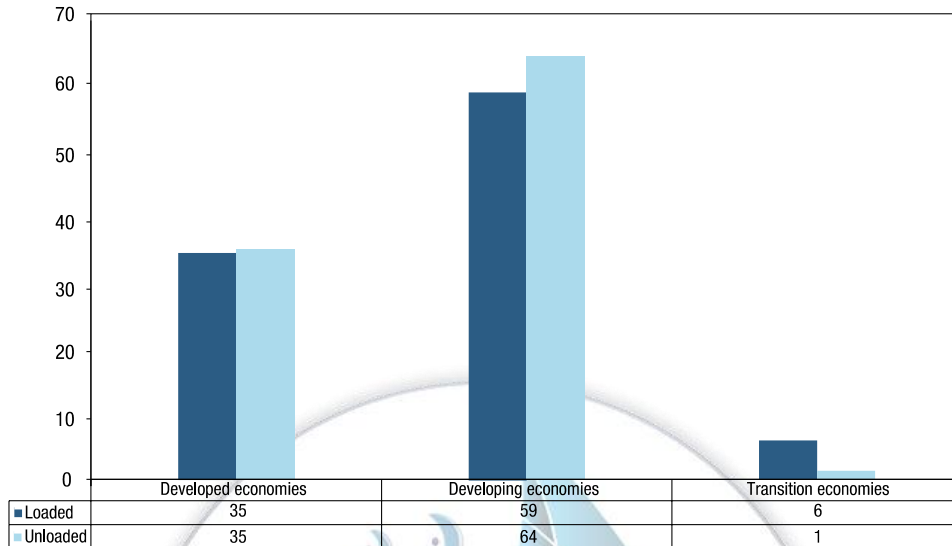


Fig. 3 World seaborne trade per economy type (% share in world tonnage)

The figure highlights the contribution of developing economies in terms of goods loaded and unloaded globally. Actually, developing economies are not only a source of supply for raw materials and fossil fuel energy, but also key players in globalized manufacturing processes and a growing source of consumption import demand, including of raw materials, such as oil, with Asia as main global cargo loading and unloading area, as per following figure:

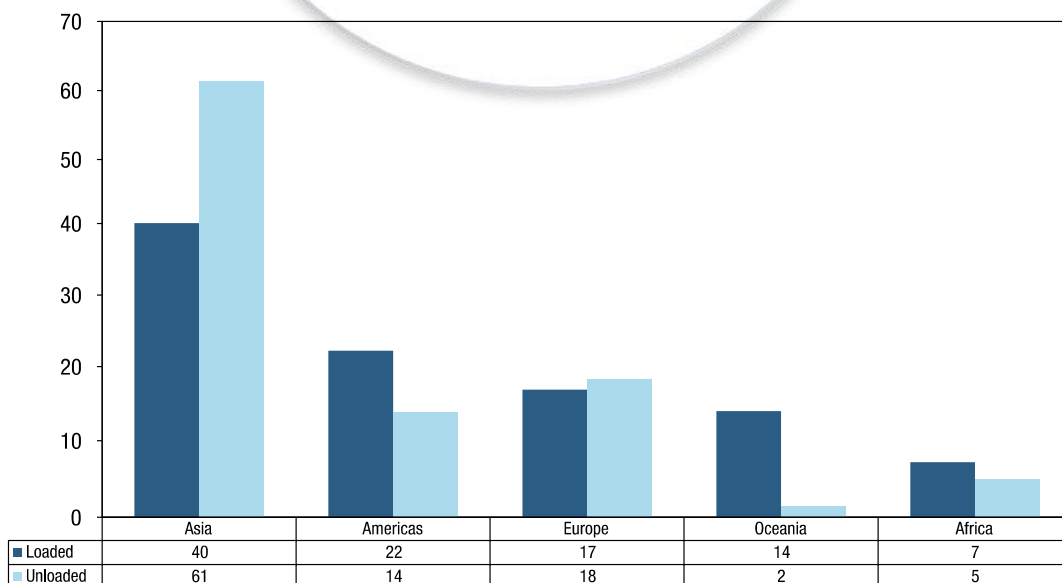


Fig. 4 World seaborne trade by region (% share in world tonnage)



The data reported underline the central role played by the emerging economies in the maritime shipping industry, with Asia undisputed leader of global trade, followed by America. All these aspects have been taken into account in developing our idea, in order to find the best condition to maximize the viability and profitability of WindSail.

IV. POLICY CONSIDERATIONS

Maritime trade transport has a strategic economic importance, since it accounts for over 80 per cent of world merchandise trade by volume and more than 70 per cent of its value.

The growth in world seaborne trade remains subject to uncertainty and several downside risks, it is mandatory to consider these risks and uncertainty. In this challenging context and considering the emerging trends defining continuously the outlook for seaborne cargo flows, some important issues are arising and include topics such as trade policy, infrastructure development, technology and digitalization.

At the trade policy level and bearing in mind the overall policy framework under the Addis Ababa Action Agenda and the 2030 Agenda for Sustainable Development, efforts should aim to limit trade-restrictive measures. Developments relating to regional trade agreements and their potential implications for trade and shipping should be monitored and assessed.

For example, effective implementation of the World Trade Organization Agreement on Trade Facilitation, which entered in vigour in February 2017, can help support trade flows by unlocking capacity and reducing transaction costs, especially in developing economies.

In parallel, policies that tackle the persistent transport infrastructure gaps in developing economies and enable adequate capacity in maritime transport to effectively service and boost trade, have to be promoted, as well as policy measures that have an important transport infrastructure development component and could also stimulate trade and boost demand for maritime transportation.



	Growth rates	Years	Seaborne trade flows	Source
Lloyd's List Intelligence	3.1	2017–2026	Seaborne trade volume	<i>Lloyd's List Intelligence research, 2017</i>
	4.6	2017–2026	Containerized trade volume	
	3.6	2017–2026	Dry bulk	
	2.5	2017–2026	Liquid bulk	
Clarksons Research Services	3.1	2017	Seaborne trade volume	<i>Seaborne Trade Monitor, June 2017</i>
	4.8	2017	Containerized trade volume	<i>Container Intelligence Monthly, June 2017</i>
	5.1	2018	Containerized trade volume	<i>Container Intelligence Monthly, June 2017</i>
	3.4	2017	Dry bulk	<i>Dry Bulk Trade Outlook, June 2017</i>
Drewry Maritime Research	2.1	2017	Liquid bulk	<i>Seaborne Trade Monitor, June 2017</i>
	1.9	2017	Containerized trade volume	<i>Container Forecaster, Quarter 1, 2017</i>
Maritime Strategies International	3.7	2017	Containerized trade volume	<i>Dynamar B.V, Dynaliners Monthly, May 2017</i>
	4.5	2018	Containerized trade volume	
	4.5	2019	Containerized trade volume	
McKinsey	3.0	2017	Containerized trade volume	<i>Dynamar B.V, Dynaliners Monthly, May 2017</i>
IHS Markit	By a factor of 2.7	2016–2030	Seaborne trade value	<i>IHS Markit research, 2016</i>
UNCTAD	2.8	2017	Seaborne trade volume	<i>Review of Maritime Transport 2017</i>
	4.5	2017	Containerized trade volume	
	5.4	2017	Five major bulks	
	0.9	2017	Crude oil	
	2.0	2017	Refined petroleum products and gas	
UNCTAD	3.2	2017–2022	Seaborne trade volume	<i>Review of Maritime Transport 2017</i>
	5.0	2017–2022	Containerized trade volume	
	5.6	2017–2022	Five major bulks	
	1.2	2017–2022	Crude oil	
	1.7	2017–2022	Refined petroleum products and gas	

Fig. 5 Projected seaborne trade developments, 2017-2030

All the reported project, in addition to other ones, represents for WindSail an incredible opportunity to meet customers interested in our service, since shipping companies will be obliged to invest in sustainable development to be able to accomplish the restrictive regulations it has been introduced.

Differently from other ship propulsion systems, our technical solution one is the greenest in the market and, being absolutely flexible in its installation, allows customer to think to it also for existing ships and not only for new building ones.

For all these reasons is important for us to monitor the global politic dynamics and regalement issues that can highly impact and influence our business.



V. ENVIRONMENTAL CONTEXT DECISION

Having analysed the most relevant external macro-factors that can affect the business opportunity we want to cover with WindSail, is now important to understand where to set our business, with the aim of exploiting those factors that make our business idea more attractive and try to reduce those one that, instead, make it less interesting.

GEOGRAPHIC POSITIONING

As per evidence, actually world can be considered a unique big market with lots of opportunities, variegated in kind, dimension and location, so that is not easy and really relevant to choose where to operate.

Considering some key factor in our business, like trade exchange, maritime traffic, weather conditions and other economic indicators, we have identified the Pacific Asian area as the most adapt to make our idea successful, setting us headquarter in Singapore, especially due to the easiness for doing business of the city and the strategical position, in addition to the fact that Singapore's port is one of the most important and crowded in the world.



Fig. 6 Worldwide Main Ports

This decision of Asia Pacific is central in our project, since it allows us to be present in a continuous growing area, characterized, especially in last decade, by an extraordinary economically develop, mainly pushed by China, but also India, Korea, Malaysia and Singapore.



The city of Singapore, moreover, offer us a strategical point for developing the network we need to make our business profitable and reach the companies that represent our customers.

Now that company headquarter has been settled and main market, the Pacific Asian area, has been identified, is necessary to consider all those environmental factors that can influence our business, carrying on an analysis that starting from the actual situation in Singapore, arrived in detail to maritime industry.

VI. PEST ANALYSIS OF SINGAPORE

One of the most useful approach to analyse the external environment for a business is the PEST analysis, concerning an investigation on the main Political, Economic, Social and Technological factors that are directly or indirectly involved in the business opportunity we are focused on, in order to obtain important indications about possible threats or further opportunities in Singapore and more generally in Pacific Asia. After a general analysis of Singapore actual situation, it will be described, more in detail, the maritime industry main aspects.

POLITICS ASPECTS

Singapore is officially a Republic based on parliamentary democracy. The Executive Power is on the hand of the President of Singapore, who is the head of State. The role of the President is largely ceremonial. Following legislative elections, the leader of the majority party or the leader of the majority coalition is usually appointed Prime Minister by the President as head of the Government.

The Prime Minister enjoys all of the executive powers, which include implementation of the law and running day-to-day affairs. It constituted its Independence Act from the United Kingdom in August 1963 and has ever since been ruled under its own legislation aligned with international standards and business development strategies.

The modern city was founded by Thomas Stamford Raffles under the domination of the British empire until 1963 when they gained with the exception of the Japanese occupation during WWII.

Legislative Power consist of a unicameral legislature in Singapore. The Parliament consists of 87 to 89 seats: 9 members of parliament (MPs) are directly elected from single-member constituencies, and the majority is elected in teams of between four and six to represent



the 15 Group Representation Constituencies (GRCs). Parliament controls the action of the government. This depends on the support of parliament, often expressed by a vote of confidence.

Although Singapore is a multi-party nation, the centre-right People's Action Party (PAP) has dominated its legislature since 1959 and continues to hold an overwhelming majority of the single-chamber parliament.



SOCIAL ASPECTS

Singapore is an island located at southern side of Malay Peninsula. It's made up of Singapore Island (Pulau Ujong) and more than 60 smaller islands. Its strategic position, has allowed to this area of 721.5 km² a big development and prosperity, as reflected by the high urbanization of the island, also extended offshore.

The population consists of over 5.5 million people, with a continuous growth mainly due to immigration of professionals from close countries, that improves especially the service and construction sectors. In general, there's a distinction between the uneducated labour forces coming from Malaysia, China and India, the local-born middle-class and the foreigner elites very much related to business and commerce in the region.

The country is characterized by different cultures, religions and languages. One third speaks English at home while half speak Mandarin Chinese and the rest Chinese language. Malay and Indian languages are also often being the official languages English, Malay, Mandarin and Tamil.

In order to improve the social development, the Government provided social welfare services. They are directed by the Ministry of Community Development, which is often assisted by various voluntary organizations, most of them affiliated with the Singapore Council of Social Service. Besides institutionalized care, the Ministry of Community Development administers foster and homemaker service schemes for needy young people.



Employees who are earning more than \$500 per month must contribute to the Central Provident Fund, a public pension and retirement program which provides lump-sum benefits for old age, disability, death, sickness, and maternity. Retirement is at age 55. Employee contributions are based on income; employers pay 10% of monthly earnings. If employees earn less than \$200 per month, they are exempt from contribution requirements.

There is a special system for public employees, and employers may choose a private plan if approved. Employers also fund workers' compensation benefits for job related injuries. In addition, employers are required to provide 14 days of paid sick leave and eight weeks of paid maternity leave to their employees.

Women's legal rights are equal to those of men in most areas, including civil liberties, employment, business, and education. Women comprise 42% of the labour force and are well represented in the professions. Despite the legal principle of equal pay for equal work, women earn approximately 75% of the average male salary.

ECONOMIC ASPECTS

The economy of Singapore is characterised by extreme financialising and a high degree of openness, with the country being highly dependent on international trade.

Singapore's economy, which grew 2% in 2016, picked up pace in 2017 on the back of surging global demand for electronic gadgets, reaching a 3.5% growth. Overall, the country's economy remains sound: the current account is on a surplus and the country has significant foreign exchange reserves. Singapore's public debt is estimated to be at 114.6% of GDP, however it consists largely of Singapore Government Securities (SGS) issued to assist the Central Provident Fund (CPF): the government has not borrowed to finance deficit expenditures since the 1980s, as a result Singapore has no external public debt. After two years of negative inflation, Singapore's inflation grew by 0.6% in 2017.

A budget deficit at 0.1% of GDP is expected for the 2018 financial year, while expenditure should rise mainly on the back of increased outlays in transport, trade and industry, and domestic security. Singapore also benefits from a large margin to increase spending on social services and to provide financial help to local businesses. The government is attempting to restructure Singapore's economy by weaning its dependence on foreign labour, addressing weak productivity growth and increasing wages.



Other public actions strive to tackle the question of social inclusivity by introducing more household support measures, GST vouchers, education scholarships and providing more support to the disadvantaged. Singapore will take over the chairmanship of the Association of South-east Asian Nations (ASEAN) in 2018.

The level of per capita wealth in Singapore is amongst the highest in the region. After a long period of full employment, unemployment has appeared, especially due to structural economic changes (outsourcing of low-skilled work). Singapore's annual average unemployment rate reached 2.2% in 2017, nevertheless data from the Ministry of Manpower show that the total employment declined by 0.3% (10,700 units), the first decrease since 2003, mainly due to a contraction in foreign employment.

Singapore is still dealing with a rising income inequality and social discontent caused by overpopulation and a high level of competition for employment and housing. These issues are often perceived to be caused by immigration.

Main Indicators	2016	2017	2018	2019 (e)	2020 (e)
GDP (billions USD)	309.75	323.90	346.62	359.62	377.23
GDP (Constant Prices, Annual % Change)	2.4	3.6	2.9	2.5	2.7
GDP per Capita (USD)	55,241	57,713	61,230	62,984	65,504
General Government Balance (in % of GDP)	3.3	5.6	2.2	1.6	1.6
General Government Gross Debt (in % of GDP)	106.8	111.1	112.9	114.3	115.0
Inflation Rate (%)	-0.5	0.6	1.0	1.4	1.4
Unemployment Rate (% of the Labour Force)	2.1	2.2	2.0	1.9	1.9
Current Account (billions USD)	58.85	60.99	64.10	65.91	67.19
Current Account (in % of GDP)	19.0	18.8	18.5	18.3	17.8

Table 2 Singapore's main economic indicators



MAIN SINGAPOREAN INDUSTRIES

Singapore is a regional commercial hub and the Port of Singapore is one of the most important ports in the world. It ranks second in total volume of container transshipment traffic after Hong Kong. The services sector contributes almost 74% of the GDP and employs almost 83.5% of the active population. It is dominated by trade, business services, transportation, communications and financial services.

Singapore's economy is highly industrialised. The industrial sector represents 26% of the GDP and employs 15.5% of the population. Electronics and petrochemicals dominate the industry.

The primary sector is almost non-existent (except for the cultivation of orchids, vegetables and fish for aquariums). Its contribution to GDP and employment is almost null. Singapore does not have any mineral resources.

<i>Breakdown of Economic Activity By Sector</i>	<i>Agriculture</i>	<i>Industry</i>	<i>Services</i>
<i>Employment by Sector (in % of Total Employment)</i>	0.1	16.3	83.6
<i>Value Added (in % of GDP)</i>	0.0	23.2	70.4
<i>Value Added (Annual % Change)</i>	-8.4	5.7	1.2

Table 3 Singapore's economic activity by sector

SINGAPOREAN MARITIME INDUSTRY

The selection of Singapore as headquarter of our WindSail company is strictly related to the importance of the maritime sector for the country, considering the business volume regarding the shipping industry and all the industry-related companies operating in this market, that in 2017 has been valued SGD 67.97 billion.

Singapore is one of the leading international trading hubs and recognized as a significant leader in trans-shipment trade. Owing to the excellent quality and services, the maritime sector in Singapore has gained traction over the past few years. Despite the decrease in the container volume of the major trans-shipment hubs like Hong Kong, and tough competition from neighbouring ports in Malaysia, the container traffic at the Singapore ports has reached 33.7 million TEUs in 2017, which represents an increase of 8.9% when compared to 2016.



The strategic geographical location of the country serves as a gateway to ASEAN countries and the rest of the world and has a connection with more than 600 ports in over 120 countries. This allows us to have the opportunity to get in contact with the main global shipping companies and increase the possibility to scale our business and obtain advantageous contracts, among the others: PSA International, American President Lines (APL), NYK Line, Megayton Shipping, Unsworth Global Logistics, COSCO Shipping, DHL, Pacific International Lines (PIL), MSC, Evergreen Group, Yamato Transport, Singapore Shipping Corporation Limited, and AAL.

Additionally, the world-class infrastructure and consistent Research and Development (R&D) Activities has made the Singapore's marine Industry as the top international shipping centre for the fifth consecutive year in a benchmark report published by Baltic Exchange and Xinhua. But the evolution of direct shipping routes and significant port developments in the other ASEAN countries poses a threat to the shipping industry of Singapore.

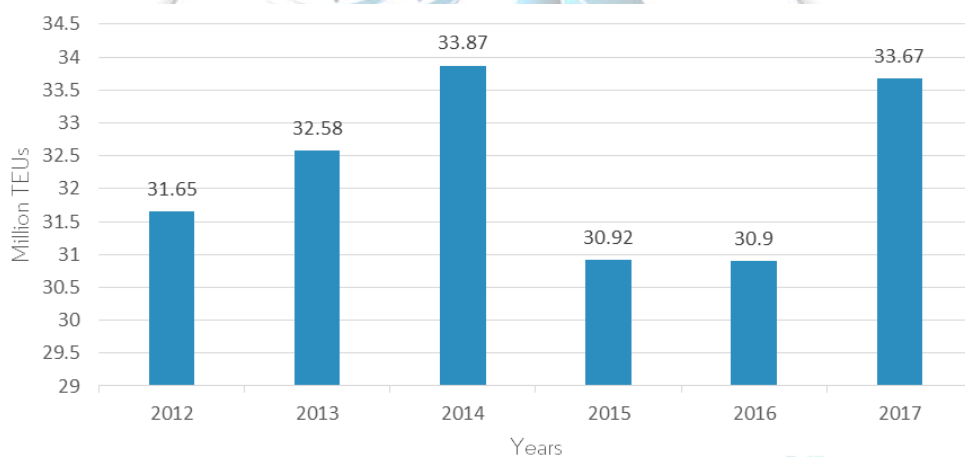


Fig. 7 Singapore ports total container throughput (Million TEUs)

TECHNOLOGICAL ASPECTS

Singapore is known to be a leading centre for ship repair, and its other key activities include building of marine vessels and offshore structures, vessel design and engineering and marine equipment and services. The nation has also become a strategic centre for maritime business. With its excellent reputation in the maritime and shipping industry, coupled with sophisticated port facilities, shipyards and various services, Singapore has developed into an International Maritime Centre (IMC) where ships convene and also where services in shipping, commerce and logistics flourish.



Being WindSail a company highly related to sustainability, our business is really supported by Singapore's commitment towards sustainability and green shipping. According to the Maritime Port Authority of Singapore (MPA), since the launch of the Maritime Singapore Green Pledge in 2011, a total of 90 companies have pledged their commitment towards promoting clean and green shipping in Singapore, and employ an array of solutions in their efforts to go green, ranging from environmental management technology to green design initiatives for vessels and infrastructure.

Around 2,900 vessel calls have enjoyed port dues concessions under the Green Port Programme and S\$17 million of co-funding has been approved under the Green Technology Programme.

This means that our technological solution perfectly fits with this programme, giving us the possibility to increase our customer network, showing the core importance and impact of Singapore in our business development.

R&D IMPLICATIONS

Maritime sector in Singapore is constantly looking for industry improvements, supported by huge investments in research & development (R&D) made by government. In addition, to make this develop continuous and sustainable, it has been built different marine and offshore infrastructures to support these initiatives, as reported in the table below:

<p>MARITIME RESEARCH CENTRE (MRC)</p>	<p>The MRC is a centre for R&D in maritime technology jointly set up by the Maritime and Port Authority of Singapore (MPA) and the Nanyang Technological University (NTU). MRC was established in 2001 and aims to initiate and undertake research to develop technologies and IT applications in the port and maritime field.</p>
<p>TROPICAL MARINE SCIENCE INSTITUTE (TMSI)</p>	<p>TSMI aims to promote integrated marine science in R&D as well as establish itself as a regional and international education and training institute.</p>



<p>CENTRE OF INNOVATION – MARINE & OFFSHORE TECHNOLOGY (COI)</p>	<p>The COI aims to provide technology consultancy to develop practical and downstream technology platforms for SMEs in the marine industry.</p>
<p>THE MARINE GROUP LOCAL INDUSTRY PROGRAMME (LIUP)</p>	<p>Supported by the EDB, the LIUP strives to promote positive relationships between customers and local suppliers, develop a stronger marine cluster as well as core competencies and capabilities.</p>
<p>CENTRE FOR OFFSHORE RESEARCH AND ENGINEERING (CORE)</p>	<p>Set up by the EDB, CORE aims to promote and coordinate R&D and develop manpower for Singapore's offshore engineering industry.</p>

Table 4 Main Marine Entities

Last year, the American Bureau of Shipping (ABS) and the Port Authority of Singapore (MPA) signed a memorandum of understanding (MOU) to promote maritime research and development (R&D) and innovation. This MOU will see ABS and MPA collaborating on maritime R&D in the areas of alternative/clean fuel and developing resilient, next generation port systems.

This means that our business can be supported by governmental authorities and this is a significant help in recruiting and attracting the customers. The agreement also builds upon the ABS-MPA Maritime Technology Professorship programme at the Singapore University of Technology and Design (SUTD) to strengthen SUTD's capabilities in maritime education and R&D to further boost the growth of marine and offshore technology development in Singapore.

VII. PORTER'S 5 FORCES ANALYSIS

Another important approach to study the external environment is to analyse it by using the 5 Forces of Porter approach, in which the main forces are breakdown and explained, giving the information needed to understand how and from which component the Industry competition is shaped. Is necessary understand which is the situation outside our company and which is the competitive position inside the industry. Then, we will be able to start with the best strategy to bring WindSail to success.



Fig. 8 5 Force's Porte's Template

SUPPLIERS

There is only a manufacturing supplier, AirSeas, an industrial firm which had come out of Airbus group, dedicated to produce automated power kites capable of towing commercial ships. AirSeas, owner of the patent, is actually the main company producer of this innovative system to propel cargo ships. Previously, a German company had created a prototype, but company was over on 2006.

Nowadays, AirSeas, is the unique product supplier of this kind of technology, tested and certified to ensure a robust product to customers. Being new-born mainly-manufacturing company, they lack of the commercial and marketing expertise, aspect this covered by a collaborative relationship with WindSail.

CUSTOMERS

Maritime transport means about 90% of global trade. More than 25.000 cargo ships are involved in this activity. These numbers give an idea of the dimension of potential market, composed firstly by cargo ships that move goods all around the world through long trip trans-oceanic.

Important factors such as the increasing economies and the growth of trade and maritime transport make this industry a scalable business.



Shipping companies are increasing their operational costs and new regulations related to emissions and environmental risks are pushing the industry to find new solutions, as that offered by our company.

COMPETENCE

Actually, there are no companies doing the same activity within the sector. The cargo ships own transport companies and they order the maintenance and reparation to external companies who operate in ports. It doesn't exist any company who offer an end-to-end service of commercialization, installation and follow-up a product keeping in mind the personal needs of the customer.

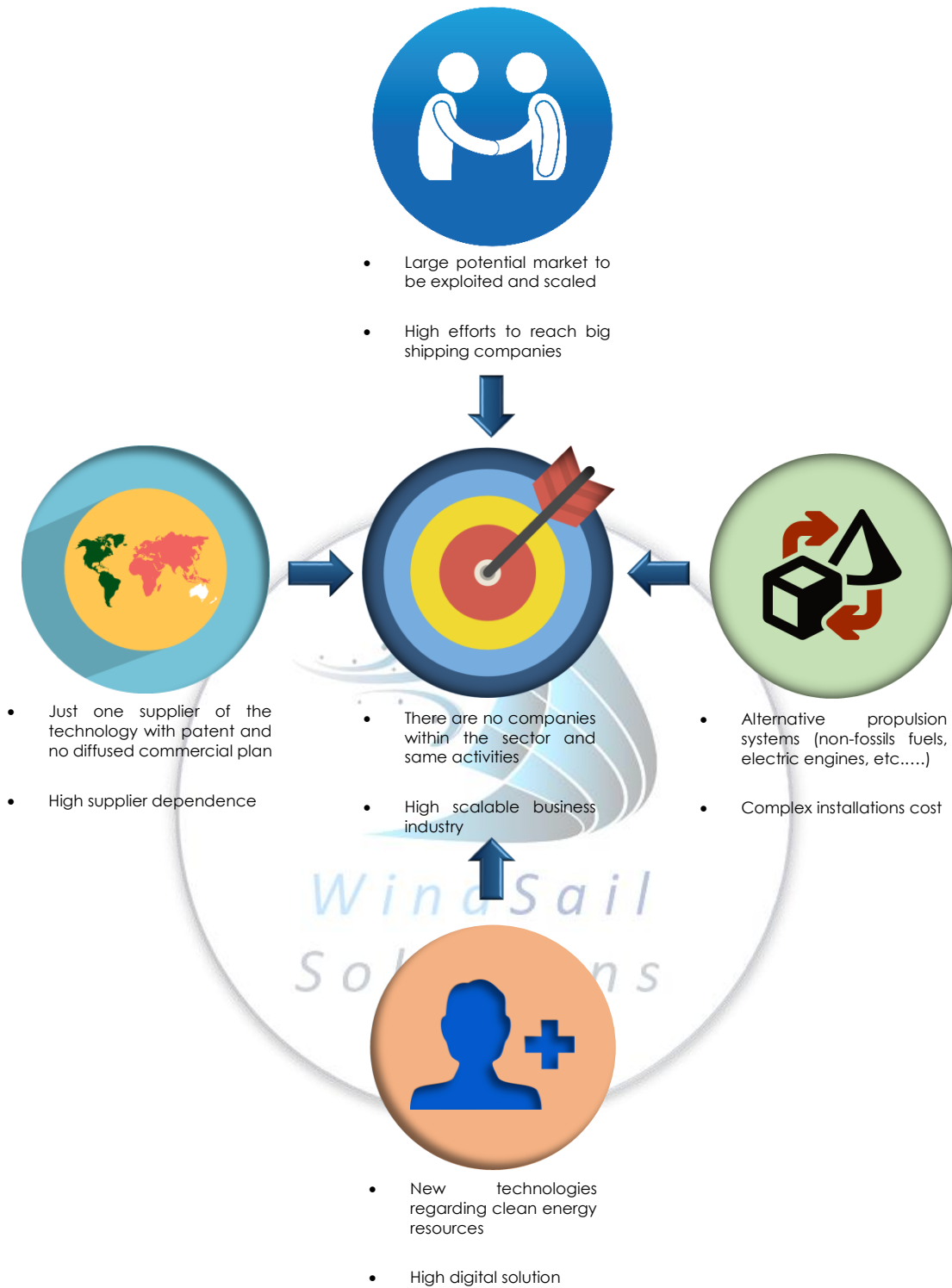
SUBSTITUTES

During the history, have being develop other technologies to replace fossil-fuel engines such us nuclear power, gas turbines, hydrogen engines and other ecological sources such as solar energy.

Moreover, they are not developed enough to be really use as a principal source of energy. Also, they present security problems like explosions so, it's necessary implement better systems in ships to avoid fire, for example.

NEW ENTRIES

Technological barriers are little today, that means new develop with better performances and less price. Although today it doesn't exist other solution better than the kite, we should keep in mind new entries.



VIII. SHIPPING INDUSTRY OVERVIEW

After analysing Maritime Transport Industry in which WindSail Solutions has to develop its business, the main factors to consider in shipping industry dynamics can be summarized as follow.



MARKET FORECAST SITUATION

- Cargo ships growth: Refined petroleum products, finished steel goods, automobiles, pharma products, food and cotton products would be major export volume drivers. Volume growth for overseas trade shipping is expected to be in the range of 6-7% during the year 2018.
- Share of coastal shipping is expected to increase to 20% of total cargo handled by 2020. Coastal shipping would continue its double-digit growth and double over the next 5 years from the current 234 MT.
- Fleet addition across domestic shipping companies: Fleet addition by domestic shipping companies especially in overseas trade segment may not witness a major change given the limited number of players. Volatile freight rates are a major concern which may hamper the growth of shipping companies in a market with limited access to capital.

All these factors lead to an expected increase of ships in the market, due to a growth in goods moved and trade network links, influencing the number of possible customer for WindSail.

GEO-POLITICAL SITUATION

- Major economies with large manufacturing base have found it convenient to develop and maintain a large shipping industry.
- China, Korea and Japan are the largest ship-builders in the world. China and Korea are directly competing for the top place and Japan at a distant third. The three countries together account for 92% of the global deliveries in 2016.
- The top five countries in terms of cargo carrying capacity are Greece (308.8 mil. Dead-Weight ton (DWT)), Japan (223.8 mil. DWT), China (165.4 mil DWT), Germany (112 mil DWT) and Singapore (104 mil DWT). Moreover, Germany, China and Greece own 39% of the world container carrying ship fleet.
- Maritime shipping is a highly-globalized industry, both in operation and ownership. About 67% of the global fleet (in tonnage) is under a flag of convenience. Flag of convenience (FOC) is a business practice where by vessels are registered by their owners in other nations to take advantage of reduced regulation, lower administrative fees and greater numbers of friendly ports. 58-60% of the vessels by



share of world total of Dead weight tonne (DWT) are registered in countries namely Panama, Liberia, Marshall Islands, Singapore and Hong Kong, known to offer an easier and less expensive regulation for registry of ships and relaxed labour laws.

Looking at geopolitical aspects, shipping industry is globally located with a relevant manufacturing industry focused in Asia, where are concentrated the main ship builders as China, Korea and Japan, as well as the main shipping hub, like Singapore and Hong Kong, and main cargo loading capacity.

This leads us to consider Pacific Asia as main area of interest where to develop our business idea.

INDUSTRY'S MAIN RISK

Despite the shipping industry is in expansion, the actual international context presents many risks that companies have to take into account, such as:

- Trade Barriers & Global "Protectionism": Shipping is a global business and its performance is closely linked to the state of the global economy. Therefore, if the global economic situation is adversely impacted, it could have an effect on the state of the shipping market. Additionally, the recent trade dispute between the US and China may become a trade war.
- Chinese Economy: China has been a major source of global growth especially for commodities. If its economy falters or the authorities in the country change their policy towards import of various goods or providing stimulus to production of specific goods and products, all these factors would have a direct impact on the freight rates and demand-supply for shipping globally.

In addition to these two risks, the industry has to face with increasing challenges, especially related to consumptions and environmental impact.

The idea of WindSail is born from the need to response to two of the bigger problems for the sector, the *fuel cost variations and the environmental regulations*.

FUEL COST VARIATIONS

OPEC, abbreviation for "Organization of the Petroleum Exporting Countries", is the group of nations that controls more than one third of the oil supply. Their stance on crude



production and targets can have a material impact on the crude, product and LPG freight markets.

The OPEC crude oil price is defined by the price of the OPEC (Reference) Basket. This basket is an average of prices of the various petroleum blends that are produced by the OPEC members.

These events may have a consequential impact on the oil tanker market. Issues such as US sanction on Iran are additional factors which may affect the global shipping markets.

Among crude-producing nations, politically unstable countries like Nigeria and Venezuela produce significant amounts of crude oil and change in political situation in these countries may impact the supply/demand scenario.

Actually, fuel costs represent as much as 50-60% of total ship operating costs, depending on the type of ship and service. A large modern container vessel with a maximum container capacity of 7,750 TEUs (twenty foot equivalents) during a Trans-Pacific trip, for example, could arrive to a fuel consumption up to 200 tons per day. Being the cost of bunker fuel at \$500 per ton, in a single 20-day round trip voyage, this one vessel would produce a fuel cost of \$2,000,000. This number could depend on a number of reasons, or if the vessel were smaller and less fuel-efficient per container, or if scheduling delays required the vessel to speed up to stay on-schedule.

According with this number and the mole of fuel consumed in a year, the cost of oil is a big issue.

In the last year, the price of oil has increased almost 50%. In mid-May, it surpassed the US \$80-barrel barrier, reaching the highest value since November 2014.

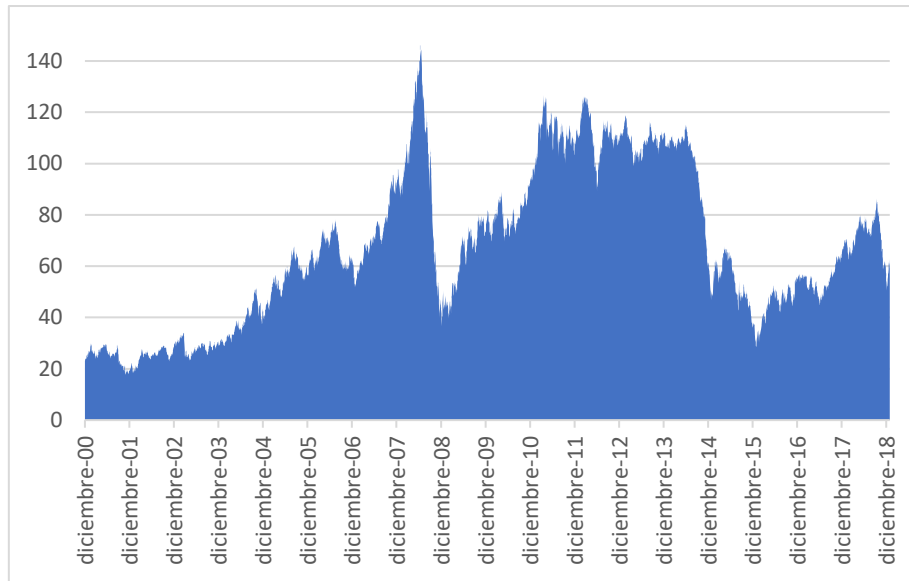


Fig. 9 \$ Price of fuel 2000-2018

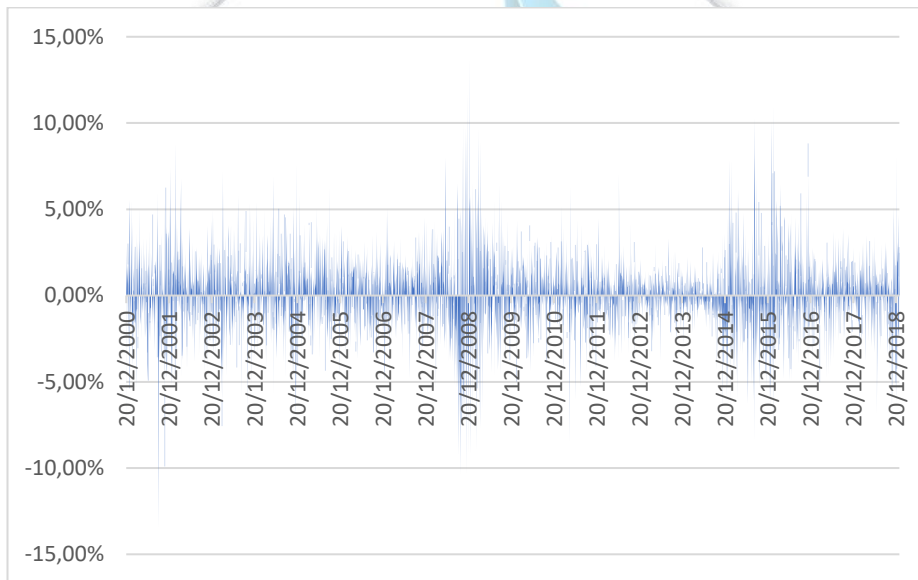


Fig. 10 Price % variancy

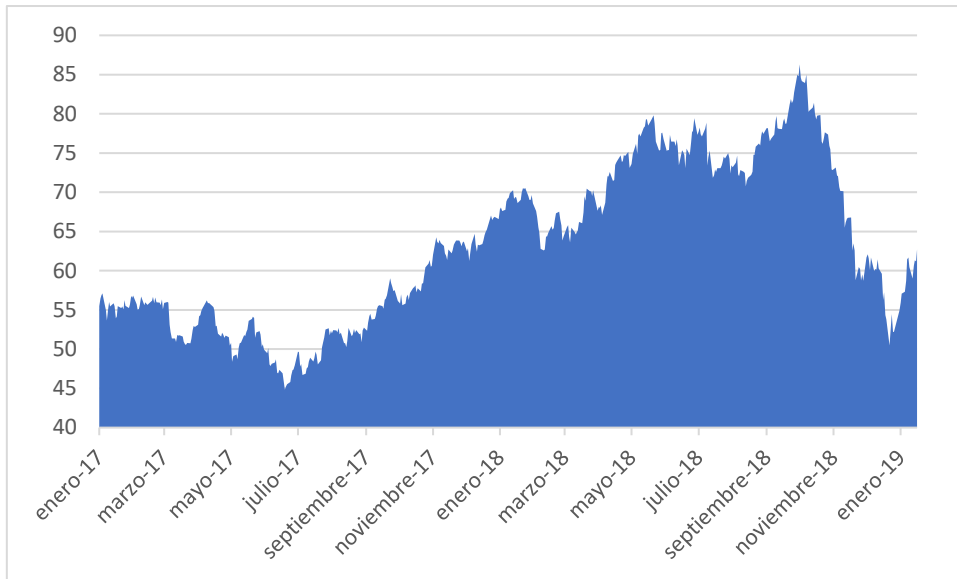


Fig. 11 \$ Price of fuel 2017 - 2019

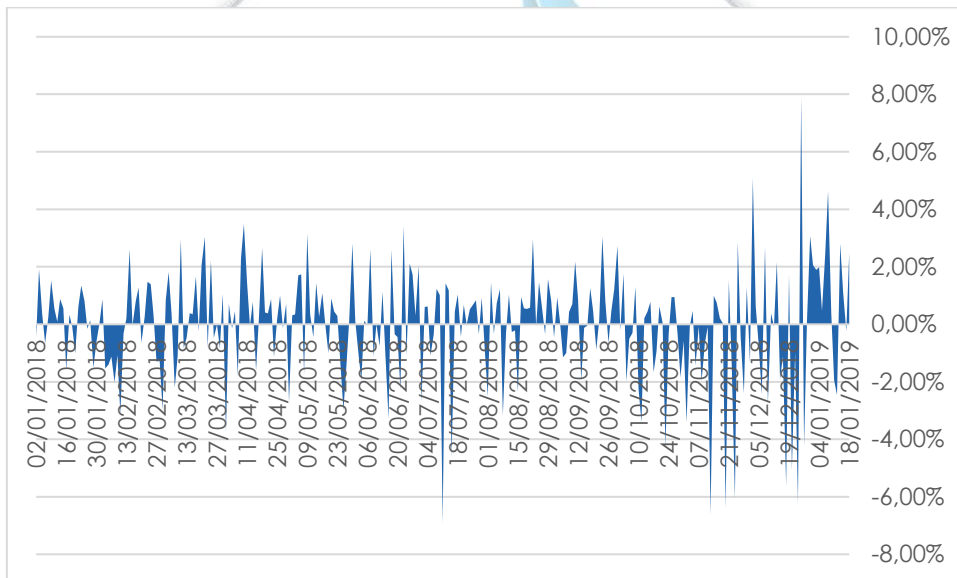


Fig. 12 Price % variancy 2017 - 2019

These statistics depicts the average annual oil price for selected OPEC crude oils from 2000 to 2019. These extremely varied prices and the incoming end of the era of cheap oil can be explained by 3 main causes:

1. The exporting countries have spent years applying a strict plan of cut of the supply (of about 1.8 million barrels to the day), considered by analysts like the most important key behind the increase of prices, next to a strong global demand. The excess of inventories of crude that several countries had in their warehouses in recent years came to an end.



2. The USA sanctions on Iran have played an important role in the recent price increase, although it dismisses the influence that armed conflicts can have in Yemen or Syria because these countries are not relevant producers of Petroleum. The market has showed that effectively prices went up in anticipation of the return of US sanctions on Iran and then rose again when the decision was announced.
3. In the midst of a major political crisis, Venezuela's oil industry suffered a decline of one third of the pumping volumes over a period of two years. Venezuela reduced its production six times more than OPEC had predicted. The speed of the fall has been much greater than expected by the market and there is concern that it continues to fall rapidly. This negative trend contributed to the price increase because it lost one million barrels a day in little more than a year. Caracas is joined by other producers who are also contributing less, such as Angola, Nigeria and Ecuador.

ENVIRONMENTAL REGULATIONS

The second big challenge concerns the environmental regulations, with the imposition of rules pertaining especially to emission norms and the environmental sustainability, that could adversely impact the business of shipping companies.

Nowadays, the global shipping industry is bracing for a key regulatory decision that could mark a milestone in reducing maritime pollution. Just one of the world's largest container ships can emit about as much pollution as 50 million cars. Further, the 15 largest ships in the world emit as much nitrogen oxide and sulphur oxide as the world's 760 million cars.

To combat such pollution, the International Maritime Organization's (IMO) Marine Environment Protection Committee has introduced global cap on SOx emissions from 2020 or 2025 onward, which would see sulphur emissions fall from the current maximum of 3.5% of fuel content to just 0.5%. The implementation in 2020 of this global requirements for ships to use low-sulphur fuel, rather than the heavy fuel oil, currently the main fuel used, is expected to increase fuel costs for many ship operators by over 50 per cent.

In order to put in practice these new regulations, different measures and index have been defined to strictly control the pollution performance of ships, such as:



EEDI

The EEDI for new ships is the most important technical measure and it aims at promoting the use of more energy efficient (less polluting) equipment and engines. The EEDI requires a minimum energy efficiency level per capacity mile (e.g. tonne mile) for different ship type and size segments.

From 1 January 2013, following an initial two years' phase zero when new ship design will need to meet the reference level for their ship type, the level is to be tightened incrementally every five years, and so the EEDI is expected to stimulate continued innovation and technical development of all the components influencing the fuel efficiency of a ship from its design phase.

The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. As long as the required energy efficiency level is attained, ship designers and builders are free to use the most cost-efficient solutions for the ship to comply with the regulations.

The EEDI provides a specific figure for an individual ship design, expressed in grams of carbon dioxide (CO₂) per ship's capacity-mile (the smaller the EEDI the more energy efficient ship design) and is calculated by a formula based on the technical design parameters for a given ship. The CO₂ reduction level (grams of CO₂ per tonne mile) for the first phase is set to 10% and will be tightened every five years to keep pace with technological developments of new efficiency and reduction measures. Reduction rates have been established until the period 2025 to 2030 when a 30% reduction is mandated for applicable ship types calculated from a reference line representing the average efficiency for ships built between 2000 and 2010.

The EEDI is developed for the largest and most energy intensive segments of the world merchant fleet and will embrace 72% of emissions from new ships covering the following ship types: oil tankers, bulk carriers, gas carriers, general cargo, container ships, refrigerated cargo and combination carriers. For ship types not covered by the current formula, suitable formulas are expected to be developed in the future addressing the largest emitters first.



SEEMP

The Ship Energy Efficiency Management Plan (SEEMP) is an operational measure that establishes a mechanism to improve the energy efficiency of a ship in a cost-effective manner.

The SEEMP also provides an approach for shipping companies to manage ship and fleet efficiency performance over time using, for example, the Energy Efficiency Operational Indicator (EEOI) as a monitoring tool. The guidance on the development of the SEEMP for new and existing ships incorporates best practices for fuel efficient ship operation, as well as guidelines for voluntary use of the EEOI for new and existing ships (MEPC.1/Circ.684).

EEOI

The EEOI enables operators to measure the fuel efficiency of a ship in operation and to gauge the effect of any changes in operation, e.g. improved voyage planning or more frequent propeller cleaning, or introduction of technical measures such as waste heat recovery systems or a new propeller. The SEEMP urges the ship owner and operator at each stage of the plan to consider new technologies and practices when seeking to optimise the performance of a ship.



Fig. 13 Ships Energy Efficiency



Moving to the formulas:

EEDI

Is the amount of CO₂ emitted by the ship (in grams) per tonne-mile of work.

$$EEDI = \frac{CO_2 \text{ Emitted (in grams)}}{Deadweight \text{ (in tons)} \times Distance \text{ Travelled (in Nautical Miles)}}$$

REQUIRED EEDI

The formula of required EEDI use two key terms:

- ✓ Reference line Value
- ✓ Reduction factor

$$Required \ EEDI = \left(1 - \frac{X \text{ (Reduction factor)}}{100} \right) \times Reference \ line \ value$$

Reference line value is the function of:

- ✓ Deadweight of the ship
- ✓ Type of ship

Over the period of time, IMO wants to reduce the required EEDI value for the ships so that in future the ship's engines are even more energy efficient. For this, the regulation uses the "reduction factor" in the calculation of the required EEDI in different phases.

Phase	Period	Reduction Factor
Phase 0	2013 – 2015	0 %
Phase 1	2015 – 2020	10 %
Phase 2	2020 – 2025	20 %
Phase 3	2025 onwards	30 %

Table 5 Required EEDI: Reduction Factor

We are now in phase 1. This means that for any ship built today, the required EEDI value will be 10% less than the reference line value (required EEDI value in phase 0).



- Reduction factor is the % reduction in Required EEDI relative to Reference Line.
- Cut off levels:
 - Bulk Carriers: 10,000 DWT
 - Gas carriers: 2,000 DWT
 - Tankers: 4,000 DWT
 - Container ship: 10,000 DWT
 - Gen./ref. Cargo: 3,000 DWT

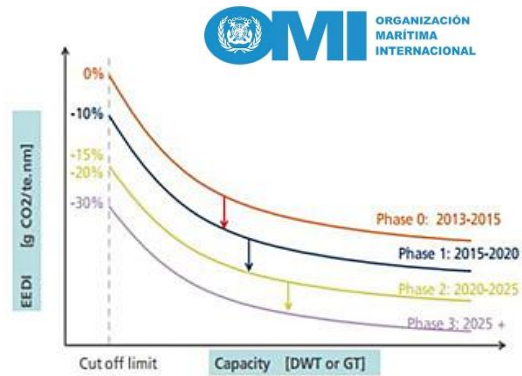


Fig. 14 Reduction factor and cut-off limits

ATTAINED EEDI

Here are few factors on which the actual EEDI value of the ship (attained EEDI) would depend upon.

1. Specific fuel consumption of engines
2. Type of fuel used
3. The speed of the ship
4. Deadweight of the vessel
5. Innovative mechanical energy efficient technology use

IX. WINDSAIL TECHNICAL SOLUTION

In this section, once main problems have been identified, our WindSail technical solution is described and the way we respond to the industry's issues detected.

KITE PROPULSION SYSTEM

In the following image is graphically represented the technological scheme of the kite provided by our supplier AirSeas.

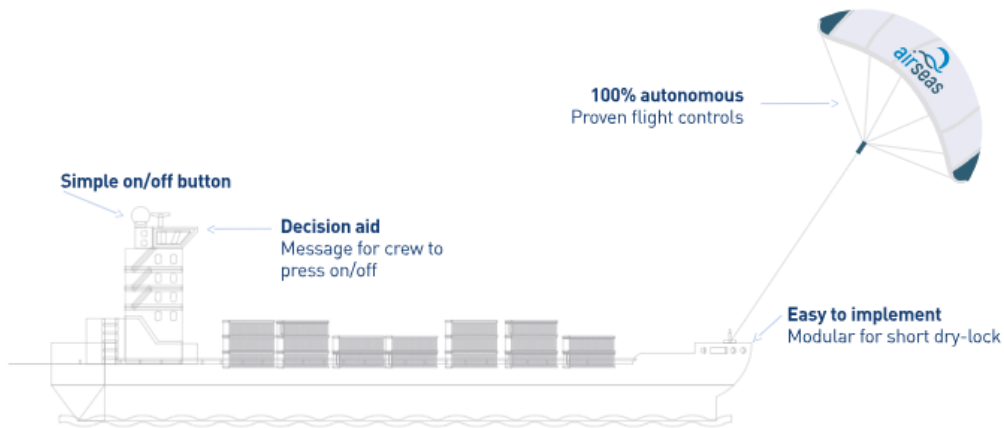


Fig. 15 Technological solution scheme

SAFE AND RELIABLE

The kite exploits a free source of energy that allows to reduce the power demand on the main engine, is a safe choice as its savings on energy cost and gas emissions always apply.

The kite position, attitude and speed in order to provide the best thrust to the ship in a given situation. It can be re-installed on any vessel of a fleet. This allows flexibility to operating companies that are operating ships on a rental basis.

FULL AUTONOMY

The kite generates a 20% reduction in fuel consumption per ship per year as well as reducing emissions of harmful polluting gases (CO₂, NO_x, SO_x). Considering a cost reduction of 1 to 2 million dollars per year per ship and without the need to halt the ship's operations, it offers a return on investment of less than one year for ship owners.

EASY TO RETROFIT

It is a revolutionary innovation it deploys, operates and furls 100% automatically.

The system also analyses a plethora of complex data in real time as well as adapts autonomously to prevailing conditions in order to optimize the ship's performance whilst guaranteeing maximum safety



BUSINESS REVIEW

The Maritime transport industry is under mounting pressure; pressure to remain economically competitive and pressure to adhere to ever increasing environmental requirements.

The kite is one example how WindSail is applying aeronautical ingenuity to make the maritime transport industry a more efficient and cleaner transport option.

**REAL-TIME
MEASURABLE
SAVINGS**



Fig. 16 Measurable Savings

WINDSAIL MAIN BENEFITS

These are the main benefits offered by WindSail technical solution:

POWERFULL PROPULSION

The kite is the most powerful wind propulsion system in the world. By means of dynamic flight manoeuvres, it can generate up to 25 x more power per square meter sail area than conventional sails. Thus, already the smallest AirSeas System can substitute up to 250kW of main engine power with a kite of only 40m² in size in good wind conditions.

RANGE EXTENSION

Running your main engine on 0 - 50% while being towed by the kite, gives the ship unlimited range and the ability to wisely cross the 5 oceans without being docked on deck of an expensive freighter.

- | | |
|--|--|
|  Powerful Propulsion |  Range Extension |
|  Automated & Fully Integrated |  Reduced Fuel Consumption |
|  Unrivalled Cruising Comfort |  Increased Safety |
|  Eco-Friendly |  High Visibility |

Fig. 17 Benefits



AUTOMATED & FULLY INTEGRATED

The system can be operated from the bridge. Its automated control system performs the tasks of steering the towing kite and adjusting its flight path. All information on the operation status of the system is displayed in real-time on a monitor and easily accessible for the captain or kite pilot.

REDUCED FUEL CONSUMPTION

Whilst using kite in good wind conditions the yacht's engines can run on 20% fuel consumption at same speed thus significantly reducing the fuel bill.

ECO-FRIENDLY

The operation of ships becomes environmental friendly with this technology since fuel consumption and there- fore emissions are considerably reduced. This also has a very positive effect on the public image of the owner.



Fig. 18 Main Points

From an economical point of view, considering average values for an ocean trans-Pacific container ship, WindSail Solutions could bring to evident performance savings.



The fuel consumption cost in a year, for an ocean cargo working 250 days per year, is estimated as follow:

$$n \text{ ships} \times \frac{\text{Average fuel consumption (tons)}}{\text{day}} \times \frac{\text{Bunker fuel cost}}{\text{ton}} \times \frac{\text{Average operative days}}{\text{year}} = \text{Savings}$$

Where:

- ✓ Average fuel consumption per day = 100 tons
- ✓ Bunker fuel cost = \$500/ton
- ✓ Average operative days per year= 250

$$1 \text{ ship} \times \frac{100 \text{ tons}}{\text{day}} \times \frac{\$500}{\text{ton}} \times \frac{250 \text{ days}}{\text{year}} = \$12.500.000 \sim (11.000.000 \text{ €})$$

Recovery of fuel costs from cargo customers is a challenge when one considers that vessel capacity utilization is not 100%, that trades are not evenly balanced, that different trades and commodities can handle different levels of rates, and that fuel prices continue to rise. All these factors describe a no-sustainable framework.

The use of WindSail technological solution allows ships to have cost savings of 20% on fuel consumption with consequent reduction of emission and environmental contaminations, making vessels more sustainable and complying with new regulations.



III. INTERNAL ANALYSIS

Once we know the external situation, with the opportunities and threats it presents, we need to evaluate the strong point and weaker ones of our company. Being aware of the characteristics of our business, we can put in practice the best strategies for WindSail, enhancing our strengths to overcome the weaknesses that our company have.

I. SWOT ANALYSIS

The result of the internal analysis is defined by the SWOT analysis has been conducted, where the core of our business is outlined.

STRENGTHS

The service we provided is not existing already, so from the point of view of business opportunity, we can point on We are the first company offering this kind of service. We have time to understand what are the real necessities of the customer and create better strategies meanwhile other competitors appear.

We offer the best technological solution because is available for different kind of ships and it is a great solution to increase the life time of older ships that due to new regulations, companies probably need to replace for modern cargo ships.

In addition to that, our main expertise is in marketing and commercialisation and that's is the weak point of our supplier.

Other strengths could be we are in concern of environmental issues aligned of green thinking.

Today, exist a great concern of pollution, CO2 emissions and so on. Government are trying to reduce all these problems, they are increasing investment in companies to find better solution. So, we are able to get public investments.

WEAKNESSES

WindSail represents the first provider of this kind of service, but since we are the firsts and a new company, we are unknown, so it means that customers could have problems of confidence.



To overcome this huge barrier is important and necessary a big effort in marketing, putting in practice massive marketing campaigns to make us known.

There is one product supplier and although he is our parent, it really risky because he has patented the technology.

OPPORTUNITIES

Three of the top five of countries in terms of cargo ship carrying capacity are in our target area of activity. Also, Singapore is one of these countries. For that, this area of business is a perfect placement to establish our main operation base.

The increasing cost fuel due to different aspects related with countries involved in the extraction and processing of the crude, for instance the unstable political situation of Nigeria and Venezuela.

The new restrictive regulations and more barriers in terms of pollution EEDI & SEEMP are huge problems companies have to face because during the next years these regulations will force to the companies to invest big amount of money in reducing amount of CO₂ discharge. They need solutions to reduce operational cost and they are in a hurry.

THREATS

Main threats are represented by new possible developments in technologies or alternative propulsion system, like natural gas or other clean energies, as well as changing in politics and legal global framework, that could bring our solution not to be so longer profitable.

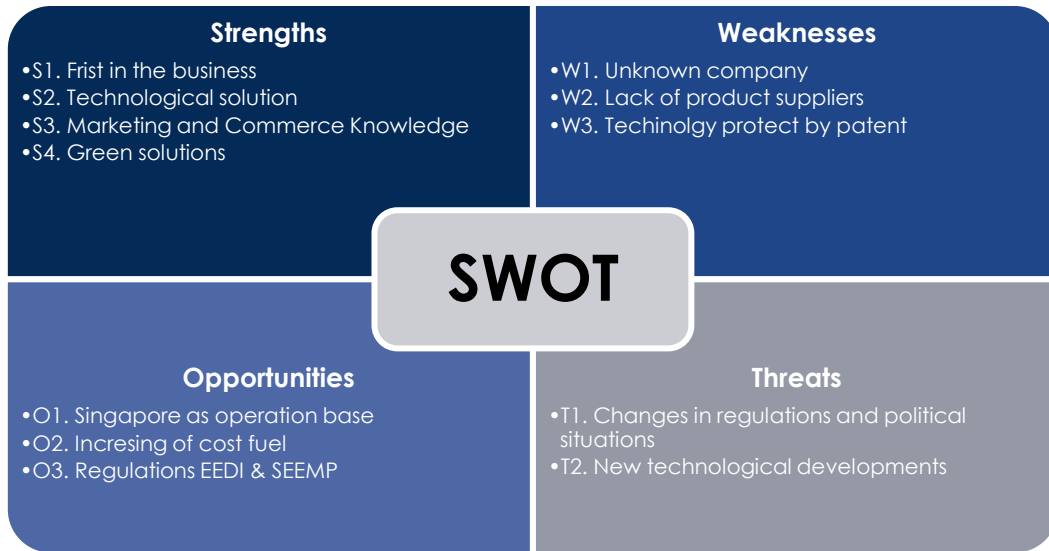


Table 6 SWOT Categories

	S1. First company	S2. Technological solution	S3. Marketing & Commercial	S4. Green Solution (public investment)	W1. Unknown company	W2. Lack of product suppliers	W3. Technology protect by patent	
O1. Singapore as Op. Base	2	2	1	1	-2	-3	0	1
O2. Increasing of Cost fuel and Op. Cost	1	3	1	2	0	0	0	7
O3. Regulations (EEDI & SEEMP)	0	2	1	2	-1	0	-2	2
T1. Changes in regulations and politics	-3	1	1	-2	-2	-1	-1	-7
T2. New developments	2	0	1	-1	-2	2	2	4
	2	8	5	2	-7	-2	-1	

Table 7 SWOT Scores

II. STRATEGICAL IMPLICATIONS

Now that analysis, both internal and external, has been carried out, it's possible to outline the strategical approach to maximize WindSail business performance and deliver the best service possible to customers.



According to the information gathered and results of investigation conducted, the WindSail model of business has to be focused on the customized full service provided to customers, basing the success on the immediate solution offered to the two main big issues of shipping industry, i.e. fuel costs and polluting emissions, heavily affected by new regulations.

The principal purpose is to promote WindSail by enhancing the proficiency and value of the high technological and efficient hardware solution supported by a last generation IT software, that make possible a complete experience for the customer, always monitored and assisted in every moment of their experience.

The first step is to sign a clear contract with our supplier defining responsibilities, limits, and scope of each part of the business, trying to create a collaborative environment and take advantage of the actual unicity of manufacturer.

Secondly, we have to use our knowledge in marketing to reach our customer as fast as possible, being able to make them aware of the perfect fitting of the solution provided by WindSail to actual problems.

To do this, a key factor of success, among others, is our geographical positioning in Singapore, main hub in shipping industry, a perfect location where match the biggest shipping players, i.e. Maersk, and the most attractive market, that is Pacific Asia.





IV. MARKETING PLAN

Before starting our business, moving from the simple idea to the real commercialization of the WindSail Solutions, is extremely important to analyse the market, in order to deeply understand the customers and improve the possibility to success.

In the initial phase is essential to explore and be aware of the current situation of the market, to set the correct segment of customer by a detailed market research, with the main aim to maximize our profits.

Once that customers and potential market size have been detected and estimated, a value proposition is defined according to the needs the customers show. Finally, after the pricing conceptualization, is developed a commercial plan to be sure to reach all the customers through the different channels and by the all the promotional means.

I. CURRENT SITUATION OF SHIPPING INDUSTRY

The first step of the market research consists in analysing the whole market trying to determine which portion of it can be more exploited and optimize the possibility to convert it into our customers.

The business area in which we move is the Shipping Industry, that represents the core part of the global freight transportation system. It is the most affordable and efficient mode of transporting goods, with a less cost per km when compared to the other modes of transport as rails, roads, air, etc.

The global cargo ships industry caters to global trade supply chain, allowing transport of raw materials in bulk, import/export of food products and finished and semi-finished goods, accounting nowadays for the 80% of global trade volume, about 10.5 billion tons, that means the 70% of the world's trade value, namely 20.000 billion\$ in 2017.

The sector has faced strong challenges due to the slowdown in world economy post 2008 crisis. The shipping crisis reached its peak in 2015 & 2016 due to excess capacity ordered during strong market conditions. As a result of this, the Industry has built large scale consolidation globally.

Actually the 5 largest players accounted for 70% of the market share, with the major 3 alliances controlling 91% of the global market share.



In addition to this big economic issue, the shipping industry is now facing two main issues related to the environmental restrictions, especially in terms of CO₂ emissions, and fuel consumption costs.

Transport by sea represents now the cleanest means in terms of Greenhouse Effect, with the lower CO₂ emission per Kilometre and Ton moved, responsible however for the 4% of global CO₂ emissions.

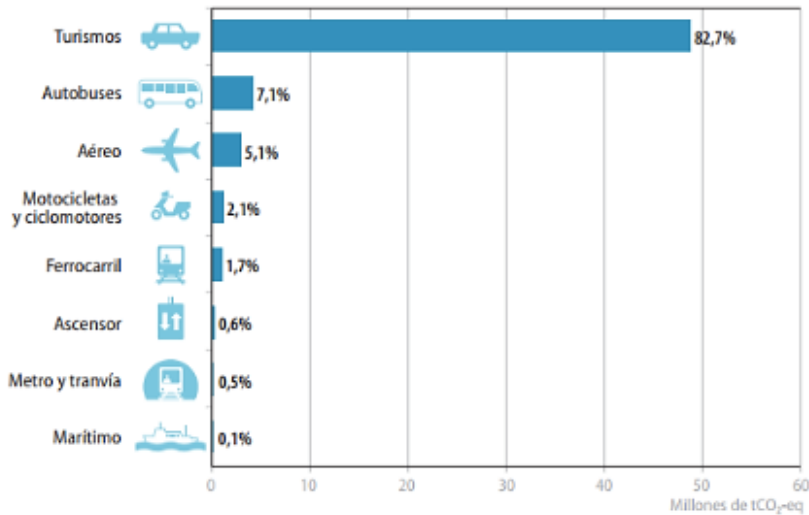


Fig. 19 CO₂ Emissions by Transport

Anyway, even being the clearest modality, actually the world merchant fleet produces the 7% of global SO₂ emissions, el 11% of global NO_x emissions and over than 1 Giga ton of CO₂, more than a highly-industrialized country as Germany.

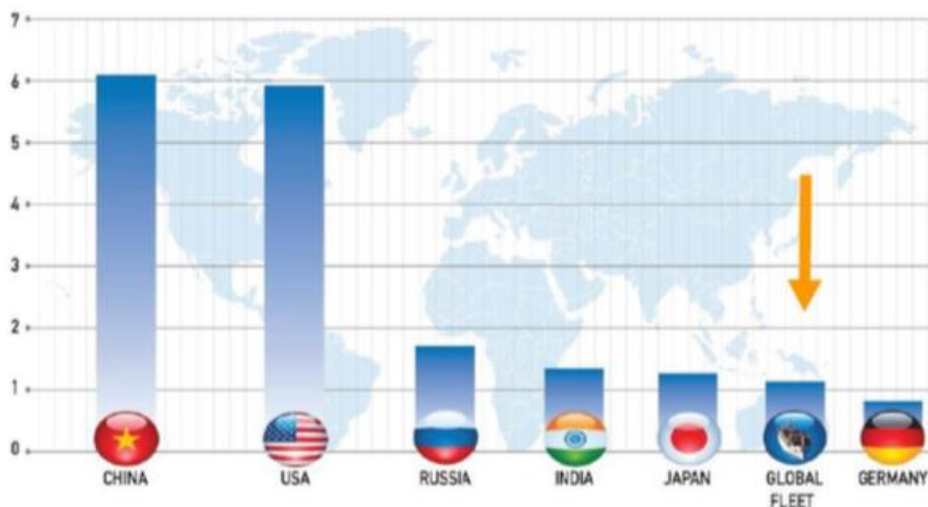


Fig. 20 Global Emissions



This data, already enough relevant to understand the environmental issue related to maritime sector and role in climatic change, are destined to be worse in next years, with estimations by 2050 of a growth of contamination of 150-200%, basically due to cargo ships, as reported in the table.

Emisiones del sector marítimo a nivel mundial por tipo de buque							
TIPO DE BUQUE	% TONELAJE MUNDIAL BUQUES COMERCIALES	NO _x (MTm/año)		SO _x (MTm/año)		PM (MTm/año)	
Buques Tanque >1000 TRB	36%	2,9	23,02%	2,1	20,00%	0,16	18,39%
Graneleros de carga seca >1000 TRB	31%	2,9	23,02%	1,8	17,14%	0,14	16,09%
Portacontenedores >1000 TRB	11%	2,6	20,63%	1,8	17,14%	0,14	16,09%
Transbordo rodado >1000 TRB	5%	1,1	8,73%	1,1	10,48%	0,1	11,49%
Crucero/Pasaje >1000 TRB	4%	0,3	2,38%	0,3	2,86%	0,02	2,30%
Otras cargas >1000 TRB	13%	2,8	22,22%	3,0	28,57%	0,26	29,89%
Buques 250-1000 TRB	4%	0,4	3,17%	0,5	4,76%	0,04	4,60%
TOTAL	100%	12,6	100,00 %	10,5	100,00 %	0,87	100,00 %

Fig. 21 Global Emissions by Ships

Moreover, the production of fossil combustible is decreasing of 5-10% by 2007 while its price is growing, with crude and fuel oil will triplicate in next decade, having a big impact in maritime transport sector. For these reasons, the entire industry is looking for solutions able to reduce this impact and develop new technologies based on green energies, aiming the double purpose of reducing costs and contaminations.

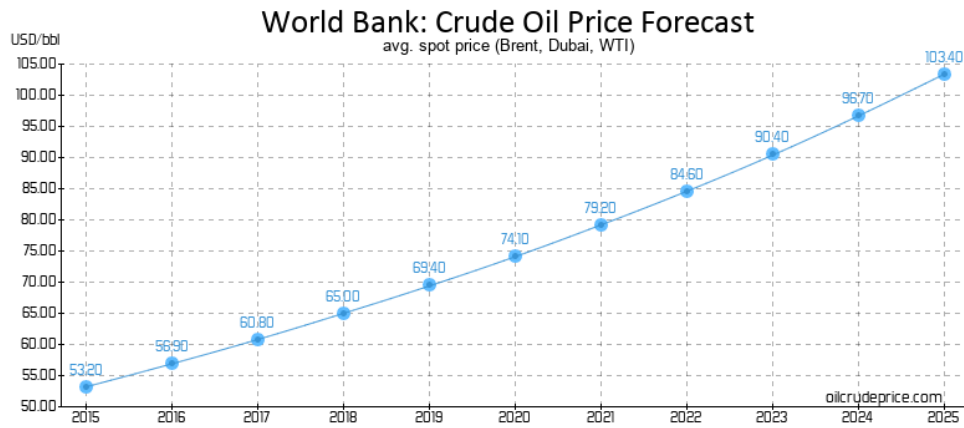


Fig. 22 Crude Oil Price

The aforementioned issues are not the only ones, indeed different challenges are involving the global shipping sector, such as those explained in external analysis regarding Trade barriers and global protectionist measures, the geopolitical risk regarding the OPEC nations which control the oil supply, the growth of China that affect all Asian continent and old economies.

In this complex frame, WindSail Solutions bases its reason for being.

II. MARKET VOLUME

Trying to ensure us advantageous and scalable contracts, we will focus our efforts in getting contacts with the main shipping companies of the sector, in order to maximize the value of the contract and possibly scale them, due to the high number of vessels possessed by these companies.

In a global panorama made up of more than 50 shipping companies, the top 10 more important, ranked in order of the Twenty-foot equivalent unit (TEU) capacity of their fleet and the number of container ships, are the following:



Rank, company	End-2015		End-2016		May 2017			
	Number of ships	Capacity	Number of ships	Capacity	Number or ships	Capacity	Market share (percentage)	Average vessel size
1 Maersk	629	3 103 266	655	3 323 064	621	3 201 871	16.0	5 156
2 Mediterranean Shipping Company	487	2 734 409	458	2 802 830	469	2 935 464	14.6	6 259
3 CMA-CGM	553	2 449 350	460	2 227 600	441	2 220 474	11.1	5 035
4 China Ocean Shipping (Group) Company	285	1 616 462	254	1 508 207	277	1 603 341	8.0	5 788
5 Hapag-Lloyd	187	999 950	171	987 892	180	1 038 483	5.2	5 769
6 Evergreen	197	955 108	188	990 792	186	995 147	5.0	5 350
7 Orient Overseas Container Line	111	583 969	101	594 550	107	666 558	3.3	6 230
8 Hamburg-Süd	138	670 029	127	638 906	116	594 008	3.0	5 121
9 Yang Ming	101	543 772	101	584 839	100	588 389	2.9	5 884
10 United Arab Shipping Company	51	452 510	59	565 433	56	546 220	2.7	9 754

Fig. 23 Data Comparison by Companies

1. **A.P. Moller–Maersk Group** (Danish: A.P. Møller–Mærsk A/S, also known as Maersk) is a Danish business conglomerate with activities in the transport and logistics and energy sectors. Maersk has been the largest container ship and supply vessel operator in the world since 1996, with a total TEU capacity of over 3,2 million.
2. **MSC Mediterranean Shipping Company S.A. (MSC)** is the world's second-largest shipping line in terms of container vessel capacity. Actually, MSC operates 469 container vessels with an intake capacity of 2,935,000 twenty-foot equivalent units (TEU).
3. **CMA CGM S.A.** is a French container transportation and shipping company. It is a leading worldwide shipping group, using 441 shipping routes between 420 ports in 150 different countries and TEU capacity of 2,22 million. **COSCO Shipping Corporation Limited**, also referred to as the **China COSCO Shipping Group**, is a Chinese business conglomerate and state-owned enterprise formed by the merger of the COSCO Group and the China Shipping Group in January 2016. The container shipping division, which is called COSCO Shipping Lines, has a capacity of 1.60 million TEU using 277 ships.
4. **Hapag-Lloyd** is a multinational German based transportation company. It is composed of a cargo container shipping line, Hapag-Lloyd AG, which in turn owns other subsidiaries such as Hapag-Lloyd Cruises. The container transport arm of Hapag-Lloyd AG is currently the world's fifth largest container carrier in terms of vessel capacity (actual TEU capacity of 1million).
5. **Evergreen Marine Corporation** is a Taiwanese container transportation and shipping company. Evergreen Marine is a global containerized-freight shipping



company. With over 180 container ships it is part of the Evergreen Group conglomerate of transportation firms and associated companies, with more than 990K TEU capacity.

6. **OOCL** is one of the world's largest integrated international container transportation, logistics and terminal companies with more than 320 offices in 70 countries around the world. OOCL actual fleet is composed by 107 ships with a total TEU capacity of 666,5K.
7. **Hamburg-Sud** is European shipping companies based in Germany. Its fleet counts on 116 containers ships with a total TEU capacity of over 500K.
8. **Yang Ming Marine Transport Corporation** is an ocean shipping company founded in 1972 in Taiwan. Yang Ming currently operates 100 container ships with a capacity of 590K TEU.
9. **United Arab Shipping company** closes this top 10 ranking, having a fleet of 56 ships for a total TEU capacity of 550K.

These main 10 shipping companies cover the 72% of global capacity, with total 14,5 million TEU among a compounded fleet of 2.533 container ships.

Considering the cargo ships market volume, this can be quantifying in more than 20.000 billion \$ last year, moving 10 billion tons of goods around the world using a global fleet of over 25.000 ships, mainly divided in four big categories:

- Container Ships
- Bulk cargo carriers
- Chemical tankers
- Oil&Gas tankers

These ships cost each year to the shipping companies around 320 billion \$ in construction & services, with enormous investment addressed to new technologies and innovation. Among the different categories, that of container ships represents the most attractive one, since it covers the 60% of global seaborne trade, with a total of 12.000 billion \$ moved, showing a continuous growing market demand, as per figure.

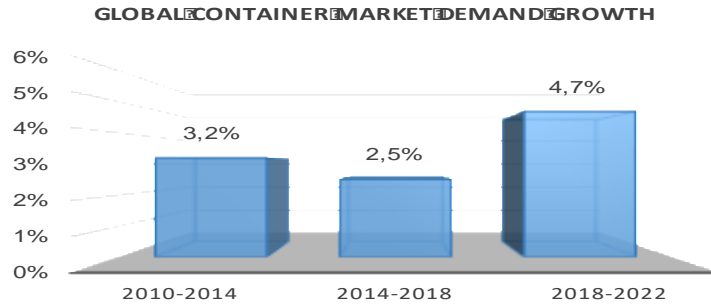


Fig. 24 Global Container Growth

Actually, more than 4.100 different active container vessels move goods all around the world, basically through 3 main big routes:

- European Route, including the internal Europe area to the Atlantic Area, to North Africa and West Asia.
- the Atlantic Route, including Western and Northern Europe to the East Coast of North America and the Caribbean Area, Europe via the Suez Canal to reach the Asia-Pacific region, South America East Coast via Cape of Good Hope to Asia-Pacific and Europe to South America East Coast;
- the Pacific Route, including the Far East to the West coast of North and South America region, the Far East to the East coast of North America and the Caribbean and the Far East to Southeast Asia and the South Pacific Area.

In this elaborate scenario, firsts 5 biggest shipping companies, APM Maersk, MSC, CMA CGM, COSCO y Hapag-Lloyd, cover more than the 50% of the global fleets.

In 2016, due to a persistent overly supplied market and low freight market rates that placed carriers in prolonged financial distress, the container shipping industry was characterized by a greater consolidation process. In that year, lots of mergers and acquisitions took place, with 3 main big alliances among the top 10 companies:

2M Alliance	Ocean Alliance	“The” Alliance
Maersk (with Hamburg Süd) and Mediterranean Shipping Company	CMA CGM, Evergreen, China Ocean Shipping (Group) Company, and Orient Overseas Container Line	Hapag-Lloyd (with United Arab Shipping Company), Ocean Network Express (K-Line, Nippon Yusen Kabushiki Kaisha, Mitsui Osaka Soshen Kaisha Lines) and Yang Ming
Controls 37 per cent of the global shipping market	Controls 33 per cent of the global shipping market	Controls 21 per cent of the global shipping market

Fig. 25 Alliance Process



III. TARGET SEGMENT SIZE

Once the global market has been defined, we have to breakdown it and identify our target segment in order to maximize the returns from the sector.

In our case, to determine the ideal market portion, we have previously detected a list of factors to take into consideration in the market research, strictly related to the economic market conditions and all other characteristics that make the solutions we provide more viable, like dimensions of the company, moved goods value, time per trip, CO2 emitted, main ports per route and weather conditions, among others.

According with the route previously described, the first step is to define which, among those, can be more usable and appropriate for WINDSAIL. For this reason, the first screening we do is aimed to detect the area where focus on and base initially our business, between the main routes defined. To select it, we take into account three main factors:

- **Economic Factors** → including general economic growth, commercial treaties, investment in infrastructures and governmental supports in trade development, as well as direct investment in shipping industry

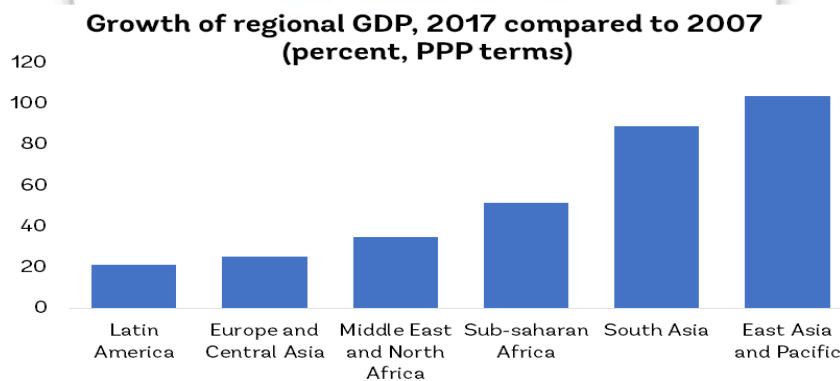


Fig. 26 GDP per Region



	China	Japan	Republic of Korea	Philippines	Rest of world	Total
Oil tankers	4 407	1 094	10 500		917	16 918
Bulk carriers	12 346	9 418	2 940	691	540	25 934
General cargo	764	205			169	1 138
Container ships	2 231	599	5 541	397	695	9 464
Gas carriers	553	759	4 887	78	24	6 302
Chemical tankers	561	566	306		39	1 472
Offshore	651	204	603	2	686	2 146
Ferries and passenger ships	105	184			1 148	1 437
Other	561	319	490		76	1 445
Total	22 179	13 349	25 266	1 168	4 295	66 257

Fig. 27 Deliveries of Newbuilding (2016)

→ **Wind Speed** → analysing the wind conditions and the average speed of it in the different areas along the year, to guarantee the best meteorological conditions for the use of WindSail technology

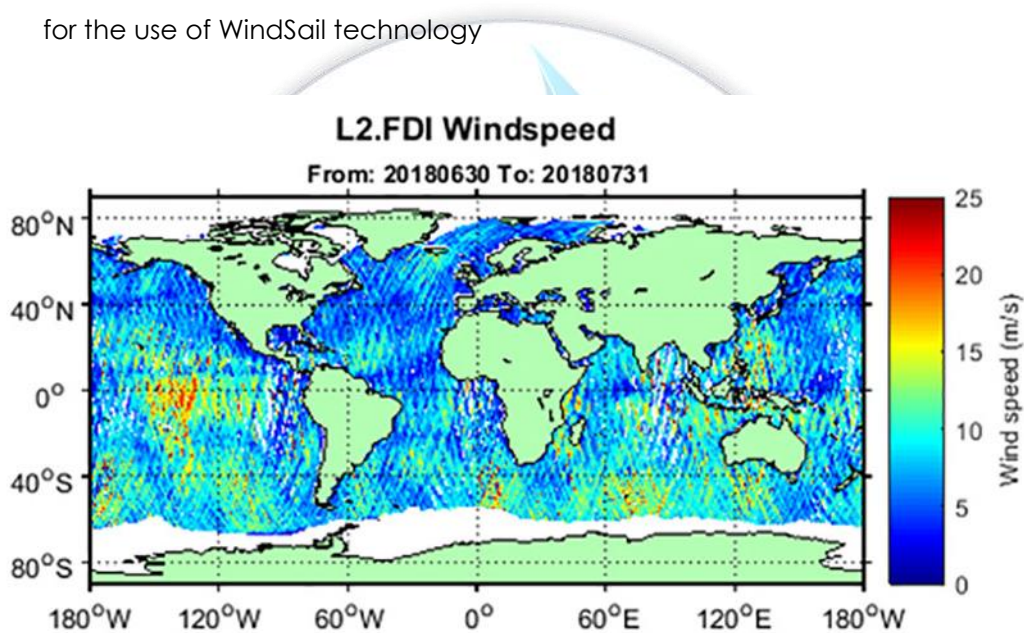


Fig. 28 Global Wind speed

→ **Sea Traffic Routes** → analysing the maritime traffic and the area where more routes are used by shipment companies, including ports throughput and movements, evaluating the volume growth in next year

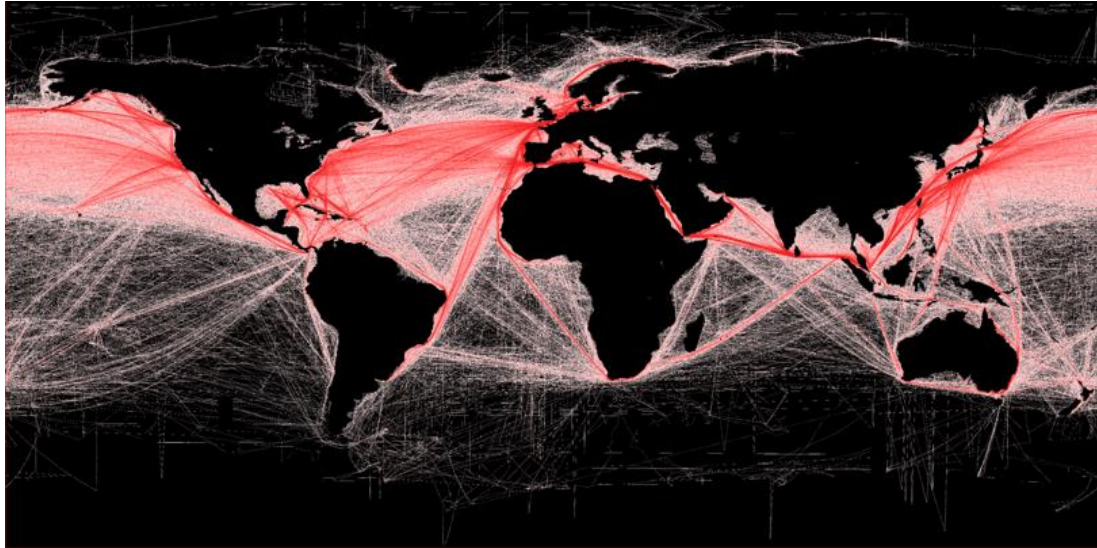


Fig. 29 Maritime Traffic

	2014	2015	2016
Africa	28 027 967	28 122 893	27 909 132
Asia	429 641 660	439 573 985	446 813 796
Developing America	45 615 876	45 804 387	45 915 853
Europe	109 018 957	108 359 396	113 831 821
North America	51 659 185	53 689 663	54 120 207
Oceania	11 017 084	11 139 239	11 112 739
Total	674 980 729	686 689 563	699 703 546
Annual percentage change	5.7	1.7	1.9

Fig. 30 World Container Port Throughput by Region

Figure 4.2. Container port volume growth, 2016–2018

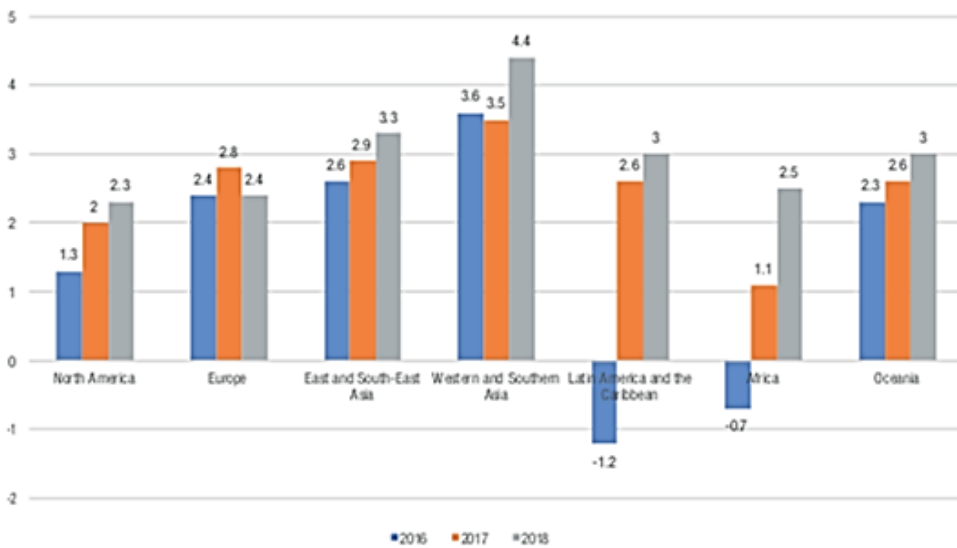


Fig. 31 Container Port Volume Growth



As already explained, the focus will be mainly on big companies, that use to transport huge quantities of goods in order to obtain scale economies and optimize the value of a single trip, but to pinpoint the best target segment we need the correct criteria to be sure to evaluate the core market in the right way.

Basing on the key factors identified and in order to maximize the profitability of our business, after having fixed the focus on container ship fleets, we select our main geographical area on the Asia Pacific zone, where economic conditions are the most favourable in terms of GDP, commercial trade deals and investments flow, as well as climatic conditions and trade traffic routes conditions, with a huge number of vessels expected and possible customers.

Inside the East Asia and Pacific region, 12 main routes have been detected towards America, ensuring the highest amount of goods moved, estimated in 11.000 billion metric tons, by a fleet of over 152 containers ship fleet.

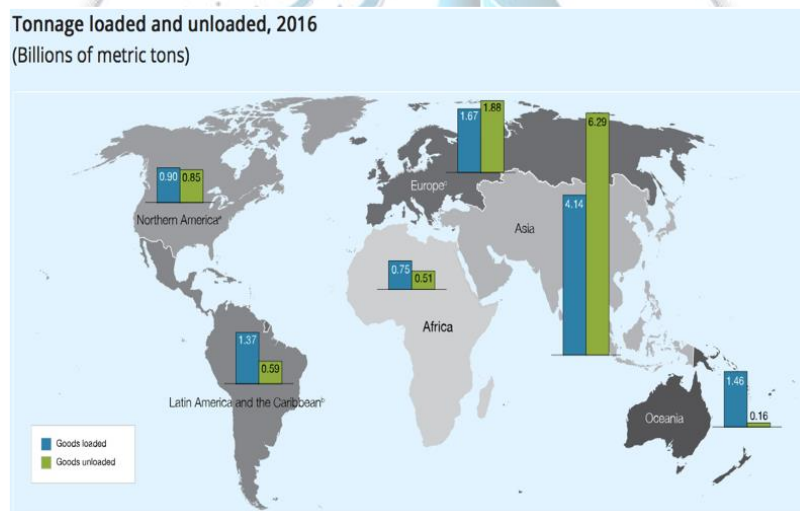


Fig. 32 Export/Import by Regions

In the selected area, moreover, there are 7 of the 10 main global ports in terms of containers throughput, offering to the shipping companies important logistics hub.

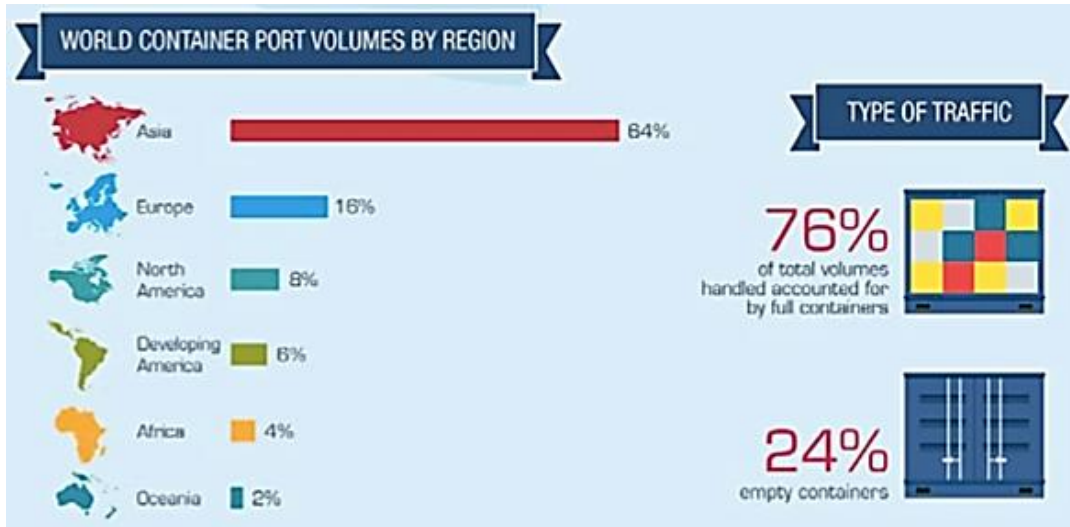


Fig. 33 Infographic by Regions

Concerning the Asia-America route, 4 main alliances control the market, with the following market share:

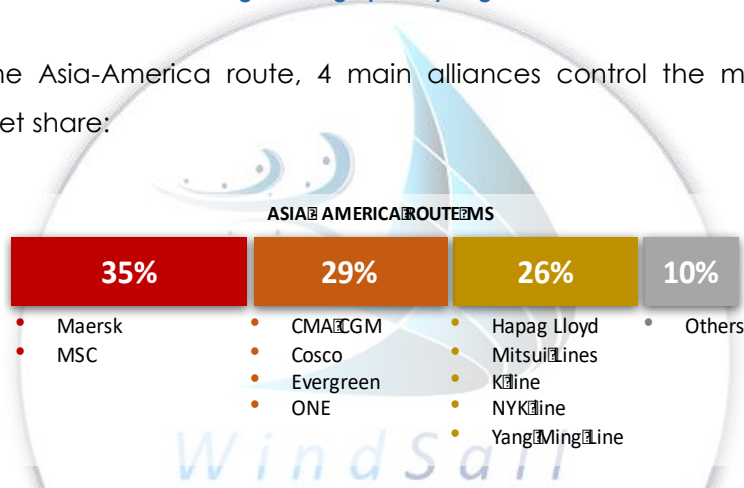


Fig. 34 Market Share

So, considering the number of vessels composing the fleet and the routes covered in the selected area, this is the resulting scheme:

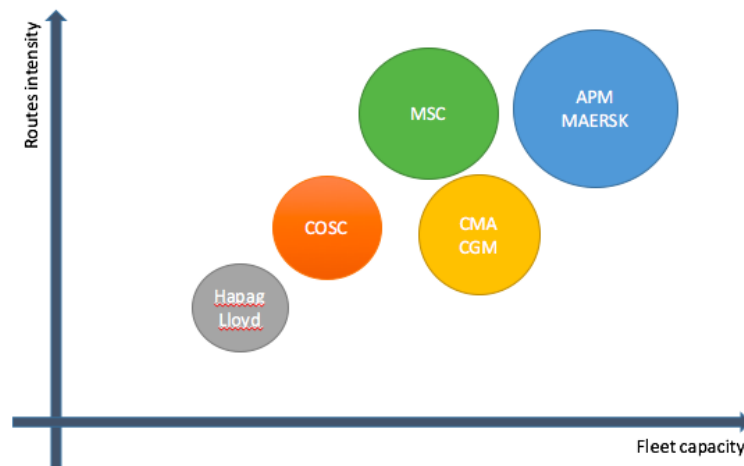


Fig. 35 Target Segment



So, as mentioned, this represent the main players in the market and those which represents the target for WindSail, in order to reach, in a reasonable time window, a good and sustainable number of contracts to go on with the business, starting with an initial market target quantified in about 53 ships.

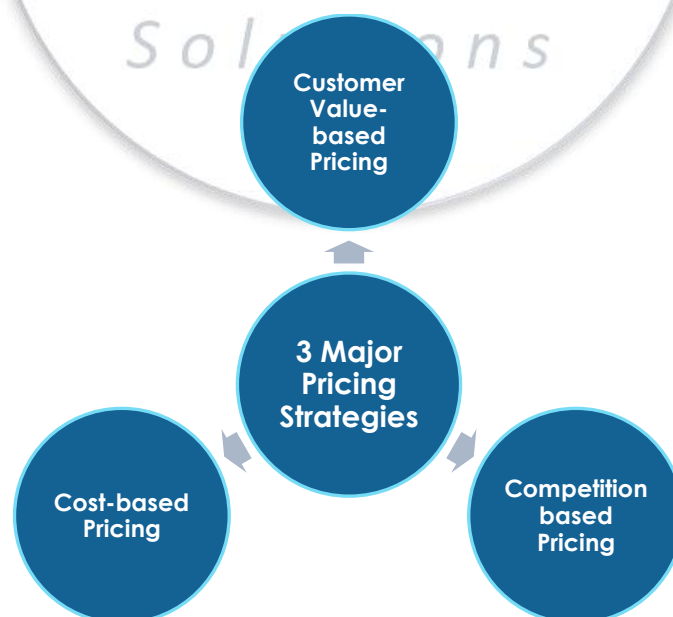
IV. PRICING DEFINITION

Once the market has been selected and potential customers identified, is important to determine the price of our service in order to be able to study the impact of it on sales and, consequently, on our market revenues and financial sustainability.

PRICING STRATEGY

In marketing there are different ways to set a price, the major ones are:

- Customer value-based Pricing: this is based on the price the customers are willing to pay, according to features and the value they recognize in our service.
- Cost-based Pricing: in this case, starting from the company's costs for the service, it is applied an over cost pair to the margin we want to reach.
- Competition-based Pricing: in this last approach, is defined a price comparing it with competitors' ones in order to take advantage in the market positioning.





Considering the competitive context in which WindSail is positioned, the strategy used is to set a price based on the costs it has to be covered for each service provided; due to the difficulties to elaborate a price based on customers willing and competitors price, the Cost-Plus strategy is the one that ensures a sustainable profit.

PRICING STRUCTURE

Basing on the main costs related to the service provided, it has been possible to define the optimal price to assure both profit to the company and a satisfying perception to the customers.

In WindSail service, main costs to be taken into account in the price definition are related to:

- Technology by the supplier
- Installation, training and maintenance
- Follow up and customer assistance

All these costs, adding a cost plus due to a profit margin per service of 17%, bring the final price to **700.000 €**

In this price are included: installation, training, first year maintenance, follow up and customer care during firsts 3 years.

SPECIAL PRICE CONDITIONS

In order to capture customers and secure their loyalty, it will be possible to define special price conditions for shipping companies interested in extending our service to more than one ship of their fleet, reaching in this way reciprocal scalable advantages.

V. COMPETITORS

Since we are a new Company in the market we have to look deeply to our competitors, trying to cover the gaps they leave to customers and take advantage of them. Anyway, the service we provide is a new service in the sector, so no companies could be pointed to be direct competitors, for this reason our focus is on the alternatives technological solution used by shipping companies to cover the need we want to respond to.



First of all, a comparison with traditional Eolic propulsion solutions has been carried out, in order to underline the advantages of WindSail Solutions and how the cut-edge technology has innovated the way to exploit wind power.

Looking at the magnitude of the system, the WindSail kite solution is able to generate a propulsion force 25 times higher the force generated per m^2 by any other existing Eolic conventional propulsion system. This big advantage is mainly due to two factors:

INCREMENT OF APPARENT WIND

This first factor is determined by the movements described by the kite, which flies in a sinusoidal (or 8, or infinite) shape, in order to reach the highest tow force. Basing on its dynamic structure, the WindSail kite can generate a huge quantity of apparent wind due to its flying speed, much higher than a classic static sailing, where speed is determined by ship's movement.

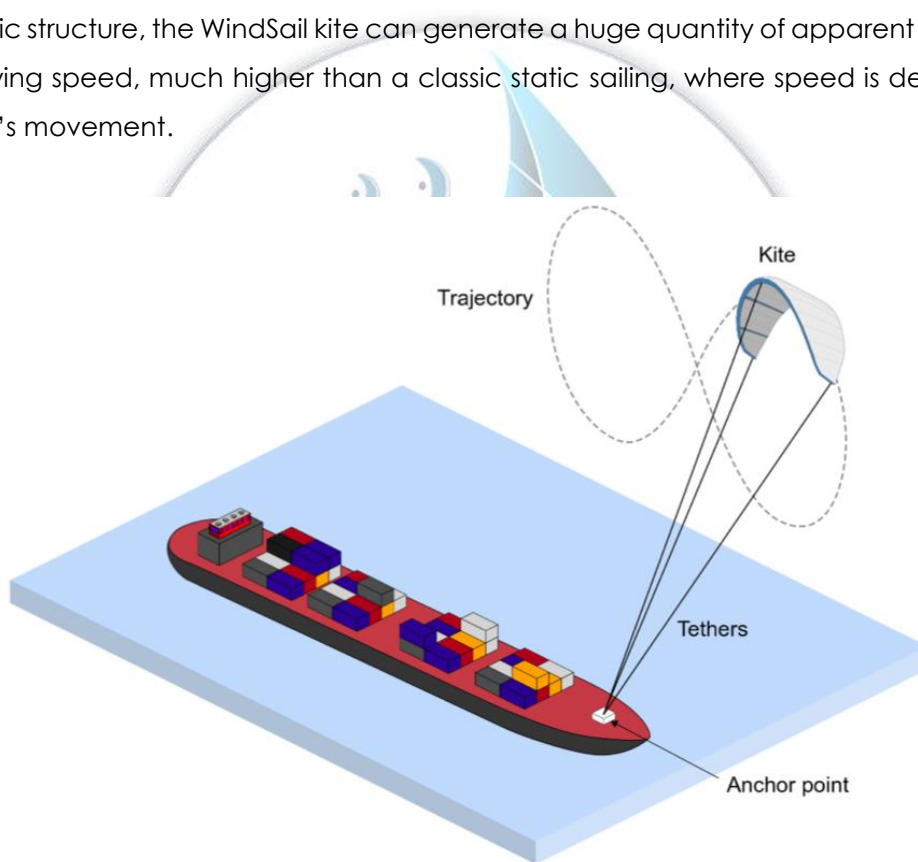


Fig. 36 System Scheme Movement

INCREMENT OF WIND INTENSITY AT HIGH ALTITUDES

The second factor is related to the quote where the system is designed to be used. The WindSail towing kite is manufactured to be able to reach high altitudes, among 100 and 500 meters, where winds are stronger and more stable respect to the wind at sea level in conventional Eolic propulsion systems. As the following image suggests, increasing the



altitude also wind force increases, reaching up to a +45% wind velocity, translated in a +200% wind power.

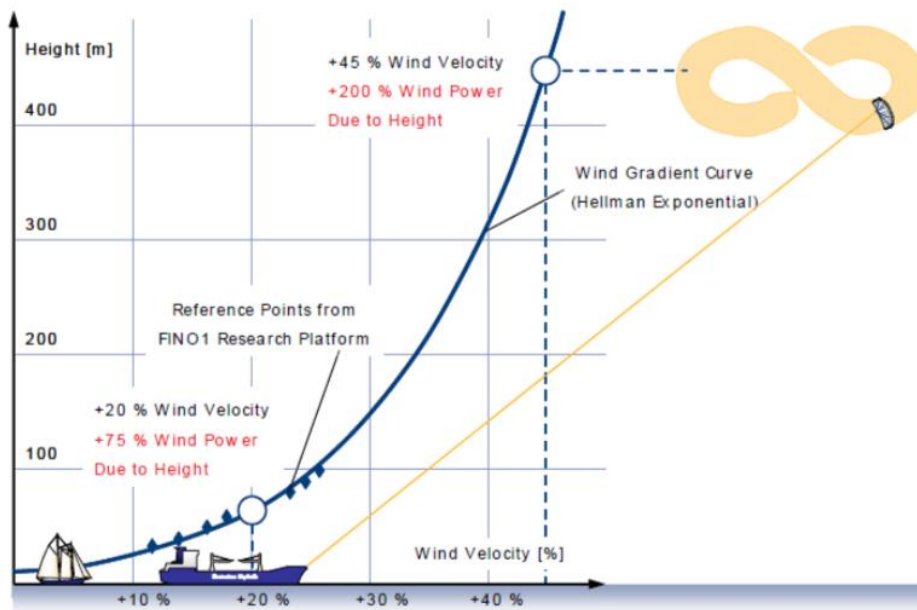


Fig. 37 Infographic Scheme Movement

In maritime transport industry, we find 4 main alternatives to wind in terms of propulsion system:

- Diesel
- Gas
- Hybrid
- Solar energy



To benchmark them with our solution, 6 of the main indicators of the sector have been taken into account:

- Investment
- Fuel
- Contamination
- Structure
- Efficiency



→ Reliability

COMPETITORS PS FEATURES BENCHMARK	Investment	Fuel	Contamination	Structure	Efficiency	Reliability
Wind	3	5	5	3	5	5
Diesel	3	1	2	3	4	5
Solar	4	5	5	4	3	3
Gas	3	4	4	3	4	4
Hybrid	4	3	4	3	4	4

— Wind — Diesel — Solar — Gas ••• Hybrid

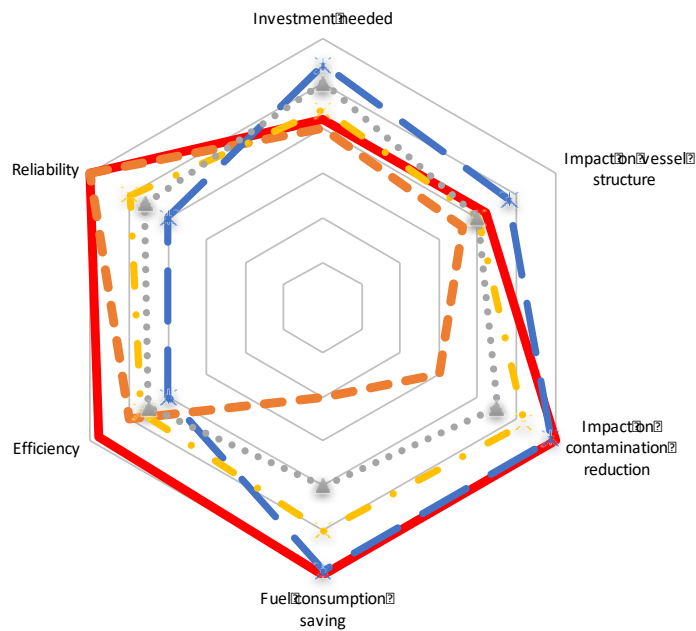


Fig. 38 Competitors Comparison

Showing the following results, enhancing the competitive advantage the WindSail Solutions offer to its customer, namely to be the more efficient and reliable solution to reduce fuel costs and CO₂, in a 100% sustainable way.

VI. VALUE PROPOSITION

Our service is a full customize and adaptable E2E service aimed to shipping companies, that allows them to improve seaborne transport performance through the use of a more



reliable, sustainable and efficient propulsion system, able to reduce fuel costs, CO₂ contaminative emissions and related costs.

Basing on the expertise in Aeronautical sector, WindSail provides a completely green solution to make the world's most used goods transport mean, ships, optimized and eco-sustainable.

The service embraces three different steps: a previous *Analytical Phase*, an *on Working Phase* when the technological solution is applied, and a *Post-Trip Phase*, when total customize assistance and performance improvement suggestions and solution are provided.

ANALYTIC PHASE

In this primitive phase, there is the collection of all the information about the ship useful for the application of the WindSail Solutions, such us information about routes used, lead time, fuel consumption, emissions produced, weather conditions.

To do this, a software is used to gather all the data needed to elaborate the best solution characteristics to be applied in the following operative phase, when the real benefits of WindSail are exploited.

In this phase of investigation, all possible scenarios are studied and analysed in order to ensure the optimization of the performance and benefits for the customer.

WORKING PHASE

In this operative phase, once analysis have been already done and basing on the results have been extracted, the WindSail Solutions is customized and fitted on customer ship, allowing the vessel to reduce fuel consumptions, contaminations and all related costs.

During the trips, the IT system offers a complete monitoring and tracking of the vessel, providing information and navigation data, necessities to evaluate the on-time performance of the travel and to adjust them to maximize the efficiency of the technological propulsion system minimizing any kind of risks.



POST-TRIP PHASE

WindSail Solutions is a E2E service, it means that customer and its satisfaction are the focus of the service during all the time, from the first contact with our company to the post sales period.

To ensure a high-quality service, customers are always assisted whatever, whenever and wherever they need related to the use of the solution. Since an incorrect use of the technological solution can bring not to expected performance, WindSail provides a full customize assistance to each ship about the trip results and performance, offering continuous improvement suggestions to obtain the best benefits and customer satisfaction.

VII. CUSTOMER BUYING PROCESS AND BARRIERS IDENTIFICATION

In the process of customer acquisition, we determine the various phases of customer identification and acquisition, with the different barriers founded throughout the process.

Starting with the identification of the target segment and ending customer loyalty, each of the phases involves different actions, corrections and results, which are reflected in the % of clients that are maintained from one level to another in the process. We have in particular 4 phases or levels in process of customer acquisition:

- ➔ **KNOWLEDGE:** Initial phase in which we have to make ourselves known, being WINDSAIL a new company and offering a totally innovative and unique service in its kind. The fact of being new entry and having few clients at the beginning due to lack of knowledge represent the main barriers in this phase, which translates into a 30% loss of potential customers (on a total basis = 100%).
- ➔ **CONSIDERATION:** In this phase, the client companies are considered that, even knowing WINDSAIL and its services, are not interested in acquiring their solutions. In this case, the barriers to this lack of interest can be several, such as the lack of confidence in a new company, the low profitability offered by the service or the strategy that does not look towards sustainability. (55%)
- ➔ **BUY:** in this phase of the process, customers are already quoting the value of the service offered and want to buy our solutions, so the only barriers in this step would be of a contractual nature, especially regarding the price or secondary conditions of the service. (35%)



→ **LOYALTY:** In the final phase of the process, the customer who has already purchased and checked the product has become loyal and returns or increases the use of our service. The obstacles in this terminal phase of customer acquisition refer mainly to possible changes in strategy, accidents or serious failures in the service or the emergence of more efficient competitive solutions. (25%)

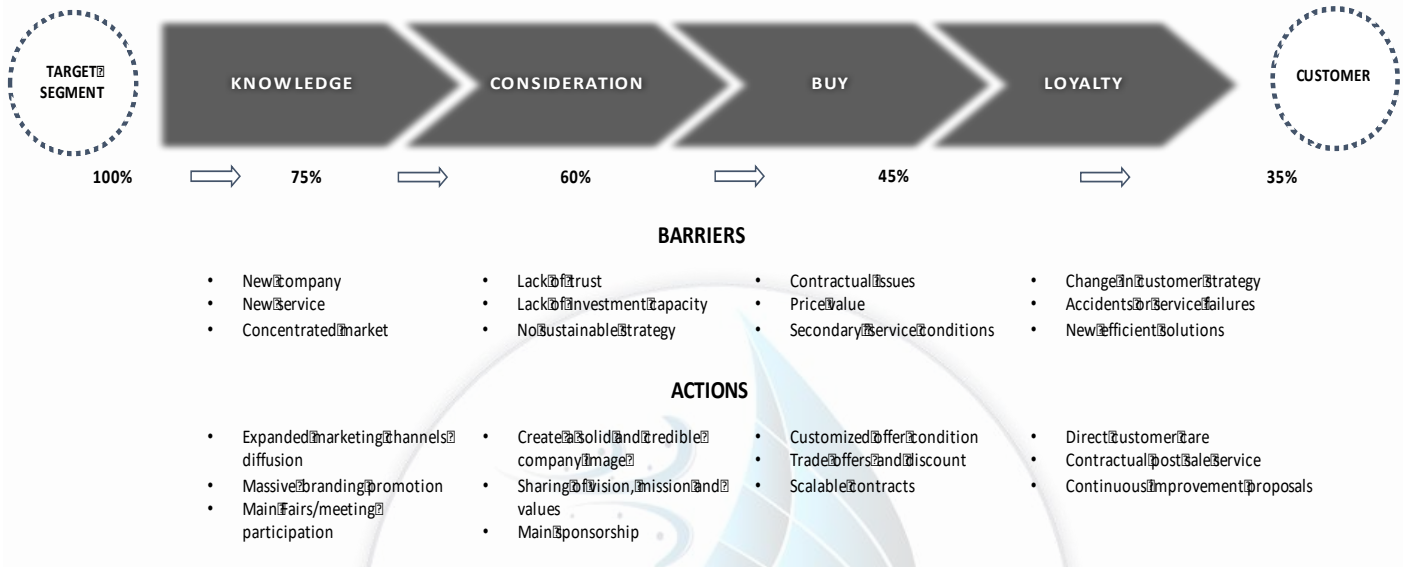


Fig. 39 Marketing Funnel

WindSail Solutions



VIII. MARKETING ACTIONS

The previously described phases, as said, involve a series of different actions aimed at maximizing customer acquisition and overcoming the barriers that arise and which must be faced especially by a new company such as WINDSAIL.

In the KNOWLEDGE and CONSIDERATION phase, customers do not know us and if they do, they do not have much confidence in our solutions, so we must focus on giving a solid and credible image of our company through massive branding actions, sharing our mission, vision and values.

The objective is to lower the distrust in WINDSAIL and make potential customers understand the value of our service. To achieve this result, it is important to promote Brand in the maritime commercial environment, in events related to maritime technology and innovation, both in forums / fairs and in web or dedicated magazines. The Brand gives the image, visually, simply and quickly. It has to be as impactful as possible in order to catalyse the attention and curiosity of the public.

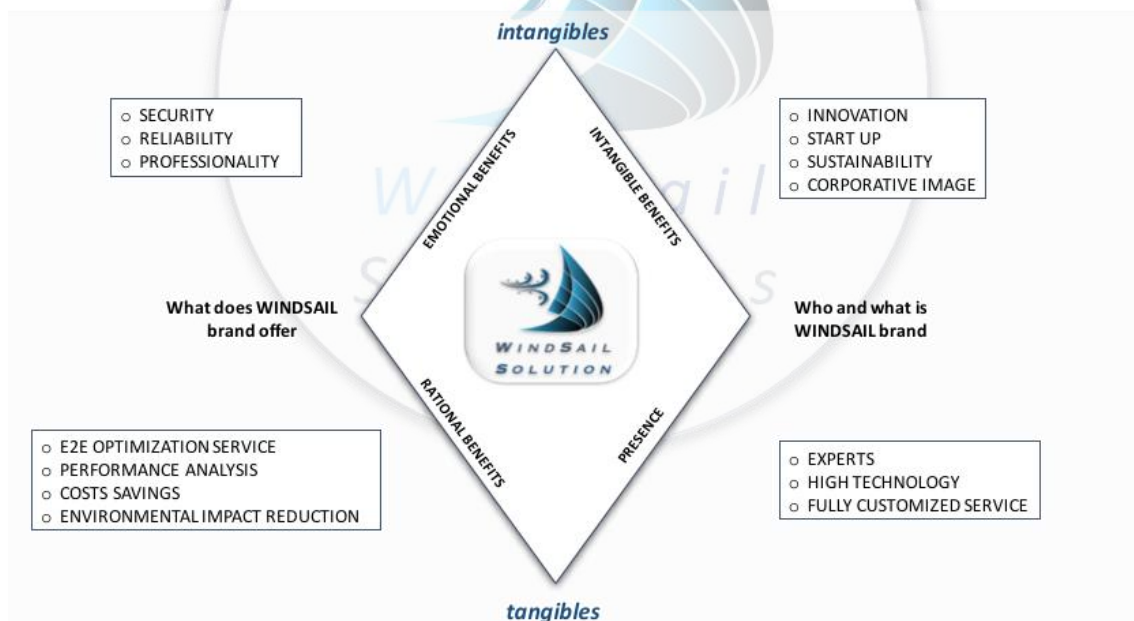


Fig. 40 Diamond Brand

Once the Brand is created and the clients recognize it, it is important to promote and publicize it, so that the clients not yet convinced of the goodness of our service are fully aware of what WINDSAIL means, proposes and offers.

Advertising is the successive phase to the recognition, by potential customers, of the WINDSAIL brand and it has to be provided to the number of clients we want to reach



and convince to buy, intensifying the efforts in explaining what is the service provided and the advantages that offers and overcomes the barriers that rise in the BUY phase.

When the customer has already realized, the value provided by the WindSail Solutions and has hired our service, the goal is to keep it in our portfolio and prevent it from leaving our company. In this case, an attentive and personal cure of the client is important, with a personalized after-sales service tailored to the client's needs, bearing in mind that their priorities are also ours. In this sense H24 assistance, discounted rates and Premium packages allow customers to have more loyalty.

I. CHANNELS

Communication channels are essential elements to get in touch with customers and potential such. Apart from the international fairs, forums and meetings dedicated to the maritime sector, sustainability and innovations, we have to use digital media such as social media, especially LinkedIn, Facebook and YouTube, and a website where we can give full visibility to our company, organization and means.

Along with these, personal and direct contact has priority in this type of business, due to the high investment value and participation in our personalized service and credibility that we want WINDSAIL to have in front of our clients.

WindSail
Solutions



V. COMMERCIAL PLAN

Identifying the channel to sell our services will be key to the company success. In order to maximize sales effectiveness, we need to understand deeply the client and find the best way to place our services. Thus, we will outline the key client characteristics affecting the distribution channels, then we will enumerate a number of possible channels and finally we will priorities them regarding the most suitable match with our client and business model.

I. CUSTOMER IMPLICATIONS ON DISTRIBUTION CHANNELS

Customer segmentation focused us on mid-high company directors that would appreciate personal, fast and regular services between the key business clusters around Singapore.

Therefore, our clients demand:

- Cost saving
- Efficiency
- Availability and reliability

These demands should be extended to the distribution channels taking into consideration the particularities of our service:

- Base rate with increase depending on the needs (one payment)
- Big ships companies
- The client (company) is not be the user (ships)

Combining the ships characteristics with the service particularities and business model we understand that the following distribution strategies should be met by any channel willing to target the segmented market with a product like ours.

1. Target big transport companies with many ships
2. Personal, clear and simple



3. Generate synergies with complementary services/products

II. PROPOSED DISTRIBUTION CHANNELS

We have considered a number of possible channels that we will later evaluate through a qualitative feat and a quantitative priority.

To obtain a list of potential distribution channels we have considered: Channels used by competitors and substitutive products, Channels used in other industries that could be effective in ours and finally a few from brainstorming ideas.

Let's list and explain each one of them in the following:

CHANNEL	DESCRIPTION	SOURCE
<i>Corporate sales</i>	Sale through commercial professionals directed to key business managers in charge of searching new technologies for the improvement of ships	Other industries
<i>Direct sales</i>	Selling through our CRM (telephone call center & city office)	Competitors
<i>Environmental Organizations & Distribution Systems</i>	Selling through global organizations systems such as International Maritime organization and other distribution services such as Peace boat (Japan)	Competitors
<i>Event stands</i>	Selling in congresses, ships events, target segment, client events...	Other industries
<i>Web</i>	Selling through our webpage allowing profile management, client/user subscription	Competitors
<i>Agreements with ports</i>	Synergies with ports to target usual companies	Brainstorming
<i>Free previous analysis</i>	Offering a previous free analysis will demonstrate our loyalty to the product	Brainstorming

Table 8 Channels

QUALITATIVE FIT AND QUANTITATIVE PRIORITIES



Each distribution channel will be evaluated regarding how well it qualitatively matches our client and business characteristics. This qualitative analysis will also consider external factors such as:

- Ships characteristic (age, routes, etc.)
- Local synergies and opportunities
- Fuel cost & legal frames

With that qualitative ponderation and quantitative data, we will characterize how profitable each channel is and the volume it might be able to reach.

CORPORATE SALES

Using sale agents is a common practice in Singapore. There are many agencies serving the Singapore market and other markets in southeast Asia. They even have a public institution to address and regulate commercial services called Direct Selling Association of Singapore (DSAS).

According to the U.S. Government export commercial services and customer support is vital in Singapore given the price competitiveness and high quality standards expectations. There are many outsourceable commercial services with an excellent record of success.

Corporate sales through commercial sale agents are especially important when targeting mid-long term contracts with sustainable revenues such as in our case. This approach totally matches the personal care and high standard service our clients will be expecting. Therefore, corporate sales through our commercial department are a key strategic channel.

A specialized sale man with experience in the sector with convenient CRM software can target up to 10 corporate clients a month and manage a proportional board of companies. Each corporate company may have between 1 (i.e. independent sale agent) and 10 (i.e. BCG Singapore) target ships companies considering an average 5 per company.

Considering a pessimistic 5% rate of success it means our commercial could close at least one corporate deal a month bringing an average 1 new customer per 2 months.



Considering the salesman salary and dients it has an average direct customer uptake cost of \$1000.

The potential volume that can be targeted through this channel is big since Singapore has many big corporations. We have considered as target companies with more than 200 ships per one, like Maersk (300 ports in more than 120 countries, reliable and regular connection to all corners of the globe), COSCO and CMG.

This adds to a volume of over 15 potential target companies.

DIRECT SALES

Direct sales use our customer relation office in the main ports, CRM phone center and offices to attract new customers. Of all these, the only one that may fit our client and business model is the opening office in the cities of the main companies' offices since it will be a good opportunity to capture companies through word of mouth and "fan customers".

The idea is to engage commodities related to one of our customers and grow interest in their companies. This maximizes our investment in the cities using it not only as a customer relation point but also as a sale and promotional channel. For example, offering special promotions in case of applying our technology for more than one ship.

ENVIRONMENTAL AGENCIES AND ASSOCIATIONS

Some companies and individual customers would contract our services through Environmental companies or associations. We could set agreements directly with a few of them and set sales on our price rates. Getting a CSR services could be very expensive and since we have no need for booking we wouldn't use its full capabilities.

For this reason, it seems more appropriate to establish a collaboration network with local world environmental associations agencies, particularly those specialized in ships.

The client uptake cost would be the fee charged by association. Reasonable fees would be around 15% of the service. This would mean around (determine price) per customer.

The potential customer volume is the same as for our commercials although their passive approach reduces their engagement capabilities significantly. We estimate even with their client network their capitation efficiency will reach a 10% of our commercials at the most.



EVENT STANDS

Singapore is well known for hosting every two years one of the biggest airshows in the world, the Global Liner Shipping Asia (Singapore). This major ship event is the best platform to announce the company start and close commercial deals.

Moreover, Singapore constantly hosts congresses and business events for many sectors that can be commercially exploited.

Although being sporadic and highly seasonal, this channel takes advantage of these business encounters very popular in Singapore.

The cost of stands in these events is high thus the cost per customer uptake high. If we consider average stand costs of \$10000 per event and uptake an average of 5 direct customers without implying further commercial work by the corporate sells. The result is an uptake cost of \$2000 with the complementary benefits on branding and promotion.

WEB & SOCIAL NETWORKS

A web is a mandatory tool in today's business world. Instead of using it only for branding and promotion we believe it should have a significant role on Customer Management.

Turning it into a distribution channel is as easy and inexpensive as adding a registration and benefits. Most probably this kind of channel is not strongly aligned with the characteristics of our customer but since its implementation cost is marginal it can be interesting to open it, even if it is only to analyze its behavior and check the individual customer behavior.

Moreover, not having it would close easy access to us from general public which means closing a potential future business line.

On the other side, the effectiveness of this channel will be very low since all customers' trip managers will expect a personal service and negotiation instead of closing a yearly deal with a few clicks.

AGREEMENTS WITH PORTS

Singapore has one of the top 10 ports around the world very strong. With more than 2000 ships of 30 different companies per months.



Moreover, the presence of some offices of the most exclusive and business oriented ship transport companies such as Maersk, COSCO, MSC, among others offer a perfect opportunity to generate synergies with this industry.

It is a win-win situation. The port nourishes from our clients and at the same time they can offer a very exclusive service to their clients; install WindSail technology. For us it is a perfect channel both to attract new customers as to promote our services using the port where other companies can visualize us.



Fig. 41 Example of Terminal Port

FREE PREVIOUS ANALYSIS

Windsail will analyze the ships cost and efficiency for free, in this case, we can explain better the idea of the company and show how the can improve with the service. We can show to the customer a real comparison by a simulator of how its working the ship and how this can improve with us and with the technology we provide:

- Fuel savings
- Co2 emissions
- Legislation

Afterwards, the customer should decide to set up or not.



CONCLUSION

We think an initial huge investment in marketing is crucial for the company success, even more if it is a new concept as Windsail is. We bet for a multichannel distribution where Corporate salesmen play principal roles.

III. FIRST APPROACH

The opportunity of the business is focused on the amount of shipping companies that exists nowadays. In this global market, the transport of goods is the most important sector of the global market, as the manufacturing companies are based in different countries than the customers. In our case, we will be focus in the main one the first year.

MAIN SHIP COMPANY: MAERSK

This company network covers over 300 ports in more than 120 countries, giving you a fast, reliable and regular connection to all corners of the globe.

Asia's rise as an economic power has made it the most dynamic region in the world. Maersk is active across the continent. From Singapore to South Korea, Japan, EEUU and South America, Maersk supports wealth through long-term investments and the transfer of critical knowledge to local workforces.

As the world's largest container shipping company, it moves 12 million containers every year and deliver to every corner of the globe.



Fig. 42 Example of Maersk Ship



Aimed at accelerating the transition to new technologies, Maersk announces today its goal to reach carbon neutrality by 2050. To achieve this goal, acceleration in new innovations and adaption of new technology is required.



Fig. 43 Maersk Data

SHIPS AND ROUTES SELECTED

The ships we select are the following ones, we choose them because of the different routes, the ports and the days sailing.

This four are our main approach the first year, and WindSail will study and do simulation analysis to them, the idea is to show the customer, in this case Maersk, how much money it can save and how can decrease the CO2 emissions.

AC3 EASTBOUND

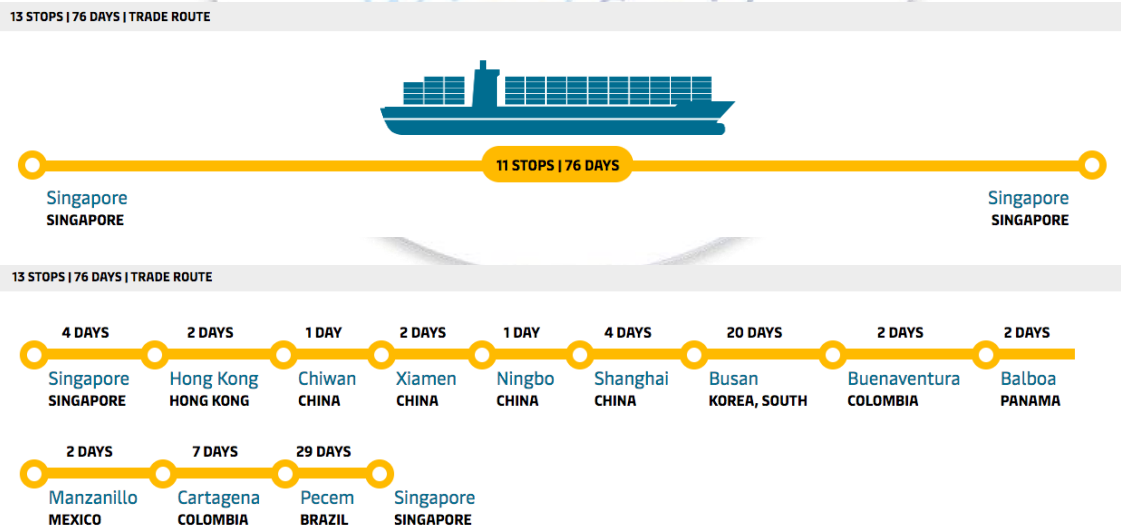


Fig. 44 Route 1



ASAS I

20 STOPS | 91 DAYS | TRADE ROUTE



20 STOPS | 91 DAYS | TRADE ROUTE

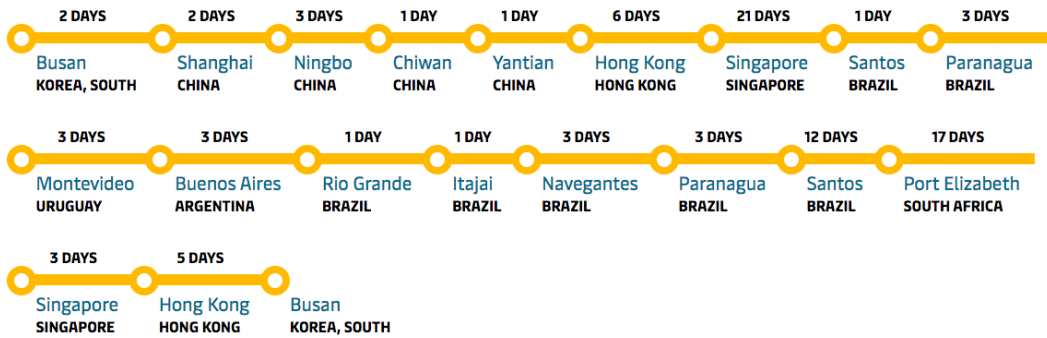


Fig. 45 Route 2

ASAS II

20 STOPS | 87 DAYS | TRADE ROUTE



20 STOPS | 87 DAYS | TRADE ROUTE

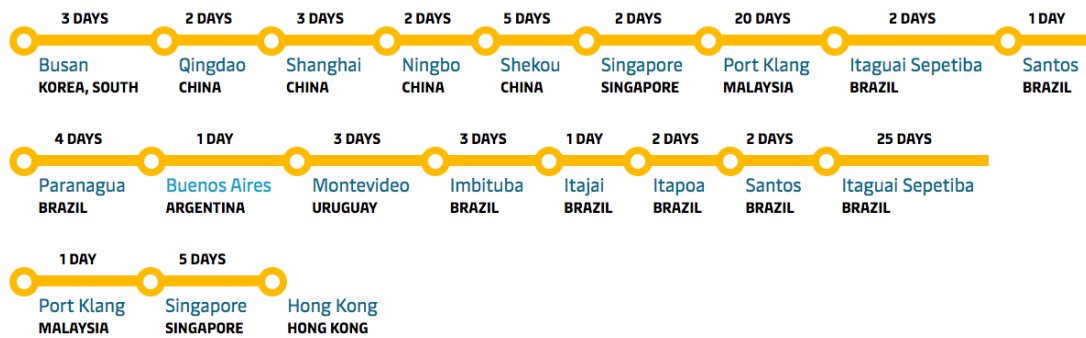


Fig. 46 Route 3



AC5 EASTBOUND

14 STOPS | 76 DAYS | TRADE ROUTE



Fig. 47 Route 4

IV. STARTING PLAN

The initial consideration basis takes into account the viability of the installation the kite in the most quantity of ships we can during five years of the company. The date predicted for the beginning of the operations is for the second half of 2019. From this point, Windsail is having the fourth first free analysis for Maersk ships until final of 2019 when will start the first installation.

From this point, the standard for the operations and the schedule will maintain until 20203, adapting to the variability in the client demand in terms of quality.

As we will have less people contract the first year, the offer consists of 30 day of initial free analysis in ships of Maersk, departing or passing from Singapore and studying the route to America, till coming back to Asia.

The possibility of this selected client is the among of ships it has and most around this area. As we mentioned, Maersk is the main ship company around the world, and also, these routes are the most helpful for this technology.

V. EXPANSION PLAN

The following year, 4 kites will be installed, every three months, as the same time Windsail will increase the amount of analysis to our main customer ships.



This schedule will keep until 2022 when that WindSail does will celebrate the boom expansion.

In one hand, Windsail will approach more customers, more installations and more routes. The cost savings of fuel even the Idea of an environmental image that the technology can give to our customers will make our company grow and be the step to approach the new legislations.





VI. OPERATIONAL PLAN

I. INTRODUCTION

The operational section of the company is also searching for the best service with a saving & environmental concept. Windsail is going to operate with a total compromise with their clients, ensuring quality, improvement, and cost savings.

For that purpose, Air Windsail has a powerful group of partners who allow the activities rising the company. Initially, Windsail has considered a group of business hubs, and the way to connect them to the main base in Singapore can make the difference.

There are several challenges to accomplish, and the combination of all of them give the best results for Windsail.

The first of them is the selection of the technology, it's configuration and the best way to keep the top level of service, choosing between different possibilities for Maintenance, Repair and Overhaul.

Moreover, the election of the best ports is a key issue to have customers.

It is essential to study the different charges of each port, in terms of permits, installation fees, and taxes to be paid for each.

Furthermore, there has to be a successful negotiation with the providers of services in Each port, to achieve the necessary level of handling with lower costs.

Those negotiations much be in parallel with the kite providers, and take into account the type of contract with them.

All the operations should be performed following a planned schedule, where selling's and installations are showed. In includes the moments in which Windsail decides to introduces new customers acquiring, order more kites or include more routes in its operations.

Finally, Windsail analyze the possible contingencies to confront, risks, opportunities and costs variations depending on other factors.



And all of this bearing in mind the objective to perform all the operational activities with a top level of service, cost savings and a minimal co2 emissions.

II. WINDSAIL DEFINITION

TECHNICAL INFORMATION

WINDSAIL TECHNOLOGICAL ASPECTS

The WindSail Solutions technology is what makes our E2E service completely different from any other service in Sea Maritime industry, combining the use of a green energy with the most innovative technologies.

The application of sails to the boats has a millennial history, when maritime evolution moved from rowing boat to sailing boat, exploiting the wind force reducing so the use of human forces.

During the century, different kind of sails have studied, developed and used in seaborne transport, taking advantage, in different ways, of the Aeolian power. What it had not been explored was the possibility to put the sail not at the boat level anchored to the mainmast but to launch it at the sky, using a kite shape sail. This new technology, fully aided by a computerized and automatic system, has been tested by Airbus team, who developed the prototype and proved it in its container cargo ship, showing the advantages in terms of cost reduction of fuel consumption and contaminating emissions.

These results, if applied in large scale, could determine a change in the seaborne transport industry, making this increasing business more efficient, profitable and sustainable. Shipping companies, in this way, could improve the competitiveness of their fleet and be able to respect the new environmental limitations and requirements established by SEEMP, EEDI or ECAS3 protocols.

WINDSAIL KITE TECHNOLOGY

Taking inspiration from kitesurfing, the WindSail kite technology is really similar: it concerns of a kite sail, similar to a paraglider, connected through a long high-performance cable anchored to the prow of the ship to the launching tower.

The kite, free to move and direction adjustable, is put on a height between 100 and 500 mt, where winds are stronger and more stables. As per image below, winds at 400m height are the 45% faster than at sea level, with a 200% more of propulsion power.



Moreover, describing “infinite shape trajectories, the kite is able to maximize the towing power, since it enhances the apparent wind speed, respect to a traditional static sail.

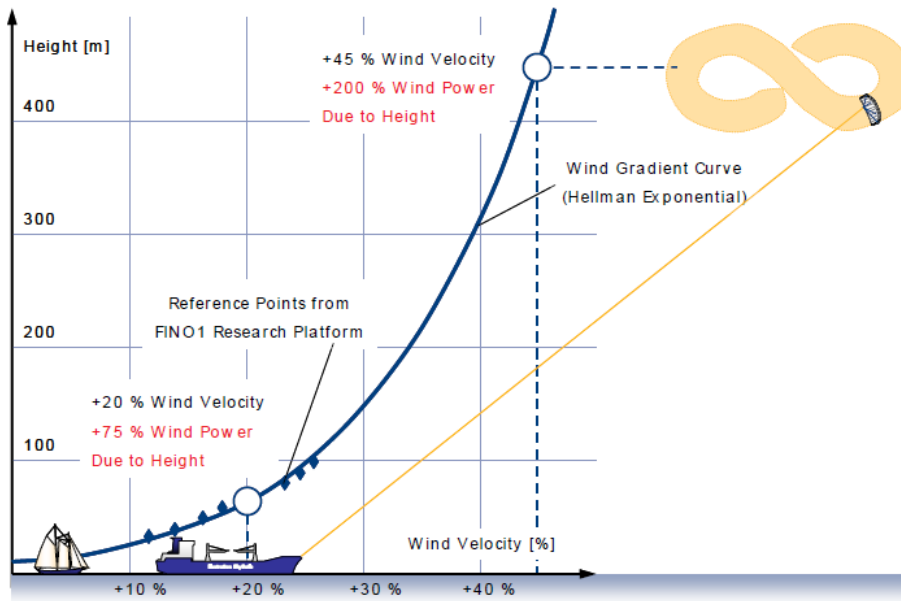


Fig. 48 System Infographic

The WindSail kite solution is composed by 3 main elements connected that allow the functioning of the auxiliary Aeolian propulsion force:

1. Kite flying system
2. Launching and kite recovery system
3. Control system



Fig. 49 System Working



KITE FLYING SYSTEM

The Kite flying system consists in the kite and its rigs, which allow the direct transformation of the wind energy to towing power. The entire flying system also includes, apart from the kite (1), the control capsule (2) and the towing line (3).

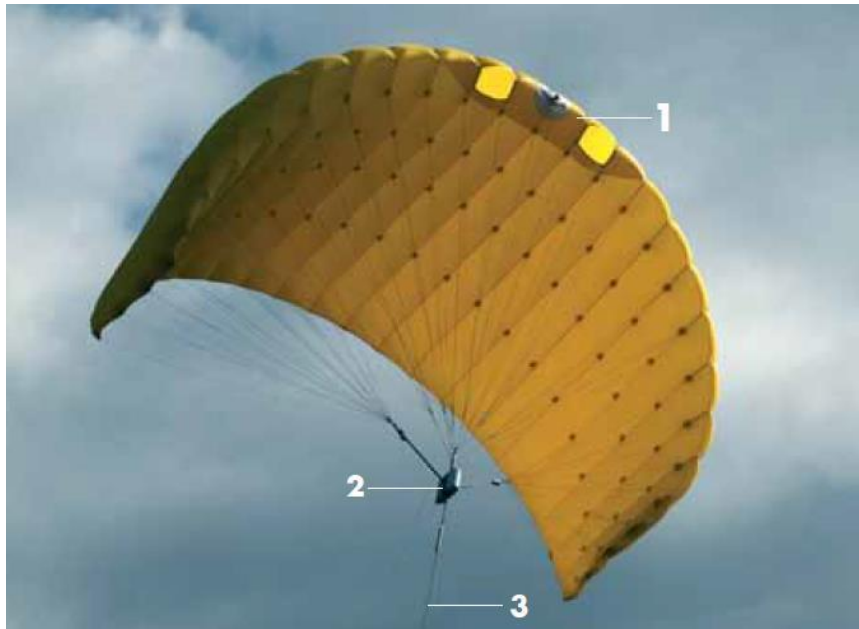


Fig. 50 Kite Detail

- The kite has a variable extension, depending on the dimension and weight of the ship to be towed and the power to be developed, offering up to 25 times more propulsion per m² than a traditional sail, basically due to the aforementioned physics phenomena of wind increasing power according to height and infinite shape movements described by the kite while flying. The kite, tested to resist to the worst weather conditions and UV rays, is designed to work between 100 and 500 mt of height.
- The towing line, as well as the entire technology, has been studied by professionals and specialist in aerodynamics and aeronautical solutions of Airbus, ensuring the highest performance results and safety by using the best materials, in order to be able to resist to the high towing forces applied to the cable and the exposition to weather phenomena.

LAUNCHING AND KITE RECOVERY SYSTEM

The SAM, Sail arrangement Module, is the launching and kite recovery system, responsible for transmitting the towing force coming from the kite to the ship and recover



the kite when the system is not used. The entire system is made up of different parts as per image: the rope (1), the telescopic mast (2), the hatchway (3), the winch (4), the electronic and hydraulic system(5), the kite storage(6) and the control panel (7).

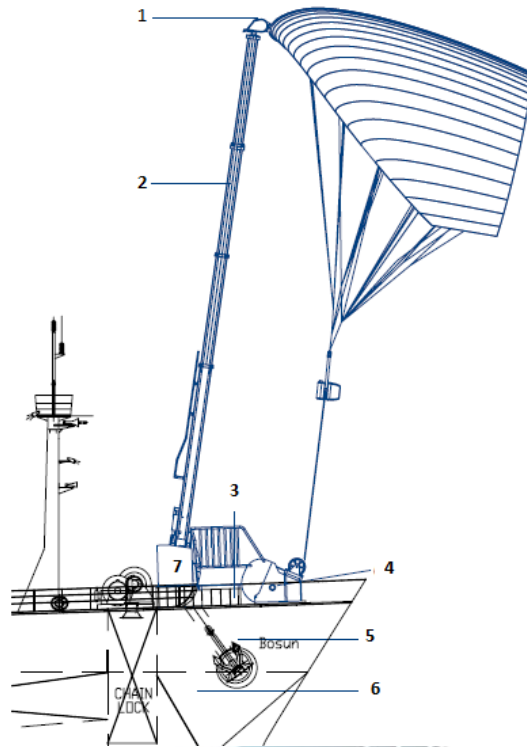


Fig. 51 Launching and Recovery System Scheme

The functions of the SAM system are related to the launching, control, recover and storage of the kite, positioned on the prow tower of the craft, all operations automatized and controlled by computer.



Fig. 52 System Details

CONTROL SYSTEM

The control system is the core central system, thanks to which all operations are automatic, continuously monitored and controlled by a computer console. It consists



mainly of two elements, the control capsule (control pod) situated in the kite flying system, and the automatic control computer system, composed by a central control software, used to collect data, analyse them and control the system when working, and a hardware console positioned on the deck.

The high technology and innovative control system allow us to collect data useful for analysis and improvement solutions, in addition to the main control of the working kite, adjusting position, height and all the parameters needed to maximize the performance in terms of speed and fuel consumption reductions for the ship.

It represents the brain of the system and responsible for the connection among all the elements of the WindSail technology solution, as per scheme below:

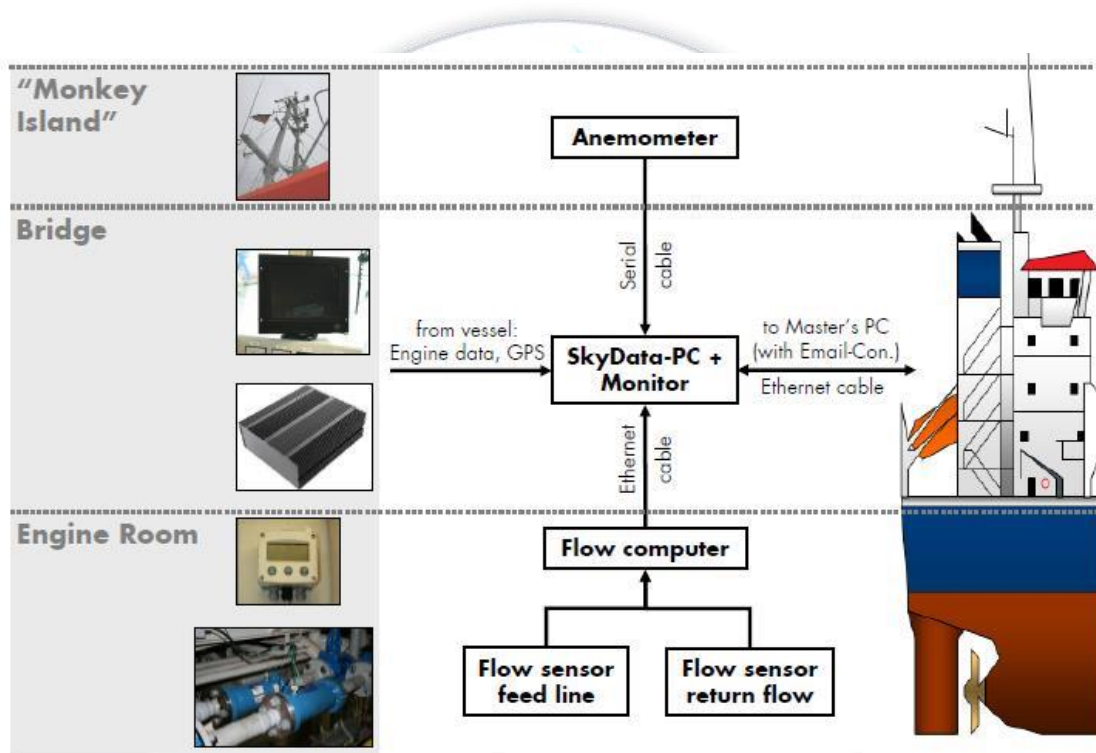


Fig. 53 Connection Scheme

The control system is able to collect and provide different information about the functioning of each element as well as operative information regarding intensity and direction of wind, the power generated, the exact position of the kite respect to the ship, the towing line tension. In addition, is able to measure and determine the consumption of fuel, CO2 emissions and compare them when kite system is not used.



Fig. 54 Software Example

In this way, the operator is always update with real information (concerning meteorological prediction, auxiliary KW production, etc.) basing on what is able to evaluate the optimal route, in waypoints, traced by the computer and detailed in terms of kite height, cable longitude, estimated fuel consumption at the arrival and other performance statistics.

SYSTEM OPERATIVE CONDITIONS

The WindSail technology solution, as per Airbus prototype system, is designed to work in wind conditions between 3 and 8 of Beaufort Scale (BS). This means that, in case of wind under BS force 3, the kite can be recovered but not launched since is not able to produce sufficient propulsion power. The system, anyway, is able to be used when ships navigate downwind and upwind, but with an angle higher than 50°, as per image below:

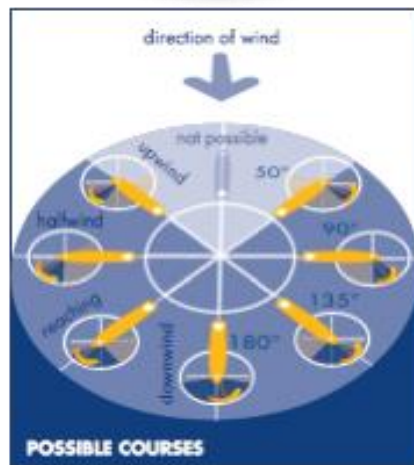


Fig. 55 Detail Operative Conditions



TECHNOLOGY PERFORMANCE

As already explained, the main advantages related to the use of our technology solution are the reduction of fuel consumptions and contaminative emissions. Basing on the results provided by a test on the ship MV Michael A, it has been demonstrated the improving performance after the installation of the kite propulsion system.

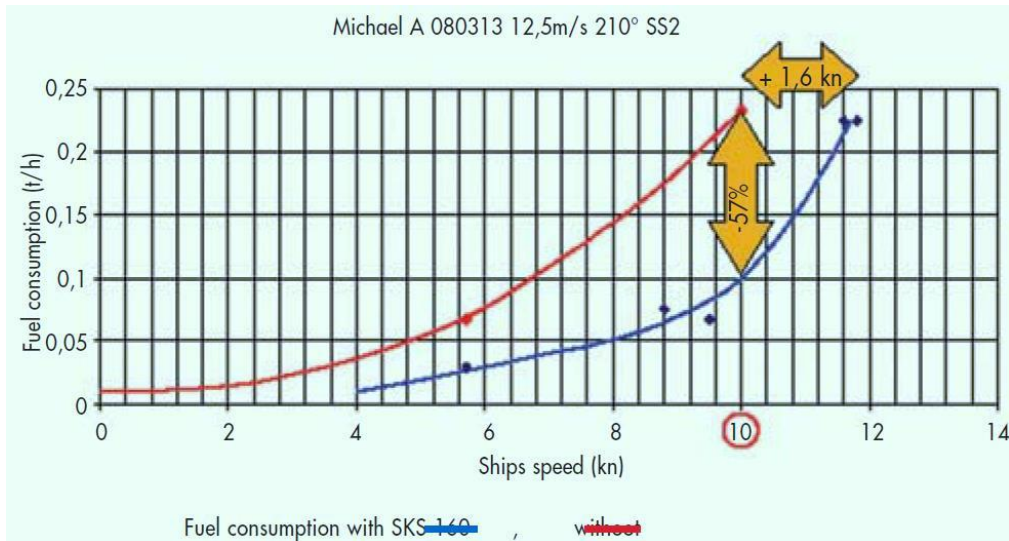


Fig. 56 Fuel Consumption Comparison

The test, made in wind condition of 26 KN, has showed a fuel consumption reduction of over 50% and a speed of 11,6 KN. With the same condition, without using the kite system, to reach the speed of 10KN it was necessary the 57% more of fuel. The use of the technology allows to reduce consumption of fuel from 0,23t/h to 0,1 t/h and provide an increasing propulsion power of 1,6KN speed, the 13,6% more.

In optimal condition the system is able to reduce up to 50% of cost related to fuel, while in generic average conditions, saving between 10%-35% of fuel are ensured, as a second test on the MV Theseus ship has provided (following image).

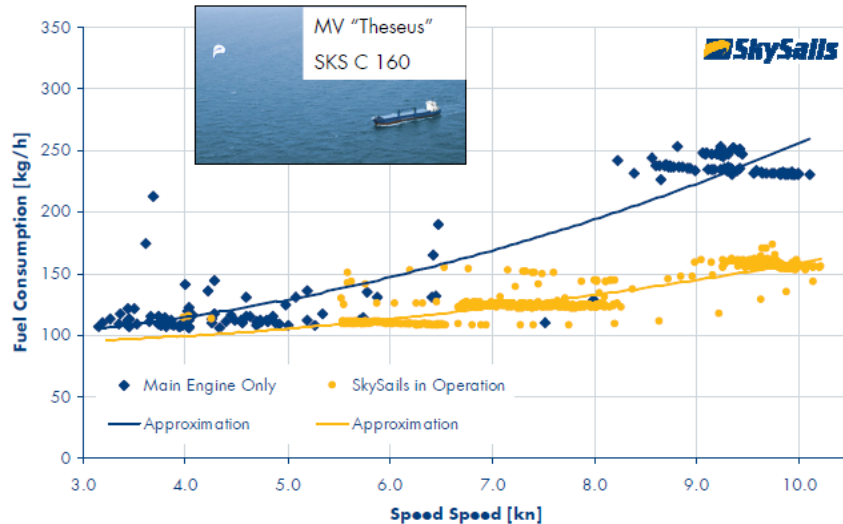


Fig. 57 Fuel Consume. vs Speed

This results testify the efficiency of the solution, that if applied, could generate for the shipping company annual saving of over 1M € in fuel costs, in addition to the fuel burning related contaminative emissions, as CO₂, NO_x, (estimated in more than the 0,6% of global emissions) that new environmental laws and protocols have restricted and regulated, becoming a priority for the Seaborne Transport industry.

Other advantages regard the reduction of engine use, with consequent reduction in MRO costs, ship lifecycle duration and operational costs, as well as the sustainable and green image that the use of our solution gives to the entire Seaborne Supply Chain.

KITE CONTRACT

The options WindSail has to acquire the kite are two; it could be bought or it could be order with a concession contract.

The most important piece of equipment WindSail, is, undoubtedly, the kite by which the company is going to be able to keep the commitment with customers. This could be a reason to directly buy the kite, hence, acquiring full control over the asset.

However, its price turns out to be utterly excessive for the starting of the company. The choice is the second one; opening a concession with the supplier.

This type of contract would be the easiest option, since the supplier today is not carrying out its commercialization. By signing a contract of this type, we have several advantages;



On the one hand, the saving of stock storage and maintenance, and on the other, the geographic exclusivity of the kite commercialization.

But this option reduces the control over the product and adds undesirable intermediaries between the manufacturer of the kite and the customers, thus decreasing the control over the perception of the product by the customer and also adding a considerable additional cost.

The main characteristics of this type on contracts would be:

FIRST. – The supplier is not allowed to commercialise his product to anyone else but WindSail Solutions.

SECOND. – WindSail Solutions is forced to distribute, commercialise and install only supplier's product.¹

III. MAIN ACTIVITIES

FREE PREVIOUS ANALYSIS

As we described in the commercial plan, the company has decided to get in the market doing free analysis, in this way, we can show to the customer a real comparison by a simulator of how its working the ship and how this can improve with us and with the technology we provide:

- Fuel savings
- Co2 emissions
- Legislation

¹ Both defined in Legal Plan

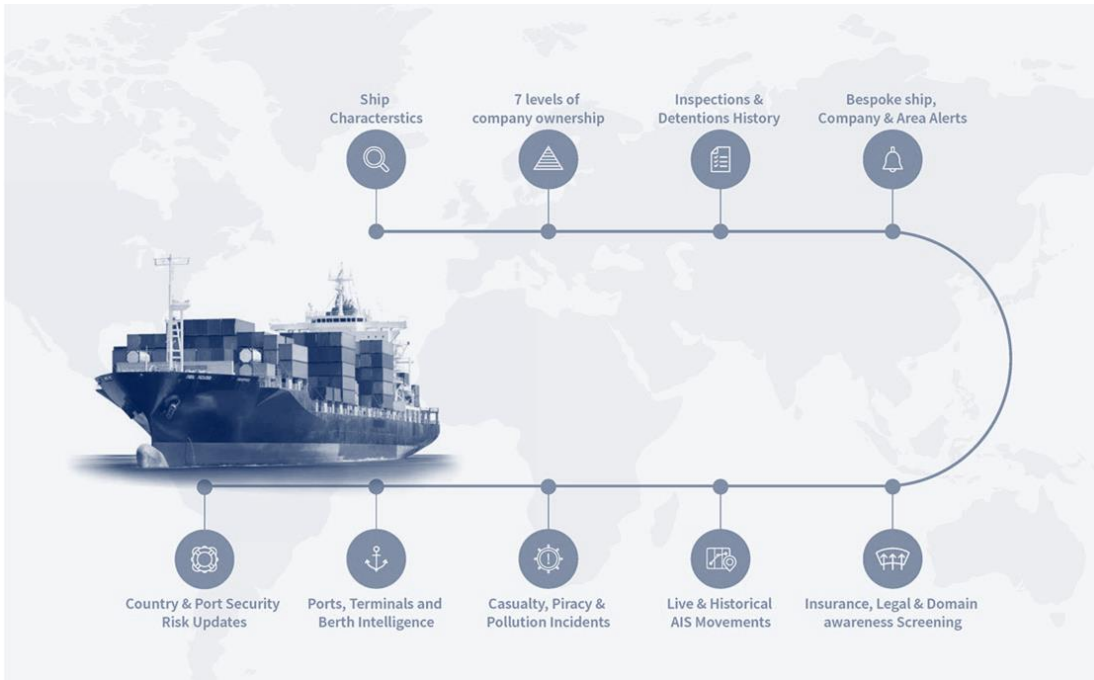


Fig. 58 Infographic Company

Afterwards, the customer should decide to set up or not.

To complete these tasks the company has to have at least the system below, including data analysis technicians:

→ Simulation Software; 20.000 €

The cost of all the monitoring process will be defined in our contract, at the beginning we will pay per number of images and data received and after we will pay a yearly fee.

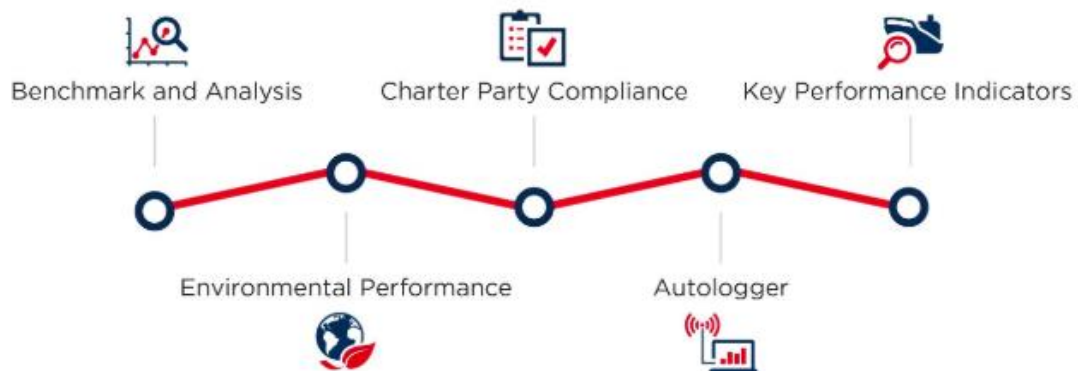


Fig. 59 Services of WindSail

INSTALLATION



After the free previous analysis, if the customer finally decided to contract us, it takes place the installation of the kite.

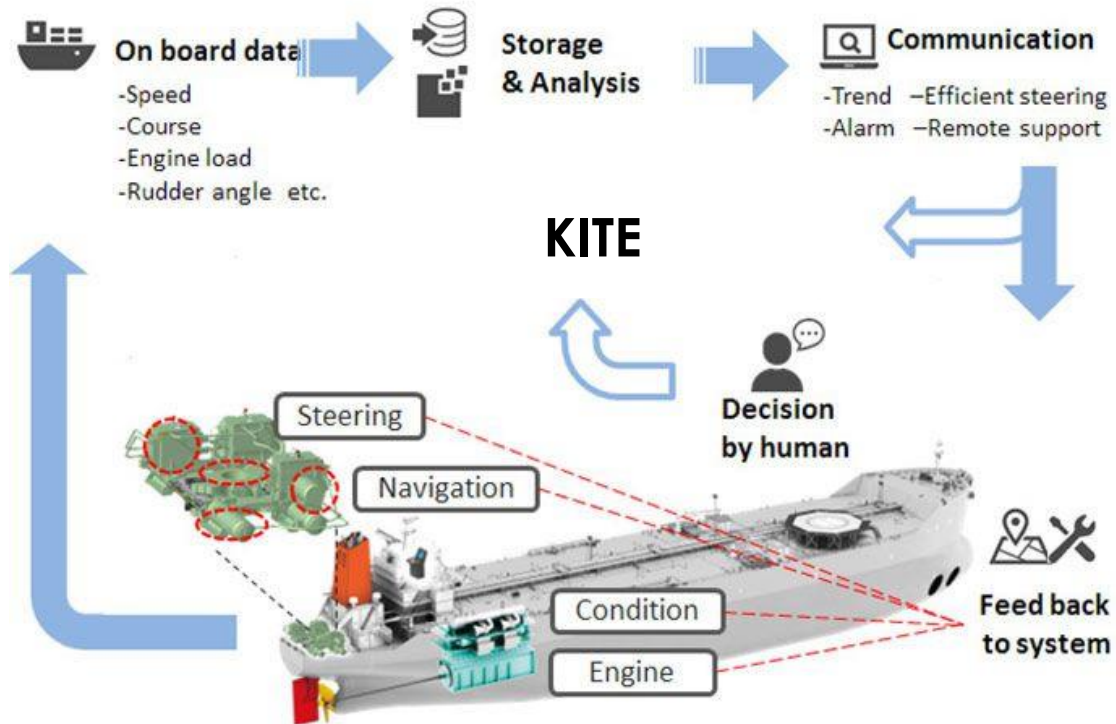


Fig. 60 Infographic of Installation

It is one of the main activities of the company, the idea is installing the kite in the port the customer want.

Once we have signed the contract with the supplier, we can divide the installation in sub-activities:

KITE ORDER

The concession contract with the kite supplier let the company order just when we have new clients, this is an advantage in the way we do not need anywhere to keep the technology or to spend money in unneeded stock. Since we order the kite, the supplier needs a lead time of 60 days. In this time, we should hire the installation team.

The main and only supplier of the kite is: AirSeas (France) that is an industrial firm which had come out of Airbus group, dedicated to manufacturing automated power kites capable of towing commercial ships.



The price of the kite is: 250.000 €

INSTALLATION TEAM

By the two first years, the company will subcontract this activity. According with our selling plan, we do not need people for around 4 future customers working just 4 times a year.

This team, will be designed in the port the customer want. It should be formed by 6 people. This cost will be around 40K€ installation depending on the port where the customer decided to install.

MAIN INSTALLATION

After 60 days of lead time and once the installation team is hire, it takes place the kite installation.

The first part is the choosing port, we have to considered the regularities of each one and also the coalifying people we can find there.

In this activity, our two main engineers will explain the team how to do it and how the kite works.

One of the great advantages of the Windsail system is the great ease and agility in terms of operations installation on almost any merchant ship, either old or new construction.

During the installation of the system the personal representative of Windsail together with the " Technical Project Manager " will assist and supervise all the processes of the operation.

The company Windsail provides the interested party with all the necessary information to obtain all the certificates, facilities and references to obtain insurance and access to a society of classification.

The kite system is installed in the place of the desired vessel, always under the supervision and advice of the Wails team. The installation of the system can be done in the same dock without the need of take the ship out of the water.

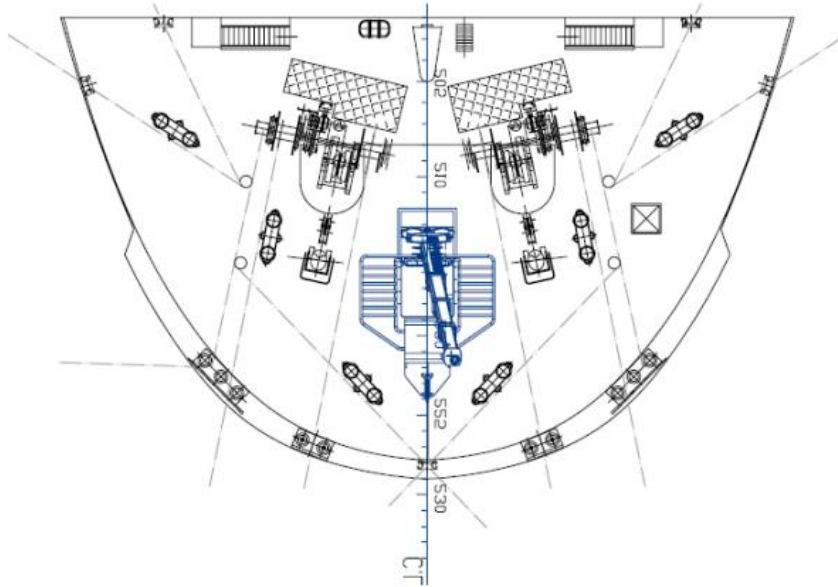


Fig. 61 Scheme System Position

We have five main steps for the correct installation of the on-board system:

1. First of all, the electrical and hydraulic installation located in the forecabin is prepared, where perhaps some structural reinforcements will have to be made. In that area, the structure of the vessel may have already been previously designed and reinforced to house the kite avoiding loss of stability and possible obstructions with the stowage systems (cranes, hatches).



Fig. 62 Installation Detail

2. Next, the system components will be installed in the forecabin, such as the winch, the telescopic mast, the stowage compartment of the kite, etc ... will also be installed in parallel control system on the bridge. Like any system auxiliary on board, Windsail requires a connection to the ship's electronics (Supply Interfaces), which communicate with the bridge control system, so this can send and receive and process data obtained in any moment.



Fig. 63 System Installation

3. Next, the components are connected to the systems hydraulic and electric and the towing line is installed or tow line on your corresponding winch. As well the kite will be stowed with its control capsule in the stowage space.

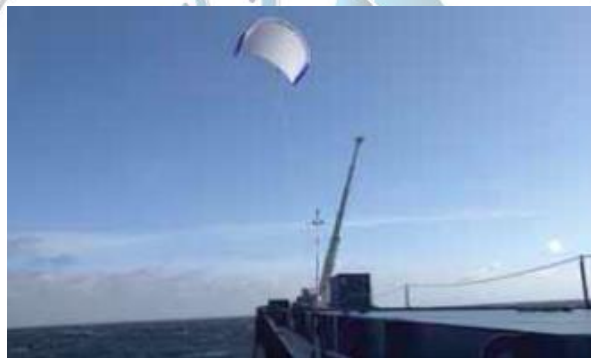


Fig. 64 Kite Working

4. Finally, the pertinent revisions of the system are carried out, sea trials and flight tests, always under the supervision of the Windsail team and the ship-owner.
5. Finally, a training course will be given to the crew to familiarize them with the system and be able to use it correctly and with maximum security.

TRAINING

A team of professionals from the company Windsail offers basic training for the crew of the ship in which the kite traction system will be installed. The training provided will allow familiarize the crew with the system so that their use is optimal and safe.

The training program consists of a theoretical part and a practical part:



BASIC TRAINING (THEORETICAL PART)

The basic training of Windsail is a 2-day course where the theoretical principles will be taught underlying how the auxiliary wind propulsion system is used.

In addition to the aerodynamic principles and fundamentals of the kite, basic instruction focuses on impart a general understanding of how to use the system correctly during operations maritime systems, including systems control, supervision, stability, performance and deployment maneuver conditions, as well as the legal principles that regulate their use.

The course can be carried out in the base of operations of the company in Hamburg or it can be taken performed by Windsail professionals in the required place.

ON-BOARD TRAINING (PRACTICAL PART)

Once the theoretical part is completed, an onboard training will be carried out.

The training will take place in the vessel where the Windsail system will be installed. The purpose of the training on board is to check that the concepts of the previous theoretical part have been correctly captured and put into practice.

During the days of testing and instruction on board, the Windsail professionals will guide the crew in their use and verify that the entire system works as it should.

Training cost: 5000€/installation

TRACKING

SOFTWARE

The computer system is the control computer software, processes and directs the entire kite system. This software is included with the kite and will be installed at the same time.

All the information obtained and processed by the computer system can be viewed through the control station discussed above. The computer system is responsible for making all the necessary calculations for the Windsail to work properly and efficiently.

In it is included the time the ship use the kite, fuel savings and percentage of emissions In a nice way. It collects all the information and updates in real time.



With the computer support, by a process similar to that used by an autopilot, you get a constant propulsion in a certain direction.

The computer system has different options and different applications such as the possibility of working in mode " routing " to plan long-distance travel, through the four modules in a coordinated way:

- ➔ Meteorological forecasting: The result of route control through weather forecasting helps avoid dangers and maintain the operation and security of the system. The prediction procedures they give us information for five days' sight. Punctual predictions for local phenomena in a determined area, can be achieved approximately 12 hours in advance.
- ➔ Analysis: the weather forecast data are used to forecast in relation to the
- ➔ power to be supplied by the towing system in these conditions, usually in Kw. The analysis of the meteorological situation will provide recommendations regarding the optimization of the use of the kite according to the conditions foreseen, for which the computer system will consider data specific to each vessel.
- ➔ Model for decision making: Once the meteorological information has been obtained and has been Once your analysis is complete, the shipping company can establish the priorities of the vessel. This model has account the shipowner's requirements and other parameters such as the arrival stop time destination, the fuel consumption allowed, and automatically with all of them, sets the defeat optimal for the fulfillment of such conditions.
- ➔ Optimal defeat recommendation: The ship's captain receives the optimal defeat plotted in the format of waypoints. This defeat also houses detailed information about the height of the kite, length of the towing cable and angle of use of the kite in each section (depending on the angle of incidence of the wind with respect to the line of the bay). This information allows you to plot the most defeat relevant according to the data supplied to the computer system.
- ➔ Our company will have this information weekly to analyze it and improve as the product as the ship.



KPI'S

The final step of the business is to analyze the information coming from the ships and forward it with our customers.

The treatment of information is realized from our engineer's team. The information that arrives to Windsail is just many codes about the performances.

Our team analyses this information and send directly to the ships, as the information has to be sent in real time.

This information will be sent by KPI presentations, so the sailors can interpret them easily.

Tracking cost: 80.000€/installation



Fig. 65 KPIs

MAINTENANCE

The technology will need an annual maintenance, to verify the good use and security.

The first years, this maintenance team will be subcontracted in Singapore port. So, when the ships dock, this team can do all verifications and reports. It will take around four hours.

With the exception of the control system and the textile components (tow kite, rope trailer), all elements of the kite system can be reviewed technically by personnel qualified, for example, the chief engineer of the ship.

These services can be performed out at sea when the Windsail system is not in use, in the dock or dry dock.

The components of the system that require specific knowledge are reviewed by Windsail specialists.



The tow kite, the tow rope and the control capsule are the wearing parts that must be replaced at regular intervals depending on the use that is have given Assistance and repair service.

IV. CONCLUSION: COMPLETE SERVICE OFFER



Table 9 Service Offer

V. OPERATIONAL COSTS

EVOLUTION OF VARIABLE COSTS

The calculation of the costs introduces two variables:

- ➔ Number of kites installed: (which is fixed to the maximum for the main cost analysis), main installation, training, maintenance service & follow up team
- ➔ Development of our marketing strategy: number of fairs assistance, number of people working on it and free previous analysis.

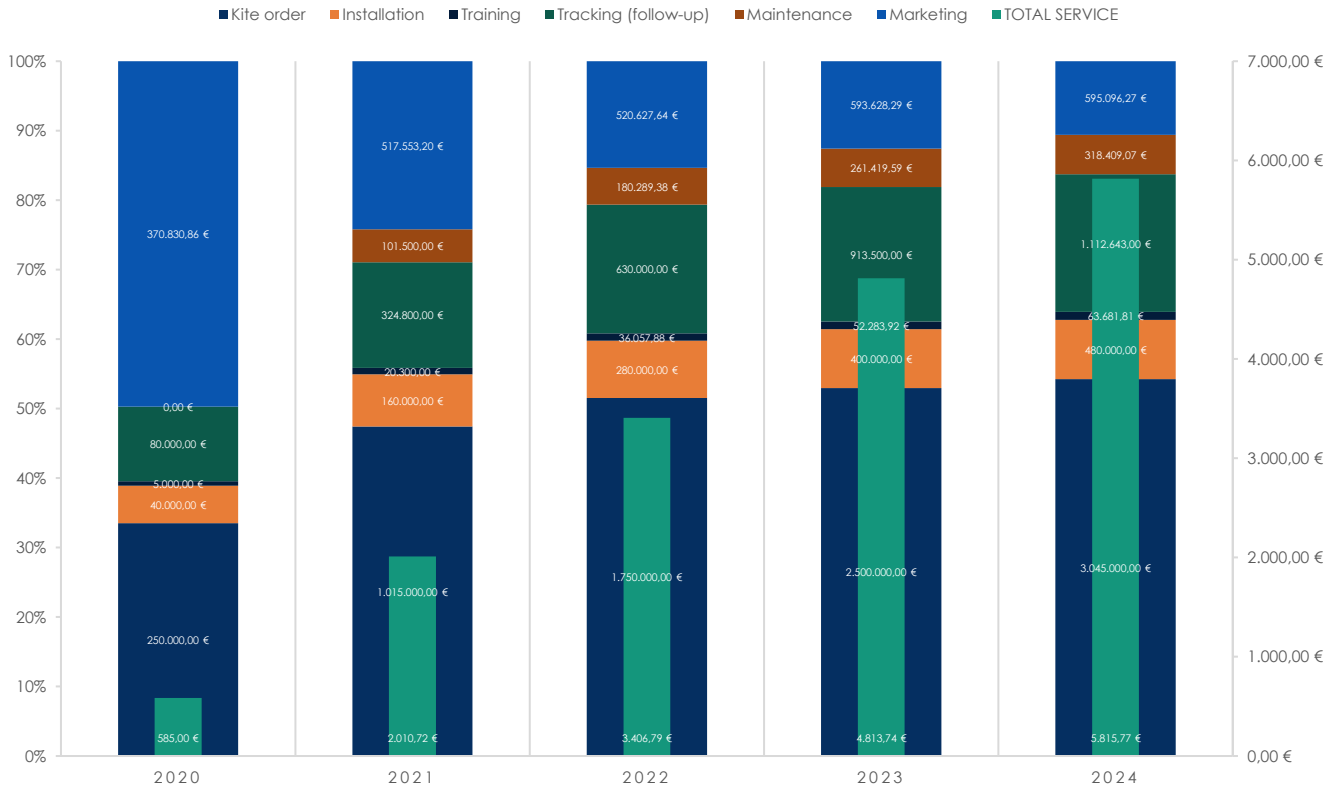
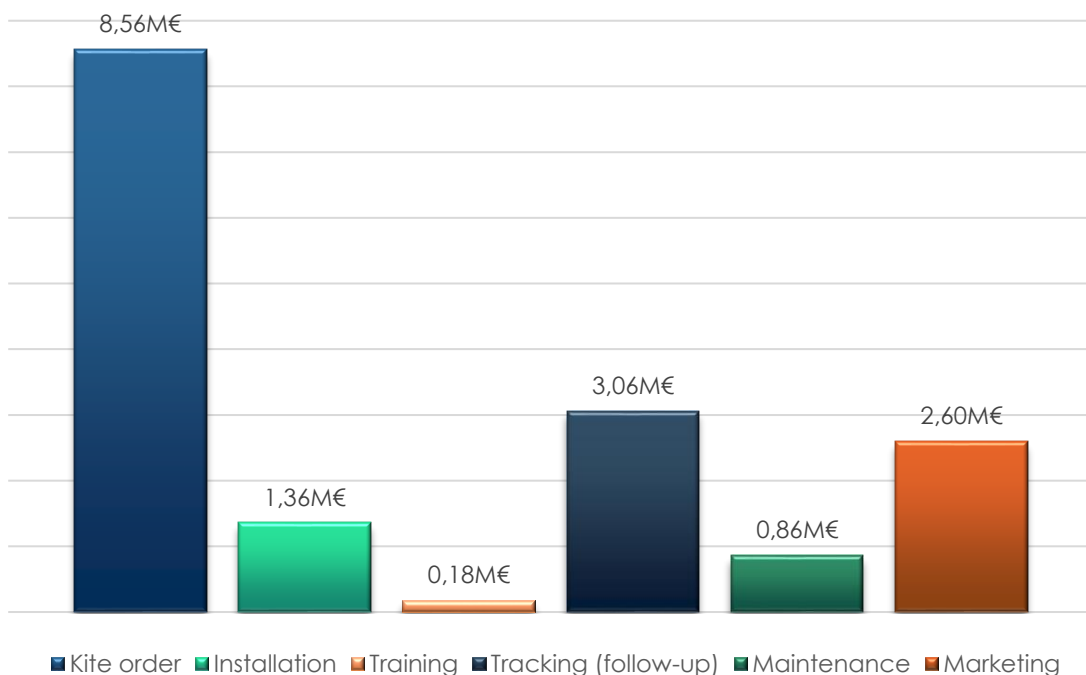


Table 10 Variable Cost

OPERATIONAL COST DISTRIBUTION

Variable costs are based on the operational performance, taking into account amount of kite installation, marketing improvement and investments





Evolution of costs for the basic scenario, where Windsail invest from the third year. The higher growth is for technology cost and tracking cost. As well, the case of the technology, the greatest raise of cost is for the second year, (when starting more installations,) and in the third year, when the operations for the main route are established for the whole year. Moreover, there is a basic cost growth rate, set at 7 % per year in the standard analysis. In the case of the tracking, the yearly increment is between 2-3 %. In the last two years, the costs are not increasing significantly.

Operational costs distribution for WindSail, outsourcing auxiliary activities, leaves the company with a high investment in the third year. Therefore, almost 50 % of the total operational cost is for the kite purchase.

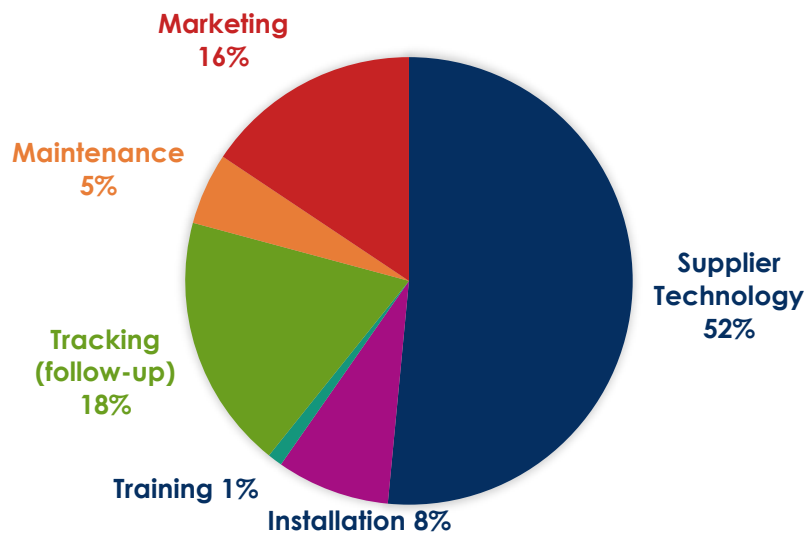


Table 11 Operation Cost

VI. FUTURE EXPANSION

YEAR 2020

The first year is critical, as it is required to create the team, the offices, and the supplier contract agreement.

Moreover, it is important to start looking for customers in both activities: launching service and information service.

The renting of the Offices has a period around 2 months and the contract agreement two more. During this time, our team of engineers are focus on the fairs and marketing plan in order to start contact with the first customer. The marketing department is focus



on keep in touch with the shipping companies, as well as going to forums of ships to look for enterprises interested in change their fleet. It is important to support the suppliers in order to control our final service and learn with the supplier how has been manufacture in order to get the know-how for the maintenance. Once we have the contact with the first customer, we will analyze four prototypes of ships and show simulations comparing the improvement with our product. Taking into account the size savings cost and CO2 emission reduction, we will reach and schedule the first installation at the end of 2020.

The first installation is the most critical one. It is the moment when the future clients can check our system, the real cost of the full service and the reliability of the monitoring process. Because of that, extra-effort of quality is required during the whole process.

The communication with the suppliers must be perfect. The time delivery of the product and the training of the installation team as well, our installation team, that will do the job in the port the customer selected.

After the first installation, it is required to do the tracking established from company, following the improving and analyzing the ship changes. This is going to happen between 2020 and the first months of 2021.

YEAR 2021

Once the first installation has been done, and the continued improvement is being analyzed by our team, it will take place the second installation, in a ship with different trajectory and in a different port with a different installation team, adapted to the customer requirement.

At the same time, the information service takes place, so the information coming from the first ship are treated and given to our clients.

The information arrives from the software to our offices, and they give us this information codified.

Our team of software engineers manage it and send the information to the customers as they require.

Our marketing team, will approach more analysis for new customer and as well, four more installations divided in the year 2021, with the same procedures than the first one.



It is important to track in each installation, knowledge of what is happening during the way.

Also, around 360 days after the first installation in 2021 will take place in Singapore the maintenance of the first installation, for this, the company will supply a maintenance team.

We will finish the year with four full service done, and around 10 previous analysis.

YEAR 2022

The year 2022 is focused on selling the service to more shipping companies, trying to increase the number of them.

In order to reach more customers, the marketing team will be focus on obtain more analysis in the second big fleet in the world: MSC, attending more fairs and showing the improvement of the previous ships. We'll invest in the improvement of the software and in the increase of data analysis technicians In order to have more free analysis.

The objective is technology installation among the whole 2022. It's going to be our boom year, according with EEDI reduction factor: 20% less from 2020 to 2025, so we will finish with 7 full installation services done.

YEAR 2023

In the case of 2023, our objective will be, being in the fleet of most shipping companies.

From the fourth year, there is a different scenario which also affects to the operational side of the company. Attending to its increasing demand in the region Instead of conserve the same sea area, the decision is to increase the routes in other ocean, expanding the installation schedule to a complete chart of ships offered to cover the increasing number of clients.

WindSail clients would have the possibility to choose between different ports for the installation of the technology.

The installation schedule planned for these conditions is shown in the final calendar.

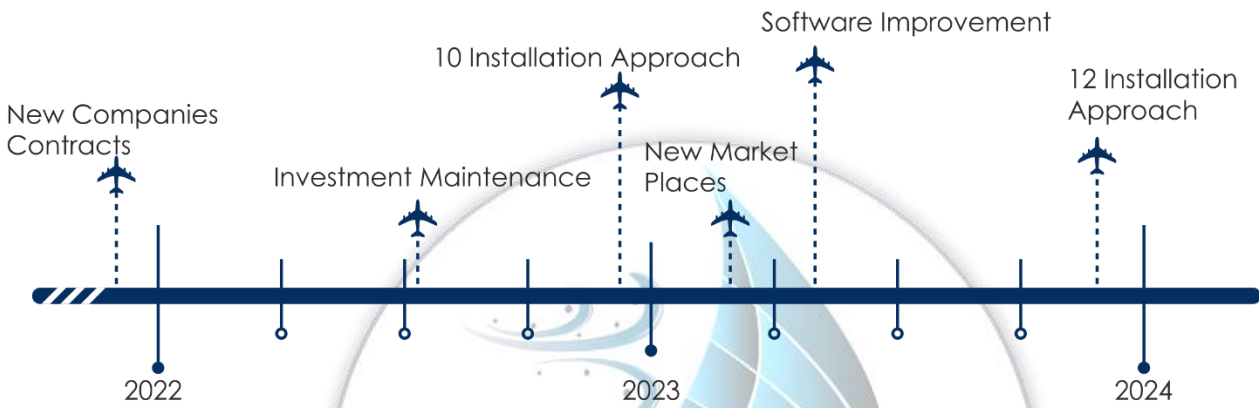
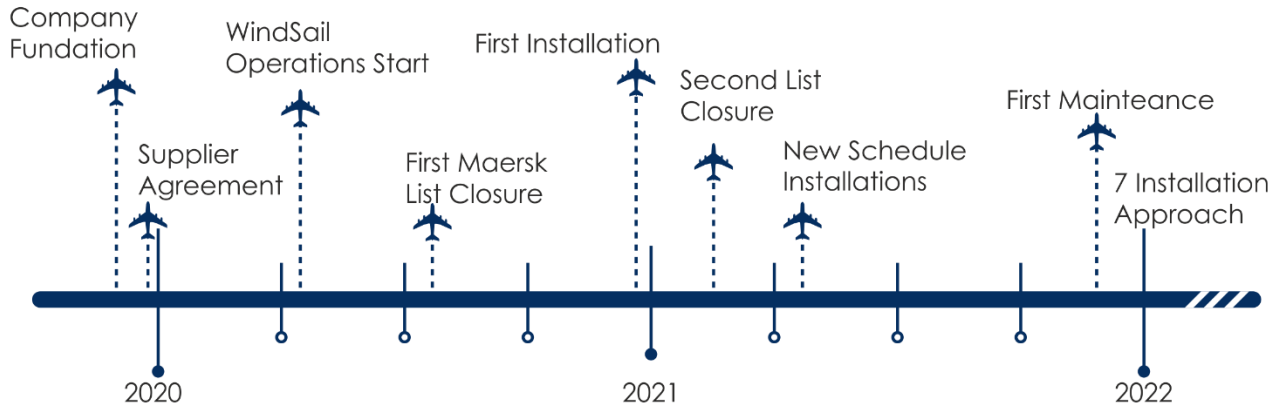


Fig. 66 Operations Schedule

WindSail
Solutions



VII. LEGAL PLAN

The following legal plan shows the legal frame we have to deal with. IT is divided in different section. Firstly, an introduction to the legal frame which our business is subject both locally and internationally. Secondly a review of the rules that affect our business in Singapore and the international maritime regulations it is subjected to. Thirdly, the type of contracts and regulations we have to sign with each part involve in our business.

I. SINGAPOREAN LEGAL FRAME

The legislative power is articulated through a parliament with rules executed by a president and judge by independent judges. There are three sources of law in Singapore: legislation, judicial precedents and custom.

Singapore's Parliaments is responsible for statutes and subsidiary legislation. The supreme law is The Constitution for the Republic of Singapore followed by subsidiary legislation made by ministers or other administrative agencies.

Singapore is a common-law jurisdiction where judgments handed down by the courts are considered a source of law. Therefore, judgments not only interpret statutes or subsidiary legislation but also common law and equity established by previous judgments. Many business laws are largely judge-made such as: contract law, equity and trust law, property law and tort law.

Customs in Singapore are established practice regarded as law by persons engaged. However, they hold no legal power.

BUSINESS REGULATIONS

Many laws may affect a business through its life we have identified the following three as the most important to be considered when establishing a new business in Singapore: Incorporation law, taxation law and employment & immigration law. The three of them under the general ruling of the commercial law.

INCORPORATION LAW

Before incorporation a form of business organization must be selected among:



- ➔ Sole Proprietorship: business that is carried on by an individual on his or her own without the use of a separate and distinct business form. The law does not regard the sole proprietorship business as a different entity form its proprietor. Thus, all rights, obligations, debts and tax payable are the same for the business as they are for the proprietor. It ceases when the business closes or the proprietor dies.

- ➔ Partnership: two or more persons carry on a business in common with a view to making profit.
 - General partnership: They collectively own the assets but are individually responsible for the debts. The relation among them is defined in a partner's act.

 - Limited Partnership: business with one or more general partners and one or more limited partners (not responsible for the liabilities that cannot manage the business)

 - Limited Liability Partnership: business organization comprising two or more people that have a separate legal personality. The LLP and not the partners and managers are liable for the debts and taxes, except for the individual taxes on the respective share profits of the partners. Mostly oriented to carry a profession.

- ➔ Company: Entity with its own legal personality distinct from its members and managers. They can own property and sue or be sued in their own names as well as taxable. They can be public or private.
 - Private Limited Liability Company (Pte Ltd): Liabilities of the owners are limited to the assets in the company and their personal assets are protected.

 - Public Limited Company (Pub Ltd): The shares of the company are sold to the general public.

 - Business Trust: Arrangement where a person holds property for the benefit of others.

Given the legal frame, the taxation benefits and the potential to attract investors through a serious and growth-oriented business structure, our business will be incorporated under the Private Limited Liability Company. It is by far the best structure in the long run. From now on, all the law statements and observations issued will be considered for LLP business.



Singapore's Commercial law, taking special notice of Singapore Companies Act, sets regulatory compliance requirements for starting and operating a company in Singapore. These requirements are:

- Name: Company name approved before incorporation. Names including bank, finance, law, media require government approval and in no case, should:
 - Be identical or too similar to any existing local company names
 - Does not infringe with any trademarks
 - Is not obscene or vulgar
 - Is not already reserved (reserved during 60 days after approval)
- Directors: A minimum of One resident director (Singapore Citizen, Singapore Permanent Resident, or a person with an Enterpass, Employment pass or Dependent Pass issued) and another partner whether it is resident or not.
- Shareholders: Can have between 1 and 50 shareholders that can be local or not. New shares can be issued or transferred once incorporated.
- Company Secretary: A neutral company secretary different from the director and resident in Singapore must be appointed within 6 months of its incorporation.
- Paid-up Capital: Minimum of S\$1 and can be increased any time after the incorporation.
- Registered Address: Provide a local Singapore address for the company. It must be a physical address and cannot be a P.O. Box.
- Foreigner individuals or entities: they cannot self-register a company in Singapore, it must be done through a professional firm in Singapore.

The required documents are: Company name, brief description of business activities, shareholders' particulars, directors' particulars, registered address company secretary particulars, memorandum and articles of association (Singapore Company Register provides standards). In case of being non-resident it should be added: Copy of passport, overseas residential address proof and other know-your-client information such as a bank reference letter, personal and business profile etc....



The procedure to incorporate is fully computerized and can be done in 1-2 days and has a registration fee of S\$300. After that, a Certificate of incorporation will be notified to the company with a business profile.

To start operating the business a bank account, a business license in our case for a travel agency. If the projected annual revenue exceeds S\$1 million, the company must register for the Goods and Service Tax that addresses the Value-Added Tax (VAT). In that case the company has to charge this tax (7%) to the clients on the goods and services provided to remit it to the authorities.

TAXATION LAW

Persons, companies, partnerships or trustees carrying on any trade, profession or business activity in Singapore are chargeable to tax on profits (excluding profits on sale of capital assets) arising in or derived from Singapore and certain foreign-sources.

The types of tax could affect us are:

- ➔ Income Tax: taxes charged on income of individuals and companies.
- ➔ Property Tax: tax on property owners based on the expected rental values of the properties.
- ➔ Goods & Services Tax (GST): It is a tax on consumption paid when money is spent on goods or services, including imports (VAT- Value Added Tax).
- ➔ Foreign worker levy and withholding tax: tax imposed to regulate the employment of foreign workers in Singapore. Interest, royalties, rentals from movable properties, management and technical fees, and director's fees paid to non-residents (individuals or companies).

CORPORATE TAX RATES

INCOME	TAX RATE
Tax rate on corporate profits for up to 300,000 SGD	8.5%
Tax rate on corporate profits above 300,000 SGD	17%
Tax rate on capital gains accrued by the company	0%
Tax rate on dividend distribution to shareholders	0%
Tax rate on foreign-sourced income not brought into Singapore	0%
Tax rate on foreign-sourced income brought into Singapore	0 – 17% subject to conditions



EMPLOYMENT & IMMIGRATION LAW

There are a number of regulations that address the common practices applied to employment contracts, wages and benefits when hiring employees in Singapore. The main reference is the Employment Act.

EMPLOYMENT CONTRACT

The relationship between employer and employee in Singapore is regulated largely by the contract of employment between them. It should address:

- Appointment position
- Duration of employment contract, if applicable
- Date of employment commencement
- Remuneration package
- Hours of work
- Employee benefits
- Probation clause, if applicable
- Code of conduct
- Termination

WORKING CONDITIONS

Singapore's employment legislation is extremely flexible from its statutes although there are some common practices to be taken into account. Therefore, we will consider both the statutory requirement and the common practice for each of the main employment keystones. It is susceptible to be working anyone between 17 and 62 years.

SALARY & BONUSES

The statutes affirm that the salary is subjected to negotiation and there is no minimum salary regulation. It also states that it must be paid once a month within 7 days after the end of the salary period (14 days for overtime payments). As common practice, there is



an annual bonus of at least 1 month tied to employee's performance as well as the company's.

HOURS OF WORK & OVERTIME

The statutory requirement establishes a maximum work time of 44h a week for people earning more than S\$ 2000/month. It is strictly forbidden to work over 12h a day except under exceptional circumstances (shift workers never). Employees can ask for a rest day once a week with a maximum interval between 2 rest days of 12 days. The common practice is to work 8 hours a day from 9 am to 6 pm.

HOLIDAYS

The multicultural diversity allows public holidays to accommodate the holidays of multiple ethnic communities. A total of 11 days. Regarding the statutory requirements, the public holiday is applicable to any company although it can negotiate different conditions.

ANNUAL LEAVE

The annual leave can be taken if the employee has served at least 3 months with a minimum 7 days during the first year and 1 extra day for each additional year of service. If absenteeism for work without permission for more than 20% of working days in the month imply an annual leave forfeited. As a common practice the employees are given 14 days of annual leave.

CENTRAL PROVIDENT FUND (CPF) CONTRIBUTIONS

It is a mandatory savings scheme for Singapore Citizens a Permanent Residents. Monthly contributions are made by both the employee and employer (16%-20% of the salary respectively).

OTHER NON-STATUTORY BENEFITS

Education and training is not a must but some companies offer it to their employees as well as healthcare benefits, per diem allowance for travelling, relocation packages, stock purchasing plans etc....

II. MARITIME LEGISLATION OF SINGAPORE

The maritime legislation of Singapore includes Acts of Parliament in Singapore that affect the port of Singapore and ships registered under the Singapore flag.



As an important international maritime centre, much of the Singapore legislation is transposed from IMO (International Maritime Organization) maritime conventions, to be more consistent with international maritime standards.²

As Maritime Port Authority of Singapore regulates and manages services and port facilities within Singapore's maritime boundary. It is included boat traffic, security and navigation protection through efficient operative regulations and environment.

As Development and Promoter works with governmental agencies and industrial maritime partners to make Singapore the leader central port and main business marine hub of the world.

As National Representative of Marine Transport protects marine interest of Singapore in international terms.

III. INTERNATIONAL AGREEMENTS

There are also agreements non-related directly with our main activity but we have to consider it.

The **International Convention for the Prevention of Pollution from Ships (MARPOL)** is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

It is true this agreement affect to the cargo ships owner however, we could be affect by it because of the installation and maintenance of the system in the ships. In terms of legal we could be related directly and we can be accused for malpractice in front of a judge.

The International Convention on Liability and Compensation for Damage in Connection with the Maritime Transport of Noxious and Potentially Hazardous Substances (HNS) force ships owner to have a responsibility insurance.

² The full texts of the various Acts of Singapore, including subsidiary legislation, are available for download from the Attorney-General Chambers' public website.



As a company doing business with another company, we have to require and verify that our customer is obeying the convention and be bound the responsibility of the ship owner by agreement in case of damage for hazardous substances

The **United Nations Convention on the Carriage of Goods by Sea, 1978 (HAMBURG RULES)** regulates the responsibilities of a marine transport agreement, and besides it has been ratified by Singapore.

This convention establishes who is charger and who is transporter in a marine transport. For now, we have no relationship in terms of as transporter either charger however, it would be recommended to state charger and transporter condition in any kind of activity we made with suppliers and customers just as the rest of terms and conditions for instance in case of goods loss or damage.

IV. EUROPEAN UNION AGREEMENTS

It is other convention in terms of contacts we have to consider during the years.

Much of the EU agreements legislation is transposed from IMO (International Maritime Organization) maritime conventions so, we are going to talk about ROME Regulations because they manage different conflicts of laws between national legislations, in case of contractual and non-contractual damages.

FIRST. – ROME I Regulations: Regulation (CE) n° 593/2008 of the European Parliament and of the Council, of 17 of June of 2008, on the applicable law to the contractual obligations (Rome I).:

Regulate what law applies in case of conflict when be European member's business and no members of EU.

Principles - Freedom of Choice: the agreement will be regulated by the law choose for both parties of the agreement. This choice must be declared expressly in agreement terms. For that choice, the parties could specify what law total or partially apply.

This affect our business because we can establish if apply Singapore rules or another country.

This is important for the society activity because of this legislation allows us to choose the national transport legislation to apply in each contract.



In addition, the parties could agree to regulate the agreement for another law if it is desirable for both parties.

SECOND. – ROME II Regulations: REGULATION (EC) No 864/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of July 11, 2007: On extra-contractual liability.

This convention is applied provided that one of the parties will be EU member. Grosso modo, it regulates which legislation will be applied in case of patent, unfair trade or defective product. Due to our supplier is German, though we operate from Singapore we must answer before the European Union rules.

V. COMPANY RULES

In Singapore, the companies' structure, constitution, registration, audit, accounts and way of working is ruled by the COMPANIES ACT of Singapore Statutes.³

Singapore minister offers a model constitution for companies limited by guarantee.⁴

Main items to set up our company:

- The name of the company
- The registered office
- The liability of the members
- Share Capital
- Transfer of shares and transmissions
- Forfeiture of shares
- General meetings
- Managing directors
- Dividends and reserves
- Financial statements

³ <https://sso.agc.gov.sg/Act/CoA1967>

⁴ ANEXO 1



Remarkable facts to set up the company in Singapore we need a minimum of 1 SGD, at least a minimum of one partner, the company name has to end as "Private Limited" / "Pte. Ltd.", it is not allowed to use word like "Bank", "Trustee Company", "Assurance", Singapore has a double imposition agreement with Spain and other 30 countries.⁵

VI. CONTRACTS AND RESPONSIBILITIES

This chapter talk about what kind of contract, legislation applicable, scope and responsibilities taking in account the responsibility structure stablished by international legislation.

The international trade praxis is based will of the parties "*pacta sunt servanda*"⁶. For example, in Spain is regulated in Article 1260 of Spanish Civil Code and it has similar code around EU.

We can speak about Convention of Vienna of 1969 but overall almost every international organizations have got similar agreements in this topic in particular, Association of South East Asian Nations, of which Singapore is member. ASEAN have a free trade rules for all the members where "*pacta sunt servanda*" is principle of law.

SUPPLIER AGREEMENTS

The relations with supplier are regulated by a supply contract. This is a kind of agreement where one part (supplier) is committed himself to make the different necessities activities to fulfil the periodic benefit in change of a price. The paid can be unitary or by benefit.

In our case, in essential to agree with our supplier an exclusivity clause that allows us commercialise the product in the Pacific Ocean without unfair trade.

This agreement crystallises in two clauses.

FIRST. – The supplier is not allowed to commercialise his product to anyone else but WindSail Solutions.

⁵ ANEXO 2

⁶ Pacta sunt servanda is the principle of right accord freely signed must be honoured. It comes from ROME right and it is included in common law and continental law which are the most used right nowadays.



SECOND. – WindSail Solutions is forced to distribute, commercialise and install only supplier's product.⁷

TRANSPORT AGREEMENTS

This type of contract is used to be quite technical in legal terms so, we are going to base on BIMCO (Baltic and International Maritime Council) which is the largest international shipping association. What it means, that agreements based on its recommendations are more reliable for both parties.

Also, BIMCO provides number of templates of contract in this topic.⁸

Due to our supplier is from Germany, the kite has to be transport to the choose port, for that we have to sign a contract with a transport company. Another option is to include transport obligations and responsibilities into the supplier contract allocating it to the supplier.

OUTSOURCING BUILDER AGREEMENTS

This type of contract is based too in BIMCO templates using Builder contracts as the same way as transport agreements.⁹

In order to install the whole system of the kite, at the beginning we need to hire external services in every port agreed with customer. The nature of this agreement will be temporary and it will be between WindSail Solutions and external company with the expertise and knowledge in the matter.

The contract will regulate the responsibilities and limits of every part following the regulations of the port's country.

⁷ This second clause is detrimental for us so, it would be better for our right and business interests try to not include in contact unless it will be applied in a limited period of time.

⁸ ANEXO 3

⁹ ANEXO 4



VIII. HUMAN RESOURCES PLAN

I. INTRODUCTION

The Human Resources Plan has as main objective describe the company's organization structure. It describes the organizations during the whole life of the company including number of employees, company values and hiring process.

As a start-up, we consider quite important the get quality people to form the team to reach the different goals of each year. That's why HHRR department is for us one of the main pillars to be successful.

In the case of WindSail Solutions, its business model based on technology and distribution where the main point are marketing and operation requires a strong HHRR team with the mission to build teams with the best people.

II. OVERVIEW

As said before, people behind this project is considered one of the most important assets therefore HHRR department has to provide an excellent service for WindSail and its employees.

The vision of the company and its sustainable spirit is the perfect mix to attract talented people and keep them working in amazing and world-changing projects.

The HHRR manager will focus his efforts in hiring suitable people for each position, always looking for excellence. The main attributes to join WindSail, will be the background and the expertise in each related field and also the concern about environmental issues and how to deal with them.

HHRR will always strive for employee engagement.

Creating a work environment where employees are enthusiastic about their job is a priority. HHRR department inches toward this objective through strategic planning. Such planning improves the likelihood of creating the right match between employee skills and job assignments, as well as coordinating promotional opportunities and workforce capabilities.



III. ORGANIZATION CHART

The organization shows the distribution of the company in general terms. It also shows the relations between departments and responsible.

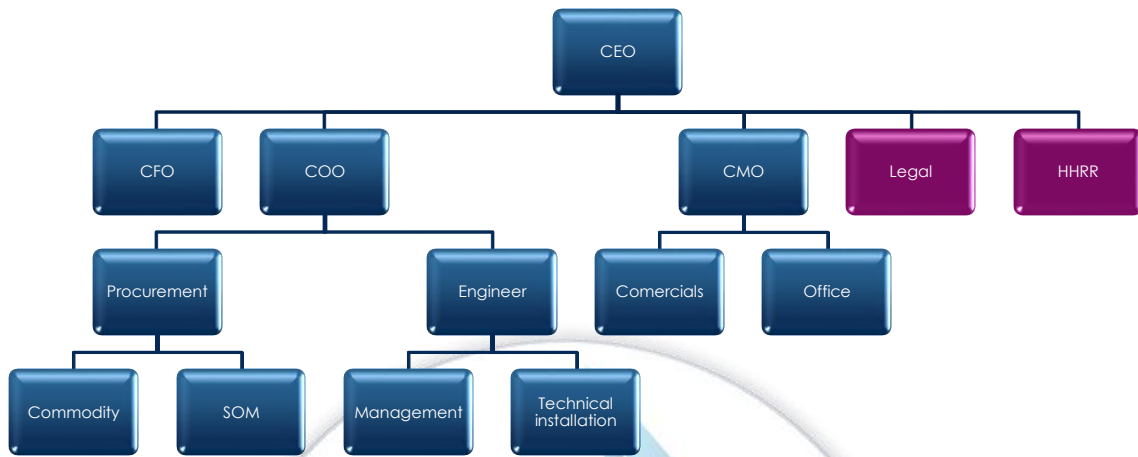


Table 12 Organizational Chart

IV. DESCRIPTION AND ROLES

WindSail Solutions has the organizational structure mostly use for small or middle-sized company.

It is managed at the highest level by a CEO (Chief Executive Officer) that is appointed by the Board of Directors. The Board of Directors oversees the activities of the Company.

At the next level, the COO (Chief Operating Officer), the CFO (Chief Financial Officer), the CMO (Chief Marketing Officer) do directly report to the CEO. Legal and HHRR department will be subcontracted according to needs.

The COO is responsible for all those activities that take place in the daily operation of the company.

On the one hand, the installations step will carry out by outsourcing companies in the early customers. However, once we have enough workload, COO together with head of engineering will manage our own team to carry out the installations and maintenance.

The CFO is responsible for all aspects of WindSail Solutions finances.

The CMO is responsible for the commercial strategy and development. This is clearly a core activity for our business and its growth. We are entirely committed to sustainably



grow over the years to come, therefore Marketing, Commercial and Sales are key for our success since they are in charge of finding new business opportunities and making the most of them.

In the following section, we can see a brief of the main responsibilities of each Chief Officer:

CEO (CHIEF EXECUTIVE OFFICER):

- ➔ Own the vision. A CEO should determine and communicate the organization's strategic direction
- ➔ Provide the proper resources. Only the CEO can perform the task of balancing resources – the two most important ones being capital and people
- ➔ Build the culture. Culture is the set of shared attitudes, goals, behaviors and values that characterize a group
- ➔ Make good decisions. Many problems require a solution that will end up affecting multiple departments, and only the CEO is empowered to take such an action
- ➔ Oversee and deliver the company's performance.
- ➔ CEO is ultimately responsible for a company's performance

COO (CHIEF OPERATING OFFICER):

- ➔ Directs internal operations. Achieve budgeted results and other financial criteria, and to preserve the capital funds invested in the enterprise.
- ➔ Recommends their adoption to the Chief Executive Officer. Participates in the development and preparation of short-term and long-range plans and budgets based upon broad organization goals and objectives.
- ➔ Directs the development and installation of procedures and controls. Promote communication and adequate information flow, and thereby solidify management control and direction of the enterprise.
- ➔ Develops and establishes operating policies consistent with the CEO's broad policies and objectives and insures their adequate execution. Appraises and evaluates the results of overall operations regularly and systematically, and reports these results to the CEO



- Insures that all activities and operations are performed in compliance: with local, state, and federal regulations and laws governing business operations.
- Develops and maintains a sound plan of organization. Establishes policies to insure adequate management development and to provide for capable management succession for those functions/business units falling under his/her responsibility.
- Directs the development and establishment of adequate and equitable personnel policies throughout the organization. Including compensation policies and employee benefit plans. Insures that the interests and welfare of employees as individuals are preserved and protected.

CFO (CHIEF FINANCIAL OFFICER):

- Controllorship duties - Controllorship duties hold the CFO responsible for presenting and reporting accurate and timely historical financial information of the company he or she works for. Every stakeholder in the company - including shareholders, analysts, creditors, employees and other members of management - relies on the accuracy and timeliness of this information.
- Treasury duties – The CFO is also responsible for the company's present financial condition, so he or she must decide how to invest the company's money, taking into consideration risk and liquidity. In addition, the CFO oversees the capital structure of the company, determining the best mix of debt, equity and internal financing. Addressing the issues surrounding capital structure is one of the most important duties of a CFO.
- Economic strategy and forecasting. - This aspect of a CFO's duties also includes economic forecasting and modeling - in other words, trying to predict (given multiple scenarios) the best way to ensure the company's success in the future.

V. EVOLUTION

The first year the business consist in being known, reaching customer and understanding the way the business works.

As early as the second year, the strategy is to develop the whole service stating the real business. For that purpose, a fix facility will be established as main operation base. That means an increase in personal.



During the following years, the aim is to reach new companies interested in our service, to increase the number of installation and to carry on the maintenance and support of the product installed.

Besides hiring internal people, it is required managing outsourcing to carry out the non-core tasks of the business.

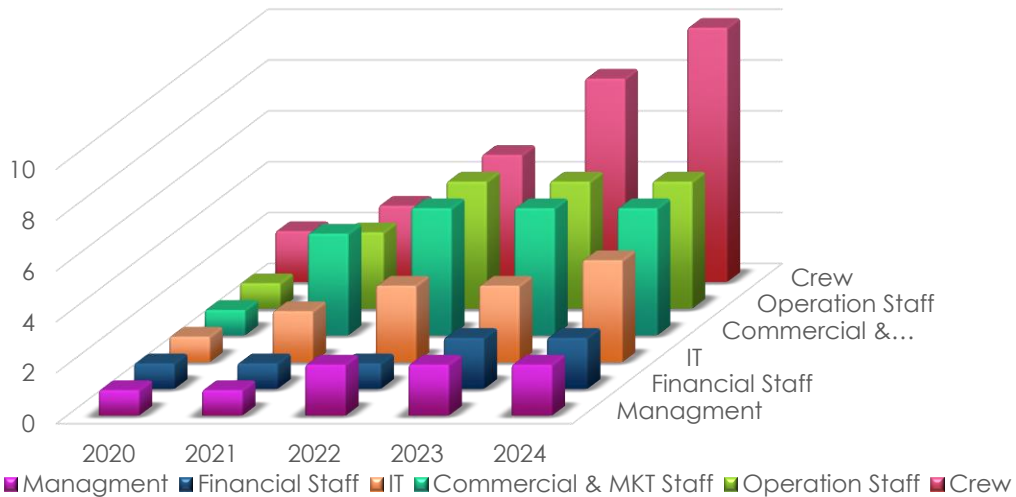


Table 13 Staff Evolution

VI. PROFILES

When it comes to describe the profiles needed in WindSail, we have to look at the maritime sector taking in account commercial relations between companies and how the sector works.

As mention before, the four founders of the business will be enrolled in the most relevant positions in the company leading each department and spreading the vision. Their profiles have the following points:

- MBA
- Engineering degree
- Background in the aerospace sector
- Previous experience
- Concern about environmental issues



New members will have different roles but in general, the profiles will meet the following criteria:

- MBA and/or University degree
- International experience
- Concern about environmental issues
- Management and soft skills
- Leadership
- Willingness for learning
- Able to take decisions and be proactive on improvement

Looking more in detail per department, the desired skills are:

ENGINEERING

This profile will be in charge of solve problems and manage team, so the main desired skills are:

- Engineering degree
- Develop and carry out installation plans
- Must have appreciation of cargo ships structures
- International availability
- Training capacity

COMMERCIAL

This profile will be in charge of looking for customers and negotiates the contract. The main skills are:

- Marketing or Business degree
- Negotiation skills
- Revenue management/pricing
- Experience in sales



- Knowledge of the sector and the main companies and competitors
- Communications skills
- Customer-oriented, focused on delivering
- Proactive
- Ability to adapt to various audiences and cultures.
- International availability

IT

This profile will be in charge of solve basic problems and report the follow-up of customer's metrics. The main desired skills are:

- Software degree or similar
- Management of KPI's
- Information and knowledge management
- Analytic capacity to make efficient report

SUBCONTRACTED SERVICES

It is usual to manage non-core activities with external companies. WindSail will have different activities during the years that no added value to the business. These activities will be outsourced with companies totally suitable to carry out them with better know-how and high-quality performance.

These services will change during the years depending on sales and the relation with external companies will be regulated by contract of works and services and supervised by internal staff.

VII. HIRING PROCESS

The hiring process will start at the end of the first year to cover the increasing workload we will have in the second year. In order to get younger and motivated candidates we want to publish job offers in universities and student fairs.



Also, use social networks like LinkedIn is a great way to get suitable candidates. However, once we have certain amount of job application, we will contact with external companies to select the best profiles and proceed with the interviews.

Due to the possibilities of the business and the large geographical area it comprises our business, we offer high possibilities of promotion inside the company thinking in a future expansion plan in other ports and new facilities.

TRAINING PERIOD

It takes place different training periods.

One for new members contracted to our company and other for outsourced personal.

For the new members, it will be necessary 2 month where the candidate will have to prove his/her capacities and values.

For external personal, the training process will take place before sign the contract with the company by the services in order to ensure that the company is suitable to do the work with good performance and quality. The time will depend on the task.





IX. FINANCIAL PLAN

I. INTRODUCTION

Finance is one of the key points of this business plan. Here it will be proved the economic and financial viability of the company, along with the funding sources inside the operating conditions considered in this business plan.

Asia is nowadays an emerging economy, where funding is certainly not very hard to get, and Singapore is undoubtedly the best place to find that funds.

In recent times, the Singapore government has been actively encouraging more private investors to invest in the country's numerous start-ups by introducing timely tax incentive schemes. According to a news report, Singapore accounted for almost 52% of all private equity investments in Southeast Asia between 2005 and 2010.

The country is also considered to be the fourth attractive market for venture capital and private equity firms. With this in mind, Wind Sail Solution is searching for funding in Singapore.

Funding needs will be defined in time and amount and different funding opportunities will be explained and the best option for the project will be chosen.

Next, economic and financial viability of the company will be analyzed for two different scenario hypotheses.

Inputs for this analysis will be defined alongside hypothesis and external assumptions needed to perform calculations.

As a result of the analysis, main business indicators will be defined and represented as a way to show business' economic performance.

II. FINANCIAL TARGET

To draw the objectives for each one of the financial concepts it should be considered the country where the company is located and the sector where the enterprise is including.



Taking into account that the headquarters of the company are located in Singapore, the main investors will be search in that country. Due to the culture of Singaporeans **WindSail Solution** should guarantee some facts:

- An interesting and achievable Business Plan, including, a team assessment, a clear value proposition, competitors' analysis, commercial strategy, financial projections etc.
- Prove profit potential: 15% EBITDA or above and ROI over 80%
- Medium term return on their investment
- Some part of company's shares

III. FINANCIAL SOURCES

INTERNAL FINANCING

INTERNAL FINANCING → 10%

The team is committed to invest from its own money with two main objectives. The first would be to portrait a direct and clear image of our commitment with this project to any potential funding entity. Second objective is to ensure certain degree of control and revenues for ourselves.

EXTERNAL FINANCING

BUSINESS ANGELS → 5%

Business angels from Singapore are different associations where it can be finding these investors (BANSEA, Deal Flow, Individual Angels, etc.), and every one of them is going to be different from the others, and be attracted to different things but generally speaking, this type of funding will require from us the clauses shown in the previous point.

The advantage of consider the business angels are:

- **Business management mentoring:** Since business angels are usually business managers themselves or have at least wide knowledge and expertise in this field Wind Sail Solution will be able to take advantage of this, engaging a useful collaborator.



- **Access to Businessmen Network:** It is likely that an investor of this kind will have colleagues and partners that could perfectly be potential customers or at least could put the company in touch with potential clients, enhancing and promoting the customer acquisition.
- **Knowledge of uses and habits of Singapore businessmen:** It is clear that, for the drawing up of this Business Plan it has been considered the Singapore's businessmen culture, and environment, even though, direct experience from people of this kind will undoubtedly help the company to polish the commercial approach to achieve market acceptance of the product.

Their investment is expected to be around **5%** of the total equity.

VENTURE CAPITAL → 35%

Some example of venture capital societies is August Capital Partners, Accel-X Pte. Ltd. and other Singapore-based venture capitalists.

The requirements from these venture capitalists are:

- An interesting and achievable Business Plan, including, a team assessment, a clear value proposition, competitors' analysis, commercial strategy, financial projections etc.
- Return on their investment of at least 30% for every year invested.
- Some part of company's shares

They are the biggest source of finance together with banks which is the main reason why they reach a 35% equity with the possibility to go beyond that in case the business performance is lower than expected.

GOVERNMENT FUNDING → 50%

As it is well known Singapore Government promotes entrepreneurship, so there are some possibilities to access to some kind of public funding. Typically, Singapore Government will accept applications which had already raised interest among private funding entities whatsoever.

So, besides, business angel's funding, it can be an option apply for Singapore's Government funding, using any of his sponsored start-up business financing programs.



One of the programs that could be considered is the Business Angel Scheme (BAS), by which it could raise half of the funding needs till a maximum of S\$1,500,000. For every S\$1 invested by the business angel investors, SPRING SEEDS Capital will invest S\$1.

Requirements to apply for this funding would be:

- Singapore-based companies who:
- Are incorporated as a Private Limited company for 0-5 years
- Have minimum paid-up capital of S\$50,000
- Are developing innovative products or processes for the global market

As the company fulfils every requirement it should be able to get half of the funds by this way.

With that input, this will be the source of financing summary:

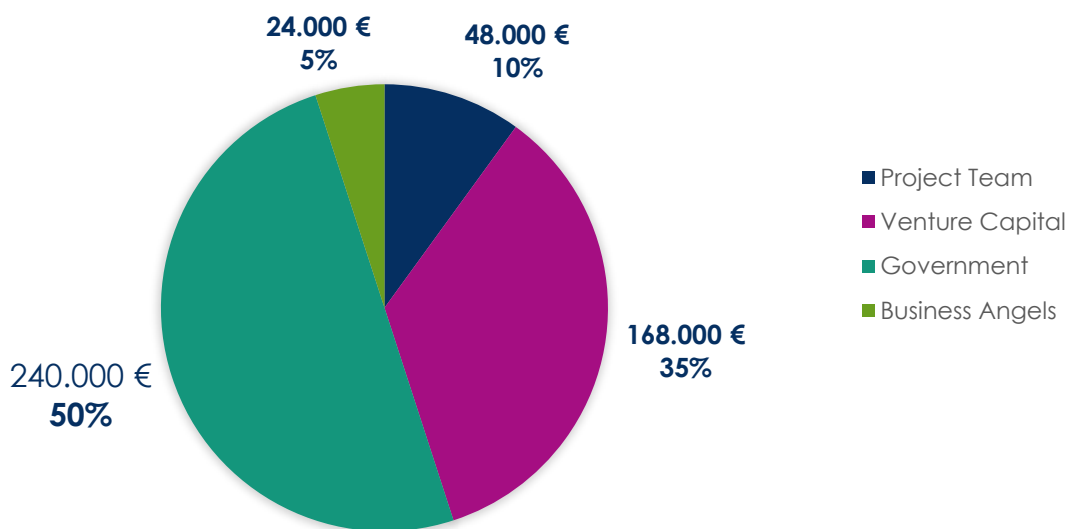


Fig. 67 Financial Sources



IV. FINANCIAL ASSUMPTIONS

INVESTMENT CONDITIONS

In this chapter, Wind Sail Solution shows how its investment is performed, in order to clarify the ownership and the earnings of the company.

The investment proposal comes after a personal investment from the founders of **48.000 €** for the **100%** of the company. Once a queue of letters of intent is set to use our service an investment round to Venture Capital and business angels will be launched.

The key conditions presented to them are:

- An IRR of **55%** at the 5th year as a conservative perspective. This is a very competitive gain that is required to seduce top investors in Singapore
- **192.000 €** is the minimum amount of financing we need from VC and Business angels to run the business.
- Is expected to get a **50%** of the equity coming from the Government, **250.000 €**.

This equity scenario may vary depending on the company performance. The main Engagement Clause WindSail Solution is set to show the founder's compromise with the investors and drive their motivation. For that reason, some shares will be emitted for the founders in case the following milestones are achieved:

- **Break even in the second year**
- **IRR > 55% in the fifth year.**

COSTS BREAKDOWN

In order to establish the initial investment for the business, it is necessary to analyze all the costs related to the business, both operational and structural.

COST DISTRIBUTION

Wind Sail Solution costs are classified in different groups in order to have a general overview of every sector of the company, following the cost distribution: 6 Aerospace MBA 2014-2015:



- **Marketing:** in this category, it is included all the expenses related to the marketing & commercial plan, in terms of customer attracting, branding, promotion and customer service.
- **HHRR:** In this section, cost globes salaries depending on the performed task, taking into account all staff, including operational crew.
- **Operations:** operational costs include all variable costs related to the activity of the company, including taxes, handling services, fuel costs and MRO division.
- Other expenses.

Marketing (which includes the fleet analysis), HHRR will be declared as **fixed** costs since they will need to be paid no matter if the project is feasible or not. Some other office expenses are also considered as fix costs.

On the other side, operational costs are the main **COGS** related to the cost of the kite, the installation, follow-up and maintenance.

In this project the main expenses will come from the **variable cost**, as the installation process, the acquisition of the kite and the maintenance will depend in the number of sells achieved per year.

SALES FORECAST

The sales will directly depend on the number of installations, the commercial plan is focused in companies with a big number of vessels, with the sole intention to get the maximum number of installations with only one customer.

BANK DEBT

Wind sails Solution discard the option of getting a loan, because of the company core business will not count on any fixed asset big enough to have the need to demand a loan.

In the expansion scenario, this option will be considered again.



V. FINANCIAL SCENARIOS

Two different scenarios will be defined.

- I. On the one hand a normal scenario, where WindSail Solutions does not expect to expand, at least for the 5 first years of the company
- II. On the second scenario, will be considered an expansion of the company to China, both are detailed in section 6.5

NORMAL SCENARIO

COST BREAKDOWN

Wind Sail Solution cost structure is distributed, in general terms, focusing in a variable cost basis. The initial company purpose is to get a revenue based in a variable cost in order to reduce the risk, in a future scenario, the goal will be focused in increase the fixed cost reducing the margin per sale.

As there is neither fixed asset, neither debt, the cost distribution goes directly from Fixed Cost to Taxes, avoiding depreciation & interests.

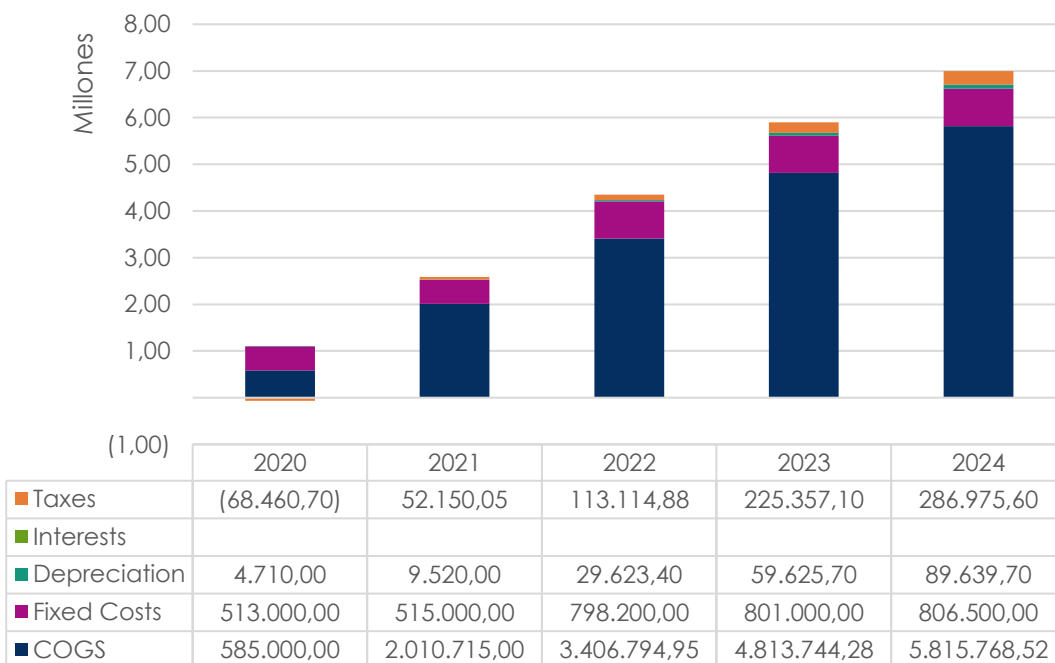


Fig. 68 Cost Distribution



SALES FORECAST

The first year the company will have a negative Earning, due to the effort in variable costs and the lack of maturity of the company, the second year is expected to have a positive income.

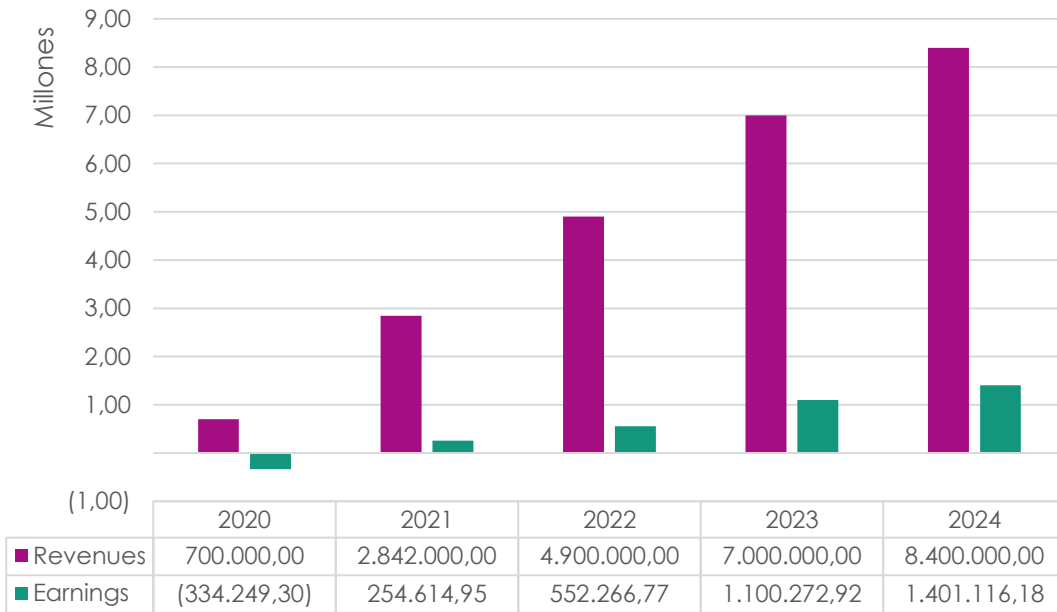


Fig. 69 Net Income - Revenues

PROFIT MARGIN

The profit margin increases year by year with the increase in sales and maintaining a small increase of the fixed cost.

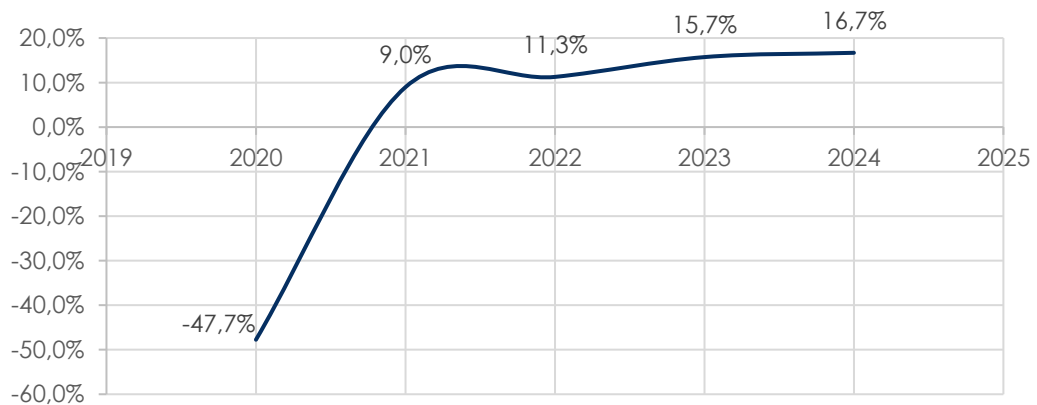


Fig. 70 Profit Margin



DIVIDENDS

No loan has been considered in this scenario, as there is no need of considerable fixed asset.

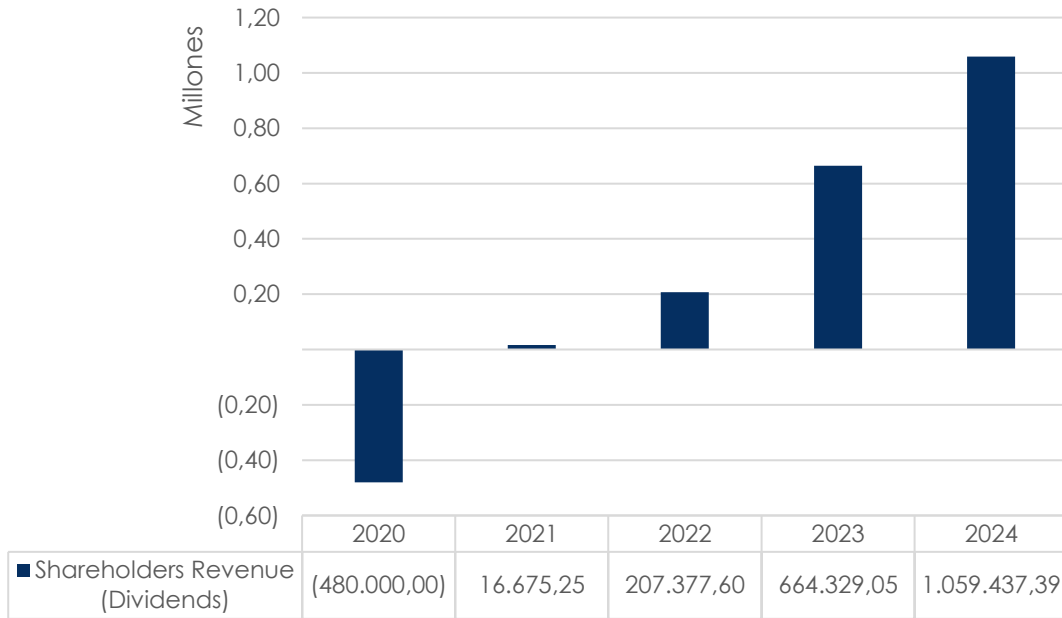


Fig. 71 Shareholders

With those assumptions, the company will expect an **IRR → 55%**

EBIT – EBITDA

The two first years there will be no considerable fixed asset, which means the EBIT will be similar to the EBITDA.

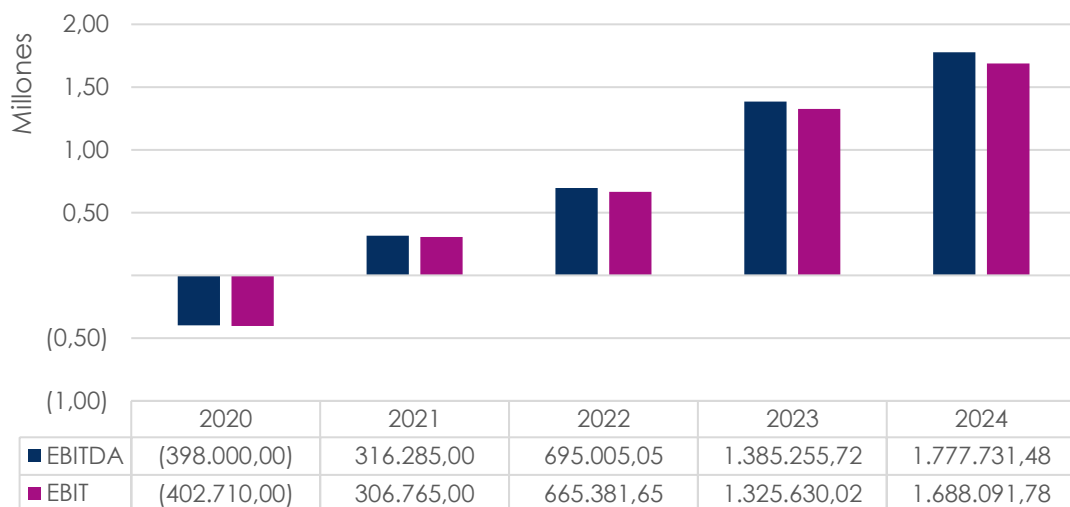


Fig. 72 EBIT - EBITDA

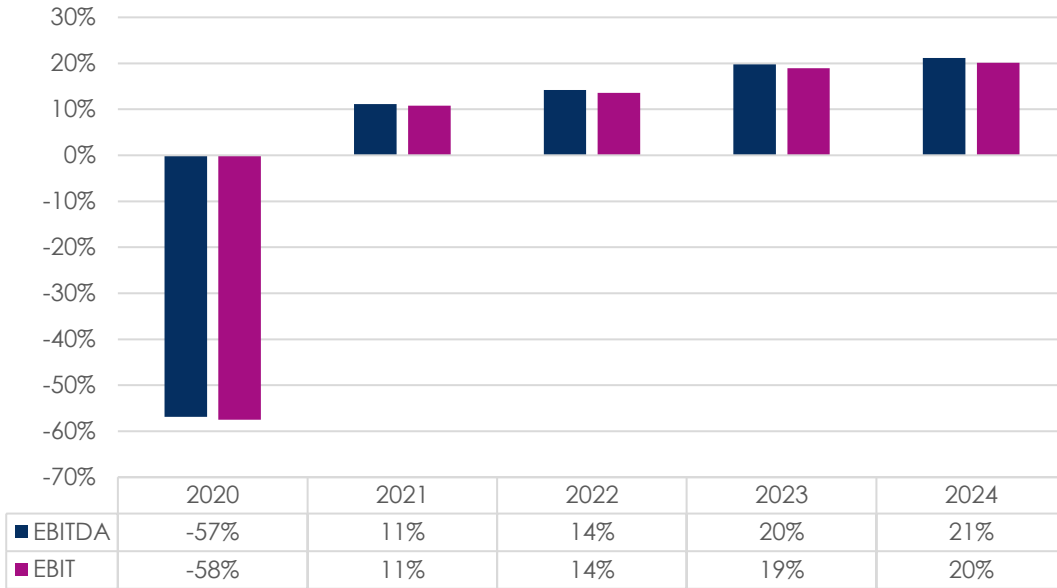


Fig. 73 EBIT - EBITDA %

ROE

ROE will be useful to give an idea of the performance of the achievements of net income on equity.

ROE is high but it is attainable given all the previous market and financial analysis.

The company considers this high ROE is normal for an innovative and high technological start-up as Wind Sail Solutions, based on services sales. Therefore, Wind Sail Solutions is positioned as a high return company, this will be very positive to get investor in Wind Sail Solutions.

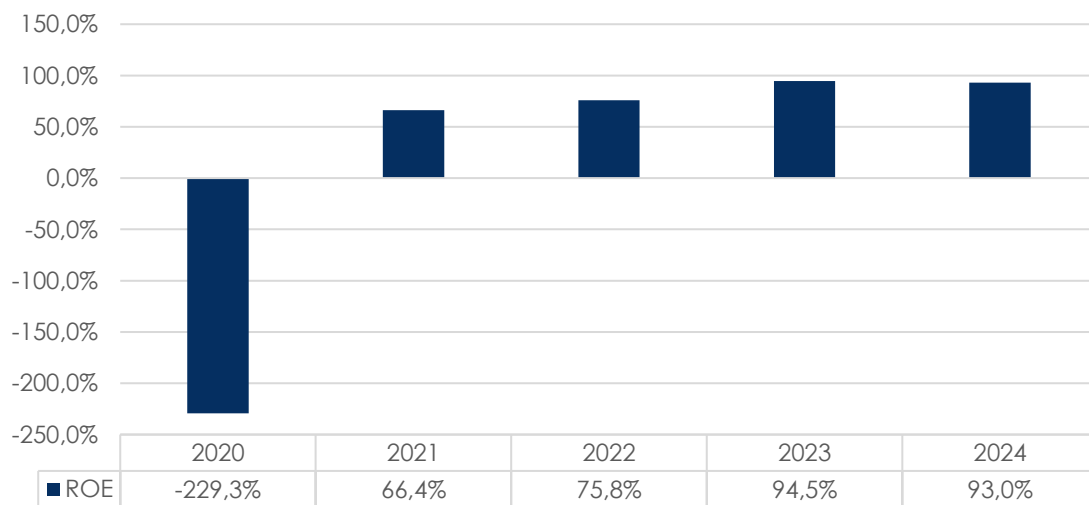


Fig. 74 ROE



EXPANSION

In the expansion scenario, has been considered a small increase in the sales for the two last years,

COST BREAKDOWN

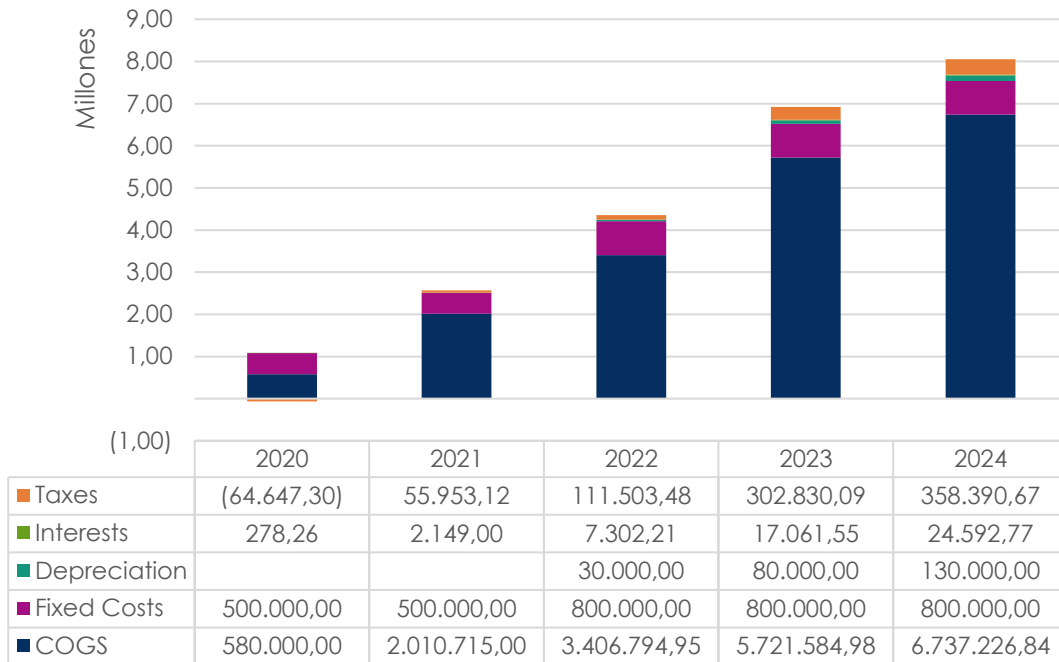


Fig. 75 Cost Distribution

SALES FORECAST

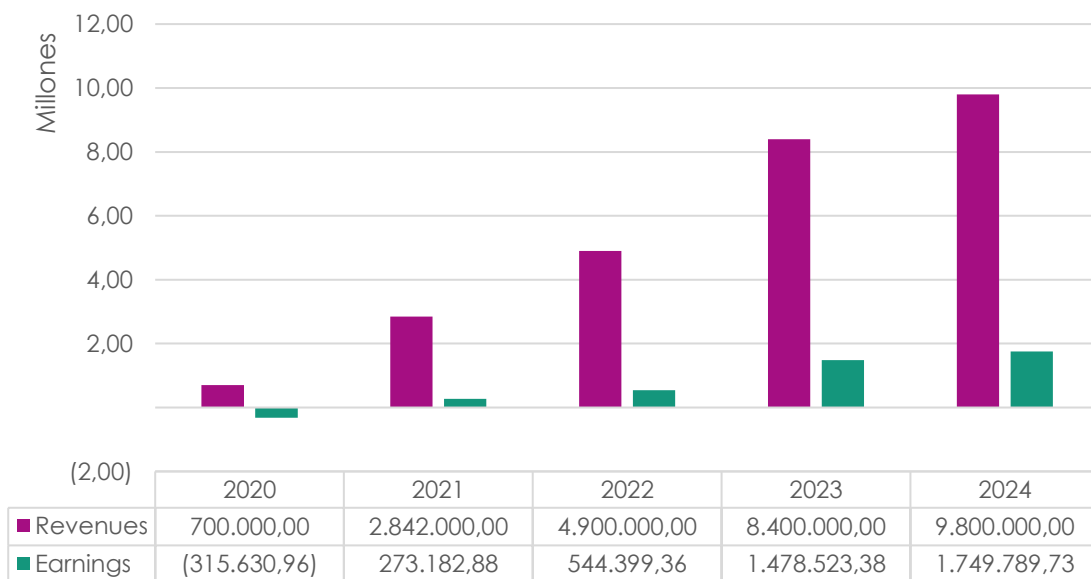


Fig. 76 Net Income – Revenues



DEBT

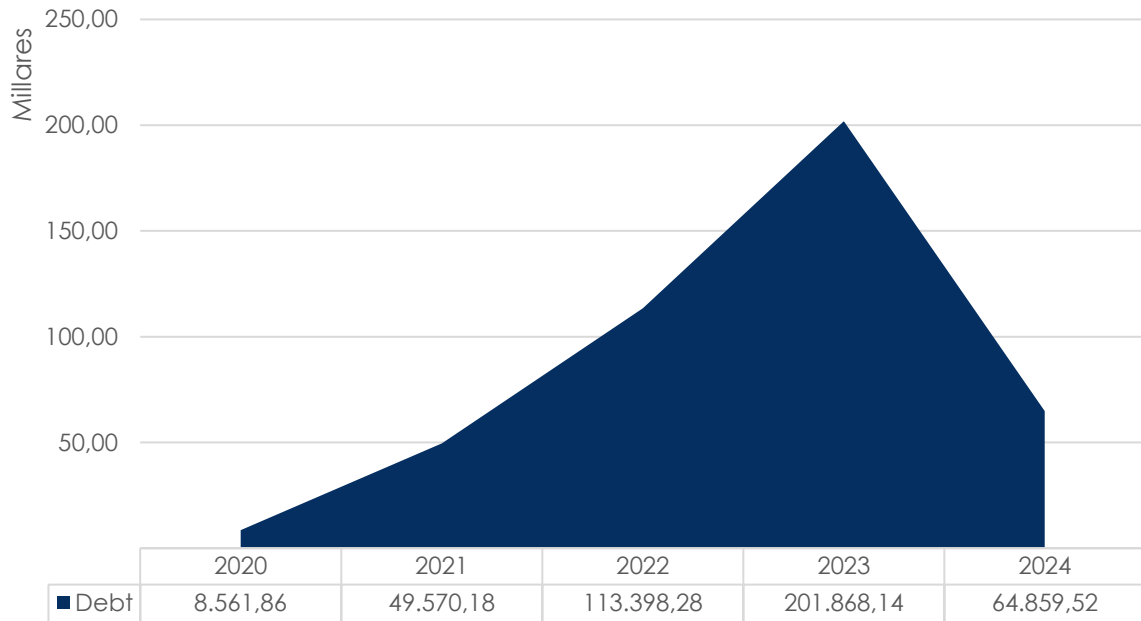


Fig. 77 Debt

SHAREHOLDERS

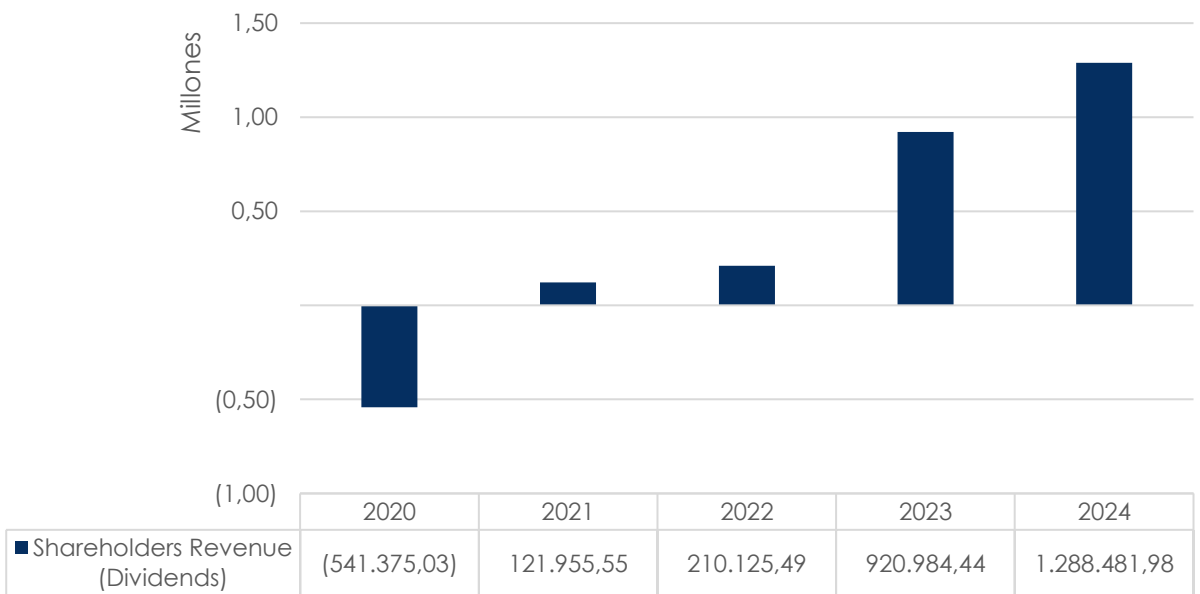


Fig. 78 Shareholders

TIR → 63%



PROFIT MARGIN

With those previous assumptions, a profit margin of **17,9%** will be achieved the 5th year, as it can be appreciated, it will be higher than the previous scenario, where no expansion was taken into account. It is due to higher sales expectation during the 2 last years.

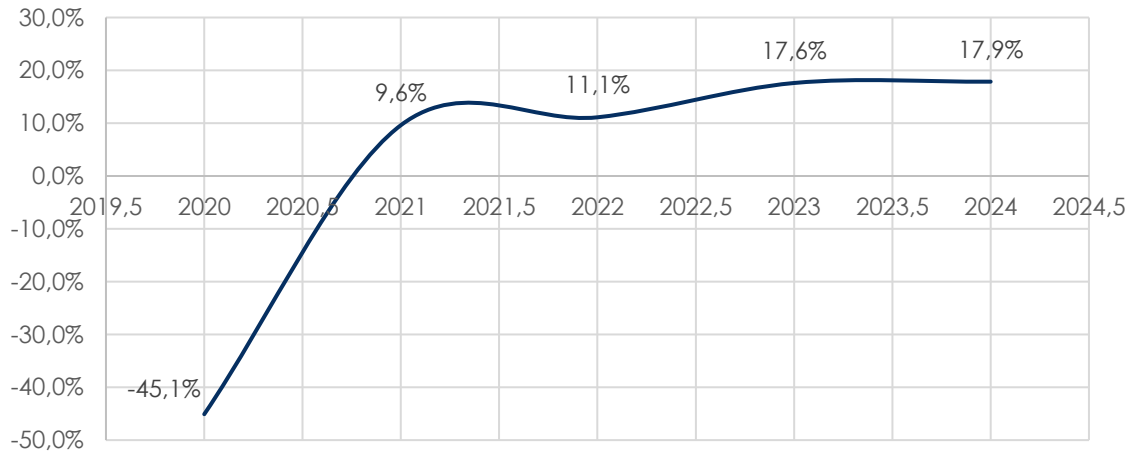


Fig. 79 Profit Margin

EBIT – EBITDA

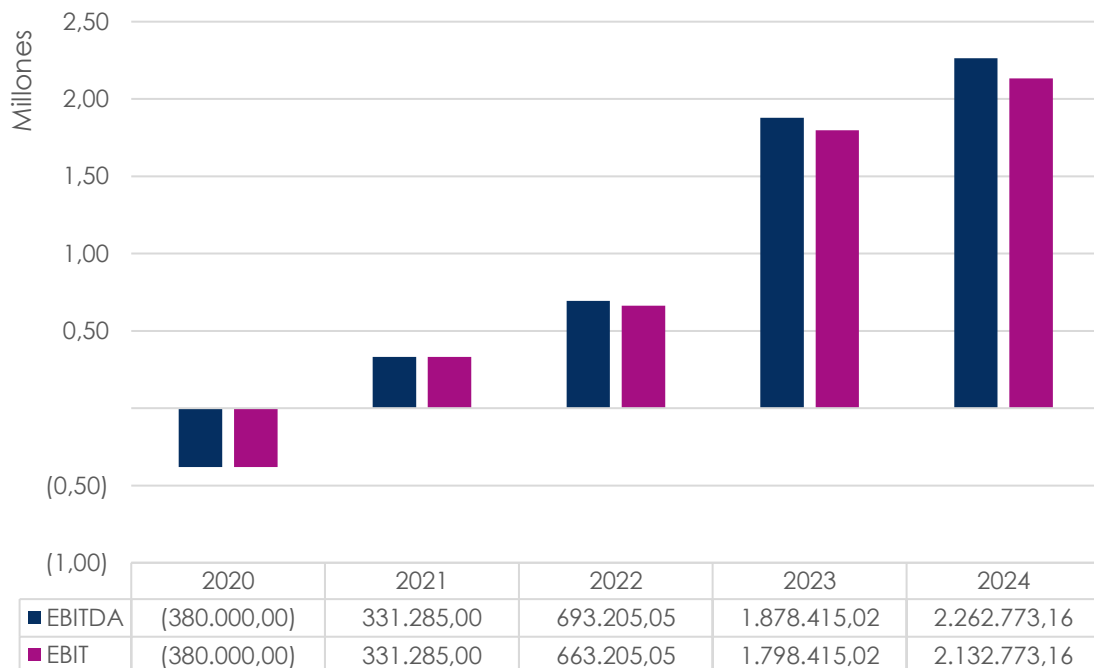


Fig. 80 EBIT - EBITDA

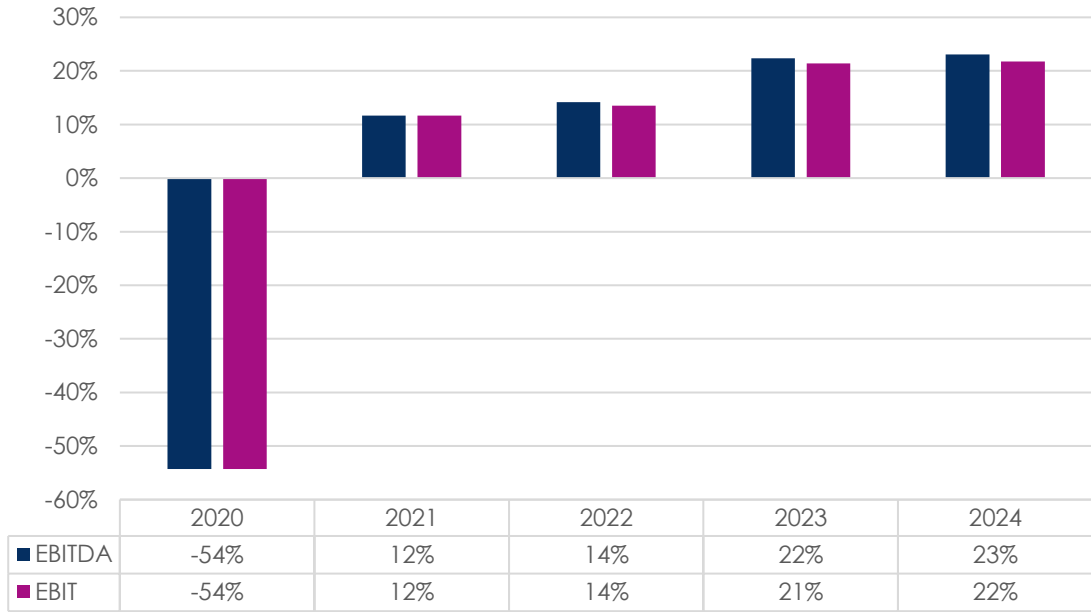


Fig. 81 EBIT – EBITDA %

ROE

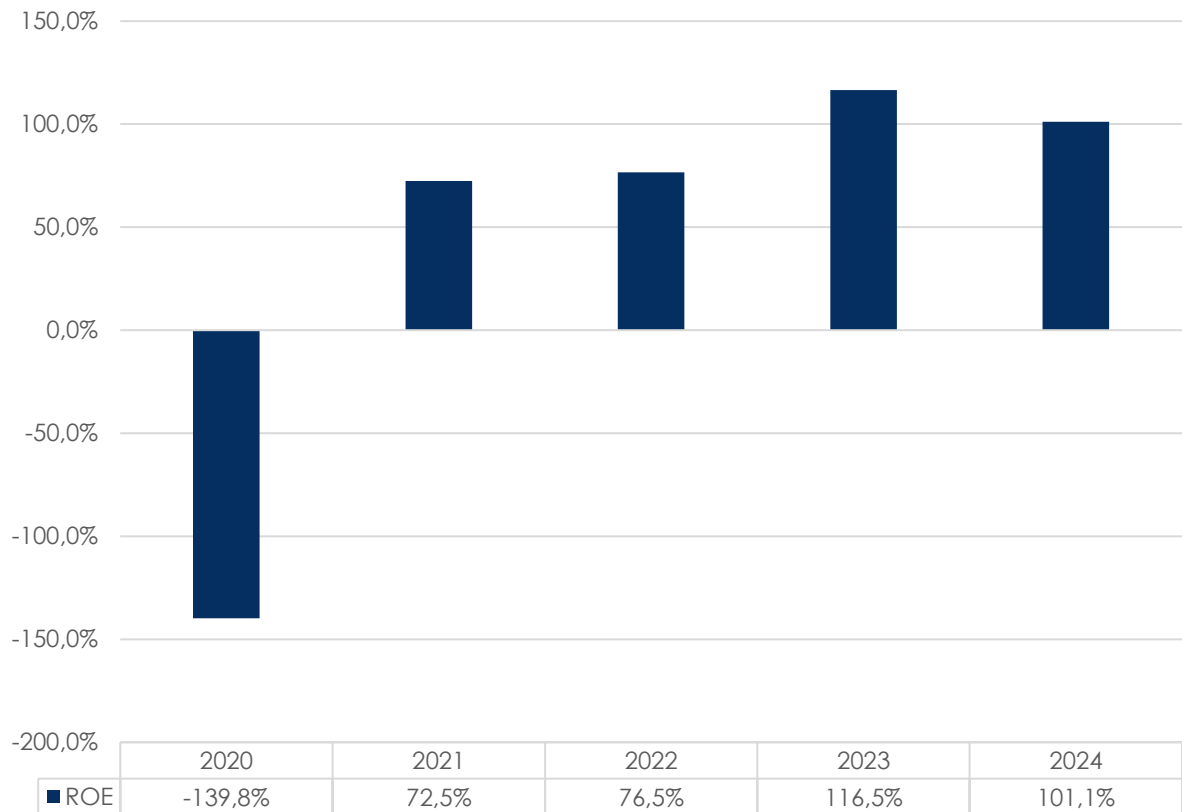


Fig. 82 ROE



ANNEXES

List of Attached files:

- 1 MODEL CONSTITUTION FOR A PRIVATE COMPANY LIMITED BY SHARES
- 2 CONVENIO ENTRE EL REINO DE ESPAÑA Y LA REPÚBLICA DE SINGAPUR PARA EVITAR LA DOBLE IMPOSICIÓN Y PREVENIR LA EVASIÓN FISCAL EN MATERIA DE IMPUESTOS SOBRE LA RENTA
- 3 BIMCO TRANSPORT CONTRACT TEMPLATE
- 4 BIMCO STANDARD NEWBUILDING CONTRACT

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