
# Neptunpearl

# The search for growth

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# Abstract

**Title**: Neptunpearl – The search for growth
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This Dissertation focuses on Neptunpearl, a Portuguese company founded in 2012, dedicated to the cultivation and sale of oysters of excellent quality and the rehabilitation of the natural Sado's estuary.

The company has a valuable reputation due to a close relationship with its customers, its eco-friendly mission, and the quality of its exclusive products.

The main focus of the Case Study is the evaluation of possible growth within the environment of the difficulties and challenges that a small Portuguese company faces daily.

Due to the size of the niche in which the company operates and the specifications of its product, it has encountered several growth problems, forcing it to look for alternatives for expanding. The entrance into another segment in Portugal or the possibility of internationalization are the options under analysis. This dilemma is constrained by the volatile reality of the Portuguese oyster farming industry and by the risk of a company present in a premium eco-friendly segment losing its identity during the business expansion process.

The Dissertation includes a Literature Review of relevant topics for the Case subject, such as sustainability, scalability, and related diversification. It also offers an analysis of the key issues of the Case in the Teaching Notes section.



Key words: Neptunpearl; Internationalization; Sustainability; Growth; Scalability; Related Diversification; Oyster Farming.

# Resumo

**Título**: Neptunpearl – A procura por crescimento
**Autor**: Sara Luz Clara Palhas

Esta dissertação tem como foco a Neptunpearl, uma empresa portuguesa fundada em 2012, dedicada ao cultivo e venda de ostras de excelente qualidade e à reabilitação do estuário natural do Sado.

A empresa apresenta uma reputação desejável, consequente de uma relação próxima com os seus clientes, da sua missão *eco-friendly*, e da qualidade e exclusividade dos seus produtos.

O principal foco do Estudo de Caso é a análise da possibilidade de crescimento de uma pequena empresa portuguesa num ambiente repleto de dificuldades e desafios diários.

Devido ao tamanho do nicho em que a empresa se insere e às especificações de seu produto, esta tem encontrado vários problemas de crescimento, forçando-a a procurar alternativas para a sua expansão. A expansão para outro segmento em Portugal ou a possibilidade de internacionalização são as opções em análise. Este dilema é delimitado pela realidade volátil da indústria portuguesa de ostricultura e pelo risco de uma empresa presente num segmento premium ecológico perder a sua identidade durante o processo de expansão e crescimento.

Esta dissertação inclui uma revisão de literatura de tópicos relevantes para o Caso, como sustentabilidade, escalabilidade e diversificação relacionada. É também feita uma análise dos principais problemas do Caso na seção Notas de Ensino.



Palavras-Chave: Neptunpearl; Expansão; Sustentabilidade; Crescimento; Escalabilidade; Diversificação Relacionada; Ostricultura.

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# I. Case Study

*"The taste was like a salty foam kiss. You could feel the sea in your mouth, in a kind of giant wave, velvety and fresh, that glided smoothly, leaving only an ethereal trace of salt and minerality. Tasting oysters was a ritual that one might love or hate. (...) Those from the Sado's estuary were worldwide famous. Those were called "Portuguese" or "les portugaises" since the baptism was French. There, the oyster farming was marked by the ecosystem, along with the degrees of salinity and sweetness that made all the difference for the "Crassostrea Angulata"."*

– Magazine "Revista de Vinhos", 2017

It was a cold and windy January morning in 2020 on the Sado's Estuary, Portugal, the site of the oyster's nursery of Neptunpearl, a premium producer and seller of oysters. Neptunpearl was established in 2012 as an aquaculture company specialized in producing high-quality oysters – Neptun's Special Oysters (NSO) – and had revenues of approximately €155.000 in 2019.

Célia Rodrigues, the founder, and co-owner of Neptunpearl was contemplating her fresh batch of oysters when her phone rang. With two new partners joining the firm, the company recently went through changes at the top management level, and it was time to discuss the future.

In face of the size and growth reached by the company in the last few years, it was necessary to decide the next steps in order to continue to grow sustainably in the future. The real questions were: what options were available for Neptunpearl? And how could they succeed?

As she headed to meet the new partners, she considered the tough decision of where to focus their investment on. Should the company focus on exporting its premium oysters or should it invest in the booming tourism-based business of oyster and wine tasting in Portugal?

## Oyster's Market

### Global overview

In the recent past, the production of molluscs was one of the aquaculture sectors in the food industry that continuously grew at a global level. The increasing investment in the sector was a consequence of the environmental impact of unsustainable fishing and of demographic pressure worldwide. Among the molluscs' segment, the cultivation of oysters had the highest market value and growth (exhibit 1). One of the main challenges to this segment's growth was

seasonality because half of the oysters produced worldwide were consumed between Christmas and the New Year.

The world leader in aquaculture in 2019 was China, representing 83% of the total volume of oysters produced. It also was the third largest importer of oysters with a 12.8% world share of imports, paying an average of 10.63 USD per oyster. Despite its large production, the country was not able to meet its internal demand and relied heavily on imports mainly from France. For the last 5 years, China's imports of oysters grew, in value, more than 189%. Besides China, Hong Kong was also a heavy importer of oysters. In 2019, Hong Kong imported 13.2% of all the exported product of 36.46 million USD (exhibit 2 and 3). In the European Union, the oyster farming and trade were self-sufficient. The most relevant oyster market was France, followed by Italy, largely because consumption was a common habit in those countries. In 2019, the French market was the main importer and exporter of oysters worldwide, mostly to the Chinese market (exhibit 4).

The Portuguese Market

The oyster production in Portugal had always been very volatile and fragile. The production was mainly of the "Pacific oyster" species but in recent years, there was an increase in the farming of the "flat oyster" and in the so-called "Portuguese oyster". Although the oysters were a Portuguese heritage, they were not traditionally consumed on a regular basis and its introduction was a long process as most people associated it to a luxury consumption good.

In 2017 the production of oysters reached 1.185 tons nationwide. The increased consumption of oysters was due to the exponential growth of the tourism sector. In Portugal, the main cultures of oyster farming were distributed within the Rias of Mira, Formosa, Aveiro and the Natural Reserve of the Sado's Estuary and most of the production was exported to other EU countries.

Nationwide, in 2017, there were about 2.300 direct jobs in the industry, with each company having no more than 10 workers. The companies within the sector were small and mostly family-run businesses, managed with great difficulty. In addition, the companies also had to face serious risks regarding their products because of the high mortality of the oysters and the seasonality. A company could easily close doors if the levels of production were low or if all its products died during a season due to unpredictable factors, such as a natural complication or a parasite infestation.

It was also difficult to have a clear picture of the journey from production to the final consumer. There were no standard business strategies, nor stable distribution channels, nor

accurate product promotion. Most of the times the bargaining power was held by intermediaries who forced many producers to comply with their prices.

The oyster was perceived as a luxury product, but Célia Rodrigues, an expert on oyster farming, believed it was not properly valued in the national market. Due to the precarious conditions of the sector and the difficulties that companies faced, the producers' sale price was not high going, on average, from 2€ to 4€ per kilogram of oysters.

To try to fight these problems and to promote exports the Portuguese government reduced the VAT from 13% to 6% for oysters. That incentivized the investment in production and increased the capability of the national producers to compete with countries where the rate was also low. Portugal was the 10$^{th}$ biggest exporter of oysters in 2019, representing 1.3% of all worldwide exports with a value of 3.98 million USD. The price per oyster sold went up 3% in 2019 and the Portuguese exports of oysters grew 212.3% in value, in the previous 3 years, with the demand being consistently larger than supply.

The Natural Reserve of the Sado's Estuary

The Sado's estuary covered a broad area starting from Alcácer do Sal and ending at the Atlantic Ocean (exhibit 5). In the 1970s, the production of oysters disappeared as a result of industrialization and the contamination of the water and soils by heavy metals. Around 2008, the oysters' farming activity returned to the estuary.

From the total area of the Sado's Estuary, 26% was dedicated to aquaculture, with 42 active business units, occupying 422 hectares and 14 units exclusively producing oysters. Its natural conditions, as well as its waters, were excellent for oyster farming. The unique salinity, temperature and chlorophyll levels present in the estuary were a distinguishing factor for production. It allowed for productivity and growth rates far superior than in other countries. In France, an oyster needed around 13 months to reach full growth compared to 6 to 9 months in the estuary. The average meat weight of an oyster produced in the estuary was around 60 grams due the rich and healthy ecosystem of the Sado.

The 14 firms (exhibit 6) specialized in oyster farming that actively competed in the region were mostly based in the Northern region of the estuary and employed on average one full-time employee. Most firms exported their products, being Exporsado the largest exporting firm based in the estuary. The company had no presence in the national market and had revenues of approximately €1 million in 2018. Almost all firms focused on the wholesale export of oysters but there were some who targeted niche markets of premium products.

## Neptun's Special Oysters

### The Company

Neptunpearl was based on a 26 hectares steading in the Gambia area of the Sado's estuary. It was founded by Célia Rodrigues, the current CEO, and by a former partner, who later on sold his position and left the company. It started as a consultancy firm and service provider in aquaculture. Subsequently, Neptunpearl (or Neptun) specialized in aquaculture production and its main business became oyster farming, producing the famous Neptun's Special Oysters (NSOs).

The company sold an average of 1,5 tons of oysters per month during 2019. The CEO was confident that they could increase production to around 3 tons/month in 2020 with the same structure. The company's production cost was 3€ to 3,50€/kg (exhibit 7), depending on the calibre of the Portuguese oysters that could range from 0 to 5 (from the least to the most expensive). For the "Fine de Claire" type the cost was approximately 5€/kg (exhibit 8). Shipping costs could range from 1,99€ to 2,65€/kg for Portugal (excluding islands) due to the health safety measures and depending on weight shipped. The production costs varied because of the oysters' high mortality rate, which ranged from 50% to 60%, meaning that a batch of 100.000 oyster seeds, with a cost of 1.750€, would typically produce 4 tons of oysters.

According to Célia, Neptun's production of oysters was extremely sustainable. It was not necessary to supply the animals with anything for them to grow, as its maternity wards were natural. The biodiversity of the Sado estuary was plentiful and almost everything that existed there could be used for human consumption.

NSOs were very prestigious and highly demanded, due to the exceptional ratio between the amount of 'meat', and the amount of water and peel it presented. The oysters that Neptun produced had a rate of 25% in the so-called "condition index" (or "flesh index") (exhibit 9), where oysters starting at 15% were considered premium. This was a consequence of the climate, the beneficial waters of the estuary and, of course, the non-intensive techniques and special care that Neptun applied to its production.

Low production densities allowed for oysters to have more natural food and oxygen, that is, a more natural and balanced development that resulted in higher quality oysters. In Portugal, the average density of production was 100 oysters per m3, but Neptun opted to produce only 25 oysters per m3.

Neptunpearl rehabilitated fish farming tanks that were previously abandoned and used them to produce oysters, halophytes, crabs, and small shrimps. The NSOs were produced in

two different ways: “Fine de Claire”, directly from the substrate, and the conventional method, of bags on oyster tables (exhibit 10). The market for “Fine de Claire” oysters was very exclusive and premium. Apart from Neptun, only a small region in Northern France produced this type of oysters.

Besides oyster farming, the company also produced aquatic plants. For the price of 20€/kg, it sold salt plants, suaedas, sacrocornies and purslanes of the sea that could be used in cooking as well as for medicinal purposes. Furthermore, recently chefs started to include into their dishes some macroalgae that were initially requested as decorative elements. Those were sold for 16€ or 25€, depending on the species (exhibit 11). The company also sold a variety of seafood priced from 6€ to 15€/kg (exhibit 12).

Although there were 13 other players in the estuary, no other oyster producing company could be considered a direct competitor of Neptun, according to Célia. Almost all companies that were present in the oyster market, relied on Célia's help and consulting services, as she was one of the greatest national specialists in aquaculture production, oyster farming and in creating maternity wards. Mainly all competitors would focus on the international markets, exporting much of their production. Neptun was the first company in the estuary who focused in achieving the highest quality and selling elite products within the Portuguese market.

The company continuously grew, surpassing €103.000 in revenues in 2018 and almost €155.000 in 2019 (exhibit 13 and 14), 85% of which was within the Portuguese market and 15% was in Spain.

The company had a very exclusive client list, with demand vastly exceeding supply. The NSOs had the highest prices per kg/oyster on the national market for Portuguese oysters (8 – 11€/kg + VAT) and the “Fine de Claire” were priced at 13€/kg+ VAT (exhibit 15).

The NSOs were the favoured choice for many prestigious restaurants and hotel chains such as the Ritz, Sheraton and Altis, in Lisbon. Neptun had a privileged and direct relation with many famous chefs such as Paulo Morais, Luís Barradas, Leonardo Pereira, among others. It also supplied several premium restaurants such as Sea Me, Penha Longa and many more. The most relevant clients were Altis, the Taberna da Rua das Flores, the Laboratório dos Sabores, Sabores do Chiado and the chef Marlene Vieira. Likewise, the best sellers were the oysters, followed by the japonica clam.

Neptun had a zero-debt policy due to the high-risk associated with oyster farming and had only 5 full-time employees, 3 women and 2 men, paying them 1200€/month (exhibit 16). For quality and cost reasons, it restricted the distribution to only 2 days per week and sold directly to its customers. All orders had to be placed 48h to 24h before the requested delivery

time and the distribution route included cities such as Lisbon, Peniche, Porto, Setúbal and the Spanish cities of Madrid and Vigo.

CSR & Environmental footprint

Célia's life purpose was to prevent the extinction of *"Crassostrea angulate"*, the Portuguese oyster (exhibit 17). She was more than an entrepreneur and producer; she was a world ambassador for the Portuguese oyster. She had contributed greatly to the national rehabilitation of the oysters.

Under her governance, the company took upon itself to restore the biological and cultural patrimony of the region by reintroducing the production of the Portuguese oyster to Sado's estuary. Neptun opted for techniques of sustainable production with non-intensive methods to preserve the bay, defending the need for sustainable aquaculture and fish farming.

The work of protection and cultivation of the species of the Sado's estuary was one of the main values of the company, and so, Neptun was the first oyster farming firm to establish partnerships and projects with local universities aimed at protecting and enhancing the symbiosis between nature and production in the estuary. For Neptun, the goal was to promote an ecological and sustainable ecosystem with an integrated aquaculture, making it possible to generate the entire food chain in the same space. This would include oysters, macroalgae, herbivorous fish and carnivorous fish.

The company was equally devoted to implementing measures that promoted social equality, privileging the inclusion of individuals who struggled to fit into society. It aimed to hire people suffering from severe mental illnesses, or a disability that made them more vulnerable, or had to battle to find a job. The production line of the company had many tasks that were considered of low complexity, allowing the company to apply those measures without jeopardizing productivity or product quality.

Going Forward

On top of that, the company was recently approached by a Dutch company, specialized in exporting luxury goods and known for exporting the "best oysters in the world". They were interested in exporting the Neptun's products to a variety of Michelin Star's restaurants around the globe, but Célia was not ready to accept the offer without giving it a further thought and analysing all other possible scenarios. Only one thing was sure on her mind, she promised that if the company didn't start to grow at a higher pace, she would close doors and offer herself the opportunity to focus on new entrepreneurial challenges.

## The Opportunity Across the Globe

From across the world a new opportunity became more evident as the Chinese market grew at an astounding fast pace. The Chinese's seafood consumption kept increasing, meeting the rising income of its population. In 2020 the Chinese seafood imports were expected to exceed 20 billion USD. By 2022, 54% of China's population was going to be upper middle class, which would translate into more purchasing power and bigger export opportunities as China's taste for foreign foods grew, especially in the major cities.

The high levels of pollution in China led to the acidification of the ocean and affected the quality of the oysters produced in the country becoming dangerous to consumers. That pushed consumers to buy imported oysters from countries where the waters were less polluted.

Furthermore, the size of the oysters was very relevant in Asia, as the Chinese consumers preferred big oysters with a flex index higher than 15% and less salty. They became more demanding about the quality of the oysters and were willing to pay higher prices.

They were very fond of western culture and the oysters imported from Europe were seen as a luxury symbol. The European products had a lot of demand as the upper-middle-class saw it as a status symbol and as a sign of wealth. The average prices were kept low which lead to high demand and huge sales volume. As a consequence, the European producers who exported to China experienced a strong revenue growth.

## Oysters & Tourism: A Winning Combination?

In 2018, Portugal ranked 20th worldwide in revenues from tourism activities. It accounted for 8,9% of the Portuguese GDP with revenues of 16.840 million euros. In total 25,2 million tourists visited the country in 2018, mostly coming from other European countries, who generated 79,9% of the incoming revenues (exhibit 18).

Portugal was the 17th country in the world in the number of tourists in 2018, and the 12th most competitive destination (exhibit 19), with foreigners representing 60% of the total demand of the sector.

That scenario benefited the oyster tasting activity in Portugal. The European countries were big consumers of oysters and most of them had a heartfelt appreciation for the Portuguese oyster. The segment presented a steady but positive growth, with the number of participants increasing year by year. There were many places for oyster tasting activities in the country, but most players were concentrated in Algarve and Aveiro.

## Changing Tides

By the end of January 2020, Célia was facing a dilemma regarding the future of the company. It was necessary to explore new ways to expand the business and increase the company's profitability. For years, the company had fought against tight margins, profiting around 8% of its total revenue. It was crucial for the company's growth to find a solution for this problem, as failure could mean the end of Neptunpearl.

With the two new partners the company saw the opening it so long hoped for: a new source of investment to finance its expansion without a bank loan. This was the moment for its next big step and had to be strategically thought to maximize the chances of success and profitability.

One option was to increase production to around 3 tons/month and export the surplus to China. The NSOs matched all the criteria of size and taste that the Chinese consumers valued, and the margins were very attractive for the company. Exports to China would add a 4€/kg shipping cost, and the overall costs for the company were 7 to 7,50€/kg for the Portuguese oyster and around 9€/kg for the "Fine de Claire". The opportunity really showed its potential when it came to the Chinese consumers' willingness to pay.

A kilogram of oysters had between 11 to 13 oysters and the consumers were willing to pay 9,78€ per oyster (10,63 USD) boosting the revenues to 107€ to 127€/kg in the case of the "Fine de Claire". For the Portuguese oyster, the average price was 4€ per unit, with a total of 52€/kg. This opportunity could provide a quick return and huge growth rates for the company who had been fighting tight margins.

The problems surfaced when the company took a closer look at what was needed to correctly seize this opportunity. Exporting to China involved a high investment in the structure of the company. The Chinese market was very dependent on the online component of every available product. For a company to succeed it needed to have a website and a lot of useful and up to date information regarding its products, with good reviews to ensure the credibility of its quality. For Neptun that was a challenge, as the company had no marketing department and its website was unfinished. Another problem that raised concerns was related to the distribution and transportation of the NSOs.

The company only wanted to be present in the premium segment which had an underlying problem: the refrigeration process. To keep the quality standards the oysters could only be sent packed to avoid interferences with the products. To achieve that, it was necessary to invest in a packaging room which meant reconstructing a building within Neptun's farming

area, with additional investment in packaging machinery and complimentary supplies. Although very appealing, Célia would not consider this option if it endangered its "25m$^3$" quality production. So, in order not to change the Essence of Neptun, only surplus production was to be exported, fully packed, for premium clients.

Alternatively, the other option was to redirect the remainder of production to the oyster tasting activity. Neptun always had a very well-known reputation among chefs and recently organized an oyster tasting experience for a group of US chefs that had very positive reviews. The chefs visited the oyster farming site and the maternities where the NSOs grew. After that, they tasted some oysters complemented with local wines.

Each participant paid a total of 16€+VAT, with an average cost of 6€ per person and the event could accommodate up to 15 participants at once. Alongside this, the company occasionally offered the service of selling and setting up oysters for events for a total price of 30€/5kg.

This opportunity also included some problems for the company. The need to invest in marketing and to improve the website became more urgent. For the company to properly explore and profit from this activity it had to invest in order to improve its infrastructure, namely rebuilding one of the buildings within Neptun's site to provide a proper experience during the tastings.

Also, there were some logistic problems. The seasonality of the products meant it could not allow much advanced bookings or too many at a given month. Additionally, it was also necessary to establish partnerships with local wine producers and travel agencies as the company did not have any type of online platform for bookings or payments. Lastly, although the demand for these activities was still not at its peak, every tour was run by Célia in order to reduce costs. She feared that the company might need to hire one more employee to handle this new business revenue stream. At the same time, it was not possible to continue this business model as it was because it presented a risk to the prestigious brand reputation the company had and was too much workload for Célia to manage.

## Heads or Tails

Due to its no-debt policy and its current structure, the company realized it was only possible to pursue one opportunity at the moment as a consequence of the investment levels needed for each one. Furthermore, there was only one building in the property that could be renovated to become either a packaging room or a tasting venue and new facilities could not be

built on site. The pressure to succeed was high, as failure meant damaging the brand and compromising the future existence of the company.

As Celia entered the maternity's waters, she thoughtfully weighted each option and considered what should be the future path of the firm.

# II. Literature Review

My literature review will focus on the topics I considered relevant for the analysis of the case study. They will address the concepts of sustainability, scalability, and related diversification.

## 1. Sustainability

Sustainability has a variety of definitions and different meanings within the academic and the corporate discourse. The concept of sustainability is considered to be ambiguous and conceptual by many scholars (Milne & Gray, 2013; Laine, 2010, 2005; Buhr & Reiter, 2006; Livesey, 2002). The most commonly used definition arose from the Brundtland Report, issued by the World Commission for Environment and Development in 1987 (Stubbs & Cocklin, 2008). The report - "Our Common Future" in 1987, defined sustainability and sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987). An additional perspective, stating an organizational view, supported that sustainability intends to create value for society (Santos et al., 2015). Both definitions are important and are not mutually exclusive, having evolved to be complementary to each other (Millennium Development Goals and UN Rio+20, 2012). This happened because research showed that the "stable functioning of the Earth systems — including the atmosphere, oceans, forests, waterways, biodiversity and biogeochemical cycles — is a prerequisite for a thriving global society" (Griggs, 2013). With the human population expected to reach the 9 billion mark by 2050, the definitions of sustainable development had to be revised to include the safety of not only the people but also the planet (Griggs, 2013).

With that in mind, three major conferences were held by the UN. The World Summit for Social Development (WSSD) in 2005, where the three principles of sustainability were defined. Afterwards, there were the Millennium Development Goals (MDG) and the Rio+20 conferences, established the 17 Sustainable Development Goals (SDGs) were decided among the nations as the 17 most urgent actions for the future. The three principles of sustainability were the pillars for the two very important conferences mentioned above, and, as so, the 17 SDGs are widely spread across the three principles.

The first principle for sustainability was economic development, which proved to be the most problematic due to the lack of agreement on the topic as a consequence of the different political ideologies present in the UN. It stated that the current consumerist nature of the modern

world required many resources to keep demand properly satisfied. The most pressing issue in protecting the environment and not compromising future generations (UN, 1987), was to control and diminish the rate of consumption of the existing resources. This pillar was about providing people what they wanted without compromising the quality of life (as a general term, life for all, not just the human race), especially in developing countries. At the same time, it also aimed at reducing the financial burden and the bureaucracies of being "green" or eco-friendly. (WSSD, 2005). Currently, the main focus of this area is ending poverty (MDG, UN 2012) and promoting sustainable economic growth by promoting jobs and stronger economies (SDGs, UN 2012).

The second pillar regarded social development. It comprehended many different matters such as, education, gender equality, ending poverty and hunger (SDG, 2012), access to basic resources in a sustainable form and, most importantly, the awareness and protection of the health of people from pollution and other harmful activities of business and organizations through legislation and other measures (WSSD, 2005).

The last pillar was environmental protection and was considered by many the main concern for the future of humanity (WSSD, 2005). It meant to protect ecosystems, the integrity and the sustainability of the existing resources and, mostly, it focused on the elements that placed stress on the environment. After the Rio+20 in 2012, it also incorporated technologies and the impact those might have on the sustainability of the Earth in the future. It aimed to use technological innovations to help achieve the SDGs faster and more efficiently and to prevent the potential damage that these technological advances could bring (SDGs, UN 2012).

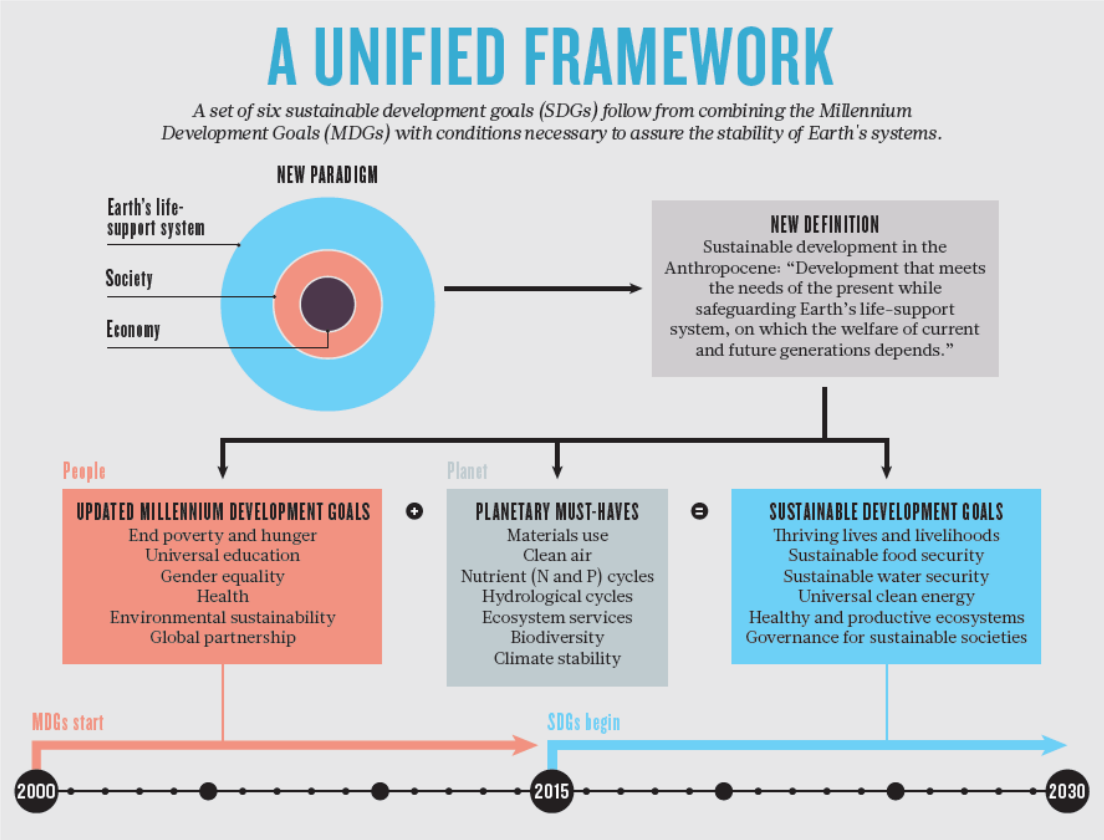



*Figure 1 – "Sustainable development goals for people and planet". Griggs, 2013. Source: Nature, https://doi.org/10.1038/495305a*

Within the topic of sustainability, we will also analyse the issue of sustainable production, due to its relevance for the case study.

### 1.1. Sustainable production

As the scientific community becomes more aware and concerned about the dangers of the current agricultural practices, the need for more sustainable production methods becomes urgent.

Sustainable agriculture is the "set of practices that meet current and future societal needs for food and grain, for ecosystem services, and healthy lives, and that do so by maximizing the net benefit to society when all costs and benefits of the practices are considered" (Tilman, 2002). It intends to efficiently provide the most benefits of agricultural production and ecosystem services (such as fishing), and at the same time, minimize the environmental costs of those same practices (Foley, 2014).

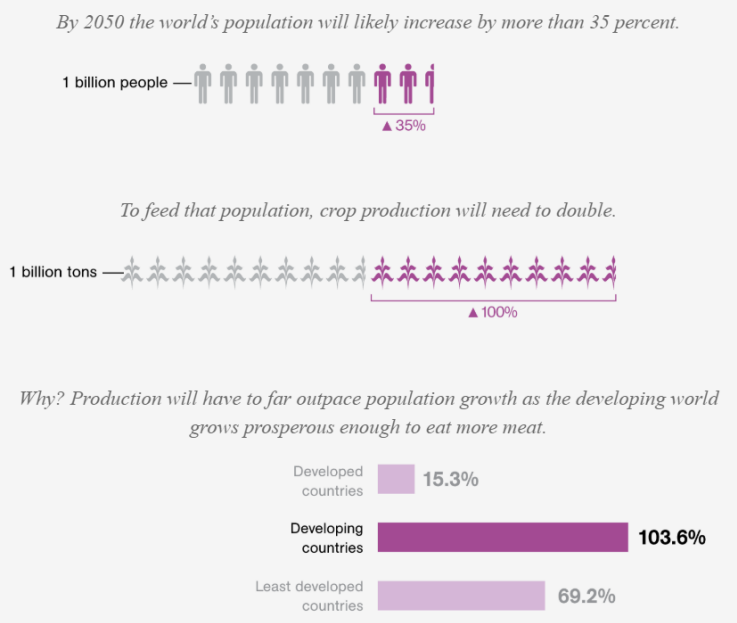



*Figure 2 – "Feeding 9 billion", J. Foley, 2014. Source: www.nationalgeographic.com/foodfeatures/feeding-9-billion/*

Currently, 6 billion people are fed by modern agriculture and the food provided by the natural ecosystems. As it is previously mentioned, in 2050 as the world population is expected to reach 9 billion (Griggs, 2013), and it is expected that the global demand for food increases by double. This poses a huge test for the sustainability of many essential resources, such as the terrestrial and aquatic ecosystems and the services they provide to society. (Leahy, 2019).

There is a widespread belief that agriculture can meet societal food needs for 8 to 10 billion people while considerably decreasing hunger worldwide (Foley, 2014). The problem is that there is no overall consensus on how this can be accomplished in a sustainable way or by sustainable methods (Tilman, 2002).

The current production practices have inadvertently had very negative impacts on the environment, as they are pushed to a stretch to match the increasing pressure of food demand with low economical costs. The main environmental impacts come from the conversion of natural ecosystems to agriculture, from pesticides, and from polluting the aquatic and terrestrial habitats. The consequences have been linked to the loss of biodiversity, the increasing environmental degradation, the death of ecosystems, the emergence of pathogens, and have resulted in the endangerment of the long-term stability of many essential resources and species (Tilman, 2002).

To achieve a sustainable production, it is necessary to have both high yields in agriculture (low seeds mortality and nutrient-rich food) that can be maintained, and practices that have adequate and tolerable environmental impacts. That will require significant technological improvements and an ongoing exchange of information between scientists and

local communities (Tilman, 2002). It is vital that society finds ways to meet the increasing demand for food without compromising the environmental integrity or public health (Stephen Leahy, 2019).

## 2. Scalability

In the current economic environment, companies are forced to deal simultaneously with a set of unique challenges: the rapidly changing consumer preferences, the constant threat of potential "disruptive" technologies, and the well-capitalized early-stage competitors (Bergin, 2001). As a result, firms are becoming increasingly more flexible and are growing at a very fast rhythm to be capable to take advantage of the positive network economies and the bandwagon effects1 that occur. (Shapiro and Varian, 1999; Cusumano et al. 1992).

This "new economy" forced operation managers to transform organizations, as they are now built in a way that will rapidly scale up (Bergin, 2001). As a consequence of this mentality, one of the most asked questions in the venture capital market is "Will your venture scale?" according to Nicholas Carr, in one of the last printed editions of the news magazine Industry Standards, in 2000.

In theory, scalability (or organizational scalability) is defined as the capacity of a business, system, or model to cope and perform efficiently under an expanding workload or scope and to match an increased market demand or a new market with effectiveness (Hoffman, 2019).

In a more business-focused setting, the term refers to how well an organization's processes and structures will work when, in a short period, the demand and the output rapidly increase. Scalability is the characteristic of a business model that allows an organization to grow rapidly and profitably (Bergin, 2001).

Usually it occurs when firms can quickly ramp up their production or benefit from economies of scale and it has become increasingly relevant as technology made production costs decline and globalization opened many new opportunities, allowing companies to expand globally and to new markets (Hoffman, 2019).

[1] These, according to the authors, are "the positive benefits that each member of the network receives when an additional member is added" and the "the tendency of consumers to be positively influenced by the most commonly available standard" (Shapiro and Varian, 1999; Cusumano et al. 1992).

There is no consensus on how scalability can be achieved, and the scholars are divided into two contradicting views. The initial business management researchers defended that ventures go through specific stages of growth, labelled "organic" (Gray and Ariss, 1985; Greiner, 1998). The "organic" stages of growth are dominated by the founder, and the focus is on creating not only the product but also the market. These entrepreneurs usually disregard the need for management activities and are mostly absorbed in creating and selling a new product.

The second theory for scalability that runs counter to the "organic" theory of early-stage ventures derives from recent research done by academics in the field of technology management. It states that firms with a higher performance typically split up the work and assign it to specialists using hierarchical structures. As the founder is not the centre of the company the new product development, manufacturing, and marketing needs are divided and operated as independent processes within the structure, guided by specialists and consequentially, lead to superior performance (Clark and Fujimoto, 1991). The internal flow of communication among departments and specialists is also constantly monitored and improved. The processes tend to be formal, but flexible, which allows the organization to rapidly adapt to the increasing technological innovations and the changes in the product market (Eisenhardt and Tabrizi, 1995; MacCormack et al. 1999).

Both types of organizational forms, organic and hierarchical, exist but no one can say, with certainty, when each of these organizational forms is more suitable for when the market requires a very high rate of growth and a rapid adaptation to new opportunities and information. Some say that the formula to achieve scalability is through young firms that use informal communication and do not have formal processes or reporting structures. Others defend that scalability can only be achieved with young firms that have flexible internal processes, but at the same time have a high level of formal hierarchical structures and clear lines of communication.

Although the dispute around the theories on how to achieve scalability is still ongoing, there is consensus among scholars regarding an aspect on the topic. In general, it is believed that a scalable organization is necessary to reap the economic benefits of scalable technology. Thus, for firms that perform better than the market as a whole, technological, and organizational scalability happen conjointly.

To add on, in 2001, Richard Bergin conducted a study with a sample of thirty-one firms, where he concluded that flexible processes and hierarchical structures were positively correlated with greater perceived scalability, which in turn, was considered a potential predictor of long-term economic performance. An interesting contrast rose when variables such as the

experience of the founders, the first movers' advantage, and the access to capital did not present a positive correlation to the functional attribute (scalability) or with an increased performance in the sampled firms.

Scalability can be an enabler for fast growth, potentially increased returns, and for superior economic performance. This happens because business models that present the characteristic of sustainability (scalable business models), also present a sustainable growth that can go from an abrupt curve growth to an exponential one. The business models most notorious for their fast scalability are the so-called "digital platforms" such as Microsoft, Amazon, and Alphabet. They became the most valuable companies in the world since 2010 due to the ability to rapidly scale their business models (Hoffman, 2019).

The strategic term of scalability also lacks consensus when it comes to its practical meaning and implementation. Some consider it to be the expansion to another region or country. Others see it as the replicability of a business model to other areas or product categories. Furthermore, there is also the belief that scalability is the reduction of operational costs when an expansion in the production volume and the customer base occurs (Hoffman, 2019).

To properly scale up a business model it is necessary to design a virtuous cycle of growth – also commonly known as a flywheel from the "The Flywheel of Growth", a strategic framework presented by Jim Collins in his book "Good to Great", in 2001. One of the best examples of a successful flywheel is Amazon. The company meticulously developed positive feedback loops in its business model that increased its offer, its customer base, and its revenues.

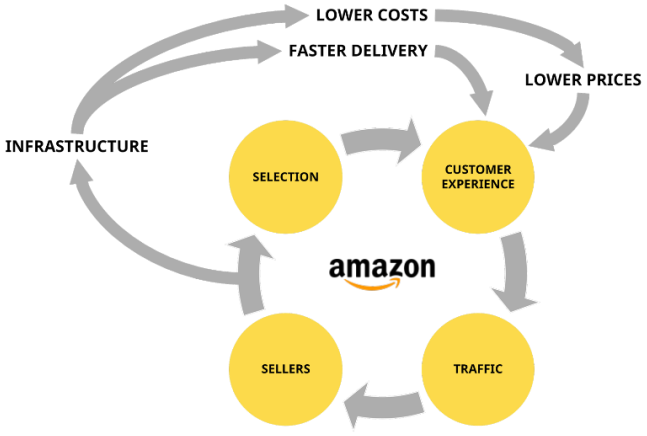



*Figure 3 - Amazon's flywheel. Source: https://www.viima.com/blog/flywheel-of-growth*

To properly scale up a business model can turn out to be a very complex process. As so, before entering the scaling phase, it is necessary to have a very experienced team. Talented human capital, such as senior managers, can help secure funding and provide a clearer strategic

view. Illustrating this, Yahoo hired Tim Koogle to be CEO and Jeff Mallet to be COO in its early stage.

Although every market is somehow constrained due to regulation, purchasing power, language barriers, geographical coverage, etc., it is crucial to target a big and growing market (Hoffman 2019). Furthermore, to reduce costs and to increase financial liquidity, firms should try to leverage the most out of external resources. Outsourcing is a powerful tool as there are always more available resources outside than inside of a firm. When clustering all of these factors we reach two separate conditions: internal and external scalability (Hoffman, 2019).

The internal scalability regards the configuration of the business model, how it was designed, the resources required, its main partners and suppliers. It illustrates how capable the organization is to expand in a short period and with minimal costs. The external scalability clarifies how advantageous the business environment is for the possible expansion. It is key to always analyse the internal and external conditions prior to the decision to scale up a venture. If one side performs inadequately, the growth potential will be limited, regardless of the strength of structure the other might present (Hoffman, 2019).

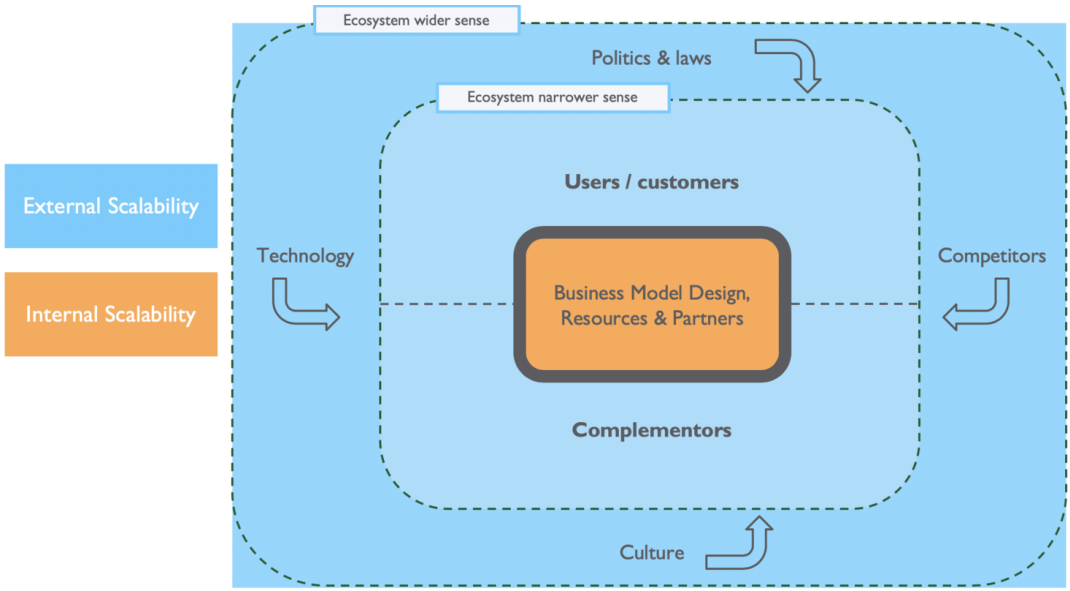



*Figure 4 - The two sides of scalability: internal and external. Graphic based on Moser 2018, PhD Thesis. Source: University of St. Gallen*

## 3. Related Diversification

Related diversification can be defined as the entry into a different product line or market from those in which a firm is currently engaged in. It occurs when a firm starts to manufacture

a new product or penetrates a new market related to its business activity. The meaningful commonalities between the markets, create the possibility to generate economies of scale or synergies based upon the exchange of skills and resources that the firm holds.

Understanding the drivers of a successful diversification strategy has been a pillar of the strategy field since its beginning. (e.g. Penrose, 1959; Ansof, 1957). Despite the many studies with the intent to link diversification strategies and firm performance (Bettis, 1981; Delios, Xu, & Beamish, 2008; Rumelt, 1974) the findings have been mainly inconclusive and the link between the two remains unclear (Chiung-Jung, 2011). A basic notion was developed by Penrose, in 1959, and states that "the greater relatedness among the markets within which the firm competes, the greater the scope for sharing resources across business units and hence the higher the performance" (Adner and Zemsky, 2015).

The decision to undergo an expansion through related diversification can have several impacts on a firm. A firm should only diversify into a related industry if the increase in revenues in the current and target market summed, surpass the additional costs associated with the entry into the new market. Also, it can influence the competitiveness of a firm, with a positive or negative effect. As so, the decision to engage in this form of diversification is a delicate trade-off between the opportunity to grow and exploit synergies or economies of scale, and the threat of losing focus or to trigger diseconomies of scale. The presence of these trade-offs poses the question of whether and when diversification is profitable, or when and where it destroys value. (Adner and Zemsky, 2015)

This type of diversification is used mostly by small businesses because it is less risky. In the majority of cases, it does not require major investments and provides more security for the firms, as the opportunities and threats in the field of its main business activities are known. In those cases, it happens by strategically expanding with the intent to produce complementary goods or services because it presents an opportunity to use existing resources, or to share technology, to use common distribution channels, similar management techniques, and expertise.

According to the resource-based view, diversifying into products that use resources currently held by a firm, will generate economies of scope and thus lower costs and greater profits (Barney, 1991; Prahalad & Hamel, 1990). In line with this theory, the diversification strategy that a firm will follow is determined by the cluster of opportunities that a firm has and the subset of the opportunities that it can exploit given its resource profile (Chatterjee and Wernerfelt, 1988). This holds another assumption, that if the physical resources of a firm would

have excess capacity or excess production, more than once, and if that would fuel diversification it would lead to related diversification (Chatterjee and Wernerfelt, 1988).

Rumelt in 1974, wrote about "core skills" which can be exploited in related markets and argued that firms will be constrained by their resources when determining the markets that they can successfully expand to because most resources (except financial) tend to be used only in a narrow range of circumstances. As a consequence, he argued that it would be presumable to expect a large amount of diversification to and from industries that are related and where the same set of resources can be used simultaneously. These findings are also supported by Lemelin and Carleton (1982), and Stewart and Harris (1984), that found evidence that indeed industries that are related in some scopes tend to witness higher diversification among them.

Afterward, Montgomery and Hariharan (1987) also observed that individual firms tend to seek industries that match their skill set to entry (Chatterjee and Wernerfelt, 1988). This happens particularly often when companies hold many intangible resources, because of its unlimited capacities, such as brand names, technology, R&D, or advertising. High amounts of intangible assets are expected to fuel related diversification, as the costs are very low, and the assets' capacity is unlimited which allows for an easier expansion into related markets.

Ultimately, firms are motivated to diversify because diversification is expected to achieve an improved ROI because of increased revenues and decreased costs, which are attributable to the commonalities. Furthermore, related diversification has been considered to be more financially beneficial for firms, especially if the new product market is a high growth business area (Adner and Zemsky, 2015).

## III. Teaching Notes

### Learning Objectives

1. This case study allows students to analyse a real-life strategic dilemma of a small company that struggles in order to grow without losing its identity, which is based on a clear set of strong values.
2. Students should identify a scalable business model and explore alternatives for the expansion of the company.

### Assignment Questions

1. What are the main characteristics of Neptun's strategy up to the time of the case?
2. How would you describe the oyster's market? What are its main characteristics?
3. What recommendations would you suggest for the future path of Neptun?

### Class Plan

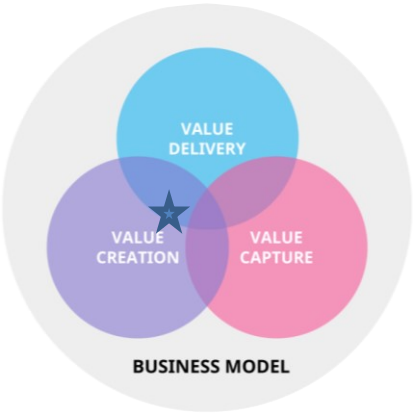
1. How would you characterize Neptun's business model?
2. What are the relevant characteristics of the industry in which Neptun operates?
3. What factors were critical for Neptun's success?
4. Which are Neptun's key resources?
5. Do you consider that Neptun has a sustainable competitive advantage?
6. What are Neptun's main problems and opportunities?
7. What are the available options for Neptun?
8. What are your recommendations for Neptun?

### Analysis

#### 1. <u>How would you characterize Neptun's business model?</u>

A business model intends to describe "the content, structure, and governance of transactions designed to **create, capture and deliver value"**.

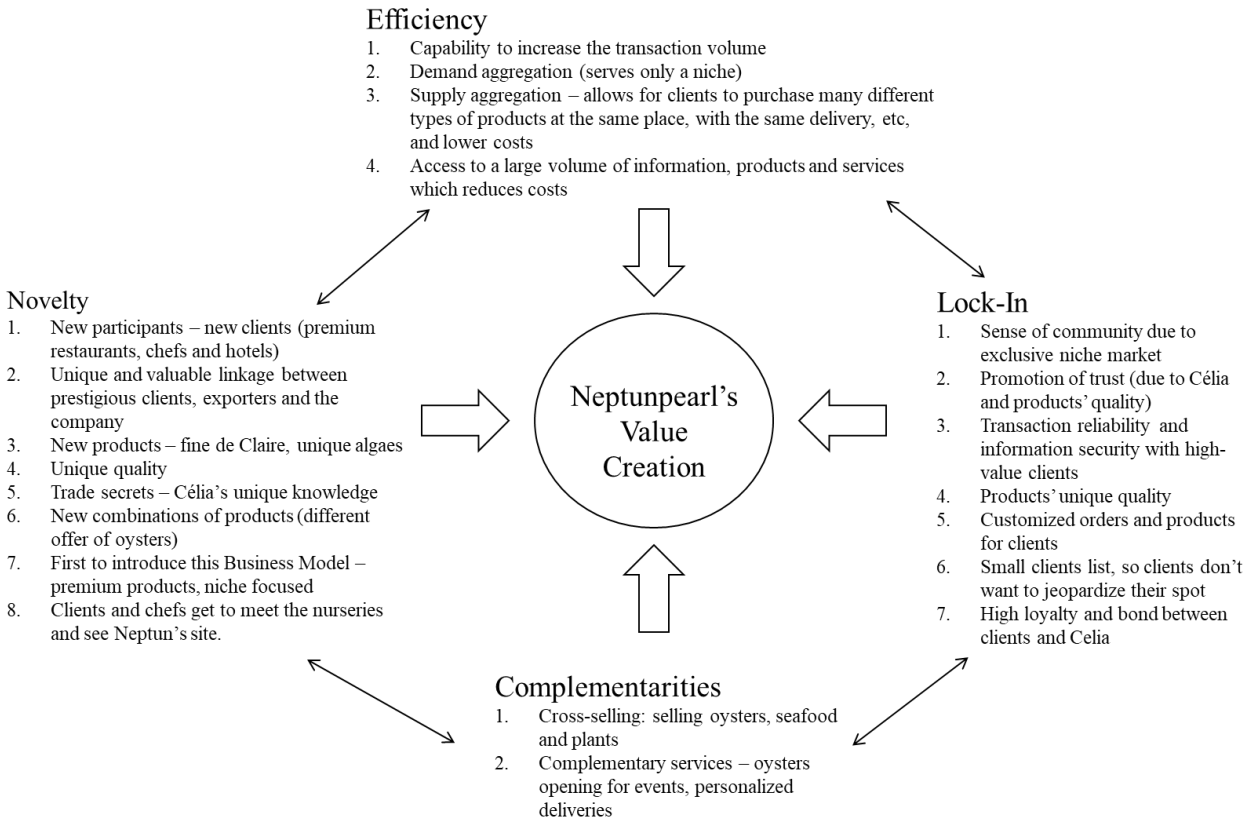
Over the years, the concept has shifted from being mostly centred on capturing value in the vertical chain versus other firms, to **one centred on creating value for consumers** and creating new strategies for generating revenues.




I will focus on analysing Neptun's business model (NsBM) from a value creation perspective, with the intent to understand the characteristics of the firm that create and capture value and increase the consumer surplus. I will use a conceptual framework developed by Amit & Zott, in 2011, to identify the **sources of value creation** in Neptun's business model.

There are **four sources of value creation** that complement each other. Those are:

1. (Transaction) **Efficiency** - How Neptun can make the transaction for consumers more efficient. Value increases when the costs per transaction decrease.
2. **Novelty** – It is related with innovation. How Neptun innovates in the structuring of transactions and operations.
3. **Lock-In** – It is the extent to which customers are motivated to engage in repeat transactions with Neptun, and by the extent to which strategic partners have incentives to maintain and improve their associations (which may result in both increased willingness to pay of customers and lower opportunity costs for Neptun).
4. **Complementarities** – They occur whenever Neptun is able to offer more value by having a bundle of goods together than the total value of having each of the goods separately.




The figure shows how Neptun can create and capture the value and what has allowed the company to establish dominance within its niche.

Furthermore, Ramon Casadesus-Masanell and Joan E. Ricart (2011) stated that a good business model has to be aligned with the **company goals**, to be **self-reinforced**, and to be **robust** (TN exhibit 1).

Neptun has values such as sustainability, social responsibility, and eco-friendly practices. Its goals are to grow and increase its revenues without compromising its values or the environment. Due to its current structure and the way it produces the NSOs, it is possible to see that NsBM is aligned with the company's goals. It is also self-reinforced, as the more prestigious and exclusive the products are, the easier it is to implement sustainable measures and non-intensive practices because the increased willingness to pay of clients allows for high revenues with small production volumes which ensures the balance and preservation of the Sado's ecosystem. We can also observe that NsBM is robust and effective. It has been capable of sustaining the competitive advantage of the firm, and to fend off threats such as imitation, holdup, slack, and substitution by other competitors so far. It is important to mention that robustness might change since the period of effectiveness is becoming shorter, as industries become more technologically advanced and changes occur faster and often. Still, we can conclude that the company appears to have a good business model.

Still, in order to sustain a competitive advantage, it has to present two additional key factors: to be **innovative** and **sustainable**.

This is because innovation is a very important component of a business model. By having an innovative business model firms can sustain a competitive advantage for a longer period. In the case of Neptun, innovation is a key tool. It presents itself as a new operating model, very difficult for competitors to imitate due to the high quality of its production and the knowledge that Célia holds. The company constantly innovates either by adding new plants to its offer or by experimenting new production methods. This tool has helped the company overcome fluctuations in the demand and create a positive brand recognition, making the business model more robust and resilient and more capable to adapt to change. In the case of Neptun, due to its small size and flexibility, its business model is not only a vehicle for innovation, but also a subject of constant innovation.

Sustainable business models seek to solve environmental problems while creating value for firms and consumers. As so, sustainable value encompasses not only environmental sustainability but also social and economic value.

Neptun presents a very sustainable perspective, its value creation logic, integrating social and environmental goals, creates a more holistic meaning of value.

The main sustainability drivers for the firm are the use of clean technology and non-intensive production methods, pollution prevention and high-quality production without compromising the ecosystem. Within its business model it tries to reduce its environmental footprint, to implement fairness in the distribution of profits and to be transparent.

The creation of social value in addition to economic value is seen as a main driver for Neptun's, as Célia considers of critical importance to create steady jobs within its production chain for the most vulnerable, and tries to create and deliver value through a sense of belonging and meaningfulness shared by all employees.

Neptun is an 8-year old business launched in 2012, with **three distinctive factors** explaining its success.

| Personalization | Culture | Quality |
|---|---|---|
| ▪Close relation with chefs, consumers, clients<br>▪Unique product features: rare plants, fine de Claire<br>▪24h – 48h delivery of products with no minimum amount required. | ▪Exclusivity (small amount available, limited client's list, own distribution)<br>▪Niche Market<br>▪Continuous creativity – Celia always tries to innovate, by trying new products or new production methods. | ▪ High quality products<br>▪ Célia's unique knowledge<br>▪ Premium price for its products (the most expensive in the market) |

The company is a successful business venture due to the interplay between the features of personalization, culture, and quality. It has allowed Neptun to achieve a unique position in the market, shielded from most of the existing threats.

Furthermore, the company chose to pursue a **focused differentiation strategy** (TN exhibit 2) to generate increased value for consumers, which contributed immensely to guarantee its leadership.

Neptun focused on making its products and services different from the remaining competitors in the estuary, by focusing mainly in the national market. It also chose to be more attractive than the remaining players by providing a unique high-quality product that cannot be imitated due to know-how that only Celia has. At the same time, although very attractive it opted to be a very exclusive firm, selling a premium product with the highest prices in the market.

Neptun concentrated itself on a particular niche market, and by understanding its dynamics and the unique needs within it, it developed the NSOs. It is a uniquely well-specified product that only a small segment of the market can afford and serves a very specific cluster of the demand.

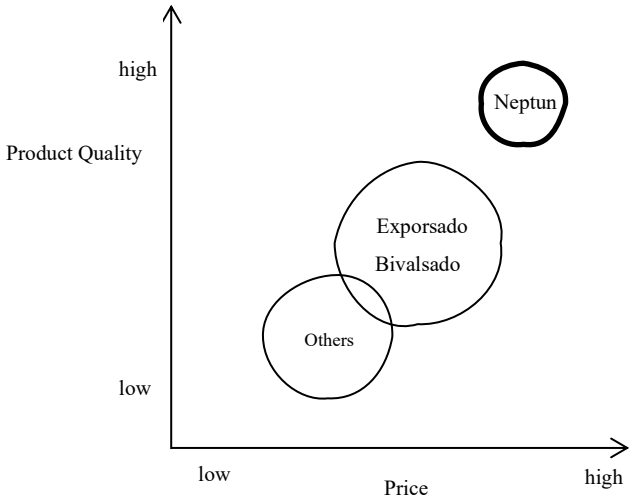
Because Neptun serves customers in their niche so well, it allowed the company to build, in a short period of years, a solid brand recognition and a strong customer loyalty. This happened because customers rapidly became accustomed to the unique features and quality of the NSOs, which also explains why the firm has been able to price its product as the highest per kg in the market when compared to the remaining competitors and still sell its entire stock.

## 2. What are the relevant characteristics of the industry in which Neptun operates?

Neptun enjoys a unique position within the industry, serving only the need of a small niche. As so, in order to better understand the relevant industry forces for Neptun it is necessary to access the strategic groups that exist within the industry.

A strategic group is a set of firms that employ equal or similar strategies in a particular industry and have very homogenous strategic behaviour and performance. This division into sub-groups occurs because some companies follow very different strategies within the same industry. An industry may have several or only one strategic group, and a strategic group may consist of one or several firms. The focus is on the competition within each group and not between groups (Müller-Stewens 2005).

**Strategic Groups –Sado's Oysters Industry**




Neptun's strategic group is characterized as "High-quality, special oysters with premium prices in the Sado's Estuary". The firm is the only member within this group and has a high brand reputation, very strong technical know-how and a focused strategy, serving only the needs of a small group of consumers (niche market). This strategic group is delimited by its geographic location, the Sado's Estuary and the unique conditions that exist in its ecosystem. This strategic group also has its own value-chain and carefully assesses its supply sources, only working with specialized and high-quality suppliers.

Lastly, it focused to sell the majority of the production in the Portuguese market, setting themselves apart from the other strategic groups in the industry who mostly export their entire production.

Furthermore, according to Porter the firms inside a strategic group face similar competitive opportunities and threats, and each strategic group has its own degree of attractiveness. As so,

it is only logical to conduct an attractiveness analysis (TN exhibit 3) on the strategic group of Neptun and not on the entire oyster market.

- **Rivalry among firms - none**

As Neptun stands alone in the Fine de Claire and the high-quality oysters' segment, the rivalry among firms is currently non-existing.

- **Bargaining power of consumers – low**

The demand for the NSOs always exceeds the amount available, as so, consumer elasticity is very low. Neptun can enforce the prices it wants (within a reasonable interval) and still continue to have many clients interested in its products. The fact that there are no other firms in the segment within the estuary is also a contributing factor.

- **Bargaining power of suppliers – medium**

The suppliers' power is medium. This happens because for this strategic group, the suppliers must meet very rigorous criteria of quality. That puts them in a position where they can demand for higher prices or have a higher bargaining power. For suppliers of oyster seeds, the bargaining power is high because companies cannot risk changing them and decrease their quality. For the remaining, it is low because the oyster nurseries of Neptun are self-sufficient and all other suppliers (packaging, etc) can be easily replaced.

- **Threat of new entrants – medium**

As this is a growing segment and Neptun is alone within its niche, it presents a very attractive opportunity for companies who would be willing to invest. Nevertheless, there are significant barriers to entry such as the necessary knowledge which is very costly and takes a long time to acquire, the brand notoriety of Neptun and the small size of the niche.

- **Threat of substitution – medium**

The rarity of the Sado's natural resources, the ecosystem and the knowledge held by Célia, make the risk of substitution within the strategic group very low. The risk of any other oyster producer taking over the market and outperforming the NSOs, it is also low because of its high-quality and difficulty in replicating the production process. However, the threat of other gourmet products replacing the NSO's due to new trends or seasonality is very high. As so, the global threat of substitution is medium.

After examination, it is possible to conclude that the niche is attractive for the **incumbent firm**, Neptun. However, it still is attractive for new entrants with access to a lot of funding. To compete within this niche, firms would need to compete on quality while remaining eco-friendly (or else they would not be allowed in the Natural Reserve of the Sado's estuary). In order to achieve the NSOs quality, new entrants would need to establish relationships with very exclusive suppliers and establish non-intensive processes to create high quality oysters. Also, the consumers within the niche do not have traditional switching costs but are very loyal to Neptun. Therefore, it would take a long time for a firm to obtain similar recognition as the NSOs or the Neptun's brand. It would be very hard as well to create a strong customer base due to the small size of the segment, thus making this strategic group/niche not very attractive for new entrants, unless for those willing to initially make high investments.

## 3. What factors were critical for Neptun's success?

It is secure to say that Neptun has succeeded in the oyster's industry. It is the leader of its strategic group and dominates the national segment of high-quality oysters and the Fine de Claire. From my analysis, the industry conditions that have allowed the firm to reach and secure its position were:

1. The existence of a niche market with an unsatisfied demand. That translated into a first movers' advantage for Neptun.
2. The growth of the mollusc segment worldwide and tourism in Portugal which created a high volume of demand.
3. The phenomenon of globalization, that made it easier to export oysters anywhere in the world.
4. The unique conditions of the Sado's estuary and its ecosystem cannot be reproduced and work as an isolating mechanism and a barrier to imitation.
5. Another isolating mechanism is the scarcity of resources. The resources in the Sado's ecosystem are also rare and Neptun has the control over them.
6. Companies who try to enter the segment and compete with Neptun will endure time compression diseconomies due to the high costs needed to reproduce the NSOs because of the high quality, the production processes and Celia's exclusive know-how.
7. Célia's knowledge is unique which solidifies the brand reputation and makes it very hard to imitate. It would be very difficult for competitors to create a substitute for the NSOs due to the existing information asymmetry.

8. Neptun's own vertically integrated distribution chain – the more control over the entire product the more they can ensure the quality of the oyster and less bargaining power the intermediates can have.

## 4. Which are Neptun's key resources?

A resource is considered valuable if it exploits an opportunity and/or neutralises a threat, or when it enables a firm to create or implement a strategy that improves its efficiency and/or effectiveness. As so, resources have value in relation to their ability to meet customers' needs.

In this analysis, the resource-based view will be used and applied to Neptun' resources. This theory states that a firm outperforms its rivals to the extent that it has unique, value-generating resources (e.g. that others do not have). The main focus is on identifying, developing, and leveraging such resources.

| Neptun's Resources | | | |
|---|---|---|---|
| Tangible Resources | Intangible Resources | Financial Resources | Human Resources |
| Geographic location: Neptun's site (in Gambia)<br>The oysters' nursery tools (the oyster's boxes, tables, individual protection for workers)<br>Raw materials (oyster seeds, seafood)<br>Sado's natural resources<br>Distribution chain materials (van, refrigeration) | Brand name<br>NSOs reputation<br>Sado's natural ecosystem<br>NSOs production knowledge<br><br>Partnerships with premium restaurants and hotels<br>Exclusive and direct linkages with chefs | New partners' investment<br>Firm's own capital (retained earnings) | Celia's knowledge<br>Staff skills and experience |

| | | | |
|---|---|---|---|
| General machinery (packaging)<br>Office and office material (downtown Setúbal) | | | |

The figure shows all of Neptun's resources according to 4 categories: tangible, intangible, financial and human resources. From the existing resources, there is a set of key and distinguishing ones that should be developed and leveraged in order to provide the company a competitive advantage.

| Neptun's key resources | | |
|---|---|---|
| Brand name | Geographic Location | Celia's knowledge |
| NSOs reputation | Sado's natural resources combination | Sado's natural ecosystem |

The above table presents the set of resources that allow for Neptun to have a top performance. The brand name and the NSOs reputation are intangible assets that the company has built over the years and are a result of its investment in innovation and high-quality production. The geographic location (Gambia, Setubal), the natural resources of the Sado's estuary and the existing interdependent relations and exchanges that occurs within the ecosystem are distinguishing factors for the products that Neptun offers.

Lastly, the most important asset that the company holds is the knowledge of its founder Célia. This resource can also be seen as a dynamic capability, which are specific organisational processes by which managers alter a firms' resource base to generate value-creating strategies. It is the interplay between these dynamic capabilities and the resources, the way she applies the resources that the company holds combined with her knowledge and her choices that generate value for the firm.

From this, we can conclude that Neptun's key resources are mainly intangible and/or related with its location in the Sado's estuary. Furthermore, they are not costly as the company does not pay for its reputation and the estuary's ecosystem is self-sustained and free of usage costs. Although the low cost and low need for maintenance of this resources seems to be a positive factor in Neptun's business model, some of them are not replicable such as the

conditions of the ecosystem and the relations between the animals and plants that live in it. Those resources may prove to be bottlenecks for the scalability of the NSOs if the company considers expanding its production and runs out of space within its site.

## 5. Do you consider that Neptun has a sustainable competitive advantage?

The resource-based view is used to understand where it is possible to create a sustainable competitive advantage (SCA).

To analyse the firm's main resources and determine if Neptun holds a SCA the VRIO framework is a useful tool.

| Features / Resources | Value (is it valuable?) | Rarity (is it rare?) | Imitability (is it hard to imitate?) | Organization (are we organized around it?) | RECOMMENDATIONS |
|---|---|---|---|---|---|
| Brand reputation | • Yes | • yes | • yes | • yes | • Performance above normal. Sustained competitive advantage |
| NSOs reputation | • yes | • yes | • yes | • yes | • Performance above normal. Sustained competitive advantage |
| Celia's Knowledge | • yes | • yes | • yes | • yes | • Performance above normal. Sustained competitive advantage |
| Facilities, equipment and raw materials | • yes | • no | • | • | • Performance normal. Competitive parity |
| Geographical Location (Gambia) | • yes | • yes | • no | • | • Performance above normal. Temporary competitive advantage |
| Sado's estuary natural resources combination | • yes | • yes | • yes | • yes | • Performance above normal. Sustained competitive advantage |
| Financial Resources | • yes | • no | • | • | • Performance normal. Competitive parity |
| Sado's ecosystem | • yes | • yes | • yes | • yes | • Performance above normal. Sustained competitive advantage |

From the above framework it is possible to conclude that Neptun currently enjoys a competitive advantage when compared to the remaining players in the market. This was also primarily observable due to its market leadership within its niche.

There are also two strategic phenomena that contributed to Neptun advantageous position:

1. **First-mover advantage** – Neptun as a first mover in the niche of premium oysters obtained a SCA because it gained privileged access to the distribution channels, locked in the most relevant customers, and developed a positive reputation before any other competitor could do the same.

2. **Entry/Mobility Barriers** - Due to strong entry/mobility barriers, Neptun has sustained a competitive advantage vis-a-vis firms outside its niche. They occur due to the scarcity of natural resources of the Sado's estuary, and the interdependent relations that occurs and create its unique natural habitat. The available land within the estuary is very limited and expensive. Furthermore, Célia's knowledge grants Neptun an advantage over its competitors and is also a barrier to other competitors to try and entry the niche. For the competitors, who would try, they would have to endure very high investment costs to match the quality of the NSOs and would suffer from time-compression diseconomies.

Although it is possible to conclude that Neptun has a competitive advantage it is not possible to conclude with certainty, with the information given, that it is sustained over a long period of time. Owning great resources will generate lots of value but it is not enough to secure a sustainable top performance. This strategic problem has the denomination of **"rent appropriation"** and occurs because value has to be captured as well as created in order to sustain a competitive advantage.

Nowadays, it is clear that lucrative competitive positions based on a currently attractive but static competitive position are rarely sustainable over long periods of time, especially because the cycles of innovation in every industry tend to occur faster as a result of digitalization.

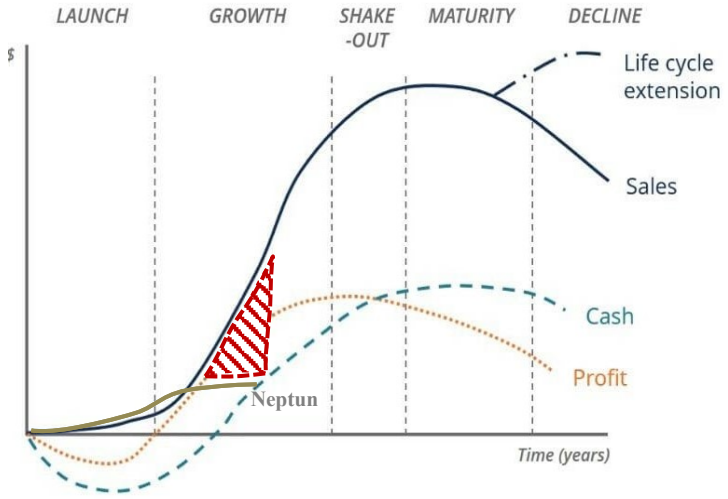
The digitalization and new technologies have incentivized and driven the markets in the direction of the condition of resource homogeneity and increased mobility. This may be a problem for Neptun, as it eliminates the first movers' advantage that the company benefits from, as all other firms will be able to implement the same strategy and production techniques in order to outperform Neptun and take over the leadership of the market. The same happens with the entry/mobility barriers that exist in the niche that Neptun is present. Technology will make them fade, as they will create more transparency and homogeneity in the access of information and knowledge. This increases the threat of entry of new players and can present a serious risk for the firm.

As so, it is necessary for Neptun to constantly innovate the business model to stay at the top of the industry and not to be outperformed. Because of the short lifetime of the company it is not possible to have historical data to vividly confirm that the company is able to sustain its competitive advantage. But it is possible to say that for the last 8 years it has been doing it and it is very likely that it will continue to do so, due to the sunk costs, the specific environment needed to have an oyster nursery and the very high investment needed to outperform a market

leader like Neptun, who benefits from a strong brand reputation, a very hard to replicate product (due to the nurseries natural conditions) and high customer loyalty within its niche.

## 6. What are Neptun's main problems and opportunities?

Neptun's main problem is its **slow growth** that translates into low revenues, although it sells a very good product.

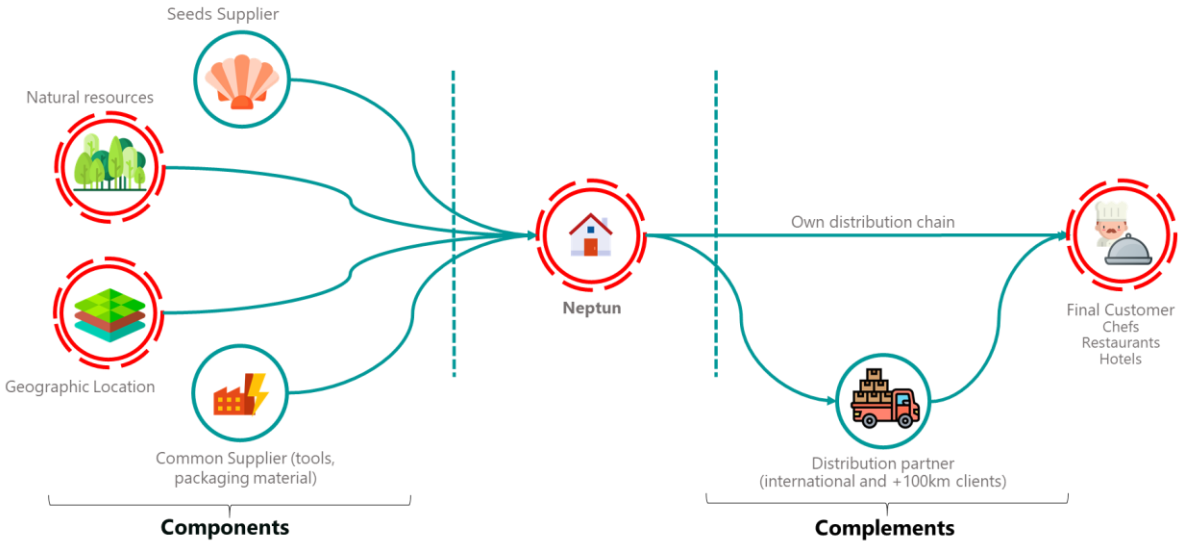



The figure above shows the expected business life cycle of a firm and contrastingly in grey the growth of Neptun. There is a gap (the red triangle) because unfortunately Neptun has not experienced any accentuated growth yet. It is critical for a company to enter this stage due to the need for profitability to justify the investment made and the viability of the firm.

The slow/small growth of the firm is a consequence of many complex factors. The first problems arise from industry constraints. Its precarious conditions and high volatility make the industry very unstable and a high-risk investment. This translates into a difficulty for Neptun, in securing partners and skilled staff because of the very limited cost structure that the company can support. Also, the niche itself, although very useful in some respects, presents a serious problem for Neptun – the small size and lack of growth potential. This made clear another problem for the company, the scale at which Neptun operates might not be the most profitable for the company. With the current niche size, it is not possible to produce at a cost-efficient scale, there are not enough opportunities to generate economies of scale and synergies.

In addition, the figure bellow shows the ecosystem of Neptun and it presents two bottlenecks in the components side, one in the company's and one in the final consumers. This last one, is related to the small number of available consumers within the niche which restrains the growth possibilities for the company.

Ecosystem analysis of Neptun




In the components part, the geographic location and the natural resources present a clear restraint to the company's growth. They are essential for the uniqueness of the product but the **available land in the estuary** and the **natural resources** are scarce and will not allow for unlimited growth. Eventually it will run out of land to place new nurseries or will use up all the available resources. Furthermore, the **non-intensive techniques** also diminish the quantities of product that will be possible to produce (only 25 oysters/m3).

With the company's structure there are also some problems, the most significant one is related to **low profitability margins** (average 8%). This problem is also a result of the industry conditions and the wrong production scale, that increases costs and reduces the margins. Neptun also has **very limited financial resources** because of its no-debt policy. Alongside, not having any **marketing department** nor a **completed website** reduces its reach. These last-mentioned problems might indicate that the company suffers from **causal ambiguity** in the sense that it is not fully aware of its assets, its potential, or simply does not know how to fully leverage them.

The opportunities/advantages the company presents are its **unique products** and **knowledge,** the very **positive reviews** and its **reputation**, and the **investment** from its new partners. Reviews from clients such as Ritz, linked to high-quality accredited services worldwide, reinforce Neptun's reputation, providing an advantage when entering new markets.

Currently, Neptun only uses 50% of its land but it has the **capability to scale up** production to 3 tons from the current 1,5 tons without extra resources. It could use the **excess**

**production** to correctly scale its cost/revenues structure (by decreasing the fixed costs allocated per unit, e.g. salaries) and reap economies of scale.

It is possible to conclude that solving the growth problem of Neptun is the most critical matter and that a possible answer might arise from how the excess production is applied.

## 7. What are the available options for Neptun?

To fix Neptun's slow growth the company has to make the best possible usage of its excess production. It has two main options: exports to the Chinese market or enter the oyster tasting segment in Portugal.

1. Entering the Chinese market

The first option was to increase production to 3 tons and export the surplus to China. The NSOs matched all the criteria of size and taste that the Chinese consumers valued, and the margins were very attractive for the company. It could boost the revenues up to 127€/kg and provide a quick return and growth for the company.

**Pros**

- Access to a large market with a lot of growth potential, which would consequently increase revenues and profits in a short period of time (1 year or less).
- It allows for the allocation of the new 1,5 tons produced without increasing the fixed costs.
- Increased recognition, brand awareness, and visibility. It will attract new customers and give more credibility to Neptun's products.
- Risk spreading. Neptun will be less dependent on its niche and operating in another market might mitigate some pressure due to the increased size of the demand.
- The increased production to face the demand might help the firm to find the correct scale to operate and facilitate economies of scale and synergies.
- Increase the firm's immunity to seasonality demand, by being present in two different countries with very different cultures. The Chinese and European market have spikes on demand on different times of the year.
- Possibility to meet new distribution partners with new procedures that can optimize its current operations in the national market.

**Cons**

- Need to apply the new funding, from the new partners, into creating a packaging room and maybe to hire one employee more.
- Loss of control over the distribution process. During the shipping or distribution process in China, the refrigeration might be compromised and the products or its quality damaged.
- Need for improvements in the online presence, such as the website, reviews, and advertising. Access to information about a product, especially online reviews, is a decisive factor for the Chinese consumers to make a first-time purchase.

2. Entering the oyster tasting segment

Alternatively, the other option was to redirect the excess production to the oyster tasting activity. Neptun had a well-known reputation and many people were interested in visiting the oyster farming site where the NSOs grew, followed by an oyster tasting event, complemented with local wines. Each participant paid a total of 16€+VAT and the event could accommodate up to 15 participants at once.

**Pros**

- Access to a growing segment in Portugal without many competitors, this would increase revenues and profits (in a smaller and more controlled scale) without relevant costs.
- Increased recognition, brand awareness, visibility, credibility, and number of clients in Portugal.
- It allows for complete control over the process, while ensuring the quality of the NSOs
- It provides a unique experience to clients, which might create a bond with the brand and increase consumer loyalty.
- The visit to the nurseries allows for spreading the company's values and to create more awareness for the need to preserve the Sado's estuary unique ecosystem.
- Risk mitigation. Neptun will be less dependent on its niche as operating in another segment will add a revenue stream and protect the business from the volatility of the industry.

**Cons**

- Increased vulnerability to trends and seasonality. Both segments are correlated and if a new trend appears in Portugal with a negative impact on the consumption of oysters, it will be very problematic in both sectors. Also, tourism and oyster consumption in Portugal are both seasonal.

- Need to apply the new funding, from the new partners, into creating a tasting room with good conditions to receive groups.
- Need to invest in a strong marketing department, a complete website, and booking partners to increase the company's reach. This includes hiring new staff and starting to dedicate part of Neptun's budget to advertising.
- The segment might not be profitable enough to justify the investments because of its small size and early stage.

## 8. What are your recommendations for Neptun?

Neptun currently has a growth problem. The company can opt for massive and high-risk fast growth or a slow and less perilous one. The second part of its problem is how to effectively grow without losing its identity.

From the options mentioned in the previous question, Neptun should opt to export to China in order to experience rapid growth (enter the growth phase/growth curve) and vastly increase its margins. Although more risky and costly, this solution to the dilemma presented is a result of the urgent need for increased revenues and for the business to evolve. Even though the oyster tasting would be a safer and easier alternative, it would not push the company to the massive and significant growth it desperately needs.

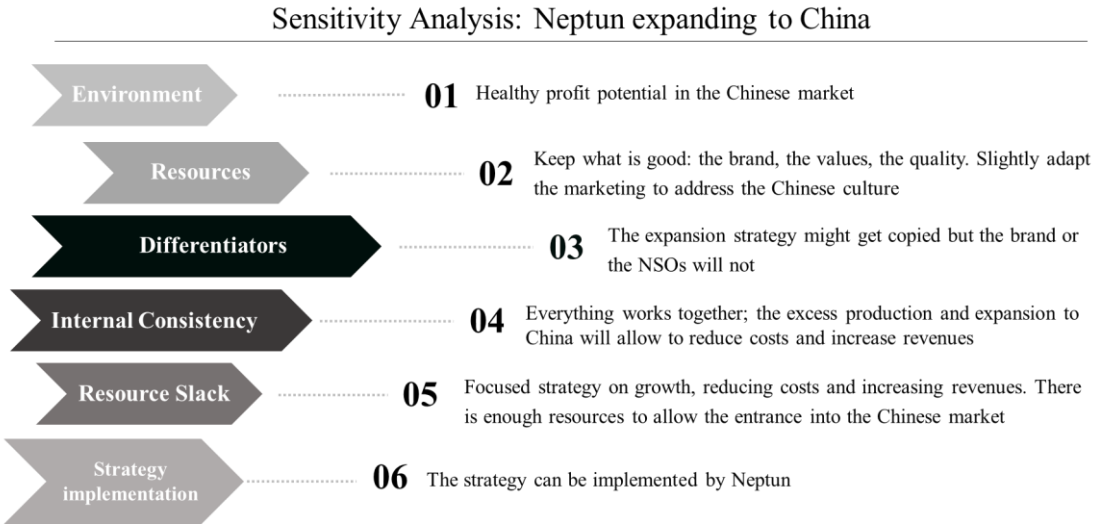
The NSOs present the main characteristics desired in the Asian culture, regarding the amount of oyster meat (index) and the appeal for luxury and premium products. As so, it is possible to believe that it would be accepted in the market.

Nevertheless, moving forward with an internationalization process without being prepared could be fatal for Neptun. To prevent this, the firm should carefully study the local culture and the relevant consumer characteristics of the Chinese market. Even with the new partners funding it is important to be sure that Neptun has the financial muscle for this move (especially due to the no-debt policy) and look for possible threats in the new market that could make the expansion unsuccessful.

As so, in order to succeed, Neptun should:

- Develop market research: research the culture, understand the preferences and tastes in the Chinese market, see what other competitors are doing regarding its exports and logistic operations.

- Increase and develop Neptun's online presence and invest in marketing and advertising. The firm could develop the option of online orders in China to better manage the necessary average quantities to export and reduce waste. Furthermore, it should hire talented staff for its marketing department especially with knowledge regarding the Chinese culture (via internships or partnerships with universities).
- Secure a good partner in China, with good refrigeration that ensures the quality of the NSOs. Preferably, the main distributors in the premium segment. Also, the partner should have good local insights to help Neptun to reach the correct target.
- Establish a partnership with a national seafood company that already exports to China to reduce the shipping and distribution fixed costs.
- Have a clear understanding of its limitations: how much it can produce without compromising its eco-friendly and sustainable identity.
- Safeguard its values from pressures from the new partners to focus only on profitability.




Provided that the majority of the recommendations is implemented, the sensitivity analysis indicates a fit between the internal and external environment. This strategy would allow for Neptun to create economies of scale and decrease its fixed costs.

Although Neptun should prioritize the expansion, both options are not mutually exclusive in the long run. It can first move to China and then, after it has secured a strong business revenue stream, enter the oyster tasting and site visiting business in Portugal.


Some possible options to continue to have on-site oyster tasting events are:

- To only do tastings for chefs or visits organized for exclusive clients (guests of Ritz or Altis Lisbon). It would allow Neptun to price this experience as a premium product and service.
- Find another place to do the tastings, such as a building nearby, in Gambia. E.g. Moinho da Mourisca
- Seek for a partnership with the Tourism School of Setúbal and hire students as daily staff to help/organize the visits and the tastings. This would not add additional pressure to the fixed costs structure as they would pay only the worked hours and not increase the number of fixed employees.

Lastly, an out of the box recommendation would be to outsource the excess production to an intermediate and not export directly to China. It would transfer the risks related to expanding and entering a new market and still increase the revenue stream of the firm.

# IV. Conclusion

The development of this Dissertation offered me valuable insights on the difficulty of expanding a small business with an eco-friendly mission and on the complex challenge of increasing revenues and growing without compromising the sustainability of the environment, the firm's values, and most importantly, the firm's identity.

It also allowed me to reach some interesting conclusions, regarding the skills and resources necessary for a company to grow. The influence that brand power and innovation have on successfully implementing a differentiation strategy and how, more than ever, transparency is essential to be a market leader of the future.

Additionally, it taught me the value that one single person can add to a company. Some people are irreplaceable, and without them, the future of their firms might be compromised. Their vision and their ambition set them apart, ending up being the key ingredient to a long term sustainable competitive advantage.

Lastly, I consider it relevant to address the economic viability of undergoing the strategic move of expanding beyond the firm's original niche. This decision needs to be done at the correct time, due to the financial pressure that it might create for the firm.

If in the future I have the opportunity to follow on the decisions addressed in this Case Study, it will be interesting to see how its implementation will be able to take into account both the need for growth and the current societal problems regarding the need for sustainable food production that will shape our future.

# V. Case Exhibits

Exhibit 1- Worldwide growth of segment of oysters in the molluscs' segment (in tons)

| Species item | 2010 | 2012 | 2014 | 2016 | % of total, 2016 |
|---|---|---|---|---|---|
| **Molluscs** | | | | | |
| Cupped oysters nei, *Crassostrea* spp. | 3 678 | 3 972 | 4 374 | 4 864 | 28 |
| Japanese carpet shell, *Ruditapes philippinarum* | 3 605 | 3 775 | 4 014 | 4 229 | 25 |
| Scallops nei, *Pectinidae* | 1 408 | 1 420 | 1 650 | 1 861 | 11 |
| Marine molluscs nei, Mollusca | 630 | 1 091 | 1 135 | 1 154 | 7 |
| Sea mussels nei, Mytilidae | 892 | 969 | 1 029 | 1 100 | 6 |
| Constricted tagelus, *Sinonovacula constricta* | 714 | 720 | 787 | 823 | 5 |
| Pacific cupped oyster, *Crassostrea gigas* | 641 | 609 | 624 | 574 | 3 |
| Blood cockle, *Anadara granosa* | 466 | 390 | 450 | 439 | 3 |
| Chilean mussel, *Mytilus chilensis* | 222 | 244 | 238 | 301 | 2 |
| Other molluscs | 1 808 | 1 683 | 1 748 | 1 795 | 11 |
| **Molluscs total** | 14 064 | 14 874 | 16 047 | 17 139 | 100 |

Source: http://www.fao.org/3/i9540en/i9540en.pdf

Exhibit 2 - Production volume of oysters worldwide

Produção (tonelada) de Ostra a nível Mundial por Países

| | Species | Oysters | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Measure | Tonne | | | | | | | | | | | |
| | Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Country | Unit | | | | | | | | | | | | |
| Australia | Tonnes | 11,843 | 12,052 | 14,374 | 13,629 | 14,227 | 14,932 | 13,927 | 12,559 | 12,382 | 11,552 | 12,789 | 11,345 |
| Canada | Tonnes | 12,957 | 13,200 | 11,075 | 8,984 | 8,813 | 11,114 | 9,779 | 10,497 | 10,835 | 10,662 | 11,153 | 13,824 |
| Chile | Tonnes | 2,639 | 1,595 | 965 | 1,087 | 233 | 257 | 219 | 194 | 227 | 308 | 215 | 270 |
| France | Tonnes | 119,400 | 112,677 | 112,760 | 104,939 | 104,641 | 80,650 | 78,965 | 80,354 | 77,511 | 75,167 | 64,882 | 64,910 |
| Germany | Tonnes | 85 | 86 | 86 | 86 | 86 | 80 | 80 | 80 | 80 | 80 | 80 | .. |
| Greece | Tonnes | 3 | 3 | 19 | 20 | 6 | 83 | 1 | 1 | 1 | .. | .. | 2 |
| Ireland | Tonnes | 6,153 | 6,871 | 8,043 | 6,577 | 6,846 | 7,161 | 7,937 | 7,560 | 8,641 | 9,442 | 9,547 | 8,016 |
| Israel | Tonnes | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | .. | .. |
| Italy | Tonnes | 35 | 47 | 10 | 46 | 48 | 38 | 42 | 47 | 53 | 147 | 145 | 145 |
| Japan | Tonnes | 218,896 | 208,182 | 204,474 | 190,344 | 210,188 | 200,298 | 165,910 | 161,116 | 164,139 | 183,685 | 164,380 | 158,925 |
| Korea | Tonnes | 251,706 | 283,296 | 321,276 | 249,976 | 240,911 | 267,776 | 281,022 | 284,856 | 239,779 | 283,232 | 265,432 | 268,973 |
| Mexico | Tonnes | 4,737 | 3,847 | 2,108 | 2,891 | 2,758 | 3,894 | 2,571 | 5,069 | 4,396 | 12,911 | 6,989 | 7,661 |
| Netherlands | Tonnes | 3,195 | 3,353 | 3,390 | 2,069 | 2,011 | 3,958 | 2,680 | 2,539 | 2,958 | 3,264 | 3,150 | 3,250 |
| New Zealand | Tonnes | 2,800 | 2,800 | 3,000 | 3,170 | 2,708 | 2,439 | 1,804 | 1,216 | 1,497 | 1,509 | 1,909 | 1,946 |
| Norway | Tonnes | 2 | 1 | 4 | 3 | 4 | 2 | 2 | 2 | 5 | 4 | 10 | 11 |
| Portugal | Tonnes | 522 | 680 | 712 | 1,037 | 714 | 548 | 863 | 735 | 795 | 1,041 | 1,035 | 2,091 |
| Spain | Tonnes | 4,892 | 4,482 | 4,957 | 2,199 | 2,149 | 1,535 | 1,756 | 1,256 | 1,021 | 985 | 1,107 | 1,073 |
| Sweden | Tonnes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | .. | .. |
| United Kingdom | Tonnes | 964 | 1,430 | 1,124 | 1,036 | 1,631 | 1,266 | 868 | 1,317 | 1,316 | 1,568 | 1,846 | 2,189 |
| United States | Tonnes | 97,368 | 129,289 | 125,489 | 121,864 | 129,110 | 137,630 | 97,889 | 131,853 | 128,658 | 124,986 | 124,033 | 141,027 |
| Non-OECD Economies: Argentina | Tonnes | 120 | 110 | 120 | 73 | 105 | 20 | 120 | 25 | 27 | 7 | 9 | 11 |
| Non-OECD Economies: China (People's Republic of) | Tonnes | 3,346,963 | 3,455,461 | 3,508,934 | 3,354,382 | 3,503,782 | 3,642,829 | 3,756,310 | 3,948,817 | 4,218,644 | 4,352,053 | 4,573,370 | 4,834,527 |
| Non-OECD Economies: Costa Rica | Tonnes | 1 | 1 | 1 | 1 | 0 | 5 | 11 | 15 | 20 | 18 | 20 | 20 |
| Non-OECD Economies: Peru | Tonnes | 3 | 6 | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | .. |
| Non-OECD Economies: Philippines | Tonnes | 16,495 | 16,838 | 20,508 | 20,175 | 19,931 | 22,525 | 21,462 | 20,648 | 22,070 | 22,355 | 20,261 | 19,512 |
| Non-OECD Economies: Russia | Tonnes | .. | .. | .. | .. | 8 | 7 | 3 | 45 | 54 | 57 | 36 | 162 |
| Non-OECD Economies: Chinese Taipei | Tonnes | 28,430 | 28,547 | 28,199 | 34,514 | 21,882 | 36,056 | 34,643 | 26,923 | 27,793 | 25,276 | 21,866 | 22,339 |
| Non-OECD Economies: Thailand | Tonnes | 19,106 | 18,704 | 22,650 | 16,674 | 26,204 | 28,090 | 8,377 | 16,129 | 17,595 | 12,839 | 19,870 | 20,212 |

Figura 19. Gráfico de Produção de ostra a nível Mundial
Fonte: stats.oecd.org

## Exhibit 3 – Exports of oysters worldwide

**030710 Molluscs; oysters, live, fresh, chilled, frozen, dried, salted or in brine (whether in shell or not)**

| Country | Share in Export % | Export Value USD | 1-Year Growth in Value % | 3-Year Growth in Value % | 5-Year Growth in Value % | Export Quantity MT | 1-Year Growth in Qty % | Unit Price of Export USD/KG | 1-Year Growth in Price % | Revealed Comparative Advantage |
|---|---|---|---|---|---|---|---|---|---|---|
| France | 37.2% | 109.90M | +10.4% | +41.1% | +35.7% | 11.27M | -9.4% | 9.76 | +21.8% | Very Strong |
| Ireland | 16.6% | 49.09M | +16.5% | +67.7% | +39.1% | 7.78M | +1.4% | 6.31 | +14.9% | Very Strong |
| Canada | 11.3% | 33.40M | +1.6% | +13.9% | +17.8% | 3.67M | +0.3% | 9.11 | +1.3% | Very Strong |
| Netherlands | 7.8% | 22.93M | +8.3% | +23.3% | +30.9% | 4.54M | +37.0% | 5.05 | -21.0% | Strong |
| United States | 7.7% | 22.88M | +5.9% | -15.0% | +0.2% | 3.07M | +1.5% | 7.46 | +4.3% | Medium |
| Mexico | 2.2% | 6.36M | +13.2% | +12.4% | +208.0% | 2.08M | +30.3% | 3.05 | -13.1% | Medium |
| New Zealand | 2.0% | 5.94M | +5.2% | -58.4% | -60.6% | - | - | - | - | Very Strong |
| United Kingdom | 1.9% | 5.76M | +19.6% | +7.2% | -8.6% | 1.32M | -5.7% | 4.35 | +26.8% | Medium |
| South Korea | 1.6% | 4.63M | +31.1% | -92.9% | -92.0% | 1.06M | +60.4% | 4.37 | -18.3% | Medium |
| Portugal | 1.3% | 3.98M | +63.1% | +212.3% | +38.4% | 1.11M | +58.4% | 3.59 | +3.0% | Very Strong |
| Hong Kong | 1.3% | 3.89M | +6.2% | -47.5% | -58.3% | 378.39K | +4.6% | 10.28 | +1.6% | Medium |
| Philippines | 0.9% | 2.77M | +6.0% | +2134.8% | +2616.1% | 435.89K | +4.9% | 6.35 | +1.1% | Strong |
| China | 0.8% | 2.39M | +13.1% | -42.9% | -57.7% | 915.90K | +1.0% | 2.61 | +11.9% | Weak |
| Oman | 0.8% | 2.33M | -60.1% | - | +447834.8% | 599.31K | -59.3% | 3.89 | -1.9% | Very Strong |
| Italy | 0.8% | 2.32M | +24.9% | -26.0% | -26.4% | 255.78K | -11.3% | 9.08 | +40.9% | Medium |
| Denmark | 0.8% | 2.32M | +14.4% | +86.5% | -31.2% | 237.94K | -74.5% | 9.76 | +349.4% | Strong |
| Senegal | 0.5% | 1.58M | +6626.2% | +4665.8% | +44974.0% | 2.31M | +8860.2% | 0.68 | -24.9% | Very Strong |

Source: https://www.tridge.com/trades/HS1992/030710-molluscs-oysters-live-fresh-chilled-frozen-dried-salted-or-in-brine-whether-in-shell-or-not/export

## Exhibit 4 – Top importing countries of oysters

**030710 Molluscs; oysters, live, fresh, chilled, frozen, dried, salted or in brine (whether in shell or not)**

**Top Importing Countries**

| Country | Share in Import % | Import Value USD | 1-Year Growth in Value % | 3-Year Growth in Value % | 5-Year Growth in Value % | Import Quantity MT | 1-Year Growth in Qty % | Unit Price of Import USD/KG | 1-Year Growth in Price % | Revealed Comparative Advantage |
|---|---|---|---|---|---|---|---|---|---|---|
| France | 14.1% | 39.09M | +2.4% | +33.0% | +10.0% | 4.84M | -39.0% | 8.08 | +67.9% | Very Strong |
| Hong Kong | 13.2% | 36.46M | -1.8% | -37.0% | -42.3% | 4.42M | -7.2% | 8.26 | +5.8% | Very Strong |
| China | 12.8% | 35.58M | +2.8% | +49.0% | +189.2% | 3.35M | +10.5% | 10.63 | -7.0% | Strong |
| United States | 11.2% | 31.15M | -6.8% | -22.9% | -10.5% | 4.70M | -2.9% | 6.63 | -4.0% | Medium |
| Italy | 11.2% | 31.02M | +13.9% | +20.9% | +6.1% | 5.17M | -5.9% | 6.00 | +21.0% | Very Strong |
| Canada | 4.8% | 13.33M | +13.4% | -17.3% | +0.3% | 1.40M | - | 9.50 | - | Strong |
| Netherlands | 4.2% | 11.51M | +13.9% | +79.3% | +208.2% | 1.28M | +19.9% | 8.96 | -5.0% | Strong |
| Spain | 4.0% | 10.97M | +21.9% | -29.9% | +12.5% | 2.05M | +7.7% | 5.35 | +13.2% | Strong |
| Belgium | 3.5% | 9.74M | +4.9% | -17.3% | -42.9% | 1.33M | -10.6% | 7.35 | +17.4% | Strong |
| Singapore | 2.2% | 6.13M | -30.4% | -27.7% | -41.0% | 762.71K | -29.2% | 8.04 | -1.7% | Strong |
| Germany | 2.0% | 5.56M | +9.6% | +3.1% | -12.2% | 662.65K | +3.4% | 8.39 | +6.0% | Medium |
| Thailand | 1.9% | 5.32M | +12.1% | +22.8% | +35.8% | 516.78K | +5.7% | 10.29 | +6.1% | Strong |
| Ireland | 1.7% | 4.72M | +18.7% | +27.9% | -39.3% | 777.46K | +9.5% | 6.08 | +8.5% | Strong |
| Russia | 1.7% | 4.60M | +29.3% | +92.7% | -32.0% | 334.73K | +22.7% | 13.74 | +5.4% | Strong |
| Switzerland | 1.6% | 4.37M | +7.7% | +15.7% | +3.5% | 474.60K | +4.6% | 9.21 | +2.9% | Strong |
| Qatar | 1.2% | 3.24M | -20.2% | -9.3% | +68.9% | 911.76K | -5.0% | 3.56 | -16.0% | Very Strong |
| Ukraine | 1.0% | 2.68M | +80.9% | +177.7% | +112.4% | 438.72K | +78.2% | 6.11 | +1.5% | Very Strong |

Source: https://www.tridge.com/trades/HS1992/030710-molluscs-oysters-live-fresh-chilled-frozen-dried-salted-or-in-brine-whether-in-shell-or-not/import

Exhibit 5 – The Sado's estuary demographic display and the correspondent regional production

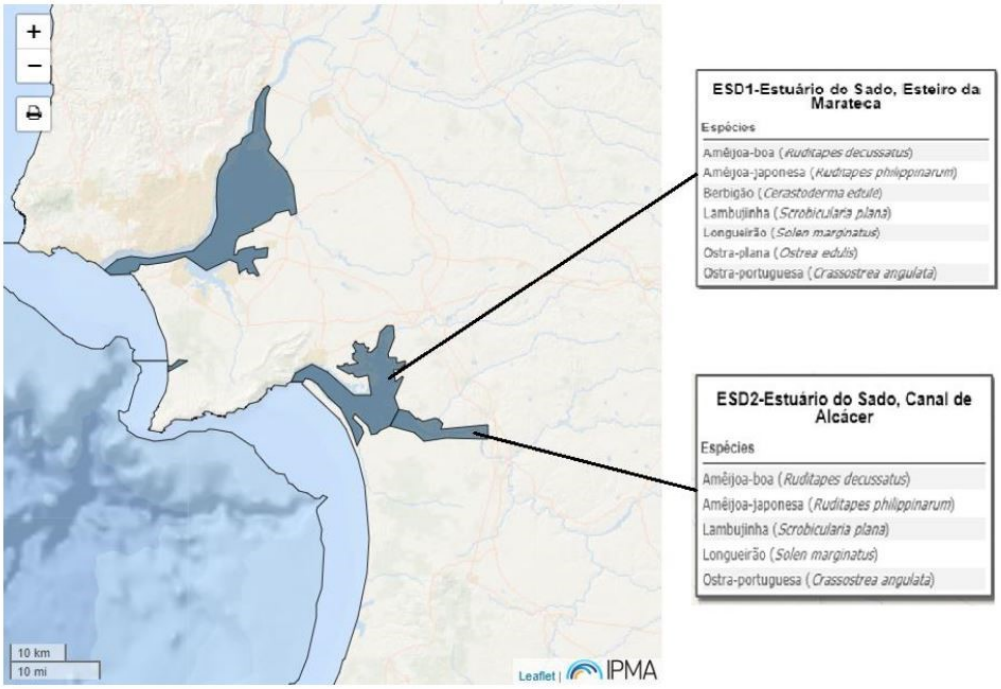



Figura 3. Áreas de Produção e Espécies produzidas – Estuário de Sado
Fonte: IPMA

Exhibit 6 – Most relevant players in Portugal and in the Sado's estuary

| Concorrentes | | | | | |
|---|---|---|---|---|---|
| Empresa | Produção (ton) 2018 | Local | Zona | Província | País |
| Torreostra | >100 | Ria de Aveiro | Aveiro | Beira Litoral | Portugal |
| Ostraveiro | >600 | Ria de Aveiro | Aveiro | Beira Litoral | Portugal |
| Bivalvia | NS | Ria de Aveiro | Aveiro | Beira Litoral | Portugal |
| Exporsado | >100 | Rio Sado | Setúbal | Alentejo | Portugal |
| Bivalsado | <60 | Rio Sado | Setúbal | Alentejo | Portugal |
| Neptun Pearl | <30 | Rio Sado | Setúbal | Alentejo | Portugal |
| Outras | <20 | Rio Sado | Setúbal | Alentejo | Portugal |
| Herdade das Moitas | <100 | Rio Mira | Vila Nova de Mil Fontes | Alentejo | Portugal |
| Bivalvia | NS | Ria Formosa | Olhão | Algarve | Portugal |
| Ostras da Torre | NS | Ria Formosa | Tavira | Algarve | Portugal |
| Ostra Select | NS | Lagos | Lagos | Algarve | Portugal |

Figura 29. Quadro de Empresas do Setor (Concorrência)
Fonte: Entrevistas e pesquisa na internet

Exhibit 7 - Neptunpearl's production costs by kg/month

| Production of oysters | Production cost | Kg/cost |
|---|---|---|
| 300kg/month | (1750€/300kg) + 0,75€ | 6,58€ |
| 400kg/month | (1750€/400kg) + 0,75€ | 5,13€ |
| 500kg/month | (1750€/500kg) + 0,75€ | 4,25€ |
| 600kg/month | (1750€/600kg) + 0,75€ | 3,67€ |
| *1750€ is the cost for 100.000 oysters | | |
| Source: company's information | | |

Exhibit 8 - Production costs for the "Fine de Claire" in €/kg

| **Costs (€/kg)** | **"Fine de Claire"** |
|---|---|
| Acquisition | 2,20€ |
| Transportation | 0,15€ |
| Energy/maintenance | 0,10€ |
| Depuration | 0,75€ |
| Labour | 0,50€ |
| Total Production Costs | **3,70€** |
| Distribution e Commercial margins | 1,2€ |
| Final Cost | **4,90€** |

Exhibit 9 – The “condition” or “flesh” index calculation method

# Measurement of Condition in Mussels and Oysters

By

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THE relative values of subjective and objective assessments as scientific measurements have been the basis for a considerable amount of psychological research in recent years. SHEPPARD (1953) reviews some of the literature on the subject and says that “there seems little doubt that it is better to use objective tests when possible, if suitable ones can be designed.”

Various methods have been used to evaluate objectively the condition of oysters and mussels. MEDCOF and NEEDLER (1941) used a method in which the meats of 10 oysters were dried to constant weight at 100°C. and the expression

$$\frac{\text{weight of dried meat in grammes}}{\text{shell cavity in millilitres}} \times 1000$$

was used as an index of condition. This method, with or without variations has been used by many other workers in North America.

INGLE (1949) correlated the dry-meat-weight method of condition index with glycogen content on 34 samples of oysters and found a correlation coefficient of 0·69. The glycogen content as a measure of condition has been used by GALTSOFF (1947) and others. KORRINGA (1955) used the ratio of dry weight of meat to shell contents × 100, but used a toluene distillation method for obtaining the dry weight of the meats. A method similar to the one described below, based on an unpublished report by VAHL and TOWNSEND, was used by ODLAUG (1946).

Exhibit 10 – Neptun’s special oysters and the methods used

Exhibit 11 - Neptun's prices for plants

**Plantas Halófitas:**

Salicórnia; funcho Maritimo; *Halimione portucaloide*; Sarcocórnia; Suaeda; Salgadeira ;Inula = 20€/kg (quantidade miníma 100g)

**Algas:** Códium; Ulva; Gracilária = 25€/kg / Fucus = 16€/kg

Exhibit 12 - Neptun's prices for seafood

**Outros mariscos comercializados:**

| Mariscos | preço/kg |
|---|---|
| Ameijoa japonesa | 12,5€ |
| Berbigão | 7,5€ |
| Lambujinha | 7€ |
| Mexilhão | 6€ |
| Burrié | 11,5€ |
| Ameijoa branca | 10 € |
| Navalha/Lingueirão | 12,5€ |
| Caranguejo | 15€ |

**Nota:** aos preços acima referidos acresce IVA à taxa legal em vigor e estão sujeitos a alterações consoante a época devido à escassez e procura.

Exhibit 13 – Neptunpearl's financial statement in 31/12/2018

**Neptunpearl,lda.**

**Demonstração dos resultados por naturezas em 31 de Dezembro de 2018**

| Rendimentos e Gastos | Notas | 2018 |
|---|---|---|
| Vendas e serviços prestados | | 103.889,89 |
| Subsídios à exploração | | 967,70 |
| Variação nos inventários da produção | | |
| Trabalhos para a própria entidade | | |
| Custo das mercadorias vendidas e das matérias consumidas | | (52.905,69) |
| Fornecimentos e serviços externos | | (38.142,29) |
| Gastos com o pessoal | | (54.761,46) |
| Imparidade (perdas / reversões) | | |
| Provisões (aumentos / reduções) | | |
| Outros rendimentos | | 10.976,31 |
| Outros gastos | | (1.001,29) |
| Aumentos/Reduções de Justo Valor | | 48.917,93 |
| **Total resultado antes de depreciações, gastos de financiamentos e impostos** | | 17.941,10 |
| Gastos / reversões de depreciação e de amortização | | (9.670,31) |
| **Total resultado operacional (antes de gastos de financiamentos e impostos)** | | 8.270,79 |
| Gastos de financiamento (líquidos) | | (0,08) |
| **Total resultado antes de impostos** | | 8.270,71 |
| Imposto sobre o rendimento do período | | |
| **Total resultado líquido do período** | | 8.270,71 |

Exhibit 14 - Neptunpearl's estimated 2019 revenues

| Month 2019 | Revenues (R) | VAT (V) | Total (R+V) |
|---|---|---|---|
| **January** | 15 432,59 € | 362,55 € | 15 795,14 € |
| **February** | 5 609,30 € | 336,56 € | 5 945,86 € |
| **March** | 8 384,49 € | 517,49 € | 8 901,98 € |
| **April** | 10 286,36 € | 608,21 € | 10 894,57 € |
| **May** | 12 754,81 € | 777,68 € | 13 532,49 € |
| **June** | 10 797,30 € | 647,84 € | 11 445,14 € |
| **July** | 20 204,95 € | 1 902,84 € | 22 107,79 € |
| **August** | 16 056,05 € | 980,37 € | 17 036,42 € |
| **September** | 11 980,25 € | 766,41 € | 12 746,66 € |
| **October** | 12 392,35 € | 906,69 € | 13 299,04 € |
| **November** | 10 756,85 € | 640,31 € | 11 397,16 € |
| **December** | 10 960,72 € | 619,00 € | 11 579,72 € |
| | 145 616,02 € | 9 065,95 € | 154 681,97 € |

(retrieved from the company's monthly revenues map for each month of 2019)

Exhibit 15 - Neptun's price list for oysters

## Ostra Setúbal

| Calibres | Massa (G) | Un. /kg | Custo (€)/kg |
|---|---|---|---|
| nº 0 | > 150 g | 6 | 11 |
| nº 1 | de 111 g a 150 g | 7 a 8 | 10 |
| nº 2 | de 86 g a 110 g | 9 a 11 | 9 |
| nº 3 | de 66 g a 85 g | 12 a 14 | 8 |
| nº 4 | de 46 g a 65 g | 15 a 21 | 8 |
| nº 5 | de 30 g a 45 g | 22 a 33 | |

**nota:** aos preços acima referidos acresce IVA à taxa legal em vigor

**Ostra plana** – <100g 13€/kg

Exhibit 16 – Neptun's oyster farming process at their site in Gambia

Exhibit 17 - Celia Rodrigues and the Portuguese oyster

Exhibit 18 - 2018 Portuguese results regarding tourism

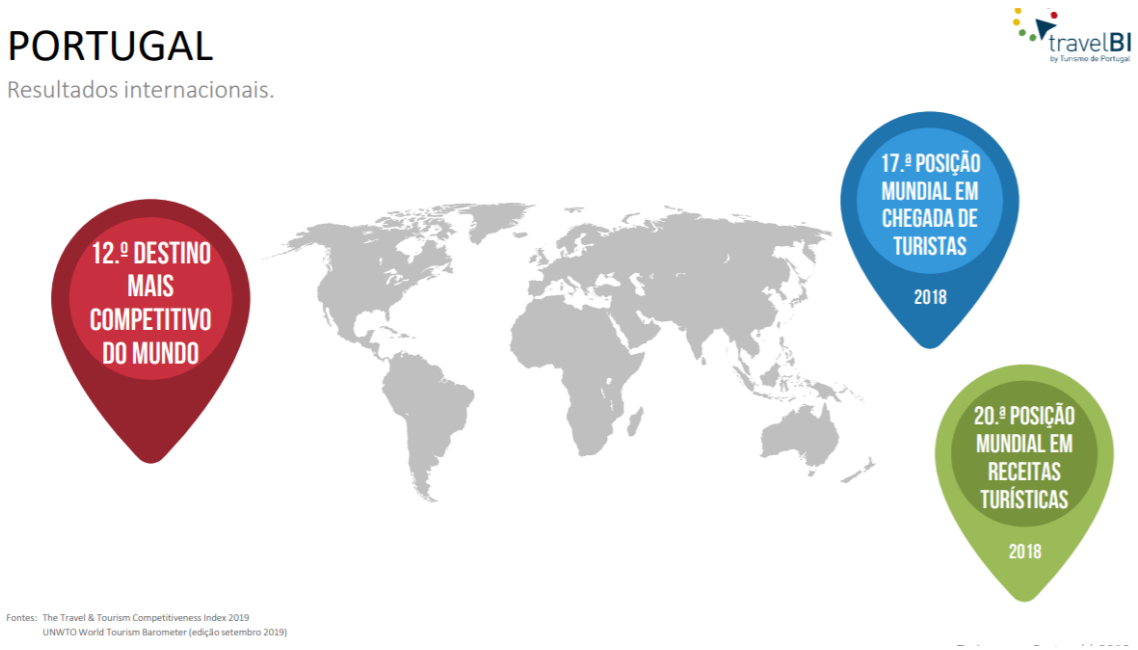
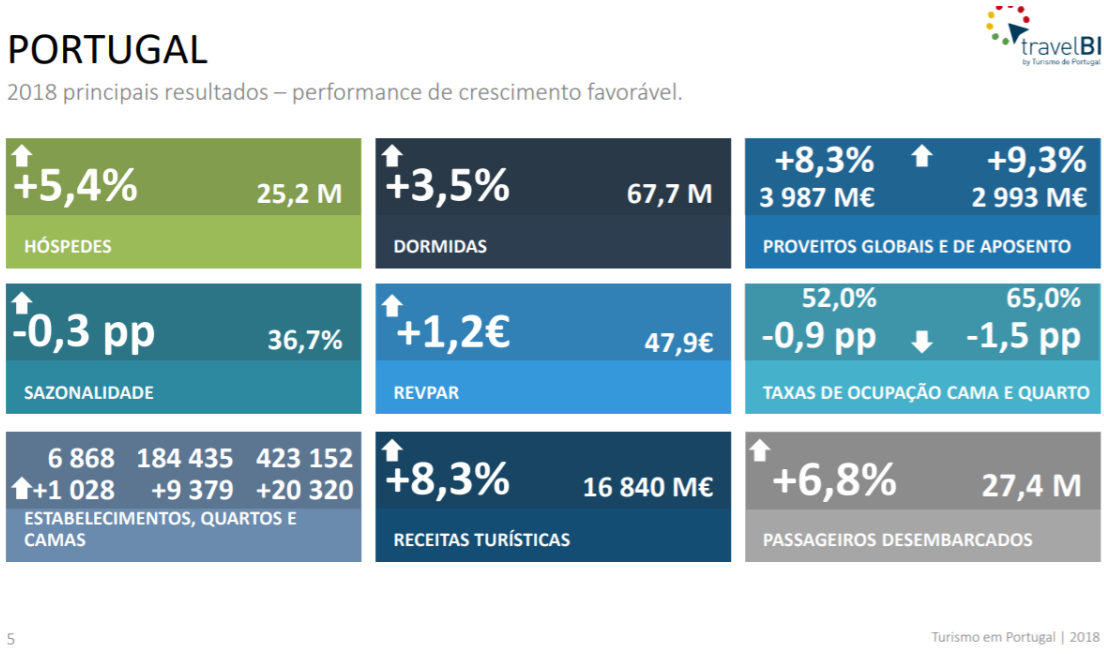



Exhibit 19 - Portuguese performance in 2018 regarding tourism



## VI. Teaching Notes Exhibits

TN Exhibit 1 – The 3 characteristics of a good business model

### Three Characteristics of a Good Business Model

How can you tell if a business model will be effective? A good one will meet three criteria.

**Is it aligned with company goals?**

The choices made while designing a business model should deliver consequences that enable an organization to achieve its goals. This may seem obvious until you consider a counterexample. In the 1970s, Xerox set up Xerox PARC, which spawned technological innovations such as laser printing, Ethernet, the graphical user interface, and very large scale integration for semiconductors. However, Xerox PARC was notoriously unable to spawn new businesses or capture value from its innovations for the parent due to a distressing lack of alignment with Xerox's goals.

**Is it self-reinforcing?**

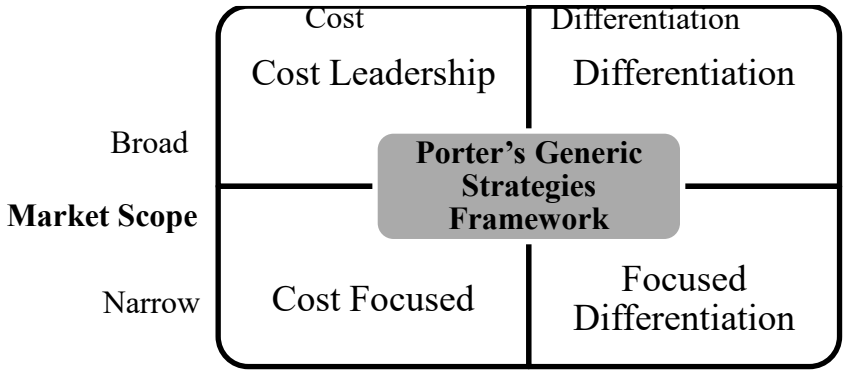
The choices that executives make while creating a business model should complement one another; there must be internal consistency. If, ceteris paribus, a low-cost airline were to decide to provide a level of comfort comparable to that offered by a full-fare carrier such as British Airways, the change would require reducing the number of seats on each plane and offering food and coffee. These choices would undermine the airline's low-cost structure and wreck its profits. When there's a lack of reinforcement, it's possible to refine the business model by abandoning some choices and making new ones.

**Is it robust?**

A good business model should be able to sustain its effectiveness over time by fending off four threats, identified by Pankaj Ghemawat. They are *imitation* (can competitors replicate your business model?); *holdup* (can customers, suppliers, or other players capture the value you create by flexing their bargaining power?); *slack* (organizational complacency); and *substitution* (can new products decrease the value customers perceive in your products or services?). Although the period of effectiveness may be shorter nowadays than it once was, robustness is still a critical parameter.

TN Exhibit 2 – Sources of Value Creation

**Sources of Value Creation**




Adapted from Porter, 1980

TN Exhibit 3 – 5 Forces of Porter factors

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