Pedro Miguel Atanásio Almeida

A BUSINESS MODEL FOR A TECHNOLOGICAL SOLUTION TO FIGHT MALNOURISHMENT AMONG THE ELDERLY

Relatório de Estágio apresentado à Faculdade de Economia da Universidade de Coimbra para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Gestão

Julho de 2017

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FEUC FACULDADE DE ECONOMIA
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Entidade de acolhimento: Continente Online, E-commerce da Sonae MC

Orientadores Académicos: Professor Doutor Manuel Paulo Albuquerque Melo e Professor Doutor Miguel Torres Preto

Supervisor Profissional: Tiago Cruz Silva

Coimbra, 2017

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A todos o meu eterno agradecimento.

Resumo

O Presente relatório tem como objetivo a descrição do estágio curricular realizado na SONAE de 9 de fevereiro de 2017 a 9 de junho de 2017 para efeitos de conclusão do Mestrado em Gestão pela Faculdade de Economia da Universidade de Coimbra.

Todos os anos a SONAE recebe alunos finalistas de vários mestrados dando-lhes a oportunidade de desenvolverem as suas dissertações finais ao abrigo do programa *Call for Solutions*. Este programa permite que estudantes finalistas de mestrado possam realizar um estágio curricular de quatro meses baseado num desafio proposto pelas diferentes áreas de negócio da SONAE. Dito isto, o estágio descrito no presente relatório teve por base o seguinte desafio proposto pela unidade de negócio de *e-commerce* da Sonae MC: desenvolvimento do modelo de negócios para uma solução tecnológica que ajude a colmatar o problema da má nutrição na terceira idade. A proposta deste desafio teve como base a participação da SONAE no projeto financiado pela União Europeia *Cordon Gris* cujo principal objetivo é o desenvolver uma solução com base em tecnologia que permita mitigar o problema da má nutrição nos escalões etários mais elevados.

Aquando do início do estágio curricular, o consorcio do projeto já tinha definido que esta solução seria uma aplicação para *smartphone* que disponibilizaria recomendações de refeições e de atividade física baseadas nas condições de saúde do idoso e nas suas preferências. Desta forma, o objetivo deste estágio foi o desenvolver do modelo de negócios em que se alicerça esta aplicação.

Este relatório culmina na sugestão de quatro *Business Model Canvas* que poderão ser integrados num só modelo de negócio. A definição deste modelo de negócio teve por base a revisão bibliográfica presente na segunda secção deste documento bem como nas secções dos documentos desenvolvidos ao longo do estágio.

Palavras-Chave: Comércio eletrónico, Comércio eletrónico e terceira idade, Envelhecimento ativo, Malnutrição na terceira idade, Modelo de negócios.

Abstract

The following report aims to describe the curricular internship done at SONAE which was completed in order to achieve the degree of Master in Management by the Faculty of Economics, University of Coimbra. The internship took place between the 9th of February 2017 and the 9th of June 2017.

Every year SONAE receives master's finalists to develop their final dissertations under the programme Call for Solutions. This programme, provides students with the opportunity of doing a four-month curricular internship in order to solve challenges proposed by SONAE's businesses. The internship described in this document is based on the following challenge proposed by the e-commerce business of Sonae MC: development of a business model for a technological solution to fight the malnourishment among the elderly. This challenge, was originated by SONAE's participation in the European funded project Cordon Gris which aimed to develop a technological solution to fight malnourishment among the elderly.

Upon the beginning of the internship, Cordon Gris' consortium had already defined that this technological solution would be an App for smartphones that would generate personalized meal and physical activity recommendations taking into account the older individual's health conditions and preferences. For that end, the objective of the internship was the development of the business model behind this App.

This report culminates in the proposal of four different Business Model Canvases, which can be integrated in one business model for this service. The definition of this business model was based both on the bibliographic review available in the second section of this document and on the sections of de deliverables developed during the internship.

Keywords: Active ageing, Business model, Elderly and E-commerce, Elderly malnourishment, E-commerce.

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List of Acronyms

B2B: Business-to-Business

B2C: Business-to-Consumer

B2G: Business-to-Government

CC: Can Cook

FhP: Fraunhofer Portugal

GDP: Gross Domestic Product

IDC: International Data Corporation

NL: Netherlands

PT: Portugal

R&D: Research and Development

RNS: Red Ninja Studios

SCML: Santa Casa da Misericordia de Lisboa

UK: United Kingdom

WP: Work package

I. Introduction

1.1. Objectives

The following report aims to describe the curricular internship done at SONAE between the 9th of February 2017 and the 9th of June 2017. This internship was completed in order to achieve the degree of Master in Management by the Faculty of Economics, University of Coimbra.

The four-month internship was inserted in the 15th edition of the programme Call for solutions. This programme's main objective is to provide masters students with the opportunity of developing their master's dissertations under a real corporate environment. For this purpose, SONAE challenges its interns to solve real problems that deserve academic investigation in order to be solved. That being said, the challenge to be solved during the curricular internship proposed by SONAE was: development of a business model for a technological solution to fight malnourishment among older individuals. This challenge, had its origins in SONAE's participation in the European granted project Cordon Gris which aims to fight malnourishment among European elderly population since this fact is seen as one of the major causes for the lack of autonomy of these individuals.

1.2. Relevance of the Topic

The number of individuals aged above 60 years is growing faster than any other age group. Consequently, the share of older individuals in the total population is increasing almost everywhere in the planet (United Nations, 2015). Moreover, this phenomenon seems to be here to stay since the growth of the number of older individuals is projected to accelerate in the next decades (United Nations, 2015). This comprises one great challenge for the governments given the fact that it is one of the most significant social transformations of the twenty-first century (United Nations, 2015). These facts provide sufficient information to state that, in the future older individuals will comprise one of the most valorous customer segments for companies. Even though some companies have already developed strategies to reach this customer segment, most technology based businesses are not designing their goods and services towards a facilitated use by older individuals. Although older adults are not usually the first technology adopters, their

degree of technology acceptance, namely their levels of internet usage have been increasing and it will most probably keep growing.

Moreover, Pereira *et al*. (2015), found out that one in every six seniors that reach an emergency room, present signs of malnourishment. This fact, on the other hand is highly related to the elder's capability of ageing autonomously (Eriksson et *al*., 2005). Even though the world ageing tendency cannot be thwarted, at least in the short term, older individuals can be provided with the right tools that enable them to age in more autonomous ways. These facts brought to light Cordon Gris, which aims to provide older individuals with a user-friendly e-commerce based App for smartphones that will generate personalized meal recommendations to its user.

Even though, this was from the beginning Cordon Gris' idea, the business model of the service behind it had not yet been designed upon the beginning of my internship. That being said, this report's goal is to propose the business model behind the service Cordon Gris' service.

This report is divided in seven main chapters. This first chapter is the introduction and it provides information regarding the objectives of the document as well as the relevance of the topic that comprises it. The second chapter is the literature review in which the core topics for the definition of the business model are approached and explained, namely, e-commerce, e-commerce and ICTs in the elderly and the business model canvas methodology. The third chapter regards the curricular internship and it aims to introduce the company in which the internship was done, moreover, this chapter also introduces Cordon Gris and describes the main tasks developed during the four-month internship. The fourth chapter regards Cordon Gris business model. Besides introducing the business model, this chapter also provides some crucial information to be taken into account upon the implementation of the business model. The fifth chapter provides some recommendations for the future improvement of the service. Chapter six intends to give a critical reflection over the work developed during the internship. Finally, chapter seven provides the final conclusions of the report.

II. Bibliographic Review

The following section aims to highlight the bibliography on which the work developed within the curricular internship was based, namely de development of the Business model for a technological solution that aims to fight malnourishment in the European elderly population. That being said, this section first approaches e-commerce and explains its impact on business nowadays. Secondly, given the fact that the technology aims to be implemented in Europe and in particular in Portugal, a quick overview on the state of e-commerce within these regions will be done in order to better understand the market in which the business model will be implemented. Thirdly, the third age's age issue will be approached. Besides providing an overview over the elderly propensity to use e-commerce and ICT related technologies, this subsection will highlight main barriers and drivers for the use of e-commerce within this age segment. Then, the state of the e-grocery will be analysed given the high probabilities of implementing this type of retail within the business model. Finally, since the tool used to build and develop the business model was the "Business Model Canvas", this methodology will be explained in detail in the last part of the literature review.

2.1. Technological Advances' Impact in Businesses

The world is going through fast changes and technology development is now faster than ever, these facts together imply that organizations have to adapt their selves to these changes in order to successfully answer the market requests. Ever since the creation of the first website 27 years ago, companies have been transforming their businesses through the application of technologies based on the internet, World Wide Web and Wireless communications which have provided these institutions with opportunities based on new approaches to their businesses (Chaffey, 2009).

Not only, traditional companies have changed their way of doing business, but also new companies have been created with completely different values propositions and ways of doing business through the internet. Amazon.com has shown that it is possible to create new value by "des-intermediating" the supply chain, Hotmail and Netscape have demonstrated that it is possible to make business out of providing goods and services for free, moreover, AOL and Yahoo have discovered unknown revenue streams for their businesses (Mahadevan, 2000). Given the continuous introduction of new business approaches, new technologies and ways of communicating, companies nowadays face

new challenges and opportunities each day (Chaffey, 2009). In order for a company to keep its established position in the market it must keep the pace of innovation or sooner or later it will be overpassed by its competition. A great example of a company whose success is partially explained by its unique attitude towards innovation is Google. This company, who started as a search engine in 1998 has nowadays millions of pages indexed to it and multiple other features like web mail pay per click adverts, analytics and social networks (Chaffey, 2009), comprising a best in class example in most of them.

To successfully manage an e-Business, a company must be able to adapt itself to technology-enabled change. Things like Social Networks, producing rich media for their communication channels or exploiting the mobile commerce by taking advantage of the enormous amount of smartphone users were factors that once meant nothing for the success of a company but are at the present crucial steps to achieve or maintain the success of an e-business (Chaffey, 2009).

2.2. E-commerce Definition

When talking about E-commerce there is no consensus about its definition. For Chaffey, (2009) and Kalakota and Whinston, (1997), e-commerce is considered to be every transaction mediated through electronic means between an organization and the third party it is dealing with. For the authors who agree with this definition, the transactions do not need to be financial to be considered e-commerce, the trade of information for example is considered part of it. According to the authors who believe in this definition, besides including the actual sale of goods and services, electronic commerce also includes the pre-sale and post-sale activities across the supply chain (Chaffey, 2009). In accordance with this view of e-commerce Kalakota & Whinston (1997) referred four different perspectives of e-commerce: a communication perspective, which included the delivery of information, goods, services and payments through electronic means; a business process perspective, which included the using of technology in order to automate business transactions and workflows; a service perspective, in which the speed and quality of service delivery were increased while cutting costs at the same time; and an online perspective, which included the transaction of goods and information by online means.

In opposition to this opinion, some believe that e-commerce is considered to be the use of internet, the web and mobile Apps to transact business. For these, in order for a transaction to be considered inside the scope of electronic commerce it must happen

among organizations and individuals, involve the exchange of value and be provided through digital means, in other words, done through the internet, the web or via an App (Laudon & Traver, 2014). E-commerce and e-business are often considered to be the synonyms (Damanpour & Damanpour, 2001). However, for Laudon and Traver (2014) e-business seems to be a broader term since it includes every activity within the company which is based in information systems controlled by it and digitally enable transactions and processes within the firm. In other words, e-business are internal processes that are based on ICTs which do not directly generate revenue. It is clear that these processes directly support the online transactions however, e-business only turns into e-commerce when an exchange of value occurs (Laudon and Traver, 2014).

Electronic commerce can be classified taking into account the intervenient and the direction of the transaction, with that said, we can consider three main types of E-commerce (Laudon & Traver, 2014):

- Business-to-Business – This business mode comprises every electronic transaction of goods or services done between two enterprises. In this type of E-commerce, the transaction is usually done between the producer and the retailer.
- Business-to-Consumer - The commercial relationship within this type of E-commerce is established between the company and the final consumer. This is probably the most common type of e-commerce given the fact that it is normally adopted by traditional retailers who want to acquire an extra sales channel to get its goods or services to its customers.
- Consumer-to-Consumer - This type of E-commerce comprises every transaction that is established between two consumers through electronic means. These transitions are often done with the support of a third entity that provides the electronic platform.

Even though Business-to-Government is usually considered to comprise every transaction done between a company and the government through electronic means Laudon & Traver, (2014) consider this type of e-commerce to be within the scope Business-to-Business. In this case, Laudon & Traver (2014) view the government as a business acting as a procurer of goods and services from another business.

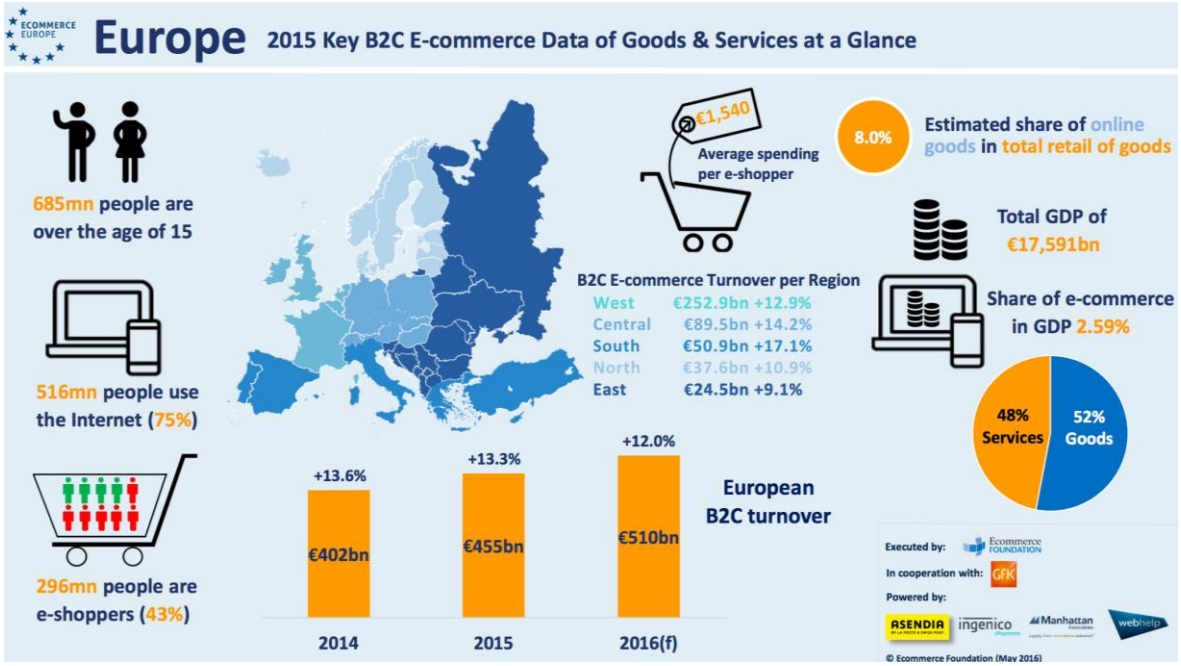
When talking about the types of e-commerce, Laudon & Traver (2014) also highlight the following types as being subsets of the previously stated types of e-commerce:

- Social e-commerce – Considered to be the e-commerce enabled by social networks and online social relationships.
- Mobile e-commerce – Considered to be the use of mobile devices to conduct transactions. This kind of e-commerce seems to be growing rabidly given the steep growth the world has been witnessing in the use of smartphones.
- Local e-commerce – Considered to be the engagement of customers based on their current geographical location. An example of this would be, local companies using a variety of segmented marketing techniques to drive costumers to its stores.

2.3. E-commerce in Europe

According to Ecommerce Foundation (2016) in 2015 there were around 685 million individuals in Europe aged above 15 years old and nearly 75% of them (516 million citizens) used the internet. In the same year, 43% (296 millions) of the internet users were e-shoppers. The report also stated that there were around 4.2 billion e-commerce orders delivered during that period and that 2.5 million jobs were created directly or in directly due to these e-commerce transactions. The turnover that resulted from e-commerce transactions has been increasing each year (Figure 1).

Figure 1: E-commerce in Europe, Facts and Figures.



Source: Ecommerce Foundation (2016). European B2C E-commerce Report 2016.

When compared to 2014, in Europe, this indicator has increased 13.3% within an year (Ecommerce Foundation, 2016). It was estimated that 2,59% of Europe's GDP in 2015 was generated from e-commerce transactions, however, there were countries in which e-commerce's importance in their GDP was considerably greater than the European average, namely the United Kingdom (6,10%), Denmark (4,40%) and Finland (3,5%) (Ecommerce Foundation, 2016). Regarding the turnover originated by B2C sales, United Kingdom still takes the lead since 34,5% of the revenues prevenient from B2C sales in Europe were generated in that country (Ecommerce Foundation, 2016). When it comes to the goods and services sold through this channel in Europe, it is clear that some groups of goods are preferred to be bought online when compared to physical stores (Ecommerce Foundation, 2016). The report states that, within the period analysed, 77% of the flights and leisure sales in Europe were done through e-commerce which when compared to food retail presents an enormous difference since within this sector, only 3% of the sales were done through the internet (Ecommerce Foundation, 2016).

Even though, the food retail sector has one of the lowest e-commerce penetration, with only the medicine sector having a lower percentage of e-shoppers, it has witnessed the greater increase (3%) in e-shoppers from 2015 to 2016 (Ecommerce Foundation, 2017). Regarding B2C's e-commerce growth rate, it is in general decreasing, however, it still remains strong, with an expected growth rate in 2017 of 13,6% (Ecommerce Foundation, 2017). When it comes to the age groups that are more prone to shop online, individuals from 16 to 24 years were the ones that most shopped online followed by 25-54 year olds and finally the 55-74 year olds (Ecommerce Foundation, 2017). Although the older internet users were the ones that shopped online least, they too have been increasing. When looking at the numbers, in 2013 only 27% of the internet users within this age group were e-shoppers and by 2016, 35% of them were already shopping online (Ecommerce Foundation, 2017). Given Europe's demographic trends, namely, the way its population is ageing, it is safe to state that this age group will soon represent one of the most important population segments for e-commerce since many of the 25-54 year olds will soon be older and the 16-24 year olds will start diminishing. Regarding the level of education of the e-shoppers, individuals with and higher education degree seem to be more prone to shop online since 78% of them completed a purchase through the internet in 2016. When it comes to the professional situation of the citizens who shop online, the

unemployed seem to be the ones that shop online the least since only 40% of them purchased at least once in 2016 (Ecommerce Foundation, 2017).

2.4. E-commerce in Portugal

According to Ecommerce Foundation (2016) nearly 70% of the Portuguese population aged above 15 years in 2015 (6.1 million individuals) were internet users. Regarding B2C e-shopper's in Portugal, these have grown around 45% between 2009 and 2012 (ACEPI & IDC, 2013), and by 2015, 35% of the internet users were already making purchases B2C through the internet (Ecommerce Foundation, 2015). Moreover, Portuguese e-shoppers have been spending on average, larger amounts of money on their online purchases (Ecommerce Foundation, 2016). As a consequence, B2C's turnover, as grown more than 52% between 2009 and 2012 (ACEPI & IDC, 2013) and 15.9% more between 2012 and 2015(Ecommerce Foundation, 2016). When it comes to the e-grocery sector in Portugal, in 2015, only around 2% of the overall B2C's turnover was generated by the sale of food through the internet (Ecommerce Foundation, 2016).

Although B2C's importance in the overall Portuguese GDP is still not very significant reaching the predicted value of 2.5% of the Portuguese GDP by the end of 2017, when talking about e-commerce in general (B2C, B2B and B2G), it is expected to represent 45% of the overall Portuguese Gross Domestic Product by the same year (ACEPI & IDC, 2013). This indicator shows that, although B2C e-commerce is still in its early stages and the final consumers are still getting used to this way of acquiring their goods and services, the Portuguese companies and the Portuguese government are already using this tool on their day-to-day activities. It is important to state that it is normal that B2C might still represent a smaller importance for the Portuguese GDP than B2B and B2G given the amounts that are exchanged in B2B and B2G (ACEPI & IDC, 2013).

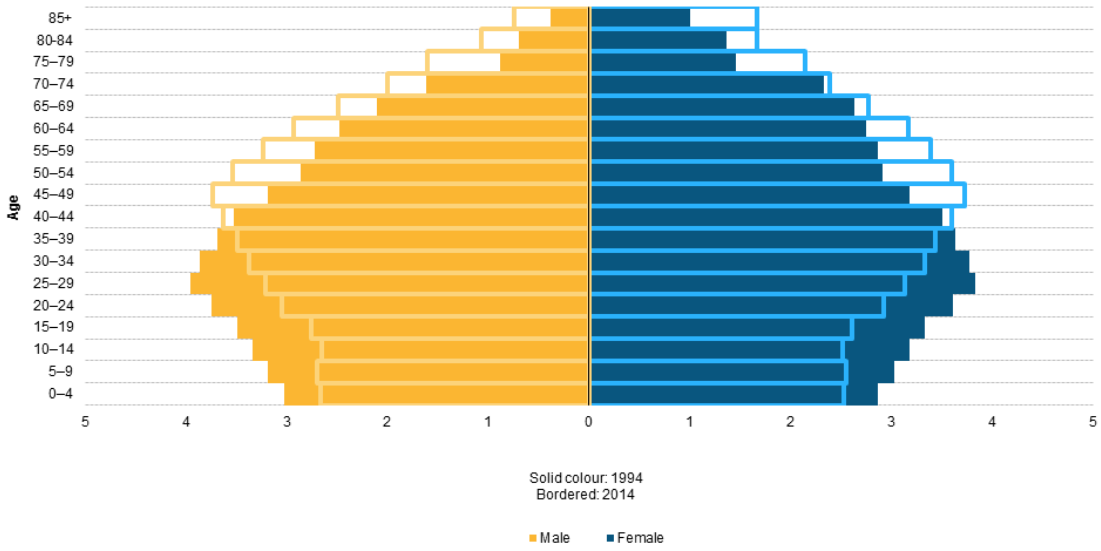
By analysing these facts and figures it is possible to understand the increasing importance e-commerce is playing in the Portuguese Economy and, as a consequence, the increasing number business opportunities based on e-commerce.

2.5. E-commerce and ICTs in the Elderly

Europe's population ageing comprises one of the greatest challenges regarding the social and economic status of the region. By looking at the age pyramid available in figure 2., when comparing Europe's population structure of 1994 with 2014, it can easily be

concluded that while individuals aged bellow 39 years represent nowadays a lower portion of the overall population, individuals aged above 40 years old have increased greatly. This difference seems to be even greater when looking at people aged 55 and above. This fact is explained not only by the low fertility rate this region has been witnessing, but also by the increasing life expectancy and the greater awareness with health-related issues among European individuals (Eurostat, 2015). Even though these facts might be a challenge for the European policy makers, they comprise a great business opportunity for private companies which can take advantage of this increasingly important customer segment.

Figure 2: European Age Pyramid



Source: Eurostat (2015). People in the EU – statistics on demographic changes. Retrieved in 2017, from: http://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_%E2%80%93_statistics_on_demographic_changes

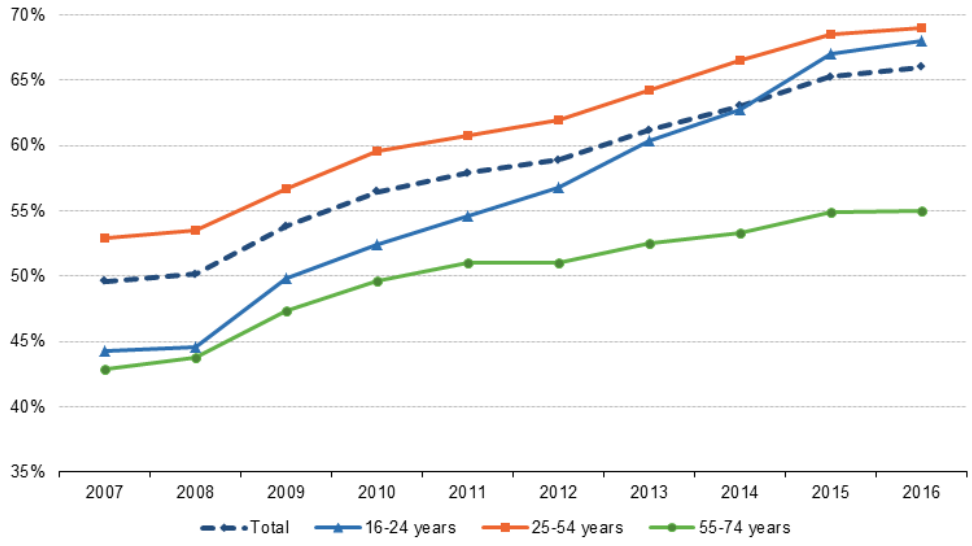
As stated previously in this document, more and more companies have started using new technologies, namely e-commerce, to enhance their value proposition and consequently create more value for the company. With the increasing portion of the elderly population particularly in Europe, it seems obvious that sooner or later these companies will have to approach this customer segment in order to ensure their success or increase their market share. Research work from multiple authors show that while society is ageing, elderly people are becoming an important potential market for companies who offer online shopping services (Lian and Yen, 2014). However, even though an increasing number of industries like the mobile phone sector, the nutrition and the transportation sectors have

started developing elderly-specialized goods and services, few e-commerce websites have enhanced their service towards a facilitated use of this technology from the third age customer segment (Wagner, Hassanein and Head, 2010).

That being said, this section aims to give a better understanding of this customer segment when it comes to the use of ICTs and e-commerce, in order to provide crucial recommendations for when designing an e-commerce based service for this type of customer.

First of all, let's take a quick overview over the e-commerce adoption levels in the European elderly population. By analysing figure 3, it is safe to state that the 54-74 year olds are still the ones that least shop online with only 55% of them having acquired a good or a service at least once between 2015 and 2016. When looking at the 25-54 year olds we can see the scenario is completely different. In this case nearly 70% of the individuals shopped online at least once within the same period. However, by analysing the age pyramid shown previously it can be concluded that this graph might be changing in the near future. Given the fact that individuals from 25-54-year-olds will soon start becoming older and their e-shopping habits will most probably continue engrained in their life styles, the portion of elderly people shopping online is likely to increase. Moreover, according to Pew internet & American life project (2010) older adults are becoming more online skilled and tend to be more active in the future.

Figure 3: European E-shoppers



Source: Eurostat (2016). E-commerce statistics for individuals. Retrieved in 2017 from: http://ec.europa.eu/eurostat/statistics-explained/index.php/E commerce_statistics_for_individuals

Even though this scenario is likely to change in the future, it is necessary to understand what is preventing older adults from this generation from shopping online. With this in mind Lian and Yen (2014) developed a research to understand what is driving (drivers) older individuals to shop online and, on the other hand, what is preventing them to conclude and online purchase (barriers). To understand the factors driving older adults to use e-commerce, Lian and Yen (2014) used the "Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh *et al*. (2003). Among others, this theory highlighted four main drivers for the use and acceptance of technology:

- Performance expectation*: "the level to which users expect that the IT will improve their job performance."* (Lian and Yen, 2014)
- Effort Expectation*: "indicates the degree to which users expect the IT will be easy to use"* (Lian and Yen, 2014)
- Social Influence: *"the degree to which the users' peers expect them to use the new IT."* (Lian and Yen, 2014)
- Facilitating Conditions: *"the degree to which users perceive that the organizational and technical infrastructure will help them use the new IT."* (Lian and Yen, 2014)

On the other hand, to study the barriers preventing the elderly from shopping online, Lian and Yen (2014) used the Innovation resistance theory proposed by Ram (1987) which stated that the barriers towards the acceptance of innovation can be functional (usage, value and risk) or psychological (tradition and image). These barriers are described in greater detail below:

- *"Usage: If the use of the innovative product is inconsistent with the consumer's past experiences, values, and acceptance requirements, and is incompatible with work and habits, the consumer will need a longer time to accept the innovation."* (Lian and Yen, 2014)
- *"Value: When the consumer tries to assess the value difference between the innovative product and an existing product, the user will not be willing to accept the change unless the innovative product provides a higher value than does the existing product."* (Lian and Yen, 2014)
- *"Risk: When the user does not adequately understand the innovative technology*

in the new product, the user cannot assess the associated risks and uncertainties that will arise after its use. This situation will ultimately lead to the refusal of accepting the innovation." (Lian and Yen, 2014)

- *"Image: An image-based barrier is produced when the user has an unfavourable impression of the originating country, brand, industry, or side effects of the innovation."* (Lian and Yen, 2014).
- *"Tradition: The tradition barrier comes into play when the innovation changes the user's existing culture and comes into conflict with it. The greater the conflict, the stronger the resistance."* (Lian and Yen, 2014)

In their research, the authors concluded that, for the elderly, the main drivers influencing an online purchase are both performance and social influence. On the other hand, the main barriers preventing the older adults to make use of e-commerce, seem to be risk, value and tradition. When compared to younger adults, the elderly seem to have less drivers and more barriers towards the use of e-commerce, moreover, the barriers risk and tradition seem to have a greater impact for older adults (Lian and Yen, 2014).

Although this research might give some insights regarding what it is driving and preventing older people from shopping online, it does not refer the technical difficulties the elderly might face when using the device to conclude a purchase. According to Global web index (2017), smartphones are currently the most used device in the world to access the internet. That being said, when thinking about the development of a business model for a technological solution to fight malnourishment among the elderly, it is clear that mobile devices must be taken into account. Hence it is necessary to understand how this age group acts towards this technology, in other words, what are their main difficulties when managing this mobile device. To our knowledge, regarding this topic, various authors have provided some insights, however the work of Zhou, Rau and Salvendy (2014) and Hwangbo *et al*. (2013) is particularly relevant for this purpose. Zhou, Rau and Salvendy (2014) who investigated the impact of the size of the display, on smartphone's text entry acceptance and performance among older adults, found out that, when using small screened devices (3.5 in and 5 in), older adults performed better and quicker when handwriting than when typing, moreover, the acceptance among the audience was higher when handwriting. On the other hand, when typing, the bigger screens (7 in) contributed to a faster task completion and a higher perceived ease of use from the older adults.

Regarding the work of Hwangbo *et al.* (2013) which studied the pointing performance of elderly users on smartphones, the main conclusions were that, size and spacing of buttons in the touch screen highly influence the elderly performance in managing the smartphone, moreover, with bigger buttons and wider space between them, the third age segment seem to complete the task quicker.

2.6. E-grocery

The retail sector is highly characterized by its continuous change along the years. However, even though each day we witness small changes in this sector, like the opening of new stores, creation of new brands, invention of new loyalty and affinity programs or even innovation towards a more automated and efficient supply chain, the real incremental changes in this sector come along every few decades (Desai *et al*., 2013).That being said, the first step taken towards the reality of what retail is today was taken in 1916 with the opening of Piggly Wiggly, which was the first self-service grocery store (Desai *et al*., 2013). This marked the Retail 1.0 era and implied that for the first-time manufacturers needed to care about their packing and branding in order for their products to been seen and bought by the customers. By 1932 this company had already 2500 established stores and proved the concept which made other companies to follow its steps (Desai *et al*., 2013).

Retail 2.0 was marked mainly by the opening of the first hypermarket in 1963 in Paris by Carrefour and by Walmart in the US. The main value proposition for the customer here was that he could get everything he needed in just one place. For the companies, it represented higher productivity, efficiency, better space utilization and cost management which consequently provided lower prices for customers (Desai *et al*., 2013).

After this, we had the rise of e-commerce which marked the era of Retail 3.0. By 1995 Jeff Bezos tested a new business model in which people could buy bulky items like books through the internet and write their reviews about the product/service at the platform. This has helped him to differentiate its service from the bricks and mortars competitors and greatly explained the success that Amazon.com has today. By 1997 Amazon.com had already generated $15 millions in revenue which made the world be aware of what e-commerce could mean for businesses. Fascinated by this new way of making business, the first e-grocery players started rising. “Webvan” was one of the first e-commerce pure players to appear, however, it failed given its high operating costs and low customer

adoption, probably explained by the decade it was launched in since the internet penetration was still very low. After this, new business models have risen with a mix of physical stores and virtual stores, the so-called Bricks and Clicks business model. Only a decade later after the first e-grocery player appearance we are starting to see sustainable e-grocery business models (Desai *et al*., 2013).

The fourth and most recent era is Retail 4.0, or the Multichannel retailing era, which is mainly characterized by technologies' increasing importance on people's behaviour towards grocery retail. This fact can be mirrored by the increasing number of people using mobile devices before they acquire their goods or services in order to make their purchase in more informed manners (Desai *et al*., 2013). According to Levy and Weitz (2009), multichannel retail is characterized by the groups of activities involved in selling goods and services to customers through more than one channel. This type of retail seems to be increasing each day since with the appearance of internet, traditional bricks and mortars retailers have started using this tool to complement their store offering with an online channel enhancing their value proposition (Zhang e*t al*., 2009). When a retailer integrates all its channels providing a full mobility experience among them, it is called Cross-channel retailing, in this case, the retailer is able to increase its customer satisfaction, exploit unique benefits and overcome issues of its individual channels (Zhang *et al*., 2009). For Laudon & Traver (2014), multichannel integration regards the integration of the retailer's Web and mobile platforms with their physical store operations in order to provide an integrated shopping customer experience, leveraging their physical stores' value. Regarding this topic, the authors have highlighted some of the most common multichannel integration types in retail, which can be seen in table 1 retrieved from Laudon & Traver (2014).

Table 1: Examples of Channel Integration

INTEGRATION TYPE	DESCRIPTION
Online order, in-store pickup	Probably one of the first types of integration.
Online order, store directory, and inventory	When items are out of stock online, customer is directed to physical store network inventory and store location.
In-store kiosk Web order, home delivery	When retail store is out of stock, customer orders in store and receives at home. Presumes customer is Web familiar.
In-store retail clerk Web order, home delivery	Similar to above, but the retail clerk searches Web inventory if local store is out of stock as a normal part of the in-store checkout process.
Web order, in-store returns, and adjustments	Defective or rejected products ordered on the Web can be returned to any store location.
Online Web catalogue	Online Web catalogue supplements offline physical catalogue and often the online catalogue has substantially more product on display.
Manufacturers use online Web site promotions to drive customers to their distributors' retail stores	Consumer product manufacturers such as Colgate-Palmolive and Procter & Gamble use their Web channels to design new products and promote existing product retail sales.
Gift card, loyalty program points can be used in any channel	Recipient of gift card, loyalty program points can use it to purchase in-store, online, or via catalogue, if offered by merchant.
Mobile order, Web site and physical store sales	Apps take users directly to specially formatted Web site for ordering, or to in-store bargains.
Geo-fencing mobile notification, in-store sales	Use of smartphone geo-location technology to target ads for nearby stores and restaurants.

Source: Laudon, K. C., & Traver, C. G. (2014). E-Commerce 2014: Business, Technology and Society (10 ed). New Jersey: Pearson Education, Inc.

New e-grocers keep appearing daily, whether because producers and wholesalers might see in e-grocery an opportunity of widening their sales by selling directly to the final customer or as a way of already established retailers gaining market share or maintaining their leading position (Saskia *et al*. 2015). However, the appearance of these new e-

grocers seems to be a lot more related to the strengthening of the customer loyalty and relationship than to the economic gains that may come from it (Saskia *et al*., 2015).

2.7. E-grocery Potential in the Retail Sector

Customers who shop online benefit from various advantages when compared to customers who shop at bricks and mortars supermarkets. Shopping online requires a lot less effort from the customer because he can do it quicker but also because he does not need go to the supermarket to get the groceries he needs. Besides, the customer who gets his groceries through e-commerce does not need to worry about the freshness and quality of the perishable goods he acquires given the fact that they are kept under controlled conditions from when they leave the shelf until they get to his house. Even though this value proposition remains the same for most of the e-grocery business models around the world, some countries seem to be adopting this way of acquiring their groceries better than others (Scott & Scott, 2008). Although, the food retail market generated around $2,155 Dollars in 2015, only 2% was generated through internet sales (Euromonitor International, 2015). However, if we look at markets like South Korea, China and the United Kingdom, their online grocery sales were respectively 10%, 6% and 6% which is considerably higher than average (Euromonitor International, 2015). By 2019 China's online grocery sales are expected to be 9% of the whole grocery sales which when compared to other countries who also experience high levels of internet adoption is greatly higher since in these countries, e-grocery sales are expected to represent 3-4% of total grocery sales (Euromonitor International, 2015). The slow growth of groceries internet sales may be explained by the scepticism of the consumers regarding the product quality and convenience, but also by the high expenses retailers face in implementing logistically efficient internet delivery services (Euromonitor International, 2015). When observing the cocktail of optimal conditions South Korea has, it is easy to understand why it comprises a best in class example in online grocery shopping. First of all, 99% of the population uses broadband connections, which mirrors the unique tech-savviness of its population, moreover, a large portion of the population lives in urban areas and has low car ownership. Secondly, 35% of the population lives in households with children, which make them more prompt to shop online given the additional convenience the service provides. Last, but not least, the success of South Korea's e-grocery market is explained by the aggressive marketing and merchandising strategy existent in the country (Euromonitor International, 2015).

It is safe to state the success of the e-grocery is directly related to the market it is inserted in. Demographic factors highly influence the consumer's attitude towards the use of e-grocery. Besides, the population's life-style, and their ease in reaching physical stores to acquire their goods might also influence if they are willing to buy the groceries through the internet or not. However, since people are working longer and getting more sedentary, these facts may imply that in the near future populations will be more willing to accept the increased expenses related to the delivery charges in e-grocery and change gradually their engrained shopping habits of shopping in physical stores.

2.8. Business Model's Building Tool

The world we are living in keeps changing on daily basis. Moreover, the economic stability is not as regular as it used to, making the businesses' decision-making process more challenging and complex (Osterwalder, 2004). Innovation keeps happening and companies must stay prepared and flexible enough in order to react to market changes (Osterwalder, 2004). Even though these facts, until Osterwalders' proposal of a business model ontology in his doctoral thesis, there were no tools that efficiently and effectively helped the managers to "*assess, understand, measure, change, communicate or even simulate their business models"* (Osterwalder, 2004, pp 11). Managers, in general know their business models, however, they are not able to communicate it to the rest of the company, most probably because they have lack of a tool to do it clearly (Linder and Cantrell 2000).

But what is after all a business model? According to the dictionary, by joining the meaning of the words "business" and "model" "*a business model is a representation of how a company buys and sells goods and services and earns money*" (Osterwalder, 2004, pp 14). More deeply, Osterwalder (2004, pp 14) defines it as being *"the representation of the business logic in a company"* or in other words, the tool that answers three basic question, what does the company sells, to whom does it sells and how does it sells it.

With this in mind, Osterwalder proposed its own ontology of a business model that could efficiently provide managers with a tool that could clearly be understood and communicated within the organization. Even though this tool does not ensure the success of a company since it as to be implemented, it acts as a connecting point between the business strategy and its processes (Osterwalder, 2004).

Influenced by the Balanced Scorecard approach and other business management bibliography, Osterwalder (2004) adopted a framework that highlighted the areas that a business model would have to address:

- The "PRODUCT: What business the company is in, the products and the value propositions offered to the market." (Osterwalder, 2004).
- The "CUSTOMER INTERFACE: Who the company's target customers are, how it delivers them products and services, and how it builds strong relationships with them." (Osterwalder, 2004).
- The "INFRASTRUCTURE MANAGEMENT: How the company efficiently performs infrastructural or logistical issues, with whom, and as what kind of network enterprise." (Osterwalder, 2004).
- The "FINANCIAL ASPECTS: What is the revenue model, the cost structure and the business model's sustainability." (Osterwalder, 2004).

Since, the author, wanted to go deeper in terms of granularity of a business model, he divided these four basilar pillars into nine business model elements, or as he calls it, nine building blocks. The following table retrieved from Osterwalder (2004) describes each of the building and relates them with the four basilar pillars stated previously.

Table 2: Business Model Ontology – Building Blocks.

Pillar	**Building Block of Business Model**	**Description**
Product	Value Proposition	A Value Proposition is an overall view of a company's bundle of products and services that are
Customer Interface	Target Customer	The Target Customer is a segment of customers a company wants to offer value to.
	Distribution Channel	A Distribution Channel is a means of getting in touch with the customer.
	Relationship	The Relationship describes the kind of link a company establishes between itself and the
Infrastructure Management	Value Configuration	The Value Configuration describes the arrangement of activities and resources that are necessary to create value for the customer.

Pillar	Building Block of Business Model	Description
	Capability	A capability is the ability to execute a repeatable pattern of actions that is necessary in order to create value for the customer.
	Partnership	A Partnership is a voluntarily initiated cooperative agreement between two or more companies in order to create value for the customer.
Financial Aspects	Cost Structure	The Cost Structure is the representation in money of all the means employed in the business model.
	Revenue Model	The Revenue Model describes the way a company makes money through a variety of revenue flows.

Source: Osterwalder, A. 2004. The business model ontology—A proposition in a design science approach. Dissertation 173, University of Lausanne, Switzerland.

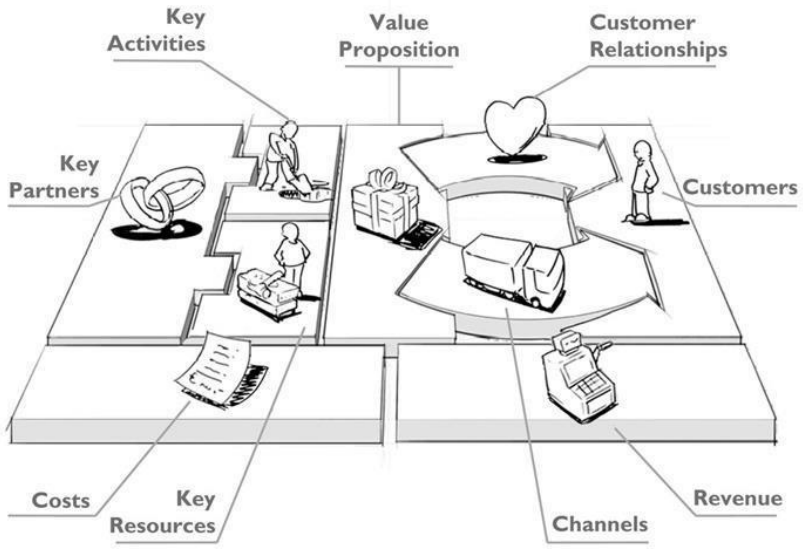
Later on, Alexander Osterwalder and Yves Pigneur authored the "Business Model Generation" in which the tool "Business Model Canvas" was presented. This tool was based on the research work Osterwalder had developed in 2004.

The rationale behind this tool will be presented in detail in the following section of this document.

2.8.1. The Business Model Canvas

The Business Model Canvas is a strategic tool that helps structuring a new product or business in an effective and visual way. The application of the Business Model Canvas consists in using a panel divided in nine different blocks that represent the building blocks that are part of the business model. The main objective in the exercise of filling the panel is to extract the Value Propositions that empowers the main desired objectives before formatting the service or product itself (Osterwalder and Pigneur, 2010).

Figure 4: The Business Model Canvas



Source: Osterwalder, A., & Pigneur, Y. (2010). Business model generation: A handbook for visionaries, game changers, and challengers. Hoboken: John Wiley & Sons

The **Customer Segment Block** is represented by the different group of people or organizations with common necessities and behaviours that the business intends to serve. This block should be filled in first in order to map the segment of clients for who the business plans to create value and who are the potential clients that meet the desired objectives. This block should be able to answer the following questions (Osterwalder and Pigneur, 2010):

- For whom are we creating value for?
- What are the characteristics of these segments?
- Who are our most important customers?

The **Value Proposition Block** is filled in with the proposal that answer specific necessities of the Customer Segment taking into account the business objective defined in the first place. It represents the package of products and services that generate value to each of the customer segments. Both the Customer Segment and the Value Proposition blocks consist of the two main blocks in the all canvas panel since all the other blocks will be based on these two. When defining this block, these are the questions that should be taken into account (Osterwalder and Pigneur, 2010):

- What value are we generating\delivering to the customer?
- What issues do we intend to solve?
- What customer necessities are we satisfying?
- What group of products\services are we offering to each of our Customer Segments?

Having defined the Customer Segment and the Value Proposition it is necessary to find a way to connect them. This Block is called **Channels** and it describes the way the Value Proposition will be distributed/delivered and communicated to the Customer Segment defined. The Channels help the Customer Segment to meet and evaluate the Value Proposition, to acquire and make use of the product or service and to later receive support or assistance. Having defined this block, it should be able to answer the following questions (Osterwalder and Pigneur, 2010):

- Through which channels do our Customer Segments want to be reached?
- How are these channels integrated? How are we integrating them with the customer routines?
- Which are the most cost-efficient channels?

The next step is to define the **Customer Relationship**. It refers to the kind of relationships that the business establishes with its Customer Segments. More than communicating with the specific segment as a whole, this block refers to the types of individual relationships that the business establishes with its clients and potential clients. It is the customer relationship management program in its broadest sense (not in its CRM software sense as it is generally used). When filling in this block, these are some of the questions that should be taking into account (Osterwalder and Pigneur, 2010):

- What type of relationship does each of the customer segment expect us to establish and maintain with them?
- How costly are they?
- How are they integrated with the rest of the business model?
- What can we expect in terms of acquisition, retention and up-selling in each of these relationships?

Finally, to complete the right side of the canvas, there is the **Revenue Streams**. The role of this block is to define how will the solution that is being built generate revenue based on the Value propositions that was defined. It Is the definition of how/how much is each of the Customer Segment willing to pay for the quantity of value acquired. This block should be able to answer the following questions (Osterwalder and Pigneur, 2010):

- What does the client valorise and what is he willing to pay for?
- For what are they currently paying?
- How are they currently paying?
- How would they prefer to pay?
- How much does each Revenue Stream contribute to overall revenues?

On the left side of the canvas we can find more objective definitions that will sustain the elements that were mapped in the right side of the Canvas.

Every business model requires **Key Resources**. These resources allow an enterprise to create and offer a Value Proposition, reach markets, maintain relationships with Customer segments, and earn revenues. Key Resources can be physical, financial, intellectual, or human. They can be owned or leased by the company or acquired from key partners. These are the most important assets required to make a business model work. The key resources should be defined taking into account the following questions (Osterwalder and Pigneur, 2010):

- What are the key-resources needed for our Value Proposition?
- What are the key-resources needed to put our Channels in use?
- What are the key-resources needed to implement how Revenue Streams?
- What are the key-resources needed for our customer Relationship Management?

Every business model calls for a number of **Key Activities**. These are the most important actions a company must take to operate successfully. Like Key Resources, they are required to create and offer a Value Proposition, reach markets, maintain Customer Relationships, and earn revenues. And like Key Resources, Key Activities differ depending on business model type. For software maker Microsoft, Key Activities include software development. For PC manufacturer Dell, Key Activities include supply chain

management. For consultancy McKinsey, Key Activities include problem solving. They Describe the most important things a company must do to make its business model work. The definition of the key activities should be done with the following questions in mind (Osterwalder and Pigneur, 2010):

- What are the key-activities for our Value Proposition?
- What are the key-activities to operationalize our channels?
- What are the key activities for our customer relationship management?
- What key-activities do our Revenue Streams require?

The **Key Partnerships** describe the network of suppliers and partners that make the business model work. Companies forge partnerships for many reasons, and partnerships are becoming a cornerstone of many business models. Companies create alliances to optimize their business models, reduce risk, or acquire resources. When defining the key-partners these are the questions that should be taken into consideration (Osterwalder and Pigneur, 2010):

- Who should be our key-partners?
- Who should be our key suppliers?
- Which key resources are we acquiring from partners?
- Which key activities do partners performs?

Finally, the **Cost Structure** is the building block that describes the most important costs incurred while operating under a particular business model. Creating and delivering value, maintaining Customer Relationships, and generating revenue all incur costs. Such costs can be calculated relatively easily after defining Key Resources, Key Activities, and Key Partnerships. This last block should answer the following questions (Osterwalder and Pigneur, 2010):

- What are the most important cost inherent in our business model?
- Which key resources are the most expensive?
- Which key activities are the most expensive?

III. The Internship

The curricular internship, done at the E-commerce business of Sonae MC, had the duration of four months, starting on the 9th of February 2017 and ending on the 9th of June 2017. The internship was integrated in the 15th edition of the program Call for Solutions which aims to receive master's students in the company and incentive them to develop their master's thesis under a corporate environment. For this purpose, SONAE challenges its interns to solve real problems that deserve scientific investigation in order to be solved. The program's objective is to bring the theory to practice since the solutions presented by the students have a real impact in the company's performance. The internship's challenge had its origin on Continente Online's collaboration in the EU-Granted Project Cordon Gris. This project is related to the Ageing topic, in the sense that it aims to improve the way older individuals are ageing by enhancing their interaction with retail and e-commerce in order to fight malnourishment among the them.

Given the specificity of the work package for which SONAE was set responsible for (Dissemination and Exploitation) in the project Cordon Gris and the relevance for scientific investigation of the deliverables that comprise it, SONAE made the following internship proposal: "Development of a business model for a technological solution to fight the malnourishment among the elderly".

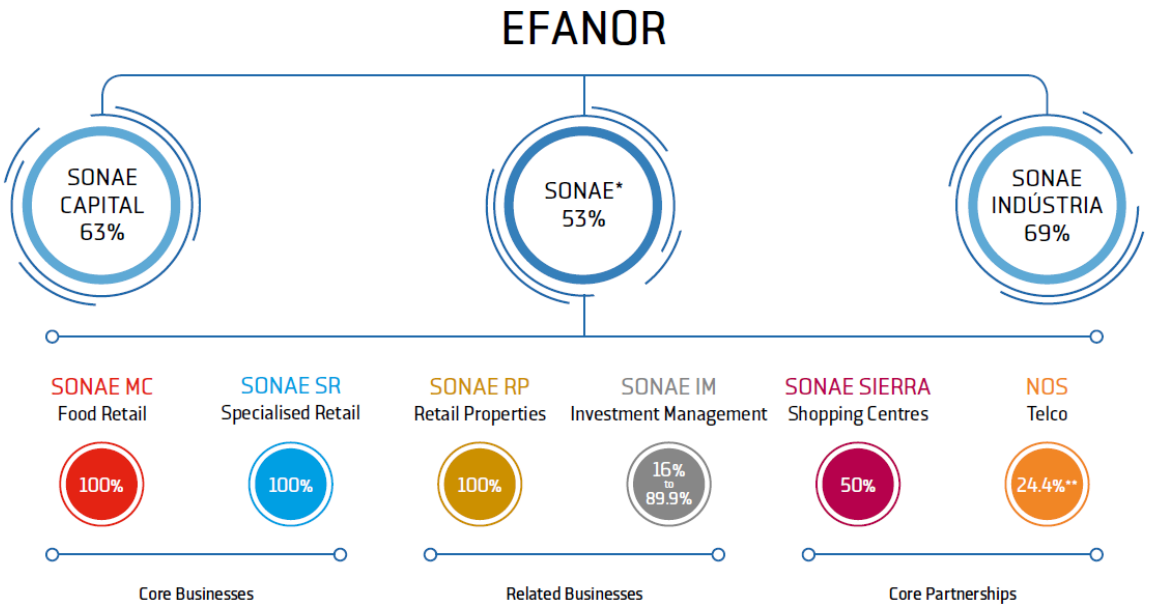
3.1. Introducing SONAE

SONAE was founded on 1965 and started has an industrial company whose core business was to produce and supply the construction and furniture market with wood derivative panels (SONAE, 2017a). In the following years, SONAE started diversifying its business portfolio in the Hotel and Restaurant management sector. By 1983 the holding SONAE investments, SGPS, SA was founded and the company enters the capital market with a stock market capitalization of €2,493 Million (SONAE, 2017a). SONAE opens its first hypermarket by 1985 which marked the beginning of Sonae Distribuição's activity in Portugal and the company's first experience in food retail. Ever since that date, SONAE continued its diversification by investing and starting business in various different markets (Real State, specialized retail, mall management, health clubs, health care, telecommunications and financial services) (SONAE, 2017a). The following scheme in

figure 5 mirrors the portfolio of businesses owned and managed by the holding EFANOR (SONAE, 2017b).

At the present, the Holding is called EFANOR and owns equity in three different companies with completely different core businesses comprising a role model in most of them (SONAE, 2017b). The holding employs around 40.000 people which makes it a crucial player in the Portuguese economy. SONAE itself, owns equity in six different companies being the major shareholder in four of them and having significant participations in the other two.

Figure 5: SONAE's Organizational Structure



Source: Sonae (2017b). Internal slides.

3.1.1. SonaeMC

Sonae MC is the food retail sector market leader in Portugal and manages a diversified portfolio of businesses with a distinct range of products whose main value proposition is to offer the best quality at the best prices (SONAE, 2017b). The businesses within Sonae MC range from hypermarkets (Continente), convenience stores (Continente Modelo e Continente Bom Dia), franchising business model of proximity stores (Meu Super), Cafeterias and Restaurants (Bagga, Bom Bocado), Book stores & stationary stores

(Note!), Healthcare and Wellness (Well's) and Pet food & Pet care (ZU) (SONAE, 2017b).

3.1.2. E-commerce at Sonae MC – Continente Online

At the present, only 38% of Portuguese companies have started using e-commerce in their day-to-day activities, Continente however, is celebrating this year its 16th anniversary of Continente Online (Hipersuper, 2017). In 2001 when only 2,1%, of the Portuguese population used e-commerce to acquire goods and services, Continente launched its E-commerce business (Continente Online) with the main value proposition, of selling food products and fresh goods through and online channel and providing the client with the delivery of these goods at their own front door from Monday to Sunday (Hipersuper, 2017). By 2006, Continente Online, had already 75.000 registered clients and 20.000 thousand different products available at the online store (Hipersuper, 2017). Last year (2016) Continente Online has delivered around more than 500.000 different orders and has witnessed an exponential growth when compared to 2015 (Continente Online, 2017). Currently, Continente Online counts with a considerable number of customers that make orders regularly and has more than 50.000 different products available on its online platform (Continente Online, 2017).

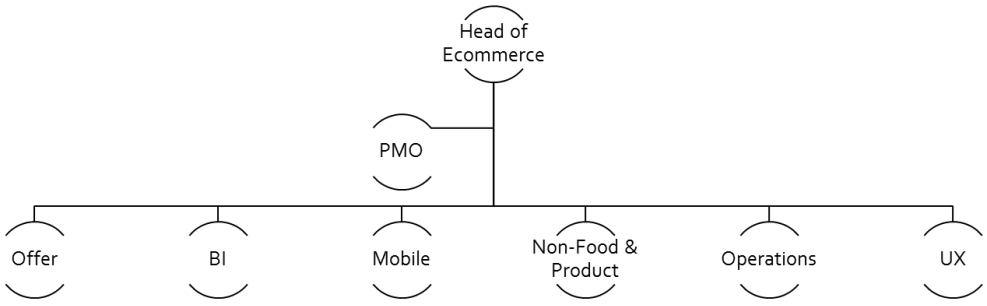
The e-commerce business of Sonae MC is institutionally represented by Modelo e Continente Hipermercados (MCH) which belongs to Sonae MC. Sonae MC on the other hand, integrates Sonae Investimentos SGPS, SA. Continente Online is comprised by the following six teams and a PMO (Project Management Office) (Continente Online, 2017):

- Offer: This team is responsible for managing the businesses the contents on the web pages of the following categories (Continente Online, 2017):
    - Bio & Healthy
    - Fresh food
    - Grocery
    - Frozen goods
    - Dairy
    - Beverages
    - Beauty
    - Health & Baby
    - Hygiene
    - Pet
- Non-food and Product: This team is responsible for managing the home, leisure and temporary businesses – School books. Besides that, they also manage the campaigns related to the customer acquisition and loyalty (Ex: Não paga mais; EntregaZERO) (Continente Online, 2017).

- Business Intelligence: This team prepares the necessary reports for the business analysis playing a crucial role for the work of other teams (Continente Online, 2017).
- Mobile: This team responsible for managing Continente Online's apps and developing new ones (Continente Online, 2017).
- Operations: This team is responsible for all the logistics related with online purchases, starting when an order is made, going through the picking in stores and finishing in the delivery of the order (Continente Online, 2017).
- UX: This team is responsible for enhancing the user experience throughout the whole customer journey, for this purpose, they manage the multimedia content of the website, follow the customer lifecycle and send digital communications in accordance with it. Besides that, the team is responsible for fomenting the digital culture among the business (Continente Online, 2017).
- Projects and portfolio: This team manages projects that are transversal to every team within the business. Cordon Gris is an example of a project managed by the PMO, however, the projects and portfolio team is also responsible managing projects that aim to mitigate crucial issues within the businesses, i.e: Stock out issues (Continente Online, 2017).

The diagram in figure 6 mirrors Continente Online’s team organigram:

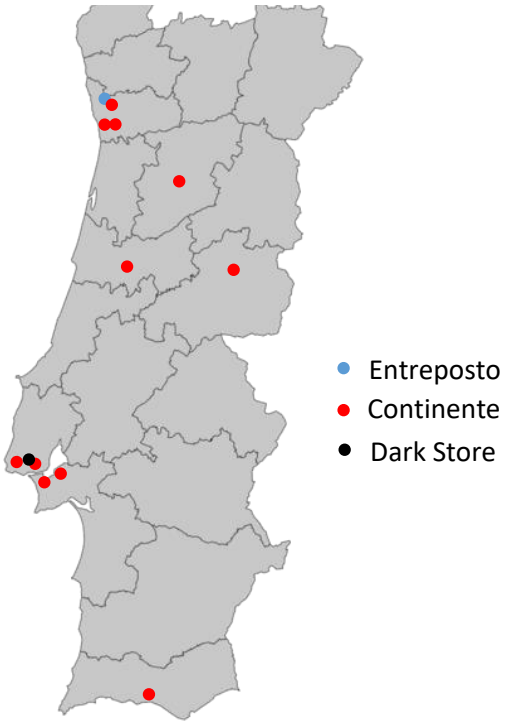
Figure 6: Continente Online's Structure



Continente Online works mainly under a B2C e-commerce business model in the sense that the goods and services are sold directly to the end-user. However, it also has a B2B business that provides other business with goods through its online channel (Continente Online, 2017). The service provided by the online platform enables Continente Online's clients to make their food/non-food purchases and receive the goods in one of two ways, home delivery or Pick-up-point where the customer can choose the goods through online platform and then pick their order in a pick-up-point (usually Continente stores) without being charged any extra fees (Continente Online, 2017).

The operational procedure in order to give answer to its client's requests is based upon a picking-in-store method where the goods required by the users are picked up in Continente stores located in Portugal (Continente Online, 2017). Presently, Continente Online has e-commerce operations settled in 12 Continente stores (Arrábida, Cascais, Coimbra Shopping, Covilhã, Telheiras, Gaia Shopping, Guia, Guimarães, Maia Jardim, Monijo, Seixal and Viseu). Additionally, the picking process can be done at a "Dark Store" located in Lisbon which consists in a "store" specially designed for the E-commerce business (Continente Online, 2017). "The Dark Store" is used exclusively to fulfil orders from Continete Online. The products centralized at the Dark Store are usually top sellers and whenever there is lack of a good, there is a back-up store in Telheiras that supports the fulfilment of the order (Continente Online, 2017). Furthermore, some businesses (Yammi, school books, toys, outdoor items etc.) are centralized at the main warehouse located in Maia and the picking of these can only be done at this location. These goods are usually top sellers or bulky items and the only way of ensuring sufficient stock and their delivery is through this method (Continente Online, 2017).

Figure 7: Continente Online's Operations



The previous map mirrors the location of all e-commerce operations where the picking and preparation process is done. Upon a first registration on the website, the platform automatically attributes one of these operations to the user taking into account the address where the goods are to be delivered (Continente Online, 2017). The available stock for the customer corresponds to the stock available at the store he was allocated. Upon the picking and preparation ready, the delivery is provided through an external partner (Continente Online, 2017).

3.1.3. Granted Projects Team

Even though the internship was done at Continente Online, the project on which the internship was based, had its origin in the granted projects team, who collaborated in the appliance process and played the crucial role of project management during the development of Continente Online's tasks within the project. That being said, the following section's objective is to introduce the Granted Projects team since the internship was partially supervised by it.

The Granted Projects Team, belongs SONAE's Corporate centre who integrates Sonae Investimentos SGPS, SA (Granted Projects, 2017). This team's goal is to seek for public

investment programs and projects that are able to give answer to the strategic guideline imposed by SONAE (Continente Online, 2017). In order to do this, the team first scans the companies' strategic guidelines, objectives and needs. After that, the team identifies opportunities which can be answered in one of two ways, through incentive schemes – if the investment has already been done and it fits in any of the incentive scheme's objectives available at the moment – or through subsidy schemes – in case there is any granted project that is aligned with SONAE's strategic guidelines that are prone to create value for the company in the future (Granted Projects, 2017). By taking advantage of these schemes, SONAE is able to keep innovating towards new ways of doing business and at the same time, share the risk involved in the process since the activities are partially financed by public entities (Granted Projects, 2017). Besides, by being part of these schemes and projects, SONAE gets to meet and work with important players and entities that might be crucial for the future of the company (Granted Projects, 2017). Since the team was created in 2016, SONAE as taken part in multiple projects with completely different scopes and objectives – R&D; Logistics Sustainability; Human resources; Business intelligence and others (Granted Projects, 2017).

3.2. Granted Projects

Every year, Sonae MC's administration defines the strategic vectors in which the businesses managed by the company will have to work on during the year. These vectors serve has guidelines for all the different businesses owned by Sonae MC in the sense that the strategic planning and the strategic decisions made by the different businesses for the year should be in accordance with the strategic vectors suggested by Sonae MC. Among other important vectors for 2017, Sonae MC has defined the "Ageing" has one of the vectors that should be approached by the businesses' strategic initiatives mainly due to the increasing weight of the third age segment in the Portuguese population. With the definition of this strategic guideline, Sonae MC aims to reinforce the relationship with the elderly and, as a consequence, get closer to this customer segment. The directions of every business within Sonae MC's business portfolio are free to approach the strategic guidelines defined by Sonae MC the way they want as long as they are aligned with the company's values, vision and goals. Continente Online approached the "Ageing" strategic vector imposed by Sonae MC by working in consortium with other players on two different granted projects, Cordon Gris and ARIES. By joining these projects, Continente Online aims to directly or indirectly improve the way the elderly people are

ageing and interacting with society, retail, and nutrition. Both projects are funded by the European Commission and aim to impact European population in a first stage. Continente Online's decision in joining the consortiums and working on these projects was motivated by four main reasons:

- Networking: Both projects are being developed in consortium, this fact enables the collaboration with international important players that might be crucial for future collaborations.
- Reaching new customers (Elderly customer segment): The elderly population's weight in the overall Portuguese Population is gaining significance each year, however, most of the times, this customer segment is not ready and willing to shop online. By joining this project, Continente Online aims to develop an elderly friendly platform able to deliver a clear value proposition for this customer segment consequently increasing the e-commerce penetration in the third age.
- Testing new technologies and business models: By being part of these projects, Continente Online has the opportunity to test new technologies and businesses models with a higher probability of success given the specialized players working on the projects. Moreover, there is less risk involved since the research activities are financed by a public entity.
- Corporate social responsibility: Like any other for-profit organization, SONAE's final objective is to generate revenue and earn profits from its operations, however, given the size of the company and its consequent impact in people's day-to-day lives, some of SONAE's actions should go beyond the interests of the company and have the social good as a main premise. Either by incentivizing the elderly to eat healthier and promoting their active ageing (Cordon Gris) or by increasing the user friendliness and the security upon an online identity validation (ARIES), both projects carry with them a great component of social responsibility.

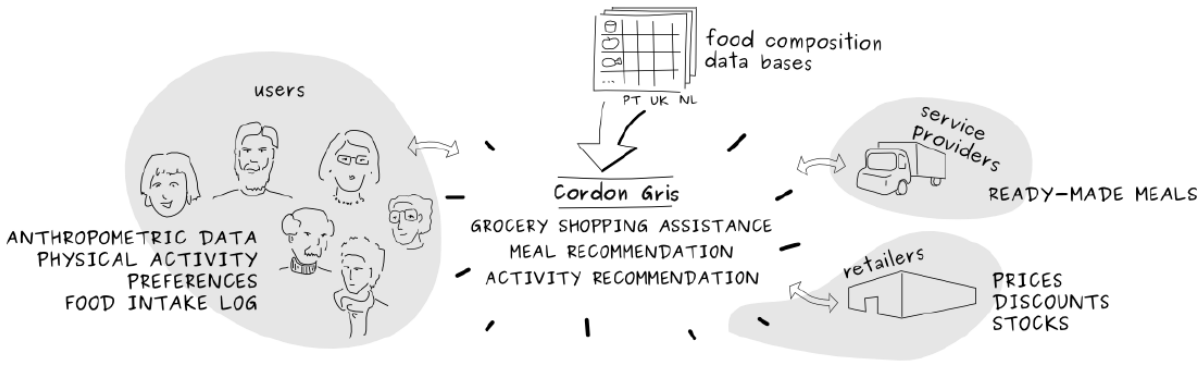
3.2.1. Cordon Gris

According to a study made by Pereira et. Al (2015) one sixth of every senior that reaches an emergency room presents signs of malnutrition and 66% of every elderly are at risk of malnourishment (Cordon Gris, 2016). This fact, on the other hand, is highly related to an individual's health status and independence. Moreover, Cabrera *et al*. (2007) found out that malnutrition can cause depression and according to Eriksson *et al*. (2005) the matter

in question negatively influences the cognitive function of the senior and its dependence on others (Cordon Gris, 2016). Furthermore, there is a vicious cycle between malnutrition and functional decline, where malnourishment causes functional decline, and functional decline leads to malnourishment (Cordon Gris, 2016). These facts lead to a main conclusion: One way of promoting the active and independent living of the senior is to provide him with the right tool that enable the elder to have healthy eating habits and adopt a healthier lifestyle (Cordon Gris, 2016). These findings allied to the great amounts of data generated by smartphones, tablets or other technologies that is not being used taking advantage of its full potential, brought to light Cordon Gris (Cordon Gris, 2016). This project's main premise is to make sense of all this data and use it for the benefit, independence, autonomy and healthier lifestyles of older people (Cordon Gris, 2016). To achieve this, Cordon Gris has brought together food suppliers, older people, local communities, meal suppliers and food retailers for an inclusive solution generating benefits for all (Cordon Gris, 2016). By using the data intelligently, Cordon Gris will help people make better decisions, help businesses and, ultimately, provide a healthy diet on a budget which, in turn, will have a positive ripple effect in other domains of people's lives (Cordon Gris, 2016).

As shown in figure 8, this project aims to create a system to gather and manage data that is relevant for the recommendation of a healthy diet from different sources: sensors for activity monitoring, user reported data, country-specific food composition databases, retailers' information and service providers' information (Cordon Gris, 2016). By making sense of all the data, the central intelligent system can generate recommendations that range from meals to physical activity or other healthy behaviours and prompt people to adopt a healthier lifestyle against malnutrition (Cordon Gris, 2016). With its intelligent treatment of the data, along with the recommendations, the project will provide the conditions for the 'flat-rate food' concept to become a reality (Cordon Gris, 2016).

Figure 8: Cordon Gris' Starting Point



Source: Cordon Gris (2016). D1.3 Description of work. (Restricted deliverable).

The system aims to create an ecosystem in which the core entities of the food supply chains are involved in order to assist users in improving the quality of their nutrition and help them manage their available budget. That being said, the project's objective is to tackle three main challenges (Cordon Gris, 2016):

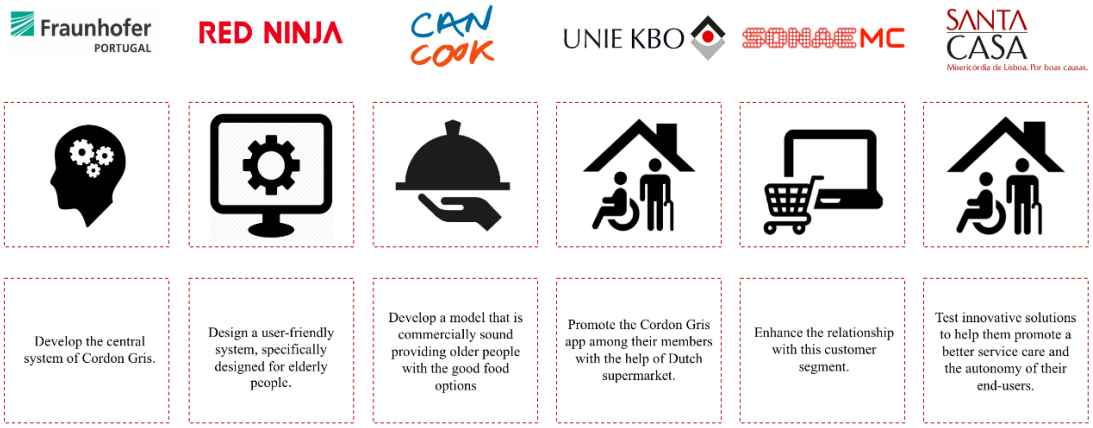
1) Creating a data store that is able to withstand the whole ecosystem.
2) Developing the technology and algorithms that make the flat-rate food concept possible through the analysis of all the data.
3) Creating a user-friendly system with intuitive user interfaces that are adapted to the hopes and needs of older people

The system is envisioned to act, on the one hand, as a tool for independence of older people and, on the other hand, as a tool for the monitoring of the users' evolution in time, offering relevant information to care givers, nutritionists and significant others (Cordon Gris, 2016).

3.2.1.1. Involved players

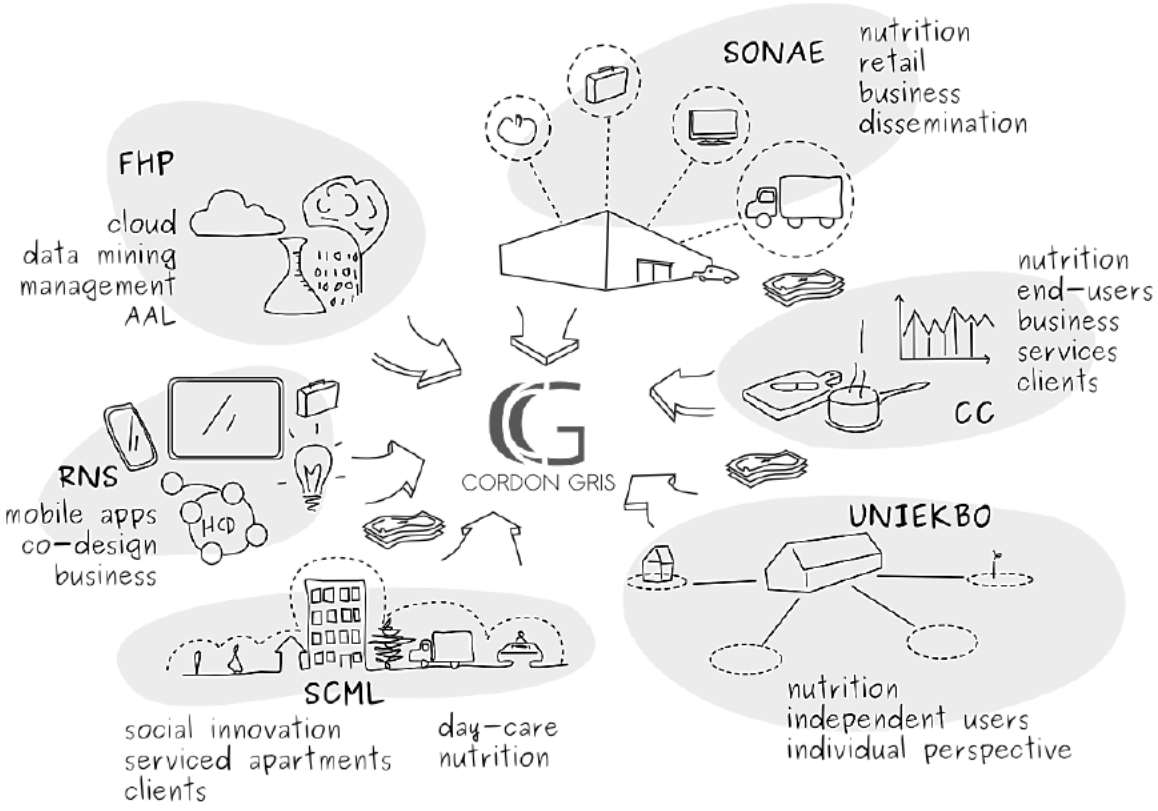
As stated before, Cordon Gris is a granted project in which different the partners are working in consortium. The consortium includes all actors in the innovation cycle, including research and scientific expertise (FhP), development & deployment (FhP, RNS, SONAE), end-users (SCML, UNIEKBO, CC) and business exploitation (RNS, CC, SONAE). That being said, the consortium comprises six different players from three different countries (UK, NL and PT). Figure 9 shows each player's role within the project.

Figure 9: Players' Role in Cordon Gris



The partners involved in the consortium provide a great balance between R&D, End-users, Developers, and Service providers, this fact provides a higher probability of success upon the end of the project given the complementarity existent within the consortium. The symbiosis between the players involved in the project is mirrored in figure 10.

Figure 10: Cordon Gris' Players Complementarity.

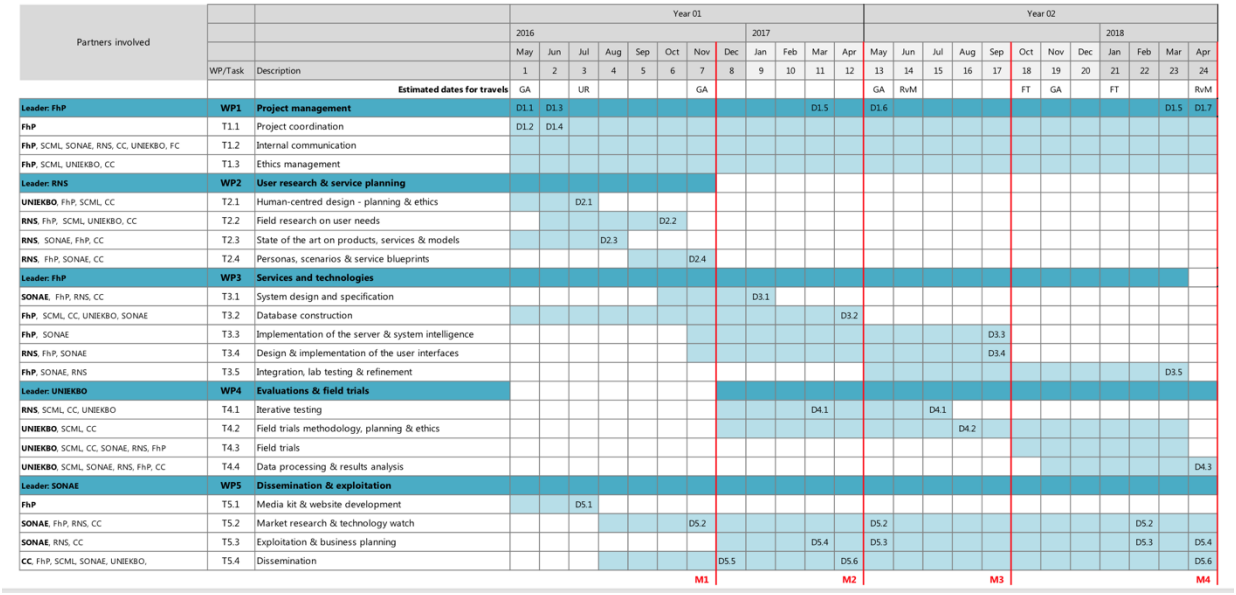


Source: Cordon Gris (2016). D1.3 Description of work. (Restricted deliverable).

3.2.1.2. Timeline Work Plan

The project Cordon Gris e divided in five work packages: WP1- Project management; WP2- User research and Service planning; WP3- Services and Technologies; WP4- Evaluation and Field Trials; WP5- Dissemination and Exploitation. Each of these work packages have different leaders which were chosen due to their experience with the scope of the package. Every work package has its own tasks that are comprised by deliverables to be developed by the involved players in each of them. The table in figure 11 mirrors the work plan of the project as well as the players involved in each of the work packages, tasks, deliverables and their deadlines.

Figure 11: Cordon Gris' Timeline and Workplan



Partners involved			Year 01												Year 02											
			2016								2017												2018			
			May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
	WP/Task	Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Estimated dates for travels	GA		UR				GA						GA	RvM				FT	GA		FT			RvM
Leader: FhP	**WP1**	**Project management**	D1.1	D1.3									D1.5		D1.6										D1.5	D1.7
FhP	T1.1	Project coordination	D1.2	D1.4																						
FhP, SCML, SONAE, RNS, CC, UNIEKBO, FC	T1.2	Internal communication																								
FhP, SCML, UNIEKBO, CC	T1.3	Ethics management																								
Leader: RNS	**WP2**	**User research & service planning**																								
UNIEKBO, FhP, SCML, CC	T2.1	Human-centred design - planning & ethics			D2.1																					
RNS, FhP, SCML, UNIEKBO, CC	T2.2	Field research on user needs						D2.2																		
RNS, SONAE, FhP, CC	T2.3	State of the art on products, services & models				D2.3																				
RNS, FhP, SONAE, CC	T2.4	Personas, scenarios & service blueprints							D2.4																	
Leader: FhP	**WP3**	**Services and technologies**																								
SONAE, FhP, RNS, CC	T3.1	System design and specification									D3.1															
FhP, SCML, CC, UNIEKBO, SONAE	T3.2	Database construction												D3.2												
FhP, SONAE	T3.3	Implementation of the server & system intelligence																	D3.3							
RNS, FhP, SONAE	T3.4	Design & implementation of the user interfaces																	D3.4							
FhP, SONAE, RNS	T3.5	Integration, lab testing & refinement																							D3.5	
Leader: UNIEKBO	**WP4**	**Evaluations & field trials**																								
RNS, SCML, CC, UNIEKBO	T4.1	Iterative testing											D4.1				D4.1									
UNIEKBO, SCML, CC	T4.2	Field trials methodology, planning & ethics																D4.2								
UNIEKBO, SCML, CC, SONAE, RNS, FhP	T4.3	Field trials																								
UNIEKBO, SCML, SONAE, RNS, FhP, CC	T4.4	Data processing & results analysis																								D4.3
Leader: SONAE	**WP5**	**Dissemination & exploitation**																								
FhP	T5.1	Media kit & website development			D5.1																					
SONAE, FhP, RNS, CC	T5.2	Market research & technology watch							D5.2						D5.2									D5.2		
SONAE, RNS, CC	T5.3	Exploitation & business planning											D5.4		D5.3									D5.3		D5.4
CC, FhP, SCML, SONAE, UNIEKBO,	T5.4	Dissemination								D5.5				D5.6												D5.6
									M1					M2					M3							M4

Source: Cordon Gris (2016). D1.3 Description of work. (Restricted deliverable).

3.4. Tasks Developed

The following section aims to describe the tasks developed during the 4-month curricular internship.

Whatever the granted project or the funding program is, there is usually a rigorous application process with strict rules that the candidates should follow in order to be elected for funding. Upon the beginning of the internship, Cordon Gris had already been elected for funding and the consortium had already started working on the project. That being said, the tasks developed during the internship were mainly related to development of the deliverables and tasks assigned to SONAE upon the project management planning.

As explained before, Continent Online was set responsible for managing work package 5 which is related to the dissemination and exploitation of the project's results mainly due to its experience with business exploitation and with food retail and e-commerce. However, SONAE also collaborated in other deliverables within other work packages which were mostly related to market research and usability testing.

During the four-month curricular internship, there were two different deliverables within work package 5 to be developed and delivered for the funding entity to analyse:

- D5.2 Market Research and Technology Watch b): The second version of the Market Research and Technology watch aimed to give crucial information to support the decision-making process of "where to market" and how to enter the market". Within this document I was set responsible for developing the following sections:
    - Barriers do the adoption of e-commerce: The main barriers preventing citizens from shopping online (B2C) as well as the drivers that may influence them to become B2C e-shoppers were highlighted within this section. This topic was mainly based on the research work developed by Iglesias-Pradas *et al.*, 2013. The full version of this section will be available in the appendix A of this report.
    - Active Ageing Index: This section aimed to give relevant insights related to the market entrance of the service Cordon Gris, namely the way older individuals are ageing in Europe. The work developed in this section was based on the Active ageing Index 2014 (2015). The full version of this section will be available in the appendix B of this report.
    - PEST Analysis Portugal: Portugal will be one of the countries in which the Cordon Gris will first be tested. That being said, this section aimed to give relevant insights regarding the political, economic, social and technological conditions of this region. The work developed within this section was based on the Portuguese state budget, reports from the Bank of Portugal and reports from private entities. The full version of this section will be available in the appendix C of this report.
- D5.4 Exploitation Plan a): This document aimed to present the first version of Cordon Gris business model. The deliverable also mirrors the diverse ways to exploit the results of the project by the end of the project's timeline given the

different exploitation objectives and positions of the players involved in the project. Within this deliverable I was responsible for developing the following sections:

- Business Model Canvas: This section aimed to first explain the Business Model Canvas Methodology and present the business model behind the service Cordon Gris. Besides that, this section also revealed some important factors (Keys to Success) that should be taken into account when implementing the business model.
- Market Analysis – Business Models Landscape: This section aimed to give an overview over the business models of companies that have touchpoints with Cordon Gris. The main objective within this exercise was to identify successful market practices and replicate them to the Cordon Gris reality. Most of the keys to success revealed within the Business Model Canvas section were based on this benchmark analysis. The full version of this section will be available in the appendix D.
- Sales Strategy: This section aimed to give a first approach of the sales strategy to be implemented upon a Cordon Gris in the market situation. It is important to state that it comprises a preliminary version of a sales strategy and that it will be further developed in future versions of the deliverable. The full version of this section will be available in the appendix E of this report.
- Funding options for the future of the project: Since most of these projects never get to reach the market given their lack of well-planned close-to-market activities, this section aimed to present some future options for financing close-to-market activities of the project. The full version of this section will be available in the appendix F of this report.

Since SONAE was responsible for managing the tasks within the business exploitation and dissemination work package, the methodology used to kick-off the work was similar for both deliverables. At a first stage, I would define the table of contents of the deliverable to be approved internally. Once approved, a meeting would be scheduled with the involved players in the deliverable in order to have everyone's inputs and approval on the table of content's suggestion. Upon the acceptance of the table of contents, the topics

within the index with be divided for the players to work on and deliver by a deadline defined at the same meeting.

As stated previously, the main objective of the internship was the definition of Cordon Gris business model which was done within the Exploitation Plan, however, every task contributed for the definition of business model itself since it is crucial to know the market before designing the Business model. It is safe to state that, this task is of extreme importance since most of the granted projects never get to reach the market given the lack of a good planning upon the end of the project's timeline, namely a well-defined commercially viable business model.

The supervision of the tasks developed during the internship was done by two distinct and independent teams, the Project Management Office which integrates the e-commerce business of Sonae MC and the Granted Projects Team. Although the Granted Projects team does not report directly to Continente Online, both teams cooperate whenever there are projects with common interests for both of them

IV. Developing the Business Model

The development of the business model presented in the following section was based both on the bibliographic review available in the second section of this document and on the previous deliverables that had already been delivered by the beginning of the internship. Besides, the benchmark analysis regarding the business models of other technological based companies comprised a key step since most of the "Keys to success" presented in the following section had base on this exercise.

It is important to state that this suggestion of business model was approved by every player within the consortium and that the first step to start building Cordon Gris' business model was taken at a coaching session provided by the funding entity (Figure 12) in which most of the players contributed with important insights.

Figure 12: Business Model Coaching Session.

4.1. Cordon Gris Business Model Canvas

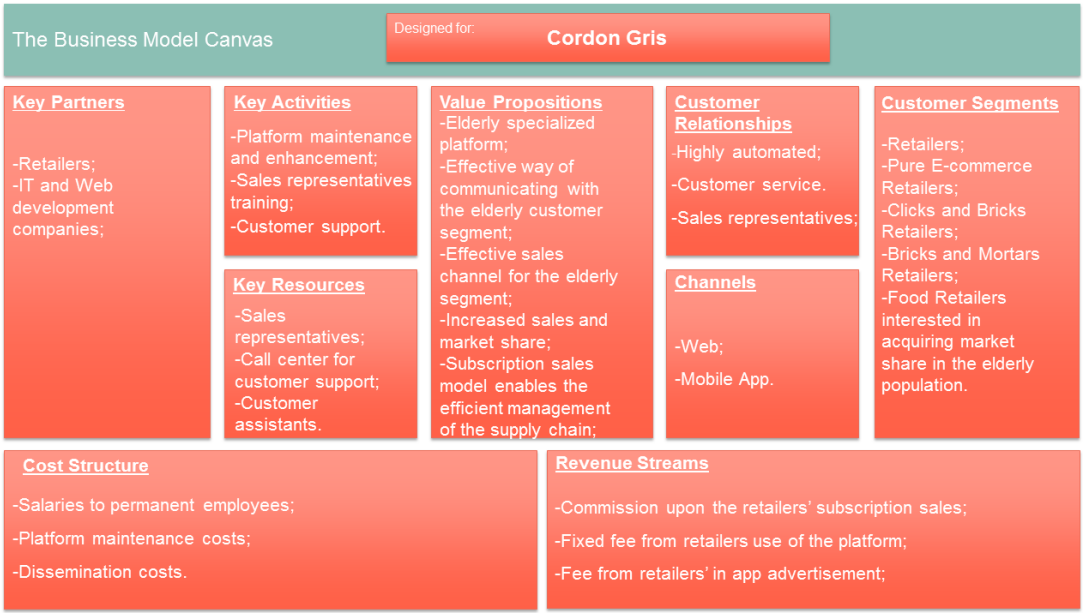
The following part of this report aspires to reveal the various options regarding the exploitation of the project results after the project's timeline. To achieve that, four different business models based on four different customer segments with four different value propositions will be shown. The methodology used was the business model canvas which was explained in detail in the bibliographic review of this document.

The following canvasses might be integrated in one business model. However, it is not mandatory to have the four different business models canvases complementing each order for the business model to work successfully in the market. The only required attribute for the business model to work is that there is at least one end-user customer segment (the elder, the informal caregiver, the residential home, the nursing home, the day care centre

or other) integrated with one user of the App as a sales channel (either the Retailer or the ready-made meal provider). The reason behind this prerequisite is explained by the fact that, whether by a fixed fee or by a commission upon sales, the main revenue streams behind the business model comes from the users of the App as a sales channel. This characteristic will relieve the budget pressure of the end-user customer segment.

The first business model canvas presented in figure 13 is based on the Retailers customer segment. The main value proposition behind this model is that it allows retailers to increase their sales and market share through this elderly specialized e-commerce sales channel. Besides, the subscription based model enables the retailer to efficiently manage their supply chain.

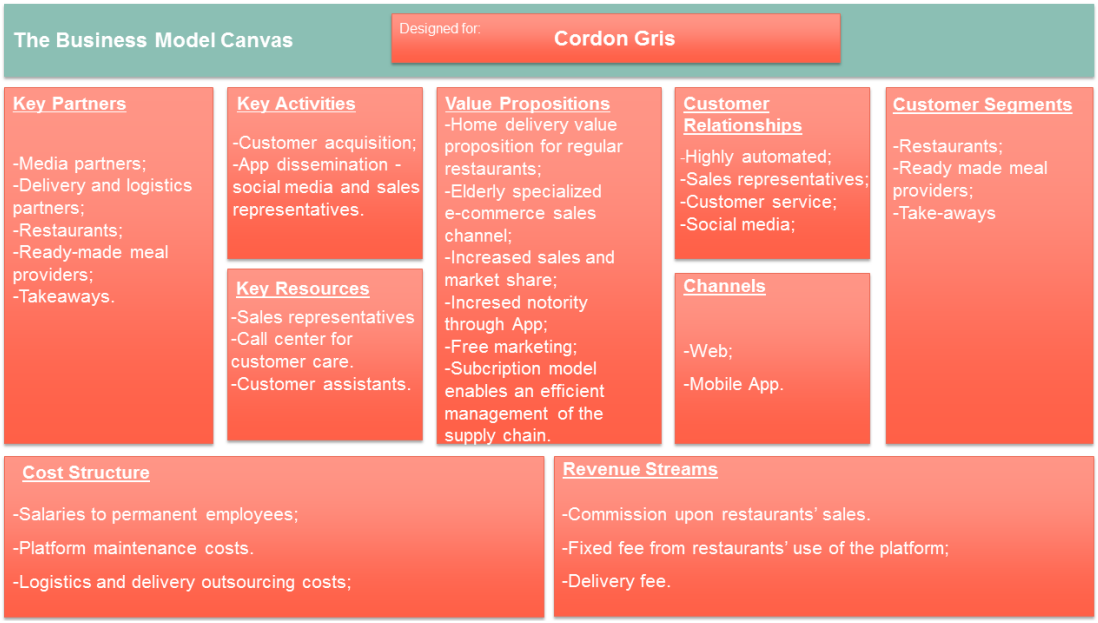
Figure 13: Cordon Gris' Business Model for Retailers



The following business model canvas refers to the restaurants and other ready-made meal providers as the customer segment, figure 14. Similarly to the retailers, this customer segment will make use of the platform as an elderly specialized sales channel of their ready-made meals. The major value proposition within this business model is the fact that these restaurants can increase their sales and market share in an efficient way by selling their meals under a subscription model that enables an enhanced supply chain management. Besides, the restaurants can take advantage of the free marketing made by the platform. Regular restaurants (which do not do home deliveries) may also benefit

from this business model by outsourcing the delivery service provided by Cordon Gris logistics' and delivery key partners.

Figure 14: Cordon Gris' Business Model for Ready-Made-Meal Providers



The next business model canvas was built upon one of the two possible final user customer segments: the elderly, soon-to-be-elderly and informal caregivers, figure 15. As stated before, there are no direct revenue streams from this customer segment. The value propositions intrinsic to this business model is the possibility of these final users receiving personalized healthy meal recommendations as well as where to acquire the ingredients or the ready-made meals that were suggested. Additionally, the groceries or ready-made meals suggested by the platform can be delivered at their own front door if they want. These functionalities provide the elder the possibility of ageing in an active and autonomous way.

Figure 15: Cordon Gris' Business Model for Individual End-Users.

Finally, the last business model canvas shown in figure 16, in the section is based on the other final user customer segment which are the nursing homes, residential homes, day care centres or other group meal planers. This business model is based on the value proposition of enabling large group meal planners, mainly elderly groups, to plan the meals of their patients taking into account their health status and preferences. This will not only allow these meal planners to organize the meals with less effort but also avoid food waste and increase their efficiency. There is also the possibility of delivering the goods or the ready-made meals suggested at their organizations.

Figure 16: Cordon Gris' Business Model for Group Meal Planners.

4.1.2 Keys to Success

The follow section intends to highlight some practices that might have to be implemented and characteristics that the service should have in order to enter the market with a higher probability of success. These keys to success were identified either by looking at some technology based business models that have touchpoints with the role Cordon Gris will play in the market or by looking at some market researches done by private entities regarding customer behaviour and preferences.

-Elderly specialized user interface - Future elderly generations will have the necessary tech-savviness and will to acquire a service like Cordon Gris, however this market opportunity might be answered by any competitor at any time given the speed of the technological development we are currently living. Thus, there is an urgent necessity of acquiring market share, reputation and trust within this generation of elderly people which will only be possible to acquire if the app fits this generation's tech-savviness and needs.

-Delivery time – This characteristic is crucial in providing customer satisfaction in ready-made meal delivery services. A study made by McKinsey revealed that 60% of the customer cite this as a key factor for the value perceived by them. Their research also pinpointed that the optimal wait time must not be longer than 60 minutes for ready-made meal delivery.

-Establishing credibility and exceeding expectations - Consumers, especially elderly consumers are often reluctant to online shopping. It is critical to exceed expectations during every interaction with this customer segment. To gain their trust and ease issues regarding the product/service quality, Cordon Gris should provide the user with assurance programs that enable the costumer the recourse for items that were damaged or did not meet his expectations.

-Considering alternative ordering and distribution processes - There are different approaches to the ready-made meal and online grocery shopping order and delivery process and all of them carry different operational costs. One way of operationalizing the online ready-made meal ordering platforms is by working has as aggregators only, enabling the customer to view and compare various menus of diversified restaurants with no delivery service included, this asset-light model enables businesses like "Just eat" or "Grub Hub" to have EBITDA margins of 40% to 50%. Another way of operationalizing this business is, besides offering the same value proposition as aggregators to the customer, also providing the logistics to the restaurant. This model carries with it higher operational costs related to the vehicles maintenance and driver's salaries, but despite this fact, companies like "Deliveroo" or "Foodora" that work under this business model achieve EBITDA margins of more than 30%.

-The early adopters - Given the usual reluctance of the elderly customer segment to technology based services, the market entrance must be based on a rigorous market analysis to prevent the failure of the business model in its early stages of maturity. Pension levels, elderly populations' levels, growth expectancies as well as the penetration of the web as a sales channel in the market should be considered when making this decision. Besides this, every Customer Value Proposition is worthless unless there is customer adoption, identifying the niche customer segment within the elderly population that are willing to become early adopters and targeting them initially instead building a strategy based on the general elderly customer segment, might be a good way of getting feedback to improve the service/product and better prepare to grow sustainably.

-Partnerships aligned with Cordon Gris mission- Even though there are touch points with other online food/grocery ordering/delivering platforms, Cordon Gris' mission is to fight malnourishment and improve autonomy of the elderly population in Europe. Therefore, all the partnerships established must be aligned or adapted to the Cordon Gris reality,

which is providing personalized healthy food options on a budget. Although it may become harder to find partner's (restaurants, other ready-made meal providers or retailers) that fit with Cordon Gris reality, it is the crucial competitive advantage comparing to similar Apps/Services.

-Meal suggestions aligned with the market eating habits – Eating habits and food preferences differ from country to country. Given the low openness of the elderly customer segment, making meal suggestions that are not familiar to the elder, might inhibit the customer will to acquire the product.

-Value proposition for both ready-made meal providers and retailers - The business model success is greatly influenced by how effectively both of the value propositions are delivered to the customer segment. Even though most of the revenue streams will not come from the final user customer segment, if the value delivered to this customer segment is not attractive enough, no ready-made meal provider or retailers will be willing to use Cordon Gris as a sales channel therefore constraining the possibilities of achieving the financial sustainability of the business model.

V. Recommendations for Service Improvement

During the four-month curricular internship I had the opportunity to attend to some of ARIES meetings which is another EU-funded project in which SONAE is collaborating. This project aims to create a reliable European Identity Ecosystem. In other words, ARIES intends to provide a reliable platform for the European citizens to upload all their personal identity data and other sensitive information like their credit card number. The main purpose of this platform is to increase the identity security of the European citizens and mitigate frauds related with identity theft. Moreover, the data base will also include biometric data like iris recognition, fingerprint and voice patterns of European citizens, so that the identity of the individual can be certified not only by a password but also by its intrinsic physical characteristics, making use of multi-factor authentication. ARIES aims to be used by security entities and other services in which the certification of the individual's identity is crucial to be ensured (i.e. Airports). Besides, this platform intends to increase security of the online transactions that are done on a daily basis worldwide, namely on the e-commerce web sites.

According to Iglesias-Pradas *et al*. (2013) the most significant barrier in the adoption of B2C e-commerce seems to be the risk associated with the online purchase. In their research Iglesias-Pradas *et al*. (2013) identified a group of non-e-shoppers which were named as the "risk-avoiders". These individuals stated that they would start shopping online if there was a significant improvement in the safety of online transactions, if less personal data was required, if they had more paying options or found cheaper products online (Iglesias-Pradas *et al*., 2013). Moreover, as stated in the second section of this report, the risk barrier is even more relevant for older individuals (Lian and Yen, 2014).

That being said, one recommendation for the further improvement of Cordon Gris would be the use of this platform to certify the user's identity upon a purchase. By making use of this technology, Cordon Gris App could most likely be enhanced by two main factors:

- Better user experience: Older individuals are usually less tech-savvy that younger people. By giving the elder the opportunity of having to provide all its personal data just once at ARIES platform, and then be able to confirm a purchase in Cordon Gris' App simply by confirming with his voice or by looking at his screen could become a simple and effortless task for the individual. This would probably increase the probability of older individuals using Cordon Gris.

- Security in the process: As stated previously, this fact is highly relevant for the elder adoption of a new technology, and e-commerce in particular. By making use of an European-wide platform, certified by reliable security entities, the process of purchasing something through the internet would feel safer for the elder. Moreover, the fact that identity certification within Cordon Gris would be done through the use of biometry, would highly reduce the probability of identity theft for instance in the case the elder loses its device.

Another thing that should be taken into account in order to make this service more user-friendly for the third age segment would be to develop the app for bigger screened mobile devices. This recommendation is related to the work of Zhou, Rau and Salvendy (2014) and Hwangbo *et al*. (2013) which found out that the screen and buttons size highly affect the elder's performance in managing the device.

VI. Critical Analysis

The following section aims to give a critical reflection over Cordon Gris and the work developed during the internship.

First of all, it is important to state that this solution may a little bit ahead of its time for the Portuguese market, given the relatively low e-commerce adoption of this region, particularly among older individuals. However, that facts presented in the second section of this document show that this trend is changing which means that this solution may be accepted and used in future generations of older individuals.

Secondly, it should be highlighted that Cordon Gris is a EU-grant funded project, and that most of these projects never get to reach the market. In this case, the funding entity is mostly financing the R&D activities associated with the development of Cordon Gris. That being said, at least in this stage, Cordon Gris project will culminate in a prototype to be tested in the market. However, in order for this solution to be fully market established, it will most probably be necessary to make additional investment related to the close-to-market activities namely, the marketing and the implementation of the solution. Moreover, except for Can Cook and SONAE, most of the players within the consortium will not directly generate revenue with the sale of their products through this platform, which makes them less interested in taking Cordon Gris to the market. Fraunhofer Portugal, for instance, intends to license and sell the algorithms behind Cordon Gris to the entities that might use it as a sales channel, this fact change Sonae and Can Cook's will to make use of this solution given the extra investment needed to implement it.

Finally, according to Osterwalder (2004), designing a business model is not sufficient the ensure that it will be successful in the market since it still has to be implemented. Moreover, the financial viability of the business model will only be tested in the final version of the Exploitation Plan. That being said, upon doing the financial projections, the business model suggested in this report might have to be redesigned or adapted by the consortium in third version of the Exploitation Plan.

VII. Conclusions

The demographic facts and figures show that the world is getting older from year-to-year. Low fertility rates and longer life expectancy are both contributing for this fact to get worst. Europe, is no exception for this issue. Even though it is almost impossible to change this tendency in the short-term, older individuals can be provided with tools that help them age in more active ways and as a consequence more autonomously. With this in mind, and because malnourishment is one of the main factors influencing the active and autonomous ageing of older individuals, Cordon Gris aims to provide elders with a technological solution that enables them to eat healthier by giving them personalised meal recommendations through a smartphone App.

The bibliographic review in the second section of this document has provided sufficient information to conclude that internet and e-commerce has changed the way companies are doing business given the increasing importance it has on customers. SONAE too is making use of this tool to enhance its value proposition and to start approaching the new era of retail, the multi-channel retail. However, there is one customer segment, the third age segment, that given its characteristics, seem to be less prone to adopt this way of shopping goods. Since one of strategic objectives of Sonae MC is to get closer to this customer segment given its increasing importance in the overall Portuguese population, the company has been collaborating in the granted project Cordon Gris. By joining this project, SONAE intends not only to tighten the relationship with older individuals, but also to experiment new ways of doing business, meet important players that can be crucial for the future of the company, and last but not least, to contribute for the noble cause of fighting malnourishment among the elderly. That being said, the curricular internship's main objective was to develop the business model behind the solution Cordon Gris aims to bring to the market.

The business model proposed in this report was designed by making use of the tool Business Model Canvas and is based both on the sections of the deliverables that were worked on during the internship and on the bibliographic review available in this document. The proposed business model canvases are based on four different customer segments, the individual end user, the group end user, the ready-made-meal providers and the retailers. Even though the business model canvases can all be integrated in one unique business model, the only necessary requisite is that there is at least one type of end-user

and one type of user of the service as a sales channel (ready-made meal provider or retailers) for the business model to work since the revenue streams will only come from the users of the app as an elderly specialized sales channel.

Finally, it is important to state that the consortium has decided in general assembly that the app would not have the group end-users functionality at least in the prototype version of Cordon Gris.

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Appendix A: Barriers to the Adoption of E-commerce

The following appendix regards section 3.2 of D5.2 Market Research and Technology Watch b). This section was developed during the curricular internship and aimed to highlight some of the main barriers preventing individuals from adopting B2C e-commerce.

levels among this populations segment) were taken in too account when deciding the country that best fits the Cordon Gris solution. Even though there were some countries that showed better performances when talking about digital adoption and the ability of ageing actively, the consortium has chosen the Netherlands, United Kingdom and Portugal has the countries to first test Cordon Gris solution. This decision was made mainly due to the operational activities easiness in a first stage of Cordon Gris in the market given the presence of Cordon Gris partners in these three countries. Even though Cordon Gris will be introduced to these three different markets, the business models to be applied in each of them might be slightly different given the specificities of each of the member state partners involved in the project. (Ex: Portugal, SONAE-Retailer; UK, Can Cook- Ready Made Meal Provider)

3.2. Barriers to Adoption of E-commerce

The following section intends to review what has been written about barriers to the adoption of e-commerce. The main objective behind this, is to highlight the facts preventing people from adopting this means of commerce as well as what might drive them to do so. By analyzing this facts, Cordon Gris aims enhance its solution and service and make it has market driven and user friendly as possible. Having an elderly intuitive interface might not be sufficient to acquire the trust levels needed to make the elderly segment engage with Cordon Gris solution, the consortium will take into account the main barriers to the adoption of e-commerce nowadays in order to better design an efficient solution trying to overcome these barriers with additional features or functionalities.

E-commerce can work under multiple business models, however, whatever business model, the Cordon Gris solution will use (Ready-made-meal's integration; Retailer's integration; Both) it will be based on the Business to Consumer e-commerce business model. The commercial relationship within this type of E-commerce is established between the company and the final consumer. Given the fact that it is normally adopted by traditional retailers who want to acquire an extra sales channel to get their goods or services to their customers, this is probably the most common type of E-commerce. When compared to the traditional retail, the customer of this kind of e-commerce usually has more information available regarding the product or service and there is normally the idea that it is a less expensive solution without compromising the personalization of the customer service and the quickness of the delivery.

A research done in 2012 by Santiago Iglesias et. Al was able to segment the non-shoppers in B2C e-commerce by characterizing them with the main barriers that would prevent them from shopping online and the drivers that might encourage them to start shopping online. That being said, 47% of the 1449 B2C e-commerce non-shopper individuals that participated in the research belonged to the Skeptical/distrustful non-shoppers group whose main barriers preventing them from shopping online regard their safety in terms of overall perceived security, personal information and payment methods. The other two main barrier based non-shopper customer segments were the "infrastructure-conditioned" (18,7%), who highlighted the lack of internet connection and their perceived cost of shopping online as the main barriers to shop online, and the "product-conditioned" (15,7%) who pinpointed the product and shipping costs as well as its availability as being the main impediments for shopping online. The rest of the participants in the research (18,3%) were mainly individuals with few computer literacy including some non-internet users who showed a low interest in internet shopping.

Regarding the drivers that might encourage non-shoppers to shop online, the authors were able to identify five different main segments. The first and largest group identified (38%) were the "risk-avoiders" which stated that they would start shopping online if there was a significant improvement in the safety of online transactions, if less personal data was required, if they had more paying options or

found cheaper products online. The second largest group identified in the research were the "e-shopping ignorant" who stated that they had no idea of what would drive them to shop online because they were not aware of the benefits of BC2 or simply because they were not interested at all in it. The third largest group were the "Analog-World shoppers (8,2%) who referred that they would probably start shopping online if the internet connections available were cheaper. Another relevant group for this purpose were the "Hesitant non-shoppers" (7,8%) which highlighted similar motivations that would encourage them to start shopping online as the "risk-avoiders" but in this case they also pointed the easiness of use and that fact that they would start shopping online if they knew the seller better.

The following diagram represents the importance of each barriers and drivers to each of the groups identified by the research.

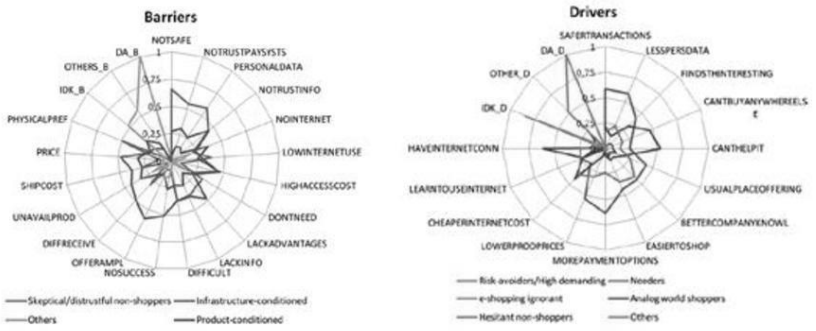


Figure 3 – Non-shopper segments by barrier and by driver

The barriers as well as barriers pinpointed by the segments identified in the research can be seen in detail in the following table available in the paper that was reviewed.

Code (barrier)	Sample answer: I have not purchased online because…	Code (driver)	Sample answer: I would shop online if…
NOTSAFE	…it does not seem safe	SAFERTRANSACTIONS	…transactions were safer
NOTRUSTPAYSYSTS	…I don't trust the payment methods	LESSPERSDATA	…less personal data was required
PERSONALDATA	…I'm afraid to provide personal data	FINDSTHINTERESTING	…I find something really interesting
NOTRUSTINFO	…I don't trust the information provided by the vendor	CANTBUYANYWHEREELSE	…I can't buy it anywhere else
NOINTERNET	…I have no Internet access	CANTHELPIT	…I couldn't help it
LOWINTERNETUSE	…I don't use Internet much	USUALPLACEOFFERING	…my usual shops offered the service
HIGHACCESSCOST	…the access cost is too high	BETTERCOMPANYKNOWL	…I knew the companies better
DONTNEED	…I don't need it	EASIERTOSHOP	…it was easier to shop online
LACKADVANTAGES	…I don't see any clear advantage	MOREPAYMENTOPTIONS	…there were more payment options available
LACKINFO	…I don't have enough information	LOWERPRODPRICES	…product prices fell
DIFFICULT	…I think it is difficult/complicated	CHEAPERINTERNETCOST	…Internet access was cheaper
NOSUCCESS	…I tried unsuccesfully	LEARNTOUSEINTERNET	…I learnt to use Internet
OFFERAMPL	…there is little offer amplitude	HAVEINTERNETCONN	…I had Internet connection
DIFFRECEIVE	…it is difficult to receive the product	IDK_D	I don't know
UNAVAILPROD	…the product I want is not available	OTHER_D	Other answers
SHIPCOST	…I don't like the shipping costs associated	DA_D	No answer given
PRICE	…the product pricing is not suitable		
PHYSICALPREF	…I prefer to buy what I see		
IDK_B	Other answers		
OTHERS_B	I don't know		
DA_B	No answer given		

Figure 4 – Barriers and driver's description

3.3. Ageing market overview

Ageing is a broad domain. Two interrelated concepts merge when it comes to describe ageing:

1. Healthy Ageing

Appendix B: Active Ageing Index

The following appendix regards the Active Ageing Index section of D5.2 Market Research and Technology Watch b). This section was developed during the curricular internship and aimed to provide additional information regarding the third age customer segment in Europe to be taken into account when deciding where to market |Cordon Gris solution

Active Ageing Index

Europe's elderly population has been growing rapidly the last few years. Bringing awareness to the populations regarding active ageing is nowadays more important than ever. With this in mind, and in order to understand in detail the state of the Europe's aged population, the European Commission's Directorate General for Employment, Social Affairs and Inclusion worked together with the United Nations Economic Commission for Europe on the Active Ageing Index project. This project's main goal was to pinpoint the areas in Europe in which different programmes or policies could promote the contribution and the potential of older people incentivizing them to age in more active ways and as a consequence with healthier lifestyles. The evidence revealed in this project helps giving answer to three critical questions:

- How do some countries fare better than others across the board and how can this motivate and orient countries lagging behind?
- In what specific areas of active ageing can certain countries do better?
- What policy lessons are on offer from the experience of other countries?

By answering these questions, policymakers can make their decisions on a comparative basis enabling them to prioritize their actions for the near future.

Besides providing a detailed analysis of the latest Active Ageing Index (2014) this report also highlights trends by analysing the evolution of the score of each category within the 28 European Union member states. This report adds value to the active ageing problematic in the sense that it goes beyond the conventional use of dimensional individual indicator, offering a wider perspective of the multiple contributions and potentials of older people.

Regarding the methodology used in this research to analyse this problematic, the Active Ageing Index, took into account twenty-two individual indicators organized in four large categories:

1. Contributions through paid activities: Employment
2. Contributions through unpaid productive activities: Participation in society
3. Independent, healthy and secure living
4. Capability to actively age: Capacity and enabling environment for active ageing
5. While the three first categories take into account achievements, the fourth measures the starting conditions for achieving positive active ageing outcomes.

The specific twenty-two individual indicators analysed within the report can be seen in the following table:

Indicator	Weight
1. Employment	**35**
1.1 Employment rate for the age group 55-59 (EU-LFS)	25
1.2 Employment rate for the age group 60-64 (EU-LFS)	25
1.3 Employment rate for the age group 65-69 (EU-LFS)	25
1.4 Employment rate for the age group 70-74 (EU-LFS)	25
2. Participation in society	**35**

2.1 Voluntary activities: percentage of population aged 55+ providing unpaid voluntary work through the organizations (at least once a week) (EQLS)	25
2.2 Care to children and grandchildren: Percentage of population aged 55+ providing care to their children and/or grandchildren (at least once a week) (EQLS)	25
2.3 Care to older adults: Percentage of population aged 55+ providing care to elderly or disabled relatives (at least once a week) (EQLS)	25
2.4 Political participation: Percentage of population aged 55+ taking part in various forms of political activities (EQLS)	25
3**. Independent, healthy and secure living**	**10**
3.1 Physical exercise: Percentage of people aged 55 years and older undertaking physical exercise or sport almost every day (EQLS)	10
3.2 Access to health and dental care: percentage of population aged 55+ who report no unmet need for medical and dental examination (SILC)	20
3.3 Independent living arrangements: percentage of persons aged 75 and older living in single or couple households (SILC)	20
3.4 Relative median income: ratio of the median equivalised disposable income of people aged 65+ to the median equivalised disposable income of those aged below 65 (SILC)	10
3.5 No poverty risk for older persons: percentage of people aged 65+ who are not at the risk of poverty using 50% of the national median equivalised disposable income as the poverty threshold (SILC)	10
3.6 No severe material deprivation for older persons: percentage of people aged 65+ not severely materially deprived (SILC)	10
3.7 Percentage of people aged 55 years and older who are feeling safe to walk after dark in their local area (ESS)	10
3.8 Lifelong learning: percentage of older persons aged 55-74 who received education or training in the 4 weeks preceding the survey (EU-LFS).	10
4. Capacity and enabling environment for active and healthy ageing	**20**
4.1 Remaining life expectancy at age 55, as a share of the target of 50 years, using EHLEIS	33
4.2 Share of healthy life years in the remaining life expectancy at age 55, using EHLEIS	23
4.3 Mental well-being (for older population aged 55+, using EQLS and using WHOs ICD-10 measurement)	17
4.4 Use of ICT by older persons aged 55-74 at least once a week (including everyday), using Eurostat ICT Survey	7
4.5 Social connectedness: Percentage of older population aged 55+ who meet friends, relatives or colleagues at least once a month (ESS)	13
4.6 Educational attainment of older persons: Percentage of older persons aged 55-74 with upper secondary or tertiary educational attainment (EU-LFS)	7

Table 1: Active Ageing Index Indicators

Every domain as well as each individual indicator within the previous table have different weights influencing the overall score depending on their importance for the Active ageing index/domain respectively. The indicators were all measured on a scale from 0 to 100.

Having measured the overall score of each of the 28 EU Member States, the report mirrors the performance of each country regarding their Active Ageing Index in a map that enables the comparison of every country analysed.

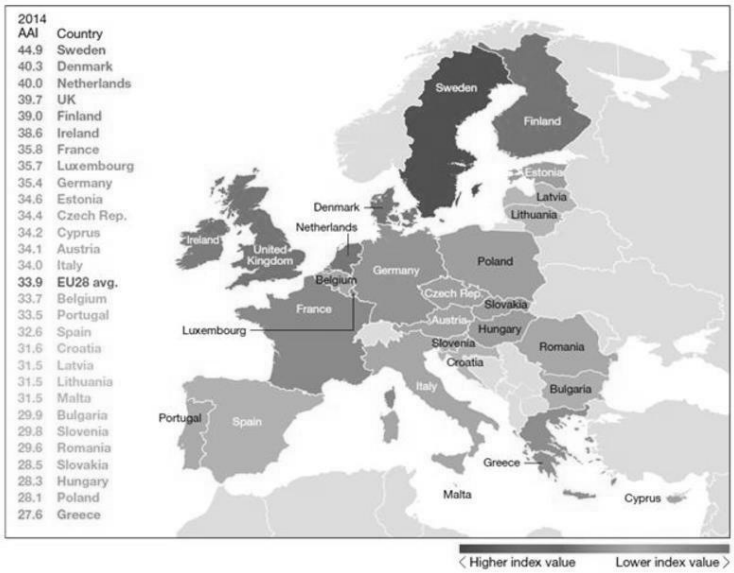


Figure 5 – Active Ageing Index scores map

The results of the research, shown that Sweden, Denmark, the Netherlands, UK, Finland and Ireland lead the ranking with scores ranging from 39.9 to 44.9 points. Regarding the bottom of the ranking, with scores lower than the EU28 average, we can find countries like Bulgaria, Greece, Spain, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovakia, Slovenia and Croatia with an average overall Active Ageing Index of 34 points. It is possible to highlight a third group of countries which even thought their scores are higher than the EU28 average, they are still far behind the goal post established by AAI, 57.5 points.

The report also provides information regarding the score by country in each of the individual indicators. The performance of each the countries within the research can be observed in the following image of the AAI report.

Rank	Overall		Employment		Participation in society		Independent living		Capacity for active ageing	
1	Sweden	44.9	Sweden	43.4	Ireland	24.1	Denmark	79.0	Sweden	69.2
2	Denmark	40.3	Estonia	39.7	Italy	24.1	Finland	79.0	Denmark	65.1
3	Netherlands	40.0	Denmark	35.8	Sweden	22.9	Netherlands	78.9	Luxembourg	63.6
4	UK	39.7	UK	35.8	France	22.8	Sweden	78.6	Netherlands	61.8
5	Finland	39.0	Germany	34.4	Netherlands	22.4	Luxembourg	76.7	UK	61.3
6	Ireland	38.6	Netherlands	33.9	Luxembourg	22.2	France	75.9	Finland	60.5
7	France	35.8	Finland	33.7	UK	21.6	Ireland	74.9	Belgium	60.3
8	Luxembourg	35.7	Portugal	32.6	Finland	20.5	Germany	74.4	Ireland	60.0
9	Germany	35.4	Latvia	32.0	Belgium	20.2	Slovenia	74.2	France	59.1
10	Estonia	34.6	Cyprus	31.4	Denmark	19.6	Austria	73.8	Austria	58.2
11	Czech Rep	34.4	Romania	31.0	Czech Rep	18.8	UK	73.7	Malta	57.1
12	Cyprus	34.2	Ireland	30.6	Croatia	18.7	Belgium	72.5	Spain	56.3
13	Austria	34.1	Lithuania	30.5	Austria	18.3	Czech Rep.	71.2	Germany	55.8
14	Italy	34.0	Czech Rep.	28.0	Cyprus	18.0	Malta	70.1	Czech Rep.	54.3
15	Belgium	33.7	Bulgaria	25.1	Spain	17.8	Spain	69.8	Italy	53.4
16	Portugal	33.5	Austria	24.7	Malta	17.3	Croatia	69.5	Croatia	52.8
17	Spain	32.6	France	24.1	Slovenia	16.3	Italy	69.0	Bulgaria	52.2
18	Croatia	31.6	Spain	23.3	Hungary	15.4	Hungary	68.0	Portugal	52.1
19	Latvia	31.5	Italy	23.0	Lithuania	14.7	Cyprus	68.0	Cyprus	50.4
20	Lithuania	31.5	Poland	22.4	Portugal	14.1	Estonia	67.3	Slovenia	50.0
21	Malta	31.5	Slovakia	21.9	Latvia	13.8	Portugal	67.3	Latvia	48.2
22	Bulgaria	29.9	Luxembourg	21.9	Slovakia	13.7	Lithuania	66.2	Poland	47.9
23	Slovenia	29.8	Croatia	21.7	Greece	13.7	Slovakia	65.8	Estonia	47.5
24	Romania	29.6	Belgium	21.0	Germany	13.6	Poland	64.9	Slovakia	47.1
25	Slovakia	28.5	Greece	20.4	Estonia	12.8	Greece	64.9	Hungary	46.9
26	Hungary	28.3	Malta	20.1	Romania	12.7	Bulgaria	62.7	Greece	45.8
27	Poland	28.1	Hungary	19.3	Bulgaria	12.5	Romania	61.8	Lithuania	45.3
28	Greece	27.6	Slovenia	19.1	Poland	12.1	Latvia	58.7	Romania	40.9
	EU28 avg.	33.9		27.8		17.7		70.6		54.1
	The goalpost 57.5		The goalpost 54.2		The goalpost 40.6		The goalpost 87.7		The goalpost 77.7	

Figure 6 – Active Ageing Index indicators ranking

Given the characteristics of the Cordon Gris solution in the market, the two most relevant domains to be analysed in order to better support the decision making process of entering the market are the Independent Living and the Capacity for active ageing given the relevance of these indicators to the Cordon Gris reality. These two domains will be further analysed in detail.

Besides the static analysis of the four domains, AAI 2014 analytical report also compares scores from 2014 with scores from 2010 and 2012, mirroring the improvement of each of the domains in each of the EU28 member states.

Regarding the evolution of AAI within the period observed, it is safe to state that the best performances in terms of evolution of this index were from member states that did not belong to the group of countries with higher scores. The best performances in terms of growth of this index were from Italy, Luxembourg, Malta and Czech Republic whose scores grown from 3.4 to 4.0 points between the period observed which are good performances when comparing to the EU 28 Average of 1.8 points. When it comes to market entrance of the Cordon Gris solution, Portugal, UK and the Netherlands are preferred when compared to other markets given the fact that the players involved in Cordon Gris project are developing their activities in these markets. The evolution of AAI in these three countries was relatively similar with the growth of scores varying from 1.3 to 1.7.

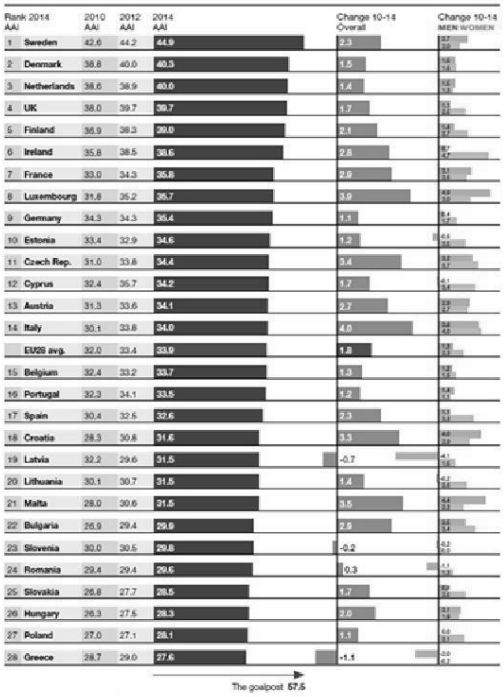


Figure 7 – Active Ageing Index "Capacity for active ageing" ranking

As stated before, the following domain - Independent, healthy and secure living- regards topics like physical exercise, independent living, relative median income and lifelong learning which configure relevant data to be taken into account when choosing the market in which Cordon Gris would have and higher rate of acceptance. If a country has higher levels in any of these topics, the openness to a service like Cordon Gris as well as the probability of acquiring a bigger pool of users would probably be positively influenced. In terms of scores, Denmark, Finland, The Netherlands, Sweden and France were the member states that performed better during the period of 2014 with scores ranging between 75.9 to 79.0 Regarding the changes in the scores of this domain between the period of 2010 to 2014, Slovakia, Croatia, Romania, Latvia and Bulgaria were the countries with the best performances with the evolutions of scores going from 3.4 to 11.5. The Growth in this domain of UK, the Netherlands and Portugal was relatively low when compared to the EU 28 Average score of 1.9.

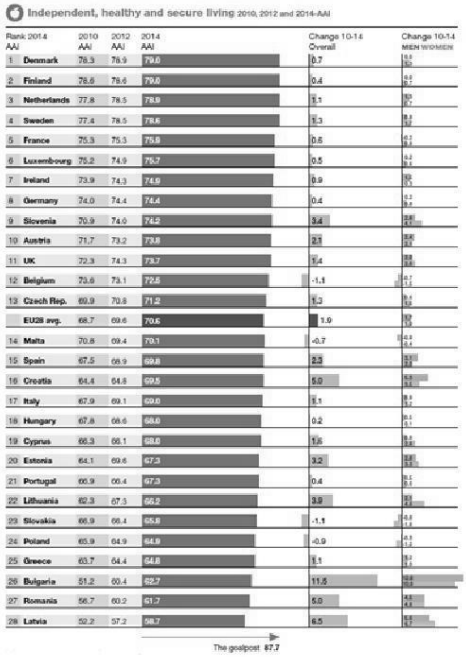


Figure 8 – Active Ageing Index "Independent, healthy and secure living" ranking

With reference to the last highly relevant domain for Cordon Gris -the capacity for ageing actively- it takes into account indicators like: Remaining life expectancy at the age of 55 and the share of healthy life years within that life expectancy, the mental well-being for 55+ aged populations, the Use of ICT by people aged between 55-74 at least once a week, Social connectedness and Educational Attainment of older persons. Regarding the remaining life expectancy at the age of 55 and the share of healthy life years within that life expectancy, there were no significant changes during the period of 2010 to 2014 unless for Ireland, Latvia and Croatia which witnessed an increases of 7 % within the period analysed. As for the indicator regarding the mental well-being there were significant increases in countries like Bulgaria, Italy, Malta, Austria and Portugal whose scores varied between 15.0 to 19.0 points within the period observed, these increases must be interpreted with care given the fact that the data might reflect data comparability problems. Finally, with respect to the use of ICT, which is probably the most important indicator when it comes to deciding the country for the first market approach, it shows a great growth over the four-year period between 2010 to 2014. Member states like Malta, Portugal, Austria and Bulgaria were the ones that have witnessed greatest changes within the period observed. Although UK has grown very few in the last few years and the Netherlands has grown negatively (-1.1) they are still in the top five countries when talking about absolute values.

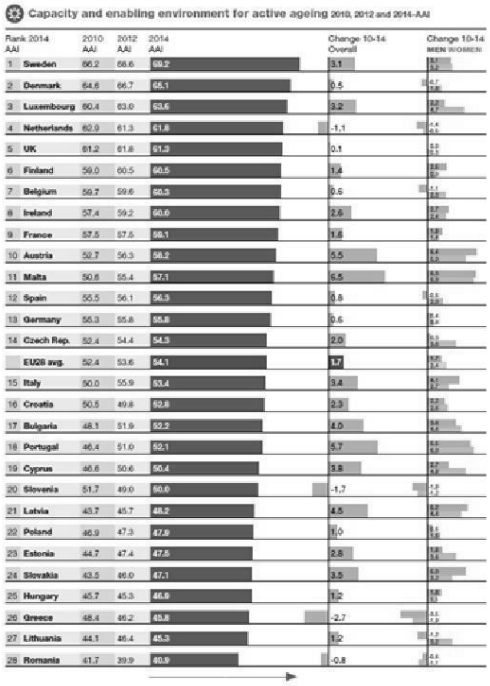


Figure 9 – Active Ageing Index "Capacity and enabling environment for active ageing"

Relevant insights

UK: The authors concluded that the employment rate in the elderly populations of UK is excellent when compared to the EU 28 average. Regarding the social participation, it is also an indicator in which the country performs very well specially for women. Besides this, UK also stands out it topics like, independent living arrangements, in meeting health care and in the use of ICT. With respect to topics to be improved for enabling a more active ageing of the aged populations in the UK, the risk of old age poverty and material deprivation are the two main indicators in which the country needs to perform better.

Netherlands: This members state has excellent performances in all four domains, to highlight, the men employment, the aged population's political participation, their low risk of old age poverty, their high physical safety and their good performance in lifelong learning. Regarding the indicators in which the Netherlands should perform better in order to improve their active ageing index, these are, the employment among women and the care to children and grandchildren. Comparing to the high performing Nordic countries it should increase the levels of physical exercise and political participation among their aged populations.

Portugal: The positive aspect regarding this member state with respect to the indicators analysed, the employment rate for those 65 years old or older and the care to older adults are the topics in which the

country most stands out. Besides this, Portugal also has and excellent social connectedness among the aged populations.

In order to achieve better scores regarding the active ageing, Portugal should improve the political participations for both man and woman as well as their participations and voluntary activities. The physical exercise and the use of ICT specially among men should also be improved.

Regarding other member states that stand out in particularly relevant indicators for Cordon Gris market entrance we have Sweden whose older populations have great levels of ICT use, employment and voluntary participation and Finland and Luxembourg whose elderly populations have great performances at independently living and in the levels of ICT usage.

3.4. Digital Adoption in Europe

The 2017 Digital Economy and Society Index (DESI) shows that the EU is making progress but the gap between top digital players and lower-performing countries is still too wide. More efforts and investments are needed to make the most of the Digital Single Market.

Overall the EU has progressed and improved its digital performance by 3 percentage points compared to last year, but progress could be faster and the picture varies across Member States (the digital gap – between the most and least digital countries – is 37 percentage points, compared to 36 percentage points in 2014). Denmark, Finland, Sweden and the Netherlands have the most advanced digital economies in the EU this year followed by Luxembourg, Belgium, the UK, Ireland, Estonia, and Austria. Slovakia and Slovenia are the EU countries which have progressed the most. Despite some improvements, several Member States including Poland, Croatia, Italy, Greece, Bulgaria and Romania, are still lagging behind in their digital development compared to the EU average. In 2016, all Member States improved on the DESI. Slovakia and Slovenia progressed the most (more than 0.04 as opposed to an EU average of 0.028). On the other hand, there was low increase in Portugal, Latvia and Germany (below 0.02).

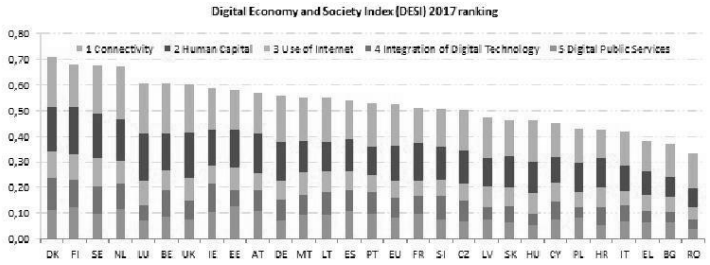


Figure 10 – Digital Economy and Society Index

The Netherlands ranks 4th in DESI 2017 and is among the leading countries in the field of smartphone penetration. The Netherlands ranks highest in connectivity. According to Deloitte *(Source: Global Mobile Consumer Survey 2016 – The Netherlands)*, 4G technology is now used by over half of all the Dutch. Those who use 4G perceive it to be faster than Wi-Fi, especially in rural areas. Dutch citizens are very active users of the Internet and have the right skills to do so. The digitisation of Public Services is among

Appendix C: PEST Analysis Portugal

The following appendix regards section 3.5 of D5.2 Market Research and Technology Watch b). This section was developed during the curricular internship and aimed to provide a PEST analysis of Portugal in order to better understand some external factors within this country that might influence Cordon Gris' performance since the solution will be tested in this country upon the end of the project.

the most advanced in the EU while the country's challenge is to improve the take up of technology by business –although already above the EU average.

The United Kingdom ranks 7th in DESI 2017. While its ranking decreased somewhat over 2016, its score increased due to an improved performance in all domains. In particular, important improvements have been made in NGA subscriptions (Connectivity), internet use (Human Capital), and Open Data (Digital Public Services). Conversely, use of Electronic Information Sharing, RFID and eInvoices (Integration of Digital Technologies) remains very low.

Portugal ranks 15th in DESI 2017. It improved its score in all DESI dimensions with the exception of Digital Public Services. Greatest progress took place in fixed and mobile broadband take-up (Connectivity) as well as in the corporate use of digital technologies. Portugal's greatest challenge lies in raising the digital skills levels of its population.

3.5. PEST Analysis

As stated in the first version of this document, PEST is an acronym for four sources of change: political, economic, social, and technological. PEST analysis takes into account a specific geographic region and analyses the current status of each of these factors in the region under study. When deciding which countries should be analyzed, the consortium took into account the projects main motivation - to mitigate the malnourishment issue among the **European** elderly population. However, given the origin of the partners involved in the projects and the easiness of information gathering and market entrance when compared to other countries, the consortium decided to develop the pest analysis for the following three countries: Portugal, the Netherlands and United Kingdom.

Portugal

Political Factors

Portugal is currently going through a period of recovery after witnessing a strong recession period between 2011 and 2013. At the present, the country is bringing back their reputation in the market and consequently people are increasing their trust in the future of the economy.

The Economic and budget policies for 2017 are based on three complementary dimensions:

i. Income recovery - by relieving the tax burden from families and companies and by improving the work conditions;
ii. Private sector capitalization - aiming to incentive the investment, job creation enabling companies to grow internally and externally;
iii. Financial system capitalization to support the economy and ensure productive investment

The main economic indicators shown some improvement which have brought the trust in the economy and the political decisions, enabling a relatively stable political environment.

In order to successfully reach the objectives planed in each of the stated dimensions, the Portuguese state budget for 2017 is based on five main guidelines:

i. Diligence on public expenditure: The state budget imposes a rigorous limit to the contract of external services by the public sector and aims to rationalize the public expenditure on healthcare services by canalizing patient to family health unites providing a more efficient management of the scarce resources in hospitals.

ii. Support the investment: The Portuguese government aims to incentive the investment in the private sector by providing companies with programs like "Programa Semente" and "Programa Capitalizar" that encourage companies to invest and innovate by offering special fiscal and financing conditions. Moreover, Portugal is encouraging the entrepreneurship with program "StartUp Portugal" which aims to offer alternative financing option to startups, promote incubators and the inclusive entrepreneurship with recourse to external financing programs. The Portuguese government will also support the tourism sector by recovering some crucial monuments aiming to enlarge the diversity of culture. The investment in the Portuguese economy will be greatly accelerated by the usage of structural funds and European investment.

iii. Fiscal Stability: There will be a slight reduction on the fiscal burden by decreasing the direct taxes and stabilizing the indirect taxes. The fiscal policies will be based on six guidelines: i) Make the Portuguese population life's easier; ii) Promote the fiscal equity; iii) Support the private sector and the investment; iv) Incentive environmental friendly practices; v) Promote the public health; vi) Fight fiscal fraud and evasion.

iv. Improve the public administration management efficiency: The Portuguese government aims to enhance the relationship between the Public Administration and the Portuguese families and companies. In this sense, the Portuguese state has created the program "Simplex +" which increases the efficiency of this relationship by decreasing the public expenditure necessary on it. Moreover, there will be for the first time a "Participative Budget" on which the Portuguese citizens can make concrete proposals for the state budget increasing their participation on it.

v. Pursuing the national reform Program: On this topic, the Portuguese state aims to pursuit the objective defined in the "Portuguese National Reform Program" with the main objective of giving answer to the three main challenges stated by the European commission on February 2016: Increase the productivity and competitiveness; decrease the indebtedness; increase the social cohesion and social equality.

Economic Factors

According to the bank of Portugal, the Portuguese Economy is expected to continue its recovery with an expected growth rate in accordance with what was projected for the EU. After growing 1,4% during 2016 the GDP is expected to grow 1,5% in 2017, 1,7% in 2018 and 1,6% in 2019. The evolution of the economic is mostly sustained by the great growth in the exports and the increase in the internal demand partially explained by the acquisition of fixed capital by the Portuguese companies. Regarding the exports, they are expected to be 60% higher than the value registered in 2008 which will influence the investment level of the Portuguese companies. Regarding the family's consumption, even though there was a slight improvement in the job market and in the trust levels of the families, it will keep conditioned by the slow growth of the real salaries and by the indebtedness level reduction attempts of the Portuguese families. Regarding the evolution of the private consumption levels, it is expected to grow 2,1% in 2017 which might incentive the consumption of short term goods and decelerate the consumption levels of long-term goods. By the years of 2018 and 2019 respectively, this component is expected to grow 1,4% given the low growth rate of the employment rate.

The unemployment rate was 12,4% in 2016 and it was expected to reach the 10,10% by this year and 8,5% by 2019 which is lower than the European average in the same period. In 2016 there was a significant level of structural unemployment although the real numbers were often masked by the government who usually took into account the number of people registered in the unemployment centers.

The legal minimum wage has increased, this fact might create a general tendency among enterprises based on low wages, to raise their labor costs.

Regarding the easiness in credit acquisition, taking into account the public commercials of the credit providers, it looks like it is relatively easy to acquire credit, however, the level of indebtedness of most of the Portuguese private companies makes it almost impossible for them to acquire credit.

Social Factors

According to AICEP there are around 10,3 million people living in Portugal and 50% of the population is considered able to work. The population density is higher in the coast with Oporto and Lisbon being the two most populated cities. When compared to the European average, the Portuguese population is ageing rapidly since the number of new born babies is decreasing.

The Portuguese language is spoken by more than 200 million people around the world and given the connection with the world discoveries in the past, Portugal can be considered multicultural in the sense that the regions that comprise the country often have their own culture and typical foods/products and accents.

The tourism in Portugal has been growing at great pace with revenues reaching the 12.680 million euros in 2016 according to the Bank of Portugal which when compared with the year of 2015 is 10,7% more.

Regarding the elderly population in Portugal, it represents 20% of the total population and there is an average life expectancy of 79,2 years. Another important fact regarding this population segment is that 50% of the elderly in Portugal are still working. Not only the Portuguese general population is ageing at great pace, the elderly population is getting older itself. Regarding the literacy in Portugal of this age group, data from 2011 from the Portuguese National Statistics Institute(INE), revealed that 38% of the elderly above 65 had not studied at all, 45% finished elementary school and only 5% had a college degree (INE 2012).

When it comes to the pensioners they receive an average of 485 per month which is lower than the Portuguese minimum wage. Portugal ranks seventh on the countries with the greater percentages of Elderly people living alone and under the poverty line. However, Portugal still scores better than the European average in this topic. According to Eurostat, Portugal is the second member state among EU with higher rates of Elderly people with limitations developing their day-today activities which might mirror their difficulty in achieving an independent ageing process. The available researches on this topic highlighted that 2 to 4% of the elderly need help from a third person (usually a family member) to help them in their everyday activities. The elderly population is considered one of the most disadvantaged population segments among the population, according to the EU, the elderly had by the year of 2009 a rate of poverty risk of 21% which it higher than the EU average. These values get even worst when talking about older age groups (75--+) which reach a risk of poverty risk of 24,4%. Data from INE still states that 60% of the elderly population live completely alone or with another elder.

Technology Facts

Technological development is highly influencing the change in the sectors. Social networks are no long a place just for people to communicate with each other, it is becoming an extremely efficient touch point between brands and final consumers. They enable a higher level of product customization and choice options for the final consume moreover, the fact that they provide the consumers to possibility of reviewing the products enables a greater and more dynamic engagement between the consumers and companies. Information is disseminated much faster than it used to which make consumers more aware and consequently more demanding. Facebook is the most used social network among the Portuguese population.

Regarding the relationship between the elderly and technologies, studies developed worldwide highlighted that people 60 years old or older have a lower chance of living in homes with access to the internet, digital television and taking advantage of the new media, Ofcom (2009). Other researches pinpoint that 20% to 40% of people above 60 years old use the internet and these are usually culturally and financially stable elderly people. Boulton-Lewis, et al. 2007; Pew Internet & American Life Project 2010). The Portuguese reality on this topic is even more critical, a research developed by OberCom in 2012, revealed that 23,9% of the people between 54 and 64 use internet and only 5% of the people 65 years old or above used the internet. This fact is highly connected with the lack of literacy of this age group. Other barriers to the use of internet in the third age highlighted in the research the lack of perceived usefulness of internet, the lack of digital literacy followed by the lack of a computer or a mobile device and the high costs associated, Obercom (2012). A survey done by INE in 2009, pinpointed that when talking about access to different technologies (computer, Mobile-phone and Internet) in Portugal, 6,1% own a computer, 5,2% have access to internet and 51,2% have a mobile-phone.

United Kingdom

UK demographic context:

	Number	Percentage of overall UK Population
UK Population	65,511,098	100%
UK Population 50 years +	23,600,000	36.02%
UK Population 65 years +	11,600,000	17.70%
UK Population 75 years +	4,081,632	6.23%
UK Population 85 years +	1,500,000	2.28%

Figure 11 – UK demographics

Malnutrition (UK Statistics)

- 1.3 million people aged 65 and older suffer from malnutrition.
- 1/3 of older people admitted to hospital are at risk of malnutrition.
- The cost of malnutrition in England 2011-12 was £19.6 billion, half of this was spent on seniors ages 65 years and older.

Seniors in Poverty (UK Statistics)

- 1.6 million pensioners (14%) live in poverty – with a further 1.2 million pensioners likely to move into poverty should the economic circumstances negatively change.
- Of the 1.6 million pensioners in poverty, 1 million are in severe poverty (income less than 50% median income).

Appendix D: Market Analysis-Business Models Landscape.

The following appendix regards section 6 of D5.3 Exploitation plan a). This section was developed during the curricular internship and aimed to provide an overview over similar solutions and other successful technology based services. The following section was crucial to develop Cordon Gris business model since by developing it, it was possible to identify some key successful factors and adapt them to Cordon Gris' reality.

6. Market Analysis-Business Models Landscape

This section aims to analyze other apps that have a similar role in the market as the one Cordon Gris will play. The purpose of this analysis is to study the practices related to the business exploitation of these companies and identify some key success factors that might be possible to put into practice when implementing Cordon Gris Business model. Most of the business models analyzed are related to the food on demand industry but there is also one ready to cook meal delivery business model that will be scrutinized. Finally, given their extreme success in the market, two apps with core businesses not directly connected to Food on demand or the grocery delivery will be presented in order to try to bring their successful practices to the Cordon Gris reality.

6.1. Food on demand business models

The food on demand based business models have three basic activities that define them: the ordering, the cooking and the delivering [6]. The matching of these three different activities or operations generate different businesses: The order only model, the order and delivery model and the fully integrated model. Each one of these business models offer a completely different value proposition for the end-user of the app/service.

6.1.1. The order only business model

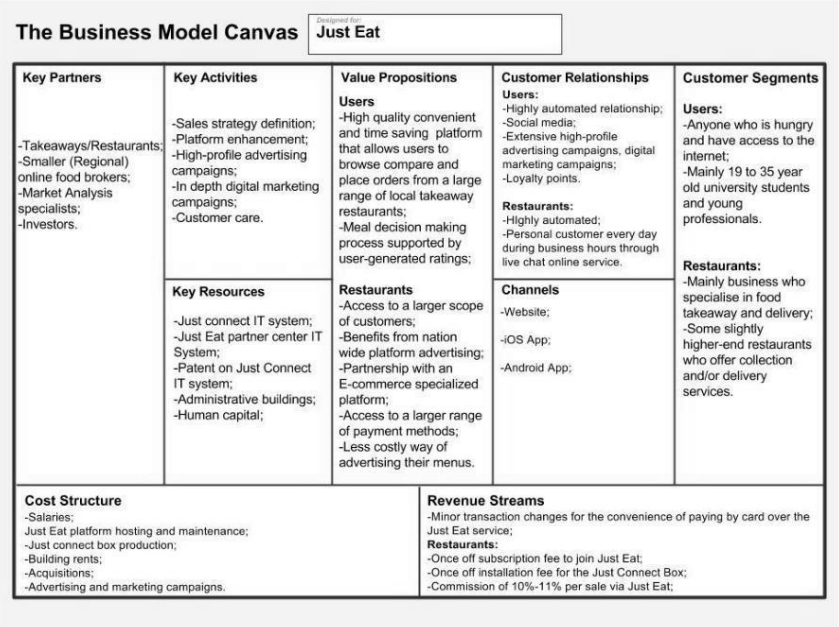
These also called software-only marketplaces offer the customer two value propositions: Convenience for the customer by giving the him the chance off choosing their meals from a wide variety of restaurants in one platform; and an efficient sales channel for restaurants by bringing a lot of new orders and replacing their antiquated phone-ordering system with an optimized Web and mobile platform that is perfectly adaptable to their kitchen workflow. The main singularity of this type of business model lies within the fact that these companies never touch the food, neither by cooking it nor by delivering it [7].

An example of a company that works on this business model is JUST EAT [8], [9], Figure 9. Their business model is to sign up restaurants to its online aggregation platform, allowing customers to order delivery from a broad range of takeaway options through a single site.

Key success factors

Highly scalable revenue model – Most of JUST EAT's revenues (89%) are order driven (B2C), these comprise the commissions paid by the restaurant on successfully fulfilled orders or admin fees. The commission revenue is driven by the number of orders placed, the average order value and the commission rates. Thus an increase in any of these three variable will have a positive impact on the B2C revenue.

Beneficial cash flow cycle - Upon a consumer purchase of a meal, instead of the customer paying directly to the restaurant, JUST EAT collects the full order value. The payments to the restaurants, correspond to the funds collected less JUST EAT's fees and are usually done twice a month. As over 60% of orders are paid for by card, JUST EAT operates with a very favorable working capital cycle.



The Business Model Canvas — Designed for: **Just Eat**

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
-Takeaways/Restaurants; -Smaller (Regional) online food brokers; -Market Analysis specialists; -Investors.	-Sales strategy definition; -Platform enhancement; -High-profile advertising campaigns; -In depth digital marketing campaigns; -Customer care.	**Users** -High quality convenient and time saving platform that allows users to browse compare and place orders from a large range of local takeaway restaurants; -Meal decision making process supported by user-generated ratings;	**Users:** -Highly automated relationship; -Social media; -Extensive high-profile advertising campaigns, digital marketing campaigns; -Loyalty points. **Restaurants:** -Highly automated; -Personal customer every day during business hours through live chat online service.	**Users:** -Anyone who is hungry and have access to the internet; -Mainly 19 to 35 year old university students and young professionals. **Restaurants:** -Mainly business who specialise in food takeaway and delivery; -Some slightly higher-end restaurants who offer collection and/or delivery services.
	Key Resources -Just connect IT system; -Just Eat partner center IT System; -Patent on Just Connect IT system; -Administrative buildings; -Human capital;	**Restaurants** -Access to a larger scope of customers; -Benefits from nation wide platform advertising; -Partnership with an E-commerce specialized platform; -Access to a larger range of payment methods; -Less costly way of advertising their menus.	**Channels** -Website; -iOS App; -Android App;	

Cost Structure	Revenue Streams
-Salaries; Just Eat platform hosting and maintenance; -Just connect box production; -Building rents; -Acquisitions; -Advertising and marketing campaigns.	-Minor transaction changes for the convenience of paying by card over the Just Eat service; **Restaurants:** -Once off subscription fee to join Just Eat; -Once off installation fee for the Just Connect Box; -Commission of 10%-11% per sale via Just Eat;

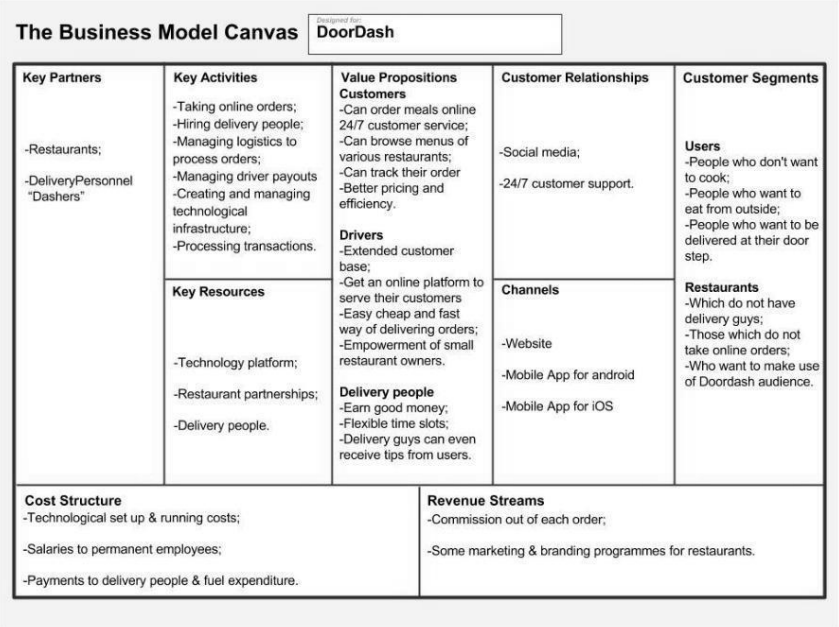
Figure 9 – Just Eat business model [8].

6.1.2. The order and delivery model

This business model is generated by integrating the order task with the delivery task. Besides bringing the convenience for the customer and bringing extra traffic and new orders for the restaurants, this Business model's value proposition also offers the customer a more enhanced delivery experience and manage the deliveries for the restaurants through their independent fleet of cars\couriers. These are both software and logistics companies and because of that, there is a lot of operational work involved.

A company that works under this business model is DOORDASH [10]. This company is an on-demand logistics based startup that acts as an intermediary between merchants and the prospective buyers who wish to get products from local merchants delivered at their doorstep.

The business model of DOORDASH is designed to benefit users as well as the restaurants, Figure 10. It enables users to find a restaurant and order food on one hand and on the other DOORDASH gives restaurants an access to an extended customer base. It also benefits people by offering them employment for delivering the food.



The Business Model Canvas — Designed for: DoorDash

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
-Restaurants; -DeliveryPersonnel "Dashers"	-Taking online orders; -Hiring delivery people; -Managing logistics to process orders; -Managing driver payouts -Creating and managing technological infrastructure; -Processing transactions.	**Customers** -Can order meals online 24/7 customer service; -Can browse menus of various restaurants; -Can track their order -Better pricing and efficiency. **Drivers** -Extended customer base; -Get an online platform to serve their customers -Easy cheap and fast way of delivering orders; -Empowerment of small restaurant owners. **Delivery people** -Earn good money; -Flexible time slots; -Delivery guys can even receive tips from users.	-Social media; -24/7 customer support.	**Users** -People who don't want to cook; -People who want to eat from outside; -People who want to be delivered at their door step. **Restaurants** -Which do not have delivery guys; -Those which do not take online orders; -Who want to make use of Doordash audience.
	Key Resources -Technology platform; -Restaurant partnerships; -Delivery people.		**Channels** -Website -Mobile App for android -Mobile App for iOS	

Cost Structure	Revenue Streams
-Technological set up & running costs; -Salaries to permanent employees; -Payments to delivery people & fuel expenditure.	-Commission out of each order; -Some marketing & branding programmes for restaurants.

Figure 10 – DoorDash business model [10].

Key success factors

Commission on each order- DOORDASH's service is to deliver from the restaurant to the customer's door step the food they ordered through the company's platform. Out of each order delivered to the consumer, the restaurant pays DOORDASH a commission, usually 20%.

Restaurant advertising- Additionally to the commission payed by the restaurant, DOORDASH charges for in app advertising and marketing. Restaurants pay to be on the top of the suggestions and for pop up advertisement in advanced search.

Delivery fees- DOORDASH has their own drives who deliver the orders to the customer. The delivery fee depends on the average distance and the company's tie-up with the restaurant. On average the delivery fee varies from 5$ to 8$.

6.1.3. The fully integrated model

The last type of food on demand business model integrates the three tasks. These companies have their own kitchens or hubs where they prepare the meals. Customers have the opportunity to choose one of the meals within the range of meals provided by the company and then pick the time window for the delivery.

There are two typical ways of operationalizing the business: The pre order way, where the customer orders the food and chooses the delivery window in which they wish to receive their meal or by

receiving the orders only after preparing the meals, (waste is reduced as well as the need for the deepened demand planning).

Munchery is a company that works under this business model [11], Figure 11 . They are an on demand food delivery platform delivering cooked meals to customers at their doorstep in major cities of USA. Having a unique business model, Munchery is an online marketplace that lets users order quality food prepared by professional chefs. To facilitate the process, Munchery has kitchens at various geographical locations and hires part time chefs to cook their respective delicacies. The daily menu keeps on changing which makes users keep coming back to the platform.

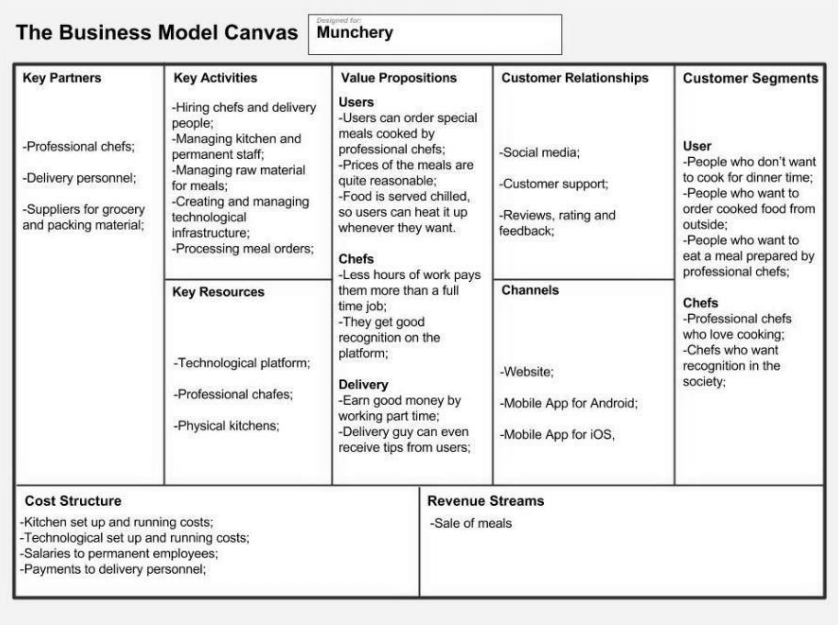


Figure 11 – Munchery business model [11].

Key success factors

Kitchen Location - Like any other company that works under this business model, the main challenge that Munchery faces is the location of their kitchen. This company started by positioning their kitchens near the residential areas in order to be closer to the final user but the residents started complaining about the waste material, parking issues and the smell of the cooking process. To solve this problem and to ensure further company growth, Munchery started positioning their kitchens away from residential areas.

Chef retention – Munchery hires professional chefs to cook their meals given this fact, it is important to retain them. To solve this problem, and apart from the good payments, Munchery gives recognition to their chefs and provides them the freedom of preparing their own meals.

On time delivery – In this kind of business models, the on time delivery is an essential prerequisite to make the customer happy. In order to successfully achieve on time deliveries, instead of expanding to breakfast or lunch deliveries, Munchery has enhanced their on-time deliveries by specializing on dinner time deliveries. Meals are prepared by the evening and sent to various city areas. Upon an order, the nearest delivery guy gets notified to deliver the meal immediately. This allows Munchery to complete their delivery within 20 to 25 minutes.

6.2. Ready to cook meal delivery business model

The main value proposition of this type of business model is the fact that the customer is provided at their own door steps the ingredients in the exact quantities to cook the recipes they subscribed for. This companies usually work under a monthly or weekly subscription model. The customer has the possibility of subscribing different packages of a variety of meals. They offer a great value for people who want to learn cooking with high quality fresh ingredients.

An example of a company that uses this business model is Hello fresh. This company works under a subscription scheme in which costumers order by meals they want to be provided. Users can choose different meal plans and are then delivered the necessary ingredients as well was the recipe for the meals they subscribed.

The Business Model Canvas — Designed for: **Hello Fresh**

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
-Logistics partners; -Local couriers; -Private advertising partners; -Stubbins food partnership (Logistics); -Fresh ingredient producers.i.e The Tomato Stall, The Garlic Farm, Linroyale.	-Marketing; -Branding and customer acquisition; -Customer service; -Taking online orders; -Managing the technological infrastructure; **Key Resources** -Supplying partners; -Technological infrastructure; -Logistics and delivery partners;	-Possibility of receiving cooking recipes adapted to the customer needs and preferences as well as the fresh ingredients needed in it; -No need for meal planning, ingredient shopping and less waste evolved; -Convenient, time saving,healthy and less wasteful meal preparing solution;	-Customer care; -Social Media; -Promotional Offers; **Channels** -Website; -Mobile App for Android; -Mobile App for iOS;	-People who want to acquire cooking skills; -People who enjoy cooking; -People who value convenience and fresh ingredients; -Pressured professionals; -Busy families;

Cost Structure	Revenue Streams
-High marketing expenses; -Delivery and fuel costs; -Cost of goods sold and fulfillment; -Selling General and administrative expenses;	-Weekly grocery home delivery subscription model for the final users.

Figure 12 – Hello Fresh business model.

Key success factors

Local recipe creation – The recipes suggestions are personalized to the customer tastes. The suggestions are based on thousands of data points and customer's feedback.

Sourcing of high quality ingredients – The ingredients are ordered just-in-time from independent suppliers enabling a zero inventory process for Hello Fresh. Besides this, their highly standardized processes allow a low fulfillment cost per order.

Nationwide delivery – The delivery is done within a specified time window for maximum quality and freshness. Besides this, Hello Fresh guarantees that their delivery time is under 24h with an insulated packing solution.

Customer Interaction – The customer has the chance of opting for the recipes provided in each week. The soft-subscription model allows for a low initial commitment without compromising the customer retention.

6.3.Other successful technology based business models

6.3.1. Uber

Uber needs no introductions it is probably the most successful company in its sector,Figure 13. The main value proposition within their business model is the technological enhanced transportation experience they provide their customers while charging low fees when comparing to their main competitors [12]. Besides this they also offer great value for their drivers by using a shared economy model. Any person with a driver's license that wants an additional income source can become an Uber driver even if they just want to work part time. Their payment is done through the technologically enhanced platform.

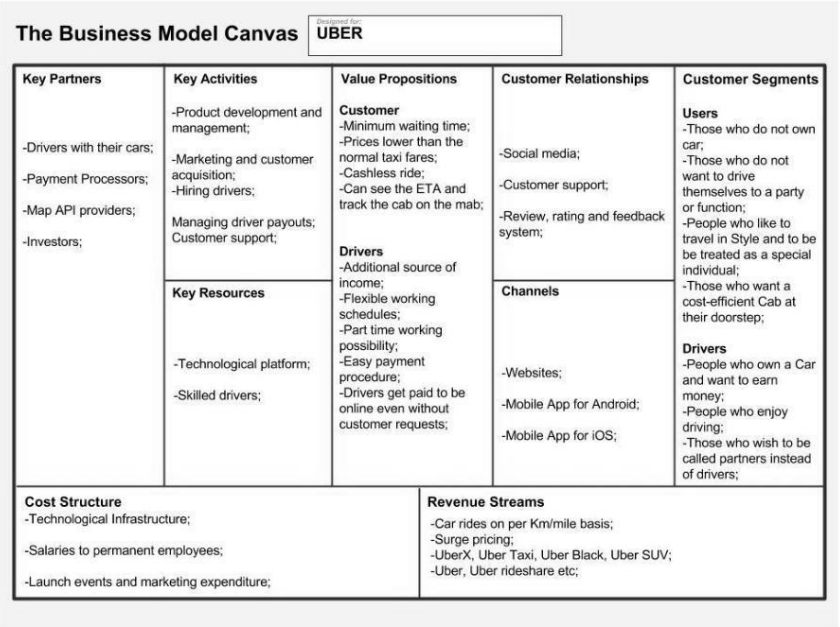


Figure 13 – UBER business model [12].

Key Success Factors

Benefits for both Customers and Drivers - Uber has reinvented the taxi service in every way. They not only offer value for their customer by offering them a high quality service by letting them track the vehicle current location and providing various paying options but also provide the society with a great value proposition by creating jobs for unemployed people.

The early adopters - Uber found a great opportunity to introduce their service to the market. They knew that San Francisco had a highly interactive tech community who would be interested in services to improve their quality of life. Besides this, they found out that the taxi service in the city was not in their best performance. These facts together created the perfect opportunity to test the service and gain market reputation.

Price Surging - Another fact the explains the successful business model behind Uber is the price surging scheme. This fact implies that the prices of Uber rides increase whenever the demand for rides increase. While some riders do not appreciate this fact, it's a great deal for the company.

Disrupting Old Industry - Uber changed completely the way people move. They did it by transforming car ownership and transportation, and re-inventing and introducing it in a whole new way. This has had a huge impact on investors providing them with the trust they need to keep investing.

6.3.2. Airbnb

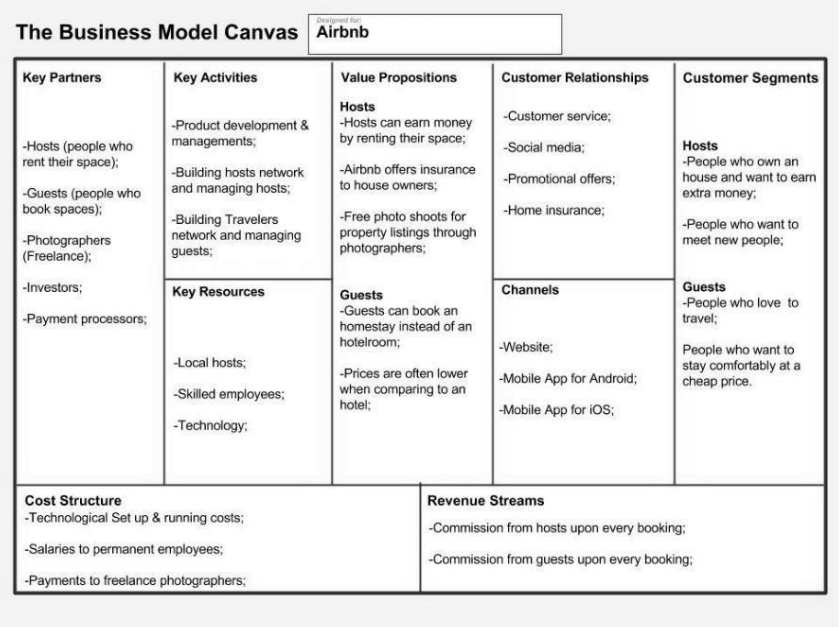
Like Uber, this company business model is based on the shared economy business model [13]. On Airbnb people have the opportunity to rent own houses or rooms during a short term period, Figure 14. This does not only offer customers the opportunity of renting a room cheaper than a hotel room but also enables the house owner to make money by renting their house or a room they are not using.

Key success factors

Democratization and customer empowerment -The company says it wishes to democratize services by bringing them to the hands of the people. According to the Airbnb, a host's average annual income per listing is $ 7,770. The company, and other apartment rentals companies, have recognized that the secret to success lies in their ability to draw the best properties, in the best locations.

Loyalty and community - Airbnb's referral program has changed over the years as a result of a "trial and error" strategy. In 2014, Airbnb's new referrals program has resulted in hundreds of thousands of nights booked by referred users in 2014, and referrals increased booking as much as 25% in some markets.

Brand Building through content - The company's content strategy is a best-in-class story. Airbnb uses photos, videos, print magazines and social media, to spread inspiration regarding locations and hosting / travelling experiences. The company uses content to connect its community, but also to build trust and to inspire more people to travel, even if they did not plan to or if they are on a budge.



The Business Model Canvas — Designed for: **Airbnb**

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
-Hosts (people who rent their space); -Guests (people who book spaces); -Photographers (Freelance); -Investors; -Payment processors;	-Product development & managements; -Building hosts network and managing hosts; -Building Travelers network and managing guests;	**Hosts** -Hosts can earn money by renting their space; -Airbnb offers insurance to house owners; -Free photo shoots for property listings through photographers;	-Customer service; -Social media; -Promotional offers; -Home insurance;	**Hosts** -People who own an house and want to earn extra money; -People who want to meet new people;
	Key Resources -Local hosts; -Skilled employees; -Technology;	**Guests** -Guests can book an homestay instead of an hotelroom; -Prices are often lower when comparing to an hotel;	**Channels** -Website; -Mobile App for Android; -Mobile App for iOS;	**Guests** -People who love to travel; People who want to stay comfortably at a cheap price.

Cost Structure	Revenue Streams
-Technological Set up & running costs; -Salaries to permanent employees; -Payments to freelance photographers;	-Commission from hosts upon every booking; -Commission from guests upon every booking;

Figure 14 – Airbnb business model [13].

Appendix E: Sales Strategy

The following appendix regards section 7.3 of D5.3 Exploitation plan a). This section was developed during the curricular internship and aimed to provide a preliminary approach to Cordon Gris' sales strategy to be implemented upon the market entrance.

PR and Advertising:

- Once the application reaches launch stage, promote Cordon Gris on daily talk show interviews such as 'Futuro Hoje' and 'Hora da Sorte' as it was previously done in July 2016;
- Radio commercials, this could be advertised through SONAE as a known brand, if agreed.

Content Marketing:

- Publish articles on blogs dedicated to our target market (end-users, care homes);
- Release an article in SONAE MC magazine publicising the application;
- The consortium will release newsletters to receive the latest updates on the application.

The methods that will be taken to measure the success of the marketing activities through different channels have been listed below. Some of the methods have been previously mentioned in the Dissemination Plan (D5.5):

- For monitoring the presence on the web, the Cordon Gris website will implement the analytics services from Google. Among other metrics, the Google Analytics service will be used to collect information regarding, pages views, traffic sources, and demographics;
- The newsletter campaigns will be sent with the help of the service MailChimp, therefore, to monitor the dissemination of the newsletter we will use the tools provided by this service. Metrics regarding the open rate, social performance and country of origin will be collected;
- When the application will be launched in the market we will be able to track the number of users that sign-up as well as the amount of orders made from food suppliers linked to the Cordon Gris application.

7.3 Sales Strategy

A well-defined robust sales strategy is one of the pillar that enables the sustainability of any business plan. Revenue generation is probably the main objectives of any private for Profit Company and most of that revenue generation will come from sales. Since this strategy intends to set out in detail how the company will get the service/product in front of the people who needs it, one must know in detail their audience/customer target in order to know what they want to be delivered.

As stated before, Cordon Gris business model works on two different value propositions, one for the final users of the app and one for the customer segments that might use it as a sales channel, therefore, there must be two different sales strategies for the two different sales channels.

One of the main issues that influence the malnourishment of the elderly is related to their limited budget, thus this customer segment will not be willing to acquire Cordon Gris service if he is charged an expensive fee to use it. Most of the home food ordering/delivering apps are available to the users for free in any App store, even though there are some similarities with this Apps, Cordon Gris will have a higher service component in the sense that besides providing the option of ordering and delivering the meals, it allows the Elder to receive meal recommendations personalized to his health situation, food preferences and budget available. This competitive advantage, might create value enough for the informal caregiver to be willing to pay a fee for the service. That being said, there are two possible

approaches to the sales strategy that might be implemented to final user customer segment, the app can either be provided totally for free and in this case the final user only pays for the meal/groceries and the delivery fee through in app purchases or some premium features or premium version might be charged in order to unlock them. The main issue regarding this kind of strategy is that if the free version doesn't offer enough features, App churn will be high and on the other hand If the free version offers too much the customer won't feel the need to acquire the premium version. One way off overcoming this issue would be by communicating the premium version directly to informal care givers by making them feel about the premium version like one efficient trustful and time saving solution to take care of their loved ones.

The sales approach to the users of the app as a sales channel must be done differently when compared to the final user's approach. By looking at some benchmarks on the ordering and delivery platform industry it was able to identify some common practices on some companies, usually there are two different ways of charging for the service, the App either charges for a commission upon the sales done through the App usually 10% to 20% or they charge the user a fixed fee to use the platform plus the delivery fee if not provided by the restaurant. In order to gain trust within this customer segment is by entering the market charging only a commission upon sales done via the App, this way the level of commitment is lower enabling the easiness of acquiring a large pool of early adopters. The communication to this customer segment should be done personally by well-trained sales representatives given the lack of brand awareness of the early stages of the business, however, once the brand has already acquired market reputation the communication can be done in less expensive ways i.e. Social Media, Website.

Upon the second version of the current document, the sales strategy stated before should be enhanced based on inputs from the final version of the Market research & technology Watch and the Business Plan deliverables.

Appendix F: Funding Options for the Future of the Project

The following appendix regards section 8 of D5.3 Exploitation plan a). This section was developed during the curricular internship and aimed to highlight the funding options for the future of the project. The main objective behind the development of this section was to seek for financing programmes to fund the close-to-market activities of Cordon Gris since upon the end of the project, Cordon Gris will most probably need additional investment to be implemented.

8. Funding options for the future of the project

Cordon Gris project will culminate with a prototype that will be tested by end users in a real market environment, like any other prototype, Cordon Gris App might not be ready to enter the market at that stage. Upon testing the app, the feed-back given by the final users as well as the issues identified by the consortium must be taken in to account in order to better prepare the service for the market entry. The service enhancement as well as the improvement of topics regarding the user experience usually have high costs associated. Besides this, the implementation of the go to market strategy, the marketing strategy and the sales strategy also require a budget.

Given these facts, the following section intends to provide information regarding the funding options for the future of the project, particularly the funding of the activities stated before as well as expenses related to the initial investment.

Considering the stage development of Cordon Gris upon the end of the project, funding option regarding the financing of R&D activities can no longer be considered.

The funding options shown below will be divided into two different categories, Public (either National or European) and Private.

8.1. Public Funding Options

8.1.1. Portugal – Demonstrative project of advanced technology

This "Research and Technological Development" Incentive Scheme aims to provide support for demonstrative projects of advanced technologies and pilot lines which, starting from successfully completed R & D activities, aim to show before a specialized audience and in a real situation the economic and technical advantages of new technological solutions that are not sufficiently validated, from the technological point of view, for commercial use. This funding option is destined for projects located in the NUTS II Regions of Portugal. The co-financing rates of this financing scheme vary from 25% to 75% depending on whether the partners of the projects and private enterprises or Non enterprise entities of the belonging to the I&I system (Innovation Incentive system-Portugal2020). The rate of financing also depends of the specific Portugal NUTS ii region.

8.1.2. United Kingdom - Innovate UK's Funding Competition: Open Programme

This competition is open to all innovative or disruptive ideas that are business-led as long as they have proven their possibility of success regardless their sector (Technology, engineering or industrial). For the proposals to be included in the scope they have to demonstrate transformational innovation that lead to new products processes or services. Besides this, the proposals must show clear anticipated growth based on their potential of leading to a significant ROI. Projects whose proposals are able to show a high probability of sustainable gains or possibility of internationalization are usually prioritized. The total eligible costs range from £25,000 to £1million and the programme provides funding from 50% to 70% (depending on the size of the business) of total eligible costs for technical feasibility studies and from 25% to 45% of total eligible costs for experimental development projects which are near to market.

8.1.3. Netherlands – Innovation Credit

This funding option aims to finance innovative ideas that have a high market potential [15]. The funding is provided by the Ministry of Economic affairs and it is suited for SMEs that are trying to bring to the market risky innovation projects. For the project to be eligible technologically innovative and unique to the Netherlands, Bonaire, St. Eustatius and Saba. Like any other type of credit, the amount of capital provided must be refunded unless the project fails, in this case the entity that's been provided with the funding can ask for a derogation.

8.1.4. Europe – Fast Track to innovation

Fast track to innovation intends to promote close-to-the-market innovation activities [16]. In order to achieve this objective, this program provides funding for close-to-market innovation activities in any area of technology or application. Proposals for funding must be submitted by consortia comprising between three and five legal entities established in at least three different EU Member States or countries associated to Horizon 2020. The consortia applying for the funding must have between 3 to 5 partners and must be industry intensive either 2 out of 4 or 3 out of 5 partners must be private-for-profit or 60% of the budget of the proposal (total estimated eligible costs) is to be allocated to private-for-profit entities. The funding requested cannot exceed 3 million and the funding levels are fixed at 70% of the eligible costs.

8.2.Private Funding Options

8.2.1. Seed Capital

As its name says, this is the amount of capital needed to seed a business in its early stage. Capital seed may come from various sources but it is usually associated with banks and angel investors. It is usually the first source of funding of an Idea/business usually corresponding to the earlier stages of the financial cycles of startup [2]. Seed capital investments usually range in the tens of thousands and have a high risk associated given the premature stage of development of a business that most of the times have no proof of revenue. Seed capital configure a great option for financing a great idea's way to the market that haven't had a chance to prove its success. The seed capital investment is often done in exchange for an equity stake in the company [17].

8.2.2. Venture Capital

This funding option is usually associated with a more mature stage of development of a company representing a lower risk for the investors [18]. The amounts of financing range from the tens to the hundreds of thousands. Venture capitalists often trade capital in exchange for a share of the business equity. Venture Capital can have one of the four following types:

- Institutional Venture Capital - Investments in entrepreneurial ventures by firms of full-time professionals who raise finance from pension funds, banks, insurance companies and other financial institutions [19].
- Informal Venture Capital- Investment by wealthy private individuals who are prepared to use their financial resources to make risk investments based upon their experience and interests

- Corporate Venture Capital- Minority investments made by large companies in smaller enterprises for a principally strategic, rather than an exclusively financial motive.
- Public/Private Sector Venture Capital- Private and public sector capital is pooled, though fund management is undertaken along private sector (institutional) lines and follows a largely commercial imperative, rather than being bound by exclusively social or welfare considerations.