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HOW TO HAVE A SUSTAINABLE INNOVATION? THE CASE OF CORTICEIRA AMORIM

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ABSTRACT

Innovation plays an important role for companies achieve a good market position and face competition. With innovation is easier to deliver the right product at the right time and in the right place, which will retain customers and create value. Although, innovation cannot be used so easily without control, it is necessary to be aware of the innovation impact in the sustainability of the industries. Accordingly, the concept of sustainability is taking a place in company's agenda.

The purpose of this thesis is to elaborate a dissertation to understand the relation between innovation and sustainability and to explain how companies can innovate and, at the same time, guarantee the sustainability of the industry. Corticeira Amorim is the company chosen for the development of this dissertation. By understanding how Corticeira Amorim works, it is possible to explain how innovation can be sustainable.

This dissertation follows a theory-testing research model, using a qualitative and quantitative analysis. Both primary and secondary data were used, being the interview the method chosen to collect primary data. Furthermore, it was used a conceptual framework to understand and analyze the relation between innovation and sustainability.

In terms of results, it was found that it is possible to have a sustainable innovation, being the CA a practical example of that. Additionally, it was found that CA adopts a strategy of innovation based on the circular economy concept, to guarantee a sustainable innovation.

Key words: Sustainable innovation, circular economy, Corticeira Amorim, long-term success.

RESUMO

A inovação desempenha um importante papel para as empresas alcançarem uma posição líder no mercado e serem competitivas. Através da inovação é mais fácil ter o produto certo, no tempo e no lugar certo, o que irá permitir aumentar a retenção de clientes e a criação de valor. No entanto, a inovação não pode ser usada assim tão facilmente, é necessário ter atenção do seu impacto na sustentabilidade das industrias. Neste sentido, o conceito de sustentabilidade está cada vez mais presente nas empresas.

Esta tese tem como objetivo elaborar uma dissertação que permita compreender a relação entre inovação e sustentabilidade e explicar como é que as empresas inovam e, ao mesmo tempo, garantem a sustentabilidade da indústria. A Corticeira Amorim é a empresa escolhida para o desenvolvimento deste trabalho. Ao compreender como esta empresa funciona, é possível explicar de que forma a inovação pode ser sustentável.

Esta dissertação segue um modelo de pesquisa baseado em testar teoria, usando uma análise qualitativa e quantitativa. Foram usados dados primários e secundários, tendo sido a entrevista o método escolhido para a recolha dos dados primários. Adicionalmente, usou-se um quadro conceptual para compreender e analisar cientificamente a relação entre inovação e sustentabilidade.

Face aos resultados, verificou-se que é possível existir uma inovação sustentável, sendo a CA um exemplo prático. Verificou-se também que a estratégia de inovação da CA baseia-se no conceito de economia circular, de forma a garantir uma inovação sustentável.

Palavras Chave: Inovação sustentável, economia circular, Corticeira Amorim, sucesso a longo prazo.

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ACRONYM

APCOR – Associação Portuguesa de Cortiça

BU – Business units

CA – Corticeira Amorim

EU – European Union

FSC – Forest Stewardship Council

GDP – Gross Domestic Product

ICNF – Instituto de Conservação da Natureza e da Floresta

INE – Instituto Nacional de Estatística

R&D – Research & Development

USA – United States of America

1. Executive Summary

Nowadays, it is no longer possible to see innovation and sustainability as two distinct concepts. The importance given to these two concepts has been growing, and sustainable innovation starts to become a top of mind priority in a business world with finite resources. A great example, where this priority has been taking place, is the cork industry. As common sense, the cork industry uses the cork as a raw material for all products manufacturing, so it is highly dependent of this natural resource. This fact and the increasing need for innovation, in this sector, lead to a profound change in cork industry, bringing a new way of thinking in today's business. One of the first companies to adopt sustainability as a working philosophy was Corticeira Amorim, which will be, from now on, also referred as CA, Portuguese cork Company or Company. This Company is the leader cork company in Portugal, and one of the best cork companies around the world. CA is very appreciated internationally not just because of the high quality of their products but also because of its concern given to sustainability issues. From very early, CA realized that would be just possible to be a leader in this industry with innovation and, at the same time, with a huge concern about sustainability.

Taking this into account, the main purpose of this work is to explain how companies can have a sustainable innovation and, at the same time, which kind of sustainable innovation type are possible to exist in a company. As previous mentioned, the cork industry is an industry where both innovation and sustainability are crucial, and since CA is one of the best well know companies in this sector it is important to "test" and observe how this company innovate in a sustainable way.

To meet effectively the purpose of this thesis, it will be used a conceptual framework about sustainable innovation. This theoretical conceptual framework, explain the relation between sustainability and innovation giving several types of sustainable innovation orientation's strategies for a company to follow, in order to pursue a sustainable innovation.

Through the direct application of the sustainable innovation framework to the CA, it will be possible to conclude that the company follows a sustainable innovation orientation strategy, by reducing the consumption of raw-materials, the use of organic materials as an input on the production process of current products and/or new products and also the paradigm shift to a circular economy. The existent relation between innovation and sustainability in Corticeira Amorim, and also the importance given to this relation, as being the long run survival of the

cork sector, can be proven by the strategic approach that this company has to eliminate waste and pollution, in a model moving toward a circular economy.

This recent model has been study for the last few years and, since 2014, has becoming one of the main concerns of the European Union. This is a living proof that Corticeira Amorim is devoted to improve its production process, creating a strong sustainable innovation that can lead the sector to surpass the future challenges that might jeopardize the survival of the cork industry.

2. The Problem Definition

Nowadays, for companies to survive in a so competitive world, growth is an imperative thing and it is not an option (Bain and Company, 2015). Business growth achievement is, in this context, essential for organizations. In fact, companies are now, doing a special focus on managing resources and capabilities to ensure a strategic position in the market and a focus on innovation. If companies want to be competitive they must invest in innovation to fulfil client's needs with sophisticated and modern products / services, going beyond their expectations.

Although, it is not enough to recognize the role of innovation in today's business. Recognize the impact of these innovations in the sustainability of the industries is very important too. Furthermore, the environmental and social impact of innovation, sometimes could not guarantee the sustainability of the industry in the long run. Along with this, a new debate is taking place among companies. Companies now are discussing how they can link this two concepts, innovation and sustainability, in the way that they can be executed together without jeopardizing competitiveness objectives. Innovation is an important part of every organization but cannot be used so easily without control.

If companies do not be aware to environmental and social questions, the future of its industries may be compromised, as in the case of industries that use natural resources as its core business (wine industries, cork industries, and others). The cork industry is totally dependent of natural resources but, at the same time, its business activity has a direct impact in the environment. If cork companies innovate in their activity but do not be aware to sustainability and environment issues, how can the cork industry be sustainable in the long-run? It becomes essential to understand the practical relationship between innovation and sustainability and discover how companies can innovate and, at the same time, guarantee the sustainability of their business, especially those ones that use natural resources with a direct impact in the environment.

3. Literature Review

3.1. Innovation

3.1.1. Concept and characteristics

It is not very easy to define the concept of innovation, being this concept a quite diverse and depending mostly on its application. According to Godin (2008), *"innovation is everywhere"*, since it is possible to find innovation between several fields, such as in scientific and technical literature, in social science (sociology, history, management and economic) or in humanities and arts. Nowadays, the word "innovation" is part of the everybody's vocabulary, all people and organizations know the power that can be brought from a wisely use of it. Innovation is something that is fully introduced into people's daily lives and it is difficult for people to live without it and for companies to compete without it. For these reasons, innovation is now a central idea in people mind and companies' agenda.

In constant changing world, driven by a need to reevaluate how companies can differentiate themselves from competitors, there is no doubt that innovation makes the difference, turning this concept essential in every industry (Fisher, 2008). Although, it is very important to clarify that innovation and innovation processes do not have the same meaning that continuous improvement has. People very often confuse these two concepts, but they are different. To characterize innovation as continuous process it is necessary that this innovation process cause a noteworthy effect on the pricing structure, in the market share and in the company's profit. The concept of continuous improvement does not imply to create competitive advantage in the long-run, but implies to maintain the competitiveness of the products and services by reducing waste in terms of costs and time.

Innovation or the need to innovate can be driven by a number of factors that can differentiate from situation to situation. The need for innovation allows organizations to question themselves about their innovation capabilities and potential. In fact, "*managing creativity and capabilities, like innovation capability, is one of the basic elements of an innovative organization*" (Saunila and Ukko, 2012: 355). In line with this, developing innovation capabilities is one of the main source to achieve an innovative product or service and become a business leader (Laforet, 2011). For Yliherva (2004), innovation capability is an organization's intangible property and, at the same time, is the ability that the organization has to exploit that property in a way that it will enable the company produce systematically new innovations. In turns, for Lawson and Samson (2001:384) innovation capability is *"the ability to continuously transform knowledge*

and ideas into new products, processes and systems for the benefit of the firm and its stakeholders". Another approach is given by Rangone (1999:235) that defines innovation capability as "*an organization's ability to develop new products and processes, and to achieve superior technological and management performance"*. Skarzynski and Gibson (2008) divide innovation capabilities into four categories: leadership and organization, people and skills, process and tools, and culture and values. Furthermore, there are several issues that can impact on innovation, which can become either promoters or obstacles, such as people and the atmosphere, the physical environment, mental models, and decision-making and power structures (Sta ̈hle et al., 2004). According to Paalanen et al. (2009), to understand innovation capabilities it is important to evaluate the subcategories that can influence them, considering for that the absorptive capacity and external knowledge, the organizational structures and culture, the leadership and communication and the individual creativity and innovativeness. On the other hand, Tura et al. (2008) develop a different statement regarding to how we should look to innovation capability. The author proposes to look through three subcategories: openness/creativity, knowledge/expertise, and operationalization capability. The first subcategory covers the capabilities needed to exceed the existing solutions and new possibilities. The second subcategory comprises the capabilities to build innovation through acquired knowledge. The third subcategory describes the capability that allows organizations to exploit achieved knowledge base through the discovery and introduction of new applications.

Taking into consideration these previous definitions of innovation capability, it is possible to summarize that the concept of innovation capabilities englobes innovation potential, innovation process and results of innovation process (Saunila and Ukko, 2012).

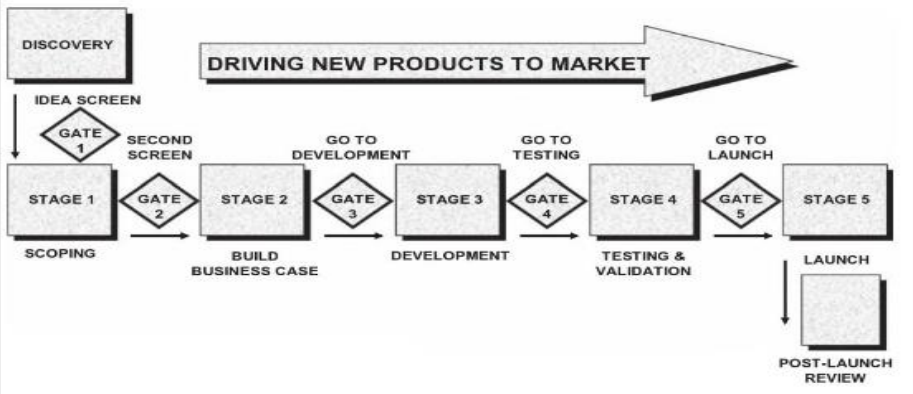
The innovation potential is one of the main fields of study in literature according to innovative organizations (Zizlavsky, 2011; Saunila and Ukko, 2012; Stanislawski and Lisowska, 2014; Valitov and Khakimov, 2015). For example, Zizlaysky (2011: 1019), through a profound study about innovation, reaches a statement where "*innovation potential is considered a suitable characteristic of the company's existing innovation environment."* The environment assumes as a crucial aspect in which innovations can be or not created, developed and implemented. The potential beyond innovation capacity refers to the importance in the sum of all resources inside the company and to the ability of its use for the company's development (Stanislawski and Lisowska, 2015). Innovation potential management allocated for organizational intends cannot be neglected. In fact, it is an integral part of innovation management and disposes skills

that allow solving issues related to innovative strategies of planning and implementation for the organizational sustainable development (Valitov and Khakimov, 2015). Valitov and Khakimov (2015: 717) state that, innovative strategies development is based on the influence *"of company opportunities and innovative potential, analysis of enterprise external environment for their possible implementation in strategic decision-making"*. More recent studies indicate that the factors that englobe the innovation potential of an organization should be divided into five categories (Saunila and Ukko, 2012: 359):

1. Leadership and decision-making processes;
2. Organizational structures and communication;
3. Collaboration and external links;
4. Organizational culture and climate;
5. Individual creativity and know-how.

The innovation process discusses the importance of systems and activities on how organizations make use of the identified innovative potential to pursue innovations (Saunila and Ukko, 2012). According to Davila et al. (2013) the innovation process includes innovation creation, analyzing and controlling related functions. Basically, for the author, the innovation process main role is to guarantee an efficient communication, coordination and collection of experience of the inter-activities. For Koen et al. (2001) the innovation process must be divided into three phases: frontend, new product development and commercialization. There are several innovation process models, but probably the most well-known is Robert Cooper's Stage-Gate model (figure 1).

Figure 1 - Robert Cooper's Stage- Gate Model: Innovation Process



Source: Cooper, R. 2001. Winning at New Products (3rd ed.) Cambridge: Basic Books

This innovation process model comprises five stages and five gates or decision points. The five stages are scoping, build business case, development, testing and validation, launch and post-launch review. The biggest advantage of this model is because it divides the roles of the team project to the executives' roles. The team project is responsible for finding the innovation that will best meet their project objective and executives are responsible for the gate decisions, they are responsible for taking the best decisions for the organization (Midgley, 2010: 73). The third element of innovation capability is the results of innovation process and here, according to Sta˚hle et al. (2004), innovation can be considered as an improvement when is it used in the price structure, in the company's revenue and to achieve a higher advantage in competition in the market.

After understanding the concept of innovation and the elements that comprise it, is similarly important to explain the types of innovation. As previously stated, "innovation is everywhere", so it is expected that not all innovations are equal. Davila, Epstein and Shelton (2006), in their book "Making Innovation Work, How to Manage It, Measure It, and Profit from It", argue that there are three types of innovation. These three types of innovation are incremental, semi-radical and radical. For the authors, *"achieving radical or semi-radical innovation requires a different mix of business model and technology change than incremental innovation"* (Davila, Epstein and Shelton, 2006: 15). The incremental innovation is considered as "*improvements within a given frame of solutions, doing better what we already do"* (Norman and Verganti, 2012:5). Basically, the incremental innovation is regarding to small improvements and to problem-solving. In turn, the radical innovation is considered as *"a change of frame, doing what we did not do before"* (Norman and Verganti, 2012:5). Here, this type of innovation englobes significant changes with an impact on business and as well in the technology used (Engen and Holen, 2014). *"Radical innovation brings new domains, new paradigms and creates a potential for major changes and incremental innovation is how the value of that potential is captured. Without radical innovation, incremental innovation reaches a limit. Without incremental innovation, the potential enable by radical is not captured"* (Norman and Verganti, 2012:6). So, in line with the authors, both types of innovation are important for an organization.

At the present time, there are a tendency to increment quality and performance in innovation. *"The increased importance of innovations the significant problem clarifies – the inability to ensure innovation management in right time and quality in the early stage of innovation process"* (Batraga, Braslina and Viksne, 2014: 31). Consistent with the authors, in nowaday's

business, the innovation process must go hand in hand to innovation quality and innovation performance. The innovation quality "*indicates when an enterprise endeavors in the pursuit of innovation through creation of new products, processes or management modes, whether the innovation can satisfy the parties of interest such as the customers, the employees and the suppliers"* (Shwu-Ing and Chiao-Ling, 2001:52). If this occurs, so it means that the innovation has quality, otherwise, innovation does not have quality. Regarding to innovation performance there are several different views about how to measure the performance of innovation. In a common sense, to determine if innovation has performance there are three items of evaluation (Shwu-Ing and Chiao-Ling, 2001:55):

- Innovation success rate – "*The success percentage of innovative product or service within a specific time period"*;
- Market share – "*The ratio or percentage of a company's innovation product or service sold on the market of the similar products within a specific time period"*;
- Innovation ratio – "*The ratio between income and costs from innovation investment within a specific time period"*.

3.1.2. Innovation and competitive advantage

Since a few decades ago, reaching competitive advantage start to become one of the main goals of an organization. Tushman & Nadler (1986:92) stressed that "*organizations can gain competitive advantage only by managing effectively for today while simultaneously creating innovation for tomorrow"* and implied that *"there is perhaps no more pressing managerial problem that the sustained management of innovation"*. According to this, Hana (2013) conclude that, to have innovation and to use it as competitive advantage, organization must do an efficient use of company's resources as well a good use of the acquired experience and knowledge. By doing this, organizations will increase their ability to dodge and exceed obstacles that can appear through the use of innovation.

Innovation is an imperative source to achieve competitive advantage and will, surely, continue to be a way for companies to survive due the increasingly and extremely competitive business environment (Tidd et al., 2006). The most important characteristics of innovation in business include:

- A strong relationship between market performance and new products;
- New products help maintain market shares and improve profitability;

- Growth also by means of non-price factors (design, quality, individualism, and my others);
- Ability to substitute outdated products (shortening product lifecycles);
- Innovation of processes that lead to production time shortening and speed up new product development in comparison to competitors.

Managers need to look to innovation as a source to popping up organizational competitiveness that will allow, over time, to develop some kind of competitive advantage. Skarzynski and Gibson, (2008: 4) argued that *"the difficult challenge for most organizations is how to turn all that rhetoric into hard-nosed, revenue-growing reality*". Additionally, they concluded that *"by producing a constant stream of breakthrough innovations that compound over time to build a formidable competitive advantage"*. But most importantly, the authors stated that, sometimes it is necessary to stop, study, evaluate, develop and enduring capability for innovation instead of being all the time taking effort to develop new innovative bridges to break-through competitors. As mentioned in the previous chapter, Skarzynski and Gibson (2008) pointed out that, innovation capabilities will drive companies to achieve profitable revenue growth and, most importantly, enabling the company to maintain a competitive advantage over the longer term. To be successful, innovative organizations must observe attentively its external environment, in order to find trends and gaps that will allow them to change and create new ways of doing innovative things (Hyde, 2013).

Hyde (2013) conducted a study about the new forms to achieve competitive advantage through in-depth study of innovation theories, where reached the conclusion that organizations need to pay attention to three different innovation theories: Blue Ocean Strategy, Disruptive Innovation and Strategic Innovation. These three theories have shifted how organizational strategic management thinks, in order to achieve sustained competitive advantage. Furthermore, with these theories it was possible to conclude that the easy way for organizations to achieve competitive advantage is through innovation (Shqipe, Gadaf and Veland, 2013). By looking to innovation in a product perspective, Reguia (2014) said that companies become obliged to adopt product innovation, as well to create a favorable environment through:

- Encouraging R& D;
- Providing financial sources to support new innovations;
- Putting efficient programs and policies;
- Motivating innovators.

So, in today's business the word innovation is crucial to have a good competitive advantage and to guarantee a good business activity in the long-term. Customers, are now more demanding in terms of innovation and quality, searching for high quality and high innovative products or services. In a market full of competition, it is important that innovation, quality and performance go hand in hand, to offer products/services with perceived-value for customers and to increase the organization's market position – *"firm's competitive advantage largely depends on their ability to innovate over time"* (Le Bas, Mothe and Nguyen-Thi, 2015:111).

3.2. Sustainability

3.2.1. Several points-of-view

Although the concept of sustainability has been recognized by its appearance in a relatively modern era, the sustainability-oriented concepts have been studied by several times over the last decades. Studies made about this subject cannot define when the concept of sustainability was born. What is actually known, is that sustainability has been espoused by many religions, modern and ancient, Eastern and Western, that promote respect towards nature, people, and society at large (Gottlieb, 1996; Mebratu, 1998).

As said by Kidd (1992), sustainability can be considered as a modern movement in today's society and have derived from six different roots: the carrying capacity root, the resource root, the biosphere root, the critique of technology root, the "no growth" or "slow growth" root, and lastly the eco-development root. Due to the similarity between some of them, Kidd (1992) identifies, for purposes of simplicity, that there are two major branches from which the modern construction of sustainability is derived. The first one, will carry with capacity and resource root and the second one, with the normative emphasis of the latter four (i.e. the biosphere root, the technology root, the "no growth" and "slow growth" root, and the eco-development root).

In turn, Smith and Scharicz (2011: 74-75) has a more organizational approach of sustainability. The authors define sustainability as being: *"the result of the activities of an organization,[SEP]voluntary or governed by law, that demonstrate the ability of the organization to maintain viable its business operations (including financial viability as appropriate)[SEP]whilst not negatively impacting any social or ecological systems"*.

Another definition of sustainability is given by Crane and Matten (2016: 33) define sustainability as *"the long-term maintenance of systems according to the environmental,*

economic and social considerations." In line with these authors it is possible to identify economy, society and environment as the three pillars of sustainability, which both economy and society are constrained by environmental limits (Beattie 2015):

- The social pillar of sustainability – this pillar describes the capacity that societies have to persistently accomplish a good social well-being. By achieving social sustainability, it is possible to ensure a social well-being of a country and organizations can guarantee its future in the long term.
- The environmental pillar of sustainability – this pillar explains that if people and companies want to live in a true environmental sustainability, it is necessary to ensure that they are consuming its natural resources (raw-materials, water, land and energy fuels). Although, it is necessary to make a balanced used of the resources and reduce the environmental impact of an organizations facilities, products and operations to achieve environmental sustainability.
- The economic pillar of sustainability – this pillar is used to outline strategies that enable a consumption of socio-economic resources to their best benefit. Basically, to achieve the economic sustainability it is necessary that an organization use its resources efficiently and responsibly to have a sustainable business activity and produce an operational profit. The economic sustainability involves to guarantee that the business activity produce profit and, at the same time, to ensure that business operations do not generate social or environmental problems that could prejudice the future of the organization.

According to the previous definitions and approaches, sustainability can have many different points of view. Scholars studied several views to relate sustainability in a business context. An approach that takes into account the economic, environmental and social aspects of sustainability is complex and needs a strong effort from organizations in order to integrate sustainability at multiple levels and throughout the organizational system. For this approach, organizations cannot simply go through legal and regulatory requirements. It is needed more than that, it is necessary to look in a more proactive stance towards sustainability.

3.2.2. Sustainability in today's business

The McKinsey Global Survey (2011), "The Business of Sustainability", stated that nowadays "*more companies are managing sustainability to improve processes, pursue growth, and add*

value to their companies rather than focusing on reputation alone". In fact, in today's business, managers are becoming more and more aware of the needs to broaden their goals, but this time beyond the traditional financial expectations. The term of sustainability has entered into the business world and, every day, an ever-increasing number of firms are realizing the importance of the relation between financial goals and social and environmental goals (Bansal, 2005; Hoffman, 1999; GRI, 2011).

Consistent with what it was said in the in the previous chapter, it is necessary that organization follow a proactive. Bonn and Fisher (2011), argue that if organizations want to become more sustainable, some changes have to take place, more precisely, organizations should guarantee that sustainability is integrated into the strategy process from the beginning and that is addressed on an ongoing basis. More precisely, the organization's vision needs to reflect the organization's commitment to sustainability. Strategic changes have to take place in order to use sustainability as an integrative part of the strategic decision-making process, as well as the strategy content. This wills implies some changes that, sometimes, can be difficult to understand. Sustainability initiatives need to be supported by the organizational culture in a proactive way that enables the trade-off between shareholder's objectives and sustainability's objectives.

On the word of Eccles, Ioannou and Serafeim (2012) the organizations that have a high sustainability level are *"characterized by a governance structure that explicitly and directly took into account the environmental and social performance of the company, in addition to financial performance".* Furthermore, in their article "Is sustainability now the key to corporate success?" on The Guardian Journal, the authors Eccles, Ioannous and Serafeim (2012) said that high-sustainability organizations *"have particular attention to their relationships with stakeholders – such as employees, customers and NGOs representing civil society – through active processes of engagement*" and "*are more likely to measure and report on environmental and social metrics in addition to their financial results".*

Currently, in the business environment, the concept of sustainability is moving from the corporate side-lines into the mainstream, since several organization around the world companies are increasingly realize that environmental sustainability is a key attention. Although, to develop an effective management based on sustainability it is necessary to address both decision-making and governance and, additionally, the sustainability in organizations must be integrated into business planning, management information and control systems (IISD,

2001: 5). In order to put this into action, organizations should take the following seven steps (IISD, 2001: 5-15):

1. Perform a stakeholder analysis;
2. Set sustainable development policies and objectives;
3. Design and execute an implementation plan;
4. Develop a supportive corporate culture;
5. Develop measures and standards of performance;
6. Prepare reports;
7. Enhance internal monitoring processes.

So, nowadays it is crucial for all organizations to become a high-sustainability organization, in order to guarantee its future and its business activity in the long term. Some examples of high-sustainability organizations are:

- Coca-Cola – "*The drinks company has improved the efficiency of its water use by 20% and identified the need for a rigorous third-party evaluation of its water management approach"* (The Guardian, April 2014).
- General Electric – *"GE is using its human resource department to integrate sustainability into the company's culture, ranging from hiring practices and training to employee wellbeing programs"* (The Guardian, April 2014).
- PepsiCo – *"The food and beverage company presents its sustainability strategy and goals during its annual shareholder meeting and identifies and discloses climate change, water scarcity and public health issues as core sustainability challenges in its annual financial filings"* (The Guardian, April 2014).
- General Mills – *"The foods company recently released a set of sustainable sourcing commitments that begins with a robust risk assessment process undertaken in partnership with a third party. This approach led the company to prioritize ten commodities, including oats, wheat and corn, that they plan to source sustainably"* (The Guardian, April 2014).
- Dell – *"The computer company integrates alternative, recycled and recyclable materials in its product and packaging design, improvements in energy efficiency, and design for end-of-life and recyclability. One of the company's commitments is to reduce the energy intensity of its product portfolio by 80% by 2020"* (The Guardian, April 2014).

4. Conceptual Framework

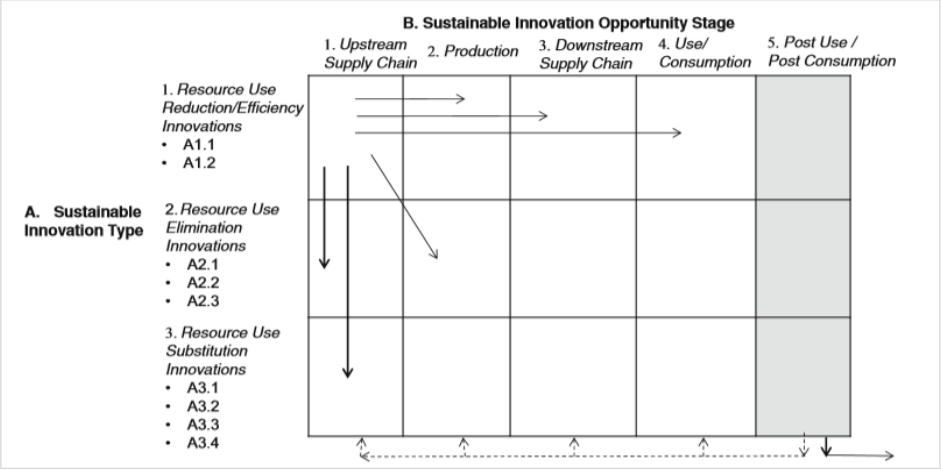
Based on the literature review it is a fact that innovation is needed for any organization to compete against its competitors, to improve processes, fulfil customers, create value and go along with market trends. Although, in parallel to the issue of innovation there is the issue of sustainability, which has been taking place in manager's mind. Nowadays, it is extremely important to understand practical the relationship between these two issues, because for a company to be well successful in the long run it is not enough to innovate, but also it necessary to have a sustainable innovation. An innovation capable to guarantee the business sustainability and also the environment in which the company operates. This relationship is even more important to be understood in companies, which the main activity depends on the use of natural resources, such as in the cork, wine, oil or wood industry.

To meet effectively the purpose of this thesis, it will be used a conceptual framework for sustainable innovation that will allows to understand the different types of sustainable innovation, the several stages of sustainable innovation and the possible strategies to have a sustainable innovation (from the link between the types of innovation with its several stages). This conceptual framework was proposed by Rajan Varadarajan, in his study "Innovating for Sustainability: a framework for sustainable innovations and a model of sustainable innovations orientation", in 2015. The author highlights the importance given, in recent years, to innovating for environmental sustainability. Furthermore, the author tries to discover how organizations can be successful through a sustainable innovation strategy, making the most successful company the one which have a sustainable innovation orientation. In other words, the one which can have a sustainable process innovation performance and a sustainable product innovation performance.

The figure 2, *"Conceptual framework for sustainable innovation"*, comprises two main points, the three types of sustainable innovations and the five major sustainable innovations opportunities stages. Additionally, the three types of innovation englobes nine finer gradations of sustainable innovation – "*A1.1: Reduction in the amount of use of renewable resource; A1.2: Reduction in the amount of use of non-renewable resource; A2.1: Elimination of an ecologically harmful ingredient from a product; A2.2: Elimination of a filler ingredient from a product; A2.3: Elimination of the need to use a complementary product; A3.1: Substitution of a non-renewable resource with a renewable resource; A3.2: Substitution of an ecologically more harmful non-renewable resource with an ecologically less harmful non-renewable*

resource; A3.3: Substitution of a less abundant non-renewable resource with a more abundant non-renewable resource, subject to the substitution not having a negative impact on the overall sustainability profile of the product; A3.4: Substitution of source of raw material from below ground mined with above ground mined - reuse of resources extracted during the post use/consumption stage during the upstream supply chain, production, downstream supply chain, and/or use/consumption stages" (Varadarajan, 2015:7). The first type of sustainable innovation is the resource use reduction or resource use efficiency innovations. By adopting this type of innovation the company uses innovations that have a lower environment impact, with a focus in the reduction amount of A1.1 or A1.2. The type is the resource use elimination innovation. Here, the organization eliminate the use of a resource as an input, following a A2.1, A2.2 or a A2.3 gradations method. The third type is the resource use substitution innovation, where the company substitute a resource used as input with another resource, opting by a A3.1, A3.2, A3.3 or A3.4 gradation method. In turn, the five major sustainable innovation opportunity stages (upstream supply chain, production, downstream supply chain, use/consumption and post use/post consumption), also presented in Figure 2, illustrate the several phases in which sustainable innovation types can occur. When selecting one type of sustainable innovation with one stage of sustainable innovation it is possible to define a sustainable innovation strategy. For example, if a company choose to follow a resource use reduction, by reducing the use of renewable resources in the production stage, the company will adopt an A1.1B2 sustainable innovation strategy.

Figure 2 - Conceptual framework for sustainable innovation



Source: Varadarajan, R. 2015. Innovating for sustainability: a framework for sustainable innovations and a model of sustainable innovations orientation. ***Academy of Marketing Science***.

So, this framework allows companies to understand which is the best strategy to perform a sustainable innovation, by choosing the type of sustainable innovation and choosing the stage in which it should occur. By following one or more of the several possible strategies presented in this framework, organizations can innovate and, at the same time, be sustainable, enabling them ensure the competitiveness, survival and success of their business in the long term. For Varadarajan, a company can have sustainable innovation outcomes, when perform correctly a sustainable innovation strategy. By performing it correctly, companies will achieve an efficient sustainable innovation orientation, that will result in a sustainable process innovation performance, in a sustainable product innovation performance and in an employees' performance. In turn, the sustainable process innovation performance will bring an environment performance's outcome and the sustainable product innovation performance will also bring environment performance's outcome and marketing performance's outcome. Finally, all these outcomes will result in an increase of the financial performance.

5. Methodology

5.1. Research purpose

As previously mentioned, the purpose of this dissertation is to understand the relation between innovation and sustainability and to explain how companies can have a sustainable innovation, assuring the future of the industry in which they operate. In this specific case, the objective is to "test" and observe the relation between innovation and sustainability in Corticeira Amorim in order to explain how this company can have sustainable innovation and stress why companies should follow a sustainable innovation orientation strategy.

To meet effectively the purpose of this thesis and to help to explain the theory in a way that is clearly defined, it is used a conceptual framework about sustainable innovation. This conceptual framework was proposed by Rajan Varadarajan (2015), in his study "Innovating for Sustainability: a framework for sustainable innovations and a model of sustainable innovations orientation", and explains the relation between innovation and sustainability, stressing that the most successful company is the one which has a sustainable innovation orientation. By using this theoretical framework, it will be possible to conceptualize the research problem, providing the theory that will bear out this investigation.

According to David de Vaus (2001), the theory testing approach starts with a theory and will use theory to guide which observations to make and, in turn, the observations should provide a test of the worth of the theory. Consistent with this, and since the objective is to test and to explain an existing theory, the research is based on a theory testing approach. In this specific situation, it is used a theory-testing research model to confirm the relation between sustainability and innovation, and to explain, by applying the theory to a real business situation (Corticeira Amorim company), how and why companies should follow a sustainable innovation.

5.2. Research strategy

Based on Saunders (2003), the research strategy is a general plan that helps researcher in answering the research questions in a systematic way. Moreover, the research strategy is also helpful, since it allows the use of specific data collection methods to support the arguments (Saunders, 2003).

As mentioned by Williams (2007), there are three approaches to conducting research: quantitative, qualitative, and mixed methods. The qualitative research tends to use all non-

numeric data and. In turn, the quantitative research tends to use the quantification in the gathering of data (Bryman, 2012; Saunders et al, 2009). Considering this, for this dissertation it is used mainly a qualitative research method. The qualitative research, enable to have a better deductive approach and to have a more comprehensive knowledge about the problem in study, allowing to go further on the research and analysis made. It also help to organize collected information that should allow to, in the end, develop and explain a theory, which will provide strong tools to make valid statements and recommendations. The quantitative research is also used, but only a few of it, in order to have some insights about financial information, regarding to market and industry evolution and about company financial performance.

5.3. Case study research

According to Gerring (2007), the case study research is the combination of principles and practices that provide the general knowledge of the case in study method and, will give specific tools for its successful implementation in the real world.

Furthermore, and consistent with Louise Fitzgerald (1999), the case study research can employ several forms and sources of data. The research can be built up using descriptive statistics and facts, previously drawn from secondary sources (data that was originally collected for a different purpose and the can be reused for another research question). The case study research can also use primary data and, in this case, the researcher is responsible for the original data collection that should be handle for a specific research goal (Joop J. Hox & Hennie R. Boeije, 2005).

This method does not involve statistical hypothesis testing since the data is collected from qualitative research. Because of that, many researchers have been criticizing this method as being unreliable and to general (Creswell, 2013; Grant & Booth, 2009; Zainal, 2007).

To avoid some of these problems, case study investigators such as Robert E. Stake (1995), and Robert K. Yin (1984), suggested techniques to allow the researcher to organize and conduct the research successfully. In line with the authors, a case study research must follow a six steps structure: Determine and define the research question or questions; select the sources of data gathering and analysis techniques; prepare to collect the data; collect data in the field; evaluate and analyse the data and prepare the report.

Considering the above, this dissertation follows a case study research for testing a theory. It starts by defining the research questions –*"Why companies should follow a sustainable*

innovation?", "*Why innovation and sustainability are related?"* and *"Why there is a need for a sustainable innovation strategy in today's companies?"*. After it is understood the sources of data gathering and what type of analysis techniques should be used – in this case, it is used both secondary and primary data and also it is used of a theoretical conceptual framework to study and analyse the problem. Then, it will be prepared the methods to collect the data and the data is collect in the field – collection of primary data by using the interview and observation method. After collecting the data, the data is analysed, linked with the theory and discussed, in order to draw and communicate the conclusions about the problem in study.

5.4. Source of data in research

Along this dissertation, it is used both primary and secondary data, allowing to better understand the variables that affect the research in study.

Concerning to the secondary data, there real advantages on the use of this research technique, like the fact of most of the information is available in data archives being much more easy and timeless to access all this information. Nevertheless, it is important to pay attention to the quality of the gathered data, for instance, complexity of data and difficulty to be treated.

The secondary data used in this dissertation is critically evaluated and collected from books, scientific articles, firm's annual reports and different internet sources. All the information collected through secondary data, help to have a better insight about the cork industry in Portugal and around the world, as well, to conduct the literature review. In turns, the primary data used allows to have a more detailed information regarding to the issues in study.

5.5. Data collection

There are several qualitative methods in order to develop and have a better in-depth understanding and to explain the issues under study (by means of their textual interpretation), which the most common are the interviews and the observation method (Creswell Oaks, 2007). In order to meet the purpose effectively, the collections methods chosen are the interview and the observation method.

For this dissertation two interviews were made, one with Corticeira Amorim and another with a cork producer and supplier. The first interview, was with a board member of the Innovation department of the Company. The main objective of this interview was to get more detailed information of CA, understand some variables of the business and its relation, with especially

concern to the concepts of innovation and sustainability, and to understand if the company follows a sustainable innovation strategy. The second interview was with a family business company, more specifically with a cork producer and supplier. The main objective with this interview was, taking into account the information provided by CA, in the first interview performed, understand in more detailed the issues that impact directly the cork production, to comprehend how the sector has evolved in terms of cork's production and sales also to realize the pressure that is made on the farmstead by the producing companies.

In order to request authorization to conduct the first interview, it sent an e-mail (appendix 1). For the second interview, it was not necessary for the reason that it was a close person who provided the interview.

According to P.Gill, K. Stewart, E. Treasure & B. Chadwick (2008), there are three types of interviews: structured, semi-structured and unstructured. Therefore, for gathering information with Corticeira Amorim it was used a semi-structured interview (appendix 2), which allowed to collect more valuable and deep information through the use of a style that was considerably conversational. In the second interview it was also used a semi-structured interview (appendix 3), making possible, once again, to have an opportunity for both interviewer and interviewee discuss the issues in more detail. Furthermore, in order to ensure an effective and insightful interview, it was used an interview guide for both interviews (appendix 4).

As previously mentioned, in addition to the interviews, it was also used the observation method to collect primary data. According to Saul McLeod (2015), there are three types of observational methods: controlled observations, natural observations and participant observations. In this specific case, it was used natural observation. After the interview, the director of innovation offered for a guided tour. This guided tour included, first a visit to the innovation and investigation department, where the new products and new solutions to cork are developed, and then a visit to the Amorim Cork Composites, in order to know this business unit in more detail. Here it was possible to observe how the company can have a sustainable innovation strategy, since it is the business unit where the waste is used for innovation with a higher impact on the business sustainability.

6. Data Analysis

6.1. The cork

Cork is a natural material derived from the cork oak tree, extremely versatile, capable to be used in numerous situations. Cork consists of irregularly shaped spaced cells having an average of 14 sides and the large amount of dead-air space, is what makes the cork so useful, such as an insulation material for both temperature and noise.

The cork tree is ready for its first harvest when it is about 20 to 25 years old. Generally, the first harvest has lower quality and, nowadays, it can only be used to make agglomerated cork products. The second and subsequent harvests occur at a 9-year interval and, at this time, the tree layer reaches a thickness of 2-5 cm, that is enough to be used for industrial purposes. In the end of the harvest process the trees are unharmed, and they continue producing cork for an average of 150 years.

Nowadays, most of people is familiarized with the cork, especially because of its most application in stoppers of wine bottles, which represents about 70% of all cork production. Although, the cork's use is much more beyond this. The cork, currently, in this modern and sophisticated society, is proving to have a wide range of applications. With the huge investments in R&D (Research and Development) and with the request for a new innovative and efficient production systems, the cork industry has now a considerable selection of products and new applications. This occurs, not only in wine industry, but as well in construction, decoration, transports, fashion and sports sector. Some of the several products from de cork production are flooring materials, shoe insoles, roofing panels, gaskets, safety helmet liners, bottle stoppers, dartboards, bulletin boards, and cores for golf balls and baseballs.

Nowadays, there are some products, which are made of artificial lower cost fabrication materials, trying to enter to the market. However, no general substitute has been developed for cork that can be used in diverse applications.

Considering all these developments in the cork industry, several industries are now interested in this product. The growth of the demand during the last years, have forced the cork producers to diversify its product portfolio and at the same time to innovate it. Additionally, this situation strengthens the economic and environment impact of some Mediterranean countries, where the majority of the cork oak forest can be find.

6.2. The cork industry

The contemporary origins of the cork industry are in France, linked to the discovery of the sparkling wine in the region of Champagne (Benedictine monk Dom Pierre Perignon, late 17th century), where they started to use cork stoppers, instead of traditional wood, to seal the bottles.

Cork Industry has changed a lot over the past few centuries, and according to Zapata (1996 and 2002), is possible to identify four different industry's stages. The first stage took place between the years of 1680 and 1730 and was named as Original development stage of the cork manufacture. Between 1730s and 1900s, Spain was the biggest producer, leading to the second stage of absolute hegemony of the Catalonia Industry. The third stage was marked by the entry of new world's market players, such as U.S., Germany and England. These players expanded their position as cork's transformers with new technical improvement, which involved the production of cork agglomerates. Spain was one of the last countries to access to this technical change, which is one of the reasons that led Spain to a state of relative hegemony in the Industry between the years 1900s -1936s. The fourth and final stage begins to gain strength since the year of 1936 and has been extended over the past few years, with Portugal taking control of most of the cork manufacturing process.

Cork Industry is characterized by two distinctive subsectors that act upstream (preparation) and downstream (agglomerates). The innovations in this industry and the appearance of new products or applications, has happened slowly. More recently, as a consequence of the increased demand for substitute products for cork stoppers, associations and companies have been seen obliged to review their strategies. The sub-clusters for building materials, clothing and footwear have become increasingly competitive in both the domestic and international context, becoming these days a stronger destination for cork products.

6.2.1. The cork industry

According to APCOR, the world cork forest reaches approximately 2,139,942 hectares, distributed by seven countries, being the four main producers: Portugal, Spain, Morocco and Algeria (table 1).

Table 1 - Cork Forest Area

CORK OAK FOREST AREA		
Country	**Area (Hectares)**	**Percentage**
Portugal	736.775	34%
Spain	574.248	27%
Morocco	383.120	18%
Algeria	230.000	11%
Tunisia	85.771	4%
France	65.228	3%
Italy	64.800	3%
Total	**2.139.942**	**100%**

Source: Adapted from APCOR - Cork Information Bureau 2015

Regarding to cork's producers, Portugal and Spain are the major producers, having 34% and 27%, respectively, of the total plant area (table 1). Portugal has the higher percentage of annual cork production and, according to APCOR, around 50% of the cork industry comes from Portugal, 30% from Spain, and the remaining 20% from other countries. Furthermore, as can be seen in table 2, the West Mediterranean cork oak landscapes produce, on average, over than 200,000 tons of cork annually (table 2).

Table 2 - Global Cork Production

CORK PRODUCTION BY COUNTRY		
Country	**Annual production (tones)**	**Percentage**
Portugal	100,000	49.6 %
Spain	61,504	30.5 %
Morocco	11,686	5.8 %
Algeria	9,915	4.9 %
Tunisia	6,962	3.5 %
France	5,200	2.6 %
Italy	6,161	3.1 %
Total	**201,428**	**100%**

Source: Adapted from APCOR - Cork Information Bureau 2015

Besides of having the highest cork oak forest area and the highest annual cork production, Portugal exports about 95% of all its production, making it the world's leader country in the export of this natural resource (APCOR, 2015).

Regarding to market share, Portugal is also a leader, presenting a market share of 62.8 % in 2014, followed by Spain with 16.6 % (table 3). The world's total exports, in 2014, were over from EUR 1,346.6 million, which means an increase of 3.1% compared to 2013, equivalent to more than EUR 40.7 million.

Table 3 - World Cork Exports

WORLD CORK EXPORTS 2014		
Country	**Million (€)**	**Country Share (%)**
Portugal	845.3	62.8 %
Spain	223.6	16.6%
France	63.6	4.7%
Italy	42.6	3.2%
Germany	27.7	2.1%
USA	23.1	1.7%
Morocco	16.2	1.2%
China	14.8	1.1%
Belgium	9.4	0.7%
Chile	9.3	0.7%
Austria	7.3	0.5%
United Kingdom	5.8	0.4%
Switzerland	5.5	0.4%
Others	52.5	3.9%
Total	**1,346.6**	**100%**

Source: Adapted from APCOR Anuário de Cortiça 2015

Considering now the imports (table 4), the major importer is France, having imported, in 2014, EUR 221.2 million of cork. Followed by France is EUA, which the imports recorded a value of EUR 211 million of cork in 2014. Portugal was the fourth largest importer of cork in the world in 2014, having imported a total of EUR 127.6 million of cork. Furthermore, it is important to explain that the imported product can be a final product (e.g., France is one of the biggest importers of natural cork stoppers for the wine industry), or a by-product (e.g., Portugal

buy agglomerated cork, which is then processed and subsequent exported in the form of final products for the building materials sector).

Table 4 - World Cork Imports

WORLD CORK IMPORTS 2014		
Country	**Million (€)**	**Country Share (%)**
France	221.2	16.2%
EUA	211	15.4%
Italy	137	10%
Portugal	127.6	9.3%
Spain	102	7.5%
Germany	93.1	6.8%
Russia	38.8	2.8%
United Kingdom	32.7	2.4%
Argentina	31.2	2.3%
China	31	2.3%
Others	340.9	24.9%
Total	**1,366.5**	**100%**

Source: Adapted from APCOR Anuário de Cortiça 2015

6.2.1.1. Analysis of the five forces affecting the cork industry

With the appearance of new markets in the new millennium, the competition in cork industry has increased. It is important to refer that in some countries cork industry is not very intense, such as Portugal which has a few large companies holding the largest market share. Nonetheless, the growing fact that cork is now even more recognized in several fields, like in the wine and in the building materials industry, is leaving the sector more competitive with a feel of great rivalry, especially among alternative or substitute products produced internationally. Consistent to this, the substitute products are becoming more strong than ever. Several companies have been seduced by strong campaigns in favour of alternative closures in detriment of cork product, which is leading to a very high competitive pressure.

The cork industry is highly dependent on the wine sector, making this sector the main consumer of the cork products. The customers are very exigent, there are always a constant pressure for the improvement of cork's quality and constant search for low prices.

The cork, as raw product, taken directly from the tree does not have a very high value, what increases the cork's value is the treatment process of the cork and the production of products that are made through it. Because of this, companies are starting to opt for an upstream integration. However, not all companies have the possibility to opt for an upstream integration since it can be costly and they often do not have financial capacity for that purpose. In this case, the companies that are not able to do an upstream integration will continue to buy the cork as a raw product instead of being their own suppliers.

As previously observed, cork companies must have to produce high quality products and to do things different from its competitors. It is not usual to see lot of companies entering in this sector, and this can be explained by the fact that to be competitive and to be known as a good and successful company it is necessary to have quality standards and long term recognition. In fact, companies such as Corticeira Amorim are well-known companies, with very good reputation and with an history of more than 100 years of existence.

So, to conclude, cork firms need to compete on quality and product differentiation. In order to achieve quality, firms should establish relationships with suppliers and establish processes to create high quality materials so as to meet the market needs. Furthermore, despite the fact that buyers do not have the traditional switching costs, they are loyal to some vendors, taking into account the history of the vendor's company and the quality set in the process. Therefore, it would take a long time for firms to gain recognition and a long time to build a strong customer base, thus making the cork industry not very attractive for new entrants, except for substitute's products companies which are the main threat of the major cork's producers in this sector.

6.2.2. The Portuguese cork industry

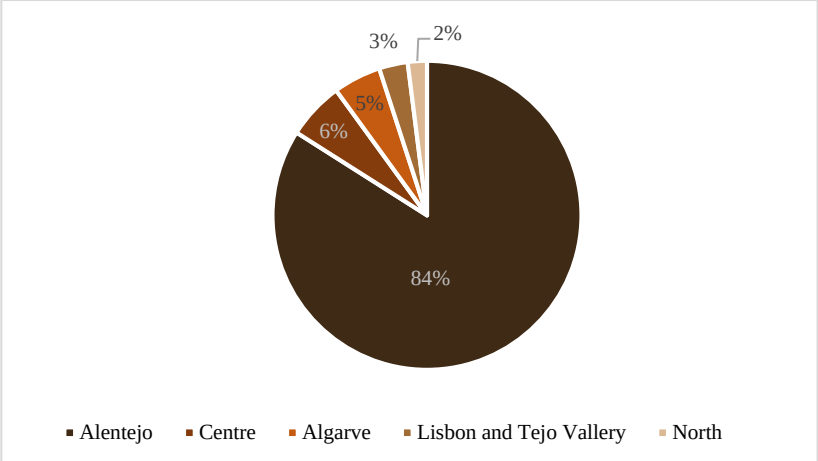
The Portuguese cork industry has always walked a step behind the Spanish cork industry, not only in production, as well in marketing and sales of this natural resource. The great turning point in the cork sector, as previously mentioned, stared to occur between the period of the Spanish Civil War (1936s – 1939s). This event led Portugal to claim the world power in the business (Zapata, 2002).

Nowadays, Portugal has the biggest cork oak forest area in the world and, according to Instituto de Conservação da Natureza e da Floresta (ICNF), it represents only 23% of the Portuguese forest (annex 1). Even though, within the forest-based industries (wood, paper and cork) it should be noted that the cork sector, in 2014, represented 16% of the turnover of these

industries, 11% of the number of companies and employed 13% of the forest-based industry's workers.

In Portugal, Alentejo is the best region to found cork oak, with being the cork oak forest 84% of the total forest (chart 1). Although the Alentejo has the major concentration of cork oak, the majority of this production goes then for the transformation process, becoming industrialized in other regions.

Chart 1 - Area of Cork Oak Forest in Portugal by Region (%)



Source: Adapted from APCOR - Cork Information Bureau 2015

According to data collected from studies conducted in 2014, the Department of strategy and Studies from the Ministry of the Economy identified approximately 650 companies operating in the Portuguese cork industry, producing roughly 40 million cork stoppers per day and employing around 9 thousand of workers (APCOR Cork Information Bureau, 2015). The higher concentration is most significant in Aveiro (Santa Maria da Feira Municipality) and Setubal districts. These two districts are both being responsible for approximately 75% and 12% of the cork industries employment respectively.

The cork sector is composed by mainly micro-enterprises, with 81% of the total sector, by 18.3% of small and medium enterprises and only 0.6% of large companies. However, when evaluating the turnover, it is possible to see that it comes, mostly, from small and medium companies (45.1%) and from large companies (41.5%), where more than 63% of the turnover was generated by companies with more than 20 years of market experience. The cork companies are divided for different economic activities. There are companies dedicated to the

preparation, others to manufacturing of cork stoppers and other cork products or semi-products (table 5).

Table 5 - Portuguese Cork Industry Company's Activities

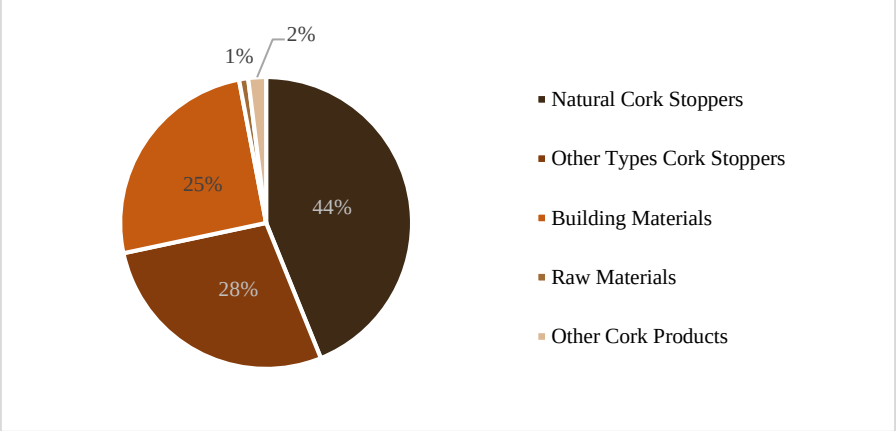
Activity	Nº of Companies
Manufacture of cork stoppers	388
Cork preparation	131
Wholesale of cork in rough	78
Manufacture of other cork products	49
Total	**646**

Source: Adapted from APCOR - Cork Information Bureau 2015

The main cork activities (table 5) are the manufacturing (388 companies), preparation of cork stoppers (131 companies), essentially for the wine market, the activity of selling cork (78 companies) and the agglomeration and granulation of cork (49 companies). It is estimated that 40% of the cork production is used for the cork stopper's manufacturing (annex 2).

Nowadays, there are many different industrial applications for cork, although the biggest part of the total production, as previously mentioned, goes to the manufacturing of cork stoppers for the wine industry, which absorbs 71.7% off all cork exports, followed by the building industry with 25.4% (chart 2).

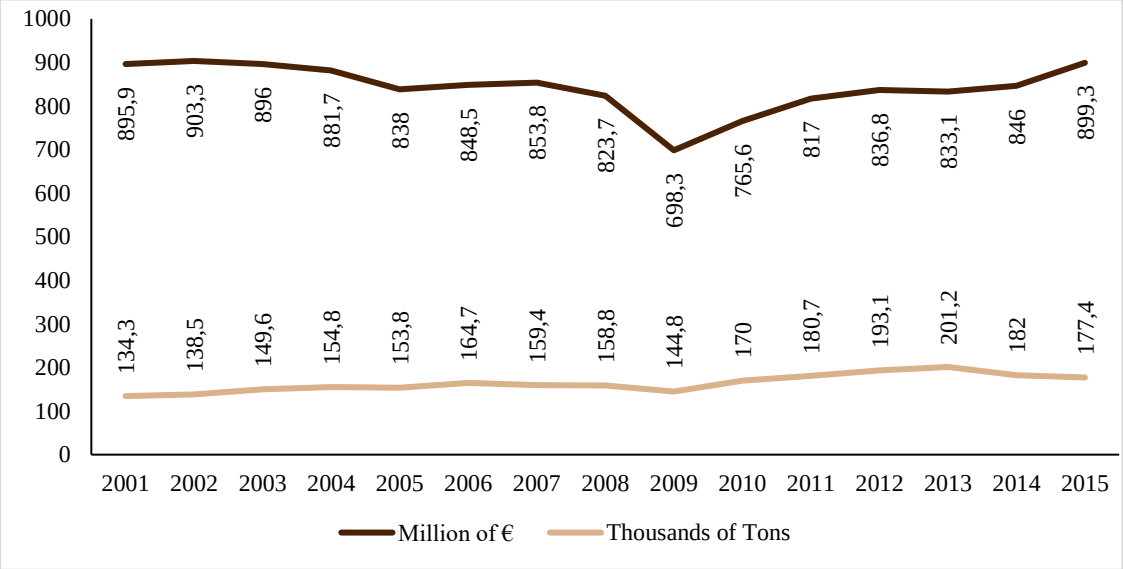
Chart 2 - Structure of Cork Sales (Exports) per Product Type



Source: Adapted from APCOR Anuário de Cortiça 2015

From data collected by Instituto Nacional de Estatística (INE) and APCOR studies, is possible to verify that the Portuguese cork exports are stable since 2001 (chart 3). There was an exception in 2009, where in terms of value the cork's export reached the lower value since 2001. This situation was a consequence of the world economic crisis, which stared in 2008. The world economic crisis had strong impact in Portugal during 2009 affecting all the industrial sector, including the cork industry. This crisis devalued the exchange rate of the main export currencies, which have slowed the investment and Portuguese competitiveness in the export of goods and services to international markets. From 2009 the cork industry has been growing and in 2015 the Portuguese cork's exports accounted for EUR 899,3 million (177,4 thousands of tonnes), which means an increase of 5.9 % compared to 2014 in terms of value exported. On the other hand, in terms of volume, exports declined around 2.6% (chart 3).

Chart 3 - Evolution of Portuguese Cork Exports 2001-2015



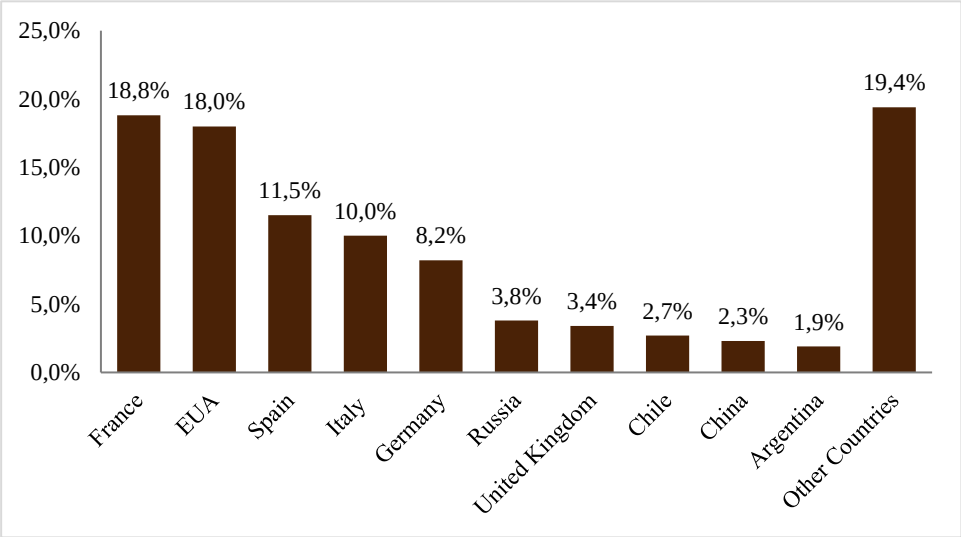
Source: Adapted from APCOR Anuário de Cortiça 2015

Most of all the Portuguese cork production is exported to countries for industrial purposes. According to APCOR, exports reach around 95% of all Portuguese cork production, being the imports a reduced value almost confined to the import of raw materials from other cork production countries. From data collected in recent years, the cork industry has been one of the principal sectors that helped the Portuguese trade balance, being France and US two of several countries that has most contributed to increase the cork exports (chart 4 and 5). According to

data from United Nations Statistics, Portugal was the number one of several countries that export to the USA (annex 3). In a crucial sector to leverage the national economy, the cork exports represent 3.2% of the total Portuguese exports and a value of around 1% of gross domestic product (APCOR Anuário de Cortiça and INE, 2015).

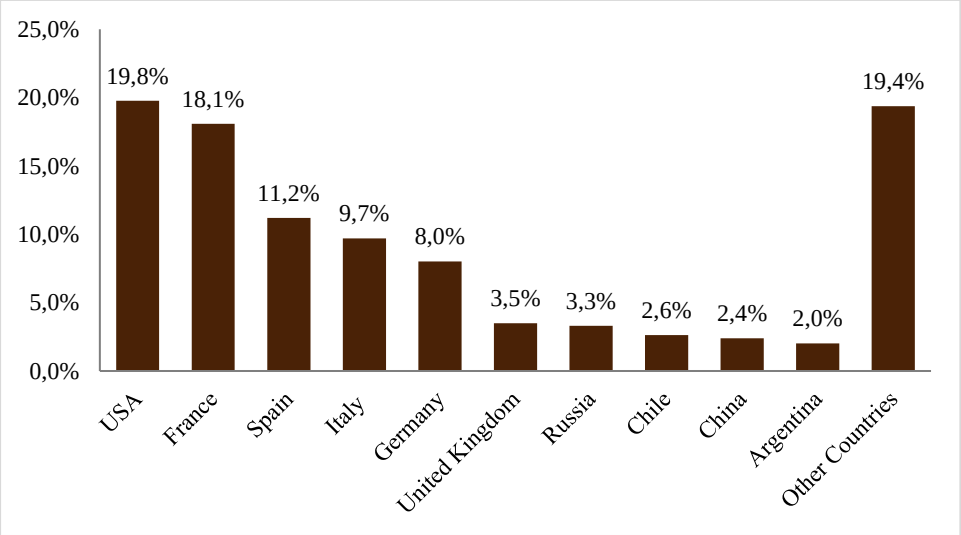
As illustrated in the Char 4 and 5, EUA was the country for which Portugal exported in 2015, contrary to what was observed in 2014 where France (18.8%) appeared in first, followed by USA (18%). In the last year, the exports for EUA had an increase, reaching almost 20% of the Portuguese cork exports and, in turn, the exports for France had a decrease, reaching 18%. Although the Portuguese cork exports are mainly with European countries, absorbing more than 50% of the total cork's exports (chart 4 and 5). Another interesting point to be noted is that while the France was, in 2014, the country where Portugal most exports cork, was not the country where the Portuguese cork exports had more impact, compared to the total Portuguese exports to this country. Analyzing the importance of cork's exports in total of Portuguese's exports by country, it can be seen that, in 2014 the weight of Portuguese cork's exports in Moldova was more than 82% of the total Portuguese's export for that country (APCOR, 2015). This fact is something expected, since Moldova has the biggest density of vineyards in the world – 3,8% of the country's territory and it has the largest underground cellars of wine in the world with nearly 2 million bottles (Wine of Moldova, 2016).

Chart 4 - Portuguese Cork Exports by Country of Destination in 2014



Source: Adapted from APCOR Anuário de Cortiça 2015

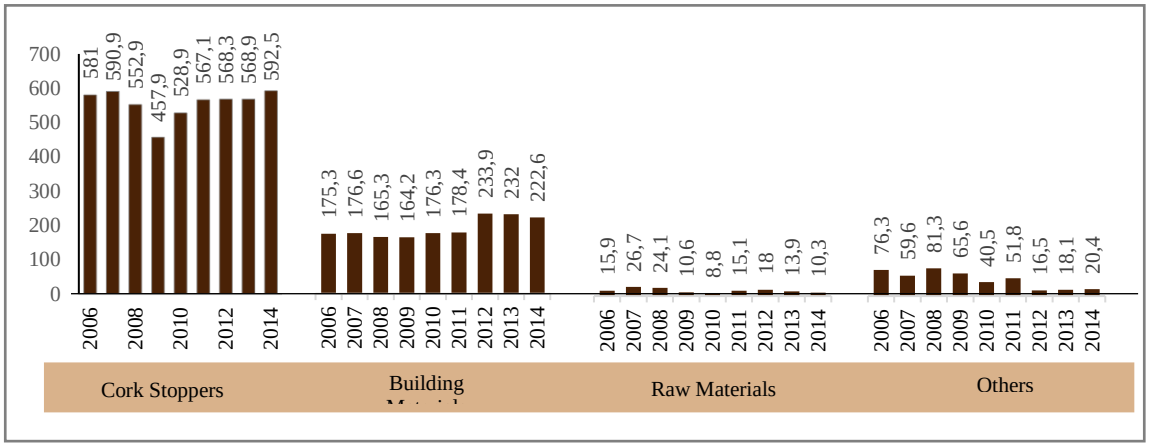
Chart 5 - Portuguese Cork Exports by Country of Destination in 2015



Source: Adapted from Notícias APCOR N.82 – Janeiro, Fevereiro, Março 2016

To better understand the impact of exportation on Portuguese Cork Industry, it is necessary to consider the exports by type of product. According to data collected from INE and APCOR, there is an important difference between value and quantity exported. The cork stoppers are the type of product that allows to have higher gains, since it is sold with a higher value (€/kg). From all the products obtained from cork trees, the cork stoppers continue to lead Portuguese cork exports, assuming a value of EUR 592,5 million exported in 2014, followed by cork building material with a value of EUR 222,6 million in 2014 (chart 6). The difference is so significant between them that the value, in €/kg of product, for a natural stopper can be seven times more than cork for building materials (annex 4).

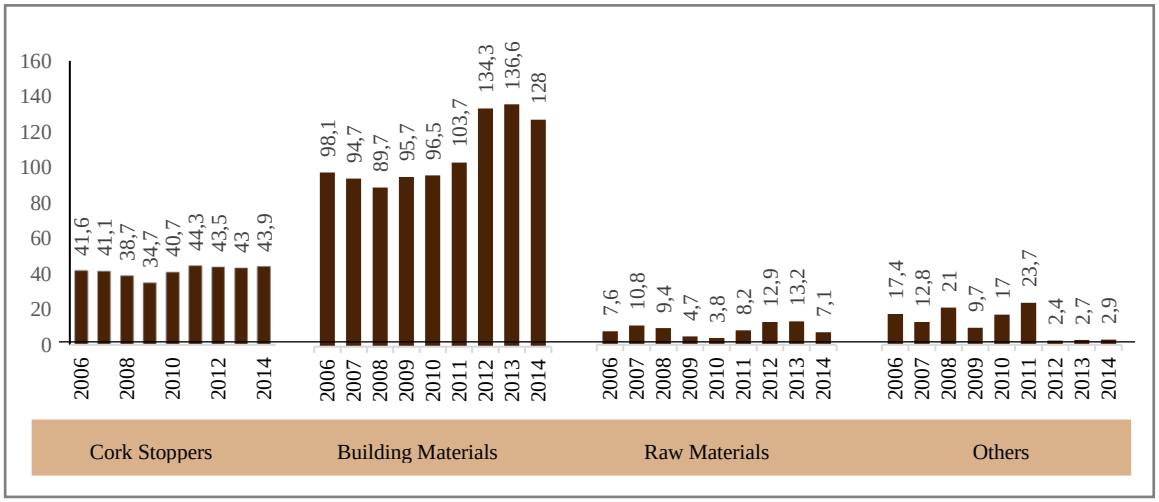
Chart 6 - Portuguese Products Exported (Million €)



Source: Adapted from APCOR Anuário de Cortiça 2015

Regarding to quantities, the scenario is slightly different. The building materials were those ones that had a higher value in the total of Portuguese cork exports, with a contribution of 128 thousands of tones in 2014, a small decrease compared to the value recorded in 2013, 136,6 thousands of tones. In turn, the cork stoppers contributed with the second most higher value for the overall cork exports, recorded in 2014 a value of 43,9 thousand of tones (chart 7).

Chart 7 - Portuguese Products Exported (Thousand Tonnes)

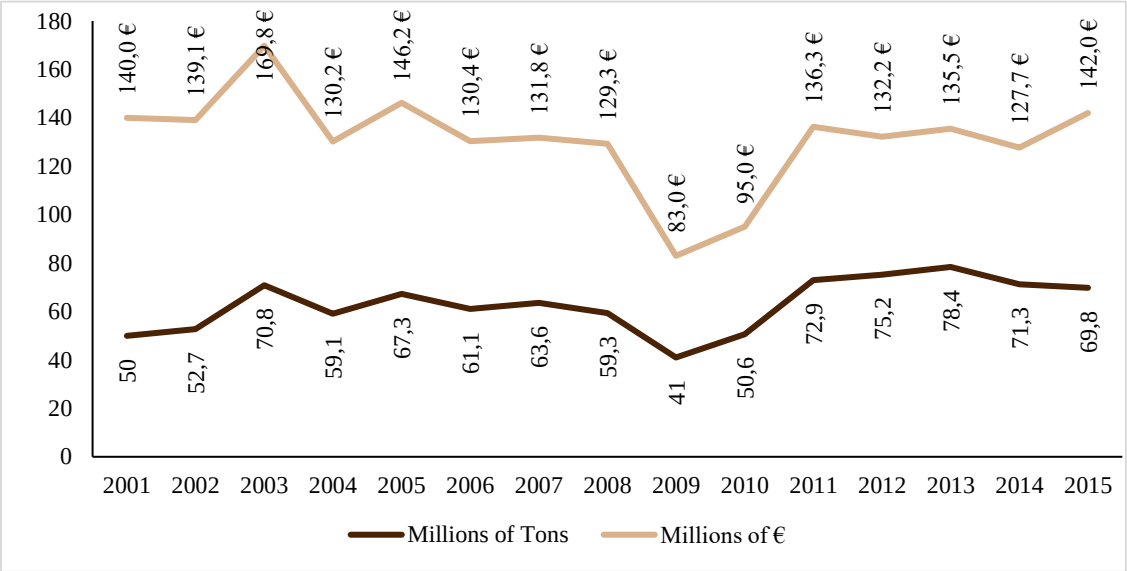


Source: Adapted from APCOR Anuário de Cortiça 2015

Although Portugal is the largest producer and exporter of cork, it is also important to analyze the data relating to imports of cork. From the past few years, with the increasing development

of this the sector and appearance of new and innovative products, Portugal has sought to keep in front of all processes. The installed capacity of the Portuguese industry is higher than the national cork production, which makes it so necessary to resort to imports of cork. For that reason, Portugal is the fourth country with the highest value imported of cork (table 4). In relation to Portuguese cork imports, there was an increase of 10.1% in value and a decrease of 2.1% in terms of volume compared to the same period of 2014, reaching values of EUR 142 million and 69,8 thousands of tones in 2015 (chart 8).

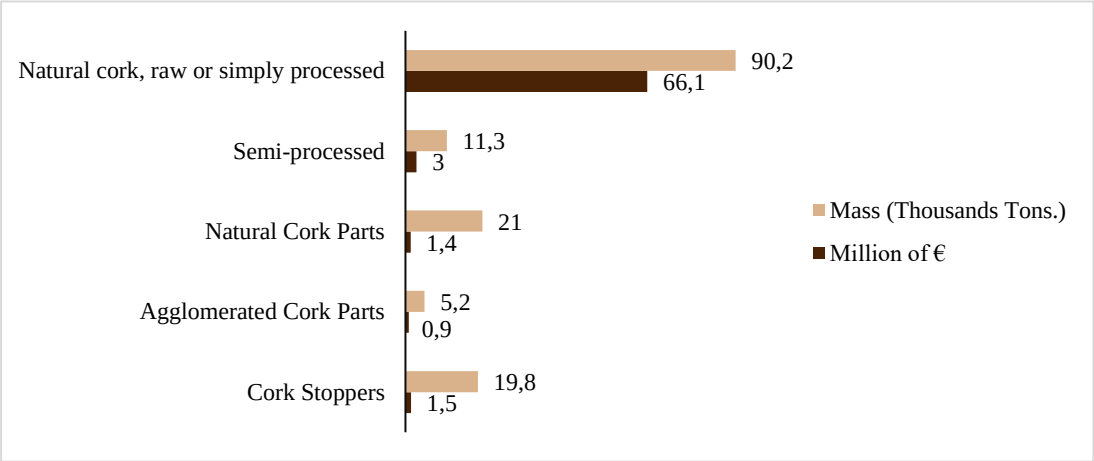
Chart 8 - Evolution of Portuguese Cork Imports Between 2001 and 2015



Source: Adapted from APCOR Anuário de Cortiça 2015

Analyzing the imports by type of product, it is possible to refer that Portugal, in 2014, mainly imported natural cork, raw material or simply cork processed (chart 9). These imports recorded a value of 90,2 thousand of tones. The natural cork parts were the second class of products to be imported and recorded in 2014 a value of 21 thousand of tones and a cost of EUR 1,4 million. Additionally, it is possible to observe, through the chart 8, that despite Portugal had import more natural cork parts in quantity, the import of semi-processed class of products were more expensive (EUR 3 million), and also the same with cork stoppers (EUR 1,5 million). Furthermore, the chart 9 shows that, although Portugal have imported more cork stoppers, the imports of semi-processed cork was more expensive.

Chart 9 - Portuguese Imports by Class of Products in 2014



Source: Adapted from APCOR Anuário de Cortiça 2015

After analysing the in imports and the exports of cork in Portugal, it is possible to mentioned that the Portuguese cork trade balance has been growing since 2009. In 2015, the trade balance recorded a result of EUR 829,5 million that was an improvement compared to the EUR 718,3 million verified in 2014 (table 6).

Table 6 - Trade balance of the cork industry (million €)

Trade Balance	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Exports	881,7	838,0	848,5	853,8	823,7	698,3	754,5	817,0	836,8	833,1	846,0	899,3
Imports	130,2	146,2	130,4	131,8	129,3	83,0	95,0	136,3	132,2	135,5	127,7	69,8
Result	**751,6**	**691,8**	**718,1**	**722,0**	**694,4**	**615,4**	**659,5**	**680,8**	**704,5**	**697,5**	**718,3**	**829,5**

Source: Adapted from Cork Information Bureau 2015

As previously mentioned, the cork industry has been suffering several profound changes in the last few decades, especially since when companies started to focus their effort on bringing new and innovative solutions, process optimization, new product designs and marketing strategies. The competitiveness is growing due to the increased interest in the market for new cork solutions, as for the sports and fashion sector, for building materials cork designs and several other fields of interest. In the past few years, as a consequence of this reality, many companies have suffered organizational changes, being bought or merger. One example of was Group Piedade, S.A. which was bought by the French Group OENEO or Trefinos SIL by Group

Amorim. Other companies, like Álvaro Coelho & Irmãos, S.A., Juvenal SGPS, S.A. or Vinocor, Lda., have been entered into insolvency proceedings, liquidation or are inactive nowadays.

Diário Económico published an article, in 2nd December of 2015, with a list of the one thousand Portuguese largest companies that exceeded the mark of 30 million euros in turnover in 2014. In that list there were four companies that were shaping the Portuguese cork industry on today's business (table 7), especially the case of CA which leads the Portuguese and International market having sales that go further beyond ten times more than the second largest Portuguese transformation company. It is important to mention that Corticeira Amorim SGPS, S.A. is a group of several small companies, called business units, which have the highest diversity of products across this industry.

Table 7 - The top 4 of Portuguese cork companies

Company	Sales million € (2014)
Corticeira Amorim	560 €
Piedade Investimentos SGPS	41 €
Cork Supply	39.9 €
Socori	35 €

Source: Adapted from Diário Económico, 2nd December of 2015

6.3. Corticeira Amorim

6.3.1. History

The origins of Corticeira Amorim dates back to 1870. Initially, the company was constituted with one single purpose: to have a small unity that could be able to produce a traditional natural stoppers made from cork, for the enhanced Porto wines houses in the small northern town of Santa Maria de Lamas, in Aveiro district (Portugal). The formal constitution of the Portuguese cork company was in 1922, under the name of Amorim & Irmãos. One decade later, Amorim & Irmãos was the biggest factory of stoppers in the north of Portugal. Américo Amorim was born in 1934 and start his professional career early at the age of 18. At that time, Portugal was

under a very authoritarian regime, dictatorial, very closed and without the right or the freedom of expression. Portugal was governed by António Salazar.

Because of the changes and the developments that the sector was having at that time, and also as a result of the increase used of cork as a building material, came the need to develop the process of cork's transformation, which was, until then, primarily exported and transformed in other countries. In 1963, the group incorporates the subsidiary, Corticeira Amorim, Lda. It was a downstream integration to take advantage of wastes that were resulted from the production of natural cork by Amorim & Irmãos. CA, Lda was a major turning point for the Group but, especially, for the all sector, since it was the beginning of the product diversification strategy which, even now, is followed by the Portuguese cork company and that it led to major breakthroughs with new products and new possible uses.

In 1978, the group entered in the market for coatings (parquets, floor and wall coverings), with the foundation of Ipocork – Industry of Flooring & Decoration, S.A., nowadays called Amorim Cork Composites, S.A. This entrance was marked by the use of a pioneering technology, which stills unique in the production of the cork floor coatings.

After de downstream integration, the Company felt a necessity to extend the supply chain for raw materials in the main cork producer countries. *"The key to success in a niche market like cork is supply*," said Mark Mobius, portfolio manager of the $235 million (assets) Templeton Emerging Markets Fund. Thus, CA applies the new vertical integration strategy, but this time they go upstream, to the preparation zone, which means, to be present in other countries considered as important cork producers. In 1972 CA already created and acquired some companies in Morocco, Spain, Tunisia and Algeria. Morocco was the country elected to the installation of the first plant outside Portugal - Comatral Compagnie Marocaine de Transformation du Liège, S.A. The two phases previously mentioned, were the result of an effort that allowed Corticeira Amorim an ability to ensure the market. Furthermore, these two phases permitted to grow the business and, at the same time, make it increasingly competitive.

The next step made by CA to grow the business was to go internationally, being present in the main cork producer's countries and near to the main cork's consumption markets. This internationalization started in 1967, with the foundation of a new subsidiary point unit in Vienna, Austria, a commercial trading post to promote relations with the Eastern European markets.

The internationalization became a continuous process and, between the 80's and the 90's, CA increased its presence in the main wine producer's countries, creating and acquiring new companies to ensure the control of cork stoppers distribution. From an early age, apart from cork stoppers, the building materials sector has received attention from Corticeira Amorim too. Some historical examples of vertical integration, that have supported the new diversification strategy, were the acquisition of Wicanders, a Swedish group in 1989, leading CA to an important geographic expansion for the coverings business unit, and the acquisition of the Cortex Group in 2008. The acquisition of the Cortex Group, was one of the most important cork flooring distributors in the German market, which have strengthened the field of coatings. In the same year of 2008, the Group acquired 25% of holdings from the US Floors, Inc., as well a cork flooring distributor in the USA.

The turning point for CA began in the early 80's, with the development of a new approach to business. The Company defined the importance of reinforcement of the leadership in the acquisition of raw materials, improving quality acquired and efficiency on all the process of the value chain. This new approach enabled a decrease of an amount of acquired raw materials, mainly because of the new strategy that was focused on quality differentiation. By diversifying the sources of cork acquisition and giving great importance to research and quality in the acquired materials, CA started to shape its new global leadership in the cork sector.

CA's global leadership, presence and capacity to produce higher quality products and new products from the cork, allowed the company to reinforce the research and development (R&D) and new product progresses, in order to improve the perception of cork's value by consumers and, in the end, to make cork more competitive. With the intention of initiate a new strategic objective, in 1983 CA creates the Labcork – Central lab of CA group, S.A., a cross-cutting to all the group's activities, including the department of innovation and R&D. Since then, almost of the business units have a team that is focused exclusively on R&D, with the objective to respond to the strategic need for the Corticeira Amorim and to develop new ways of using and products for cork (annex 5).

A new strategy was needed to overcome the challenge of innovation and, in 2007, the Company designed its strategy based on three main areas: Amorim Natural Cork, Amorim Cork Composites and Amorim Cork Research (annex 6 and 7). According to the latest Sustainability Report, it is clear that the Company has a strong commitment to continue pursuit innovation –

"*To add value to cork, in a competitive, distinctive and innovative way, in perfect harmony with Nature"* (Amorim Cork Sustainability Report 2013).

With the constant grow of the cork industry, CA viewed the necessity to protect the long-run survival of this industry, of its natural and environmental resources. Cork is a natural product, that grow through the tree aging and each tree take a long time to became capable to produce this raw material. For that reason, another important pillar was becoming solid in the new CA strategy. The necessity to focus on the sustainability of the cork industry stared to be evident in CA mission statement. The first sustainable report was published in 2007 by the CA, and it was the first step to align the industry and Company growth polices with a strategy of transparency, with systematic and structured communication rules and practices regarding to environmental sustainability. This initiative has shaped a new path to go for sustainable development of the cork industry, being recognized, in 2008, as one of the top three world's reports in openness and honesty category and one of the six best reports in relevance and materiality by the Corporate Register. CA launched, additionally in 2007, the CARDS project – Corticeira Amorim Heading towards Sustainable Development, which secures the quality of life in the present without jeopardize the quality of life for future generations. Additionally, it lies in the blending of three dimensions: economic prosperity, social justice and environmental quality to address the desire of CA to incorporate good environmental practices to its daily activity.

The commitment in the pursuit for a sustainable development has been of the main objectives of the company in the long-run, and since 2007 much more has been done. For example, the release of the Green Cork program for the collection and recycling of cork stoppers, whose revenues accumulate to the planting and preservation of Portuguese native forest. Other example was the recognition of the cork oak tree in 2011, by the state in the Portuguese Parliament, as not only a protected species but also as a national symbol. This fact led, in 2012, to the recognition of CA with the Seal of Sustainability by the Platform for a Sustainable Construction as the managing entity of the Sustainable Habitat Cluster in Portugal receiving the gold medal.

Year after year, Corticeira Amorim has stood out from the competition by its growth in the cork sector. After the data collection in 2015, it was possible to confirm the company's presence in over 70 countries, with 44 facilities dedicated to distribution, 29 industrial units of transformation of raw materials and other solutions for cork. As well as other services

associated with more than 10 joint ventures (annex 8). Concerning to market share of the main products, CA has been growing his presence in the market and owns 32% of the world market for Stoppers, around 55% for the Composite cork market, 80% of the market of Isolation cork materials and 70% for the Floor and Wall Coverings.

Nowadays, Cortiçeira Amorim, S.G.P.S, S.A. (CA) is one of the CA is one of the Portuguese cork companies that has developed more in recent years. In the cork industry, this Company is a global leader and, at the same time, the largest world's cork producer. Furthermore, the CA is one of the main Portuguese companies that does business in several countries and in all continents.

6.3.2. Company Performance

Since 2009, when the cork industry was affected due to the negative impact of the economic recession of the 2008 economic crisis, the cork industry has been growing in parallel with the growth experienced by the CA. As a market leader, CA has been increasingly proving its growth and improvement in its financial results.

Through the Financial Report 2015, it is possible to verify that CA, year after year, is increasing the improvement of its operations and the its efficiency in several ways:

- Reduction of waste;
- Process optimization by capital expenditures with new technological advance machines in all the BU;
- Strong investment in technical training and qualification for the human resources;
- Commitment to environmental management (generating economic wealth and preserving the environment).

Regarding to the economic and financial results, the year of 2015 recorded positive results when compared with the preview year. Sales exceeded, for the first time, the barrier of the EUR 600 million, reaching EUR 604,8 million, an increase of 7,9 % compared to the EUR 560,3 million recorded in 2014. Regarding to the operational efficiency, through an implementation of rigorous rationalization plans and by cutting operating costs in all business units of the Amorim Company, it was possible to achieve an historical EBITDA, higher than EUR 100 million, a growth of 16.1 % compared to the same period of the last year. Furthermore, for the first time, the net income exceeded the EUR 50 million, recorded an amount of EUR 55.012

million, an increase of approximately 53.9 % compared to EUR 35.756 million achieved in 2014. The most important markets showed a positive trend for CA, and since the company is highly dependent on international markets, this situation had positively affected all the results, with special attention to the performance of the cork stoppers (increased 10%) and composites (increased 17% for end customers) when comparing to 2014.

The evolution of the Brazilian and Russian market reflected an economic contraction, sharp and close to 4%, which affected the results of CA in the BU stoppers, composites and coverings. Nevertheless, all the BU have achieved positive results, except the BU coverings that was severely affected by the Russian market and as so by establishments of economic sanctions to Russia by the European Union (EU).

In order to explain the good results achieved by CA in 2015, it is important to understand that, from a few years back here, the company become highly dependent of the United States of America economy. A country that has been reflecting economic growth over the past six years. Factors such as, the robustness of the USA economy, the focus on commercial teams and the positive evolution of the US dollar (USD) can explain a significant part of the observed growth in the business. Being that, the evolution of USD was the factor that most benefit brought to the activity of CA.

6.3.3. Product and Business Units

CA's vertical integration strategy was the key differentiator factor that made possible to grow the business and, at the same time, to help the Company to achieve competitive advantage and a leadership positon in the production and manufacturing in the cork market. This leader position was achieved through a focus on differentiation strategy and a focus on quality. Additionally, the Company opted for an internationalization strategy, which allowed CA to increase its market position as well to increase its market share.

When CA started its business, it began with a single and simple product, where only around 20% of the raw material (natural cork) was used to produce cork stoppers, which even nowadays it is the most valuable product in this industry.

Since the early 60's, the company understands that considering 80% of the raw material as waste would be a great loss of value to the enhancement of cork, being the cork a natural product and so the most versatile one in the world. To reduce the market risk and to follow

quality standards, that will add value to the cork materials, CA started to optimize and to enhance value through a vertical integration strategy. This vertical integration strategy includes booth upstream, to the production process, and downstream, to add value and find new utilities for cork agglomerates. At that time, CA was a unique company so they started to develop a few projects inside, which were used as an incubator to start the independent business units that, currently, are part of Cortiçeira Amorim, S.G.P.S, S.A. The idea started with an intense process of waste transformation, that was a result of cork's production stoppers, into composites to be used in new utilities, and additionally could result in solutions in several areas. This development of new manufacturing processes of cork waste transformation began in 1966 with the opening of the first BU, called Corticeira Amorim Algarve, Ltd., having the main purpose of using cork's waste as insulation material.

Since the first diversification process, several developments have been done until now. Actually, CA has a much extensive and diversified portfolio of products and works in several downstream fields. With a great preoccupation given to the continuous search and to incessant need to innovate, CA have improved quality, have created new applications and new solutions. The company has now five important business units, that are: Raw Materials, Cork Stoppers, Floor and Wall Coverings, Cork Isolation and Cork Composites (annex 9). The business units have different characteristics, which offer a different use for cork products and that are perfectly adaptable to the market trends. With these five business units, CA can provide a wide portfolio of high quality products that used in several industries such: automotive, construction, aerospace, or the wine industry. The quality of the products results from large amounts of investment in Research and Development (R&D).

6.3.4. Main Competitors

Corticeira Amorim has several internal and external partners. In the external context, should be emphasized partnerships with businesses companies such as The American GANAU, Italian Peppino Molinas and the French OENEO. The American GANAU is specialized in the production of cork stoppers and has also a production centre near by the Lisbon district. The French OENEO was considered, by Euronext, as the second largest producer of cork stoppers in the world.

The direct and real competitors of CA are those companies that produce substitute's products from the Amorim Company. Since the discovery of the fungus TCA, which was responsible

for the contamination and creating of an unpleasant odour, the industry responsible for the production of cork stoppers in the wine industry was quite affected and opened doors to the appearance of new stoppers made from plastic, synthetic foam and aluminium. The Nomacorc is one example of a company that developed substitute products in today's cork market. This company developed a new solution for the wine stopper market based on solid foam, extremely flexible, malleable and with great ability to retain fluids. Other example of other competitor is the group Rio Tinto, based on United Kingdom, which has a subsidiary named Rio Tinto Alcan and which is one of the giants on the industry that produces aluminium screwcaps wine stoppers.

6.3.5. A Successful Company

6.3.5.1. Leadership Position

The capacity to look beyond the present and to anticipate the market trends was what led Corticeira Amorim be what the company is today. Since the beginning that CA adopted a strategy of proximity to wine producers and had the tendency to anticipate customer needs, swiftly meeting their requests. The continued trend for the adoption of these strategies, led the Company achieve success in this industry. In reality, CA did not change the way of having business relationships and, this was a truly important fact for CA to consolidate its leadership in the cork sector.

As mention before, the vertical approach has been pursuit since the beginning of CA. All the four generations have made different strategic choices, in all periods of major change, in the sector. Furthermore, all of them have been shaped according to acquisition, joint ventures and creation of new industrial and commercial business units, from the three main strategic areas described above. CA saw the opportunity to grow their business beyond the standard company model of the Portuguese economy and soon they started to look for opportunities, such as, the use of wastes. Through the creation of upstream BU, they were able to take advantage from the waste generated by the production of cork stoppers. This situation opened a door for a new market with the production of agglomerate cork, that currently has high technical performance recognized in terms of acoustic and thermal insulation. Additionally, the differentiation strategy followed by CA, mainly focus on quality, overcomes the strategies followed by others players in the market. To sustain this strategy, the Company has acquired some of the most important upstream processes of supply chain used, reducing costs but, most important,

improving the quality of their own supplies. Besides all this effort to take control over the entire production process, it is also important to mention the investment on internalization made by CA through an efficient and targeted delivery system in the most important consumer markets –"*With the innovating drive that is our hallmark and distinguishes us from all the other companies in the sector, we have been pioneers in the development and innovation of the cork industry"* (António Rios de Amorim, Chairman of the Board of Corticeira Amorim S.G.P.S., S.A.)

During these years, CA has been recognized as an innovative company, being always one step ahead from its competitors. The company is capable to develop new products and to fulfil customer's needs faster than all their main competitors. The goal to integrate all process's stages, from the upstream (purchase of raw materials and production processes) to the downstream (logistics, transportation and sales service) led to a solid strategy. This strategy is based on two pillars – product differentiation and worldwide presence, which allowed the CA to increase its international position and, at the same time, to reach a position of competitive advantage towards other cork companies, both inside and outside Portugal.

However, in a sector which depends on specific and unique characteristics, the solid economic supremacy of CA and its leadership position goes much more beyond of this. Being a market leader, Corticeira Amorim needs to be strict responsible in its decisions and very strategic in its choices. The fact that the evolution of the sector depends, specially, on how companies integrate their commitment to sustainability as a strategic pillar along all the BU in the production chain, cannot be forgotten. By assuming a sense of added responsibility in this sector, companies secure the future survival of the product, of the people and of the environment.

6.3.5.2. Competitive Advantage Position

Besides the leadership position of CA in the cork sector, it is similarly relevant to address the competitive advantage position gained by the Amorim group, through a continuous investment in the development of their resources and capabilities.

From an early age that CA began to open the way for the creation of a business increasingly competitive and targeted to respond to market needs. A business which has been focused on the best quality in the market, on a differentiation strategy and in a worldwide presence that allows the company to be as close as possible to the main consumer markets.

At the present time, CA overcome competition in both the cork industry and in alternative industries, since it is the only Company capable to offer a diversify portfolio of products, in different countries and significantly faster than its competitors.

More recently, with new applications for cork, the market is becoming even more competitive. As a result of this and to maintain its competitive advantage position, CA is entirely focused on innovation and systematic research. Amorim company is permanently working on R&D departments of each business unit, as well as investing in better equipment for different processes over the value chain.

CA is present in all the five continents and in more than seventy countries, where the Company has different cork manufacturing points, utility centres and sales points. This presence allows CA to withdraw all intermediaries between the company and the final client, thereby creating a close relationship, anticipating market needs and increasing the margin of sales, that were previously distributed by different intermediaries.

As a result of the worldwide presence and because of the followed strategy, CA can control all the value chain. The Company can offer the best quality and, at the same time, to avoid waste form the acquisition of raw materials, transformation, product diversification to a specialized customer service, not only to the wine industry but, as well, to other new growing segments for cork applications.

6.3.6. The necessity for innovative

Since the beginning, innovate has been one of the most priorities of the Portuguese cork company. The objective is clear: distinguish CA, by strengthening the company policies, performance in research and quality control and internal sharing of new ideas on production processes, methods and the creation of new products and processes.

In the 1980s, with a clear focus on research, Corticeira Amorim was already producing all cork-related products. This ability, allied with the swift growth of the world wine industry, have fostered an extraordinary investment in R&D, which led to the appearance of the Central Laboratory. This Laboratory is transversal to all company BU activities, which enables to monitor all processes related to the production of the various products sold by the Company. Furthermore, it is specialized in the creation of new product solutions to cork and it helps BU by implementing innovative processes and technology.

With the objective to transform all the achieved innovation into something that can be perceived by customers, CA applied in the cork industry something that was never applied before. By starting to work through strict quality control standards required internationally, the Company secure that all products produced were in conformance to the international quality standards, giving to the customer high quality guarantee, which started to make all the difference in the purchase decision.

Some examples of the innovation in the production process of Corticeira Amorim are the implementation of a new washing and new treatment techniques (the implementation of the CONVEX boiling system thus emerges as a revolution in the treatment of cork.), advances in the process control and the definition of technical specifications, which give the company an unprecedented ability to fulfil the market needs. Specifically, where substantial investment has been made, CA has been dedicated to research on new solutions to the TCA's problem and its disposal. As a result, it was one of the first players in the sector to apply, with success, a preventive action against the contamination of cork by this compound - starting from a better selection and storage of the cork boards and huge investments in cutting-edge technologies from. CA has revolutionized the cork processing methods for the production of cork stoppers. As a result of the implementation of preventive and curative measures, levels of releasable TCA in corks produced by the company are now non-existent or undetectable.

The advances and the innovations previously mentioned were result of more than two decades of studies and investments, like the one mentioned above and the establishment, in the 1990s, of a consistent distribution network with companies in the world's most important wine markets: France, Italy, Spain, Australia, USA, Argentina and Chile. These actions were the starting point to ensure an increasing and continuous relationship with clients and final consumers based on trust and to develop the business all over the world. Additionally, the geographical proximity to the purchasing unit has proven to be a successful strategy and paves the way for technological advancement.

With the beginning of the 21st century, CA is already the company leader in all new innovative breakthrough's on the cork industry. By being close to producers and buyers, CA knows more certainty what the market needs and covers the way for technological advancement. Concerning about quality international standards, the Corticeira Amorim, as market leader, not only enables the qualitative control of the several product processes among the different BU, but gives credibility to the cork industry at international level.

6.3.7. The commitment to sustainability

Given the fact that the CA has, currently, reached a market leading position, the company have a commitment to sustainable development, measuring the enhancement and protection the cork sector – "*Aware of the uniqueness of the cork sector, Corticeira Amorim undertakes the additional responsibility in preserving the precious asset that is the cork oak forest unlike any other"* (Corticeira Amorim, 2016).

Under the management of the fourth generation of the family, António Rios Amorim has brought to the company a great national and international recognition. CA developed a long-term project which unified the concept of sustainability into all its operations units. In this context, the company finds a way to connect all the effort made internally and started, in 2006, to think to publish the first sustainability report. In 2007, this company brought this idea to life, and came with something never done before in the cork industry, which was awarded by the Corporate Register as one of the best reports in the world, in the Openness and Honesty category and, among the best six in the Relevance and Materiality category. During the same year, CA joined the BCSD – Business Council for Sustainable Development.

In 2008, Corticeira Amorim joined the Forest and Trade Iberian Network, becoming the first commercial partner of the Condominium of the Earth and Global Forest & Trade Network with the responsibility to care for the planet in an integrated manner. Furthermore, other pioneering initiatives get up, such as the inauguration of the first global cork stopper recycling facility. In line with this strong environmental motivation, CA has implemented an integrated production process, through which ensures reusability of all by-products resulting from the processing of cork. All cork that have passed from manufacturing processes and cannot be reused is then recycled, giving a new dimension the old maxim that "nothing is lost, everything is transformed."

CA is strongly recognized in the cork industry since it was the first company to promote the analysis of the environmental impact of its products, including the cork stoppers and coatings. One of the most important studies is related with the analysis of the life cycle of cork stoppers. This study was conducted according to ISO 14040 and ISO 14044 standards, and conducted by PwC - PricewaterhouseCoopers / Ecobilan, where it concluded that cork is more efficient in six of the seven environmental indicators analysed. Moreover, in terms of emissions, the results are broadly supportive to cork: even without considering the CO2 sequestration provided by cork oak forests, emissions associated with the production of cork stoppers are 24

times lower than those recorded by aluminium caps and ten times lower than the plastic stoppers. More than 60% of the energy that the company needs are met by the use of biomass (cork powder), a source of neutral energy in terms of CO2 emissions, which proves that the cork stoppers are more environmentally friendly.

The cork oak forests are important since they are natural sinks of CO2, they regulate the hydrological cycle, protect against erosion and fires and promote biodiversity. Cork must be extracted in order to keep the vitality of the cork tree and promote economic, environmental and social development associated with it. This allows thousands of people continuing to live and to work in arid and semi-arid areas. This three-dimensional pillars of sustainability in the cork industry is what allows the cork to be distinguished from other known sustainable raw materials.

Although Corticeira Amorim is not holding the majority of the cork oak forest in Portugal, the Company recognize the importance of sustainable management of the sector as a strategic priority. For that reason, CA was the first packaging company to obtain the certification by the Forest Stewardship Council (FSC) chain of custody in the cork industry in 2004 and to secure a preview of the wine industry needs – main destination market of their products. Today, CA continues to focus on product new developments in accordance with the FSC principles, while maintaining the goal of increasing the number of plants certified by this prestigious international standard.

6.4. APCOR

Portugal has taking control of the cork industry since 1936. This fact led a necessity to create a system to support the employers involved in the growth of the sector and in the promotion, dissemination and studies to be carried out for the development and evolution of cork.

As already mentioned, the cork industry is an industry highly dependent on quality, innovation and environmental sustainability. In order to maintain the sustainability of this sectors, to achieve high quality standards and to enable the Portuguese industry to preserve itself as leader in the cork industry, a consortium of cork growers and manufacturers have created the first Portuguese Cork Association (APCOR). Founded in 1956, APCOR is based in Santa Maria de Lamas, near of the world biggest manufacturing centre of cork industry situated in the council of Santa Maria da Feira, around 30 kilometres from Porto.

APCOR is the only national association and a centre of information that represents the cork industry, celebrating 60 years of existing in this year 2016. This Association has approximately 270 members, operating in the fields of production, marketing and exports. They represent about 80% of national productions and more than 85% of Portuguese cork exports. Approximately 80% of the company's members are located in the district of Aveiro.

The Portuguese cork association is responsible for cork industry sectors, englobing the preparation, processing and marketing departments, in order to secure high quality standards in this industry. This cork Association guarantees the high quality standards in Portugal and in several international markets, such as in Europe, Asia, North America, and Oceania, where Portugal exports to. For this purpose, one of APCOR's goals is to ensures that their members are committed to preserve the exceptional production process of cork. Such as in the production of cork stoppers that represent the most important product of the sector and it is used to close the best bottles in the wine industry.

According to APCOR, the association exists "*(…) to promote and value cork as a raw material of excellence, and products made from cork. we are working to represent and promote the Portuguese cork industry worldwide."* The association is *"(…) the driving force of an industry of the future that is based on tradition, innovation and sustainability, and will continue to stimulate the search for new applications, new processes and new products, in a sector that is proud to be a world leader, and that is constantly bring new surprises*" (João Rui Ferreira, APCOR Chairman, APCOR Statistic Report, 2015). In line with this, the mission of this association is to promote and add value to cork, controlling the industrialization process to preserve from an excellent raw material to the final products made from it and promoting all the conditions necessary for the development of each member companies.

The values of APCOR are defined by different objectives that should be defended and followed by each partner's companies. Only by achieving efficiency, exceeding expectations, being cooperative, pursuing an innovation persistence and being consistently active to ensure the continuous improvement of the organization, it is possible to secure the interest and development of the cork industry.

To fulfil its mission, to achieve its goals and to respect its values, APCOR has five core interventions areas:

- Internationalization;

- Innovation and Development;
- Information;
- Support Services (Which comprises all legal support, quality, Standardization, Industrial Licensing, economic and fiscal support, collective employment agreements with unions);
- Institutional Cooperation (The creation of Cincork in 1987 – Centre for Professional Training in the cork Industry; Ctcor – Cork Technology Centre in 1987; C.E.Liège in 1987 – European Cork; AIFF – Association for the Competitiveness of the Forest Sector; Filcork in 2004 – Interprofessional Association for the Cork Industry).

In the past 60 years, APCOR has invested more than EUR 40 million across six communication campaigns involving twenty countries. The promotion of cork bottle stoppers was the first focus, with an investment of EUR 21 million for the InterCork Programme in order to promote cork internationally. More recently, and with an increasing interest for cork to be used as construction material, decoration and design, more investment has been made, leading to the creation, in 2013, of the InterCork II.

One of the biggest efforts of APCOR is to ensure competitiveness, which helps the sector in the long-term and helps Portuguese cork industry to guarantee the success achieved, specially, in the foreign markets. In order to achieve that, there has been an effort to certified all processes, which helps companies on the continuous improvement, on behalf of quality and modernisation. An example of the effort made by several international association and several production and manufacturing companies, that develop their process following all the high quality standards, was the implementation from 1992 to 1996 of the project Quercus, on the initiative of C.E. Liège (Confédération Européenne du Liège). Essentially, Quercus was a creation of a project about quality innovation. This project involved seven countries and several public and private laboratories to study, in greater depth, what was carrying the bottles sealed with cork to leave a sensory anomaly, related to the contamination of flavours in wine, mainly due to problems with TCA. Only from previous studies and discoveries carried out by different laboratory projects, it was possible to increase knowledge about the formation compounds that are responsible for this type of anomaly and control the TCA problem. To control this problem, some cork suppliers carry out sensory testing, which involves the human nose testing but, it cannot eliminate the possibility for human error. The most important producers and manufactures have moved to next step in the controlling problem, becoming entirely TCA-

free, using new technological procedures to trace TCA and using cutting edge gas spectroscopy technology.

From this effort it was possible to create the International Code of Cork Stopper Manufacturing Practice (ICSSMP), a set of practical norms for the manufacturing of cork stoppers that follow a tight quality model that was used for the International certification Systecode. The objective here, was to guarantee the quality offered by cork stoppers manufactures according to the most advanced production techniques and, at the same time, respecting the environmental and health regulations. Systecode is responsible to verify and ensure that cork companies comply with every quality procedures of the system. By doing this, companies can guarantee a premium finished cork stoppers with TCA-free.

As it possible to be observed, APCOR is working together with partner companies with the objective of dodge any substantial challenge that can might undermine the cork quality standards in the current market, by a persistence collective effort too innovative, certifying processes and products and challenging all companies to pursue a sustainable development model.

7. Conclusions

7.1. Main conclusions

Innovation is one of the main concerns of the XXI century, especially in organizations, where differentiation is becoming one of the key drivers to achieve competitive advantage. In the same way that the need for innovation increases, the issue and concern regarding to sustainability also increases. In industries, that are highly dependent on natural resources, as the cork industry, sustainability needs to work side by side with innovation in order to guarantee a balance between social, environmental and economic dimensions.

As previously mentioned, the main objective of this dissertation is to understand the relation between innovation and sustainability and to discover how companies can have a sustainable innovation orientation strategy. In theoretical terms, as explained in the sustainable innovation framework, the innovation should be sustainable allowing companies to have a sustainable innovation process performance, for example in terms of sustainable product innovation performance, of employees' performance, in terms of environment performance's outcomes and others. Globally, all these outcomes, derived from a sustainable innovation orientation strategy, will increase financial performance of a company. In practical terms, after applying this theoretical conceptual framework to a real business situation, in this specific case to a cork company – Corticeira Amorim, it was possible to test the theory and proving its veracity. In real business situations it is very important to have this concern and practice of sustainable innovation.

In the specific case of Corticeira Amorim, it is possible to conclude that having a sustainable innovation is becoming mandatory. Both innovation and sustainability are two top of priorities in this company's daily agenda. The importance given to this issue is specially in the Composites business units, where the unit is constantly doing a sustainable innovation by reducing the use of renewable and non-renewable resources – one type of sustainable innovation orientation strategy, given by the theoretical conceptual framework. The Composites business unit, can reduce the use of resources because applies to the use of post-consumption waste as input to for new production processes. These new production processes enable cork to serve for innovative applications, through the transformation of "waste" into recycle consumables of cork.

With this new method of sustainable innovation, natural resources are no longer a simple kind of materials that are obtained with a cost from the environment in a linear way, but rather an

input of the production process that is designed to be used in a circular way. In other words, it will no longer be necessary to increase the production with more natural resources that are obtained from the environment and, also, with more waste in the process which will disregard the sustainability model. Now, it will be possible to aims the use of waste, created in the production process, as a resource that can be indefinitely re-cycled in the economic process.

So, to innovate and be sustainable at the same time, it was concluded that Corticeira Amorim explores opportunities that can came from the production and the post-consumption phases. These opportunities help the Portuguese cork Company to improve the process efficiency, through the reduction of resources that can harm the environment, or through the substitution of resources that are more harmful to the environment and bring less efficiency in the production process. Furthermore, it can be concluded that CA is maximizing the circular economy, following a sustainable innovation orientation strategy that helps the Portuguese cork Company to reduce or/and eliminate waste and pollution and enable the creation of new solutions to increase the business growth, improve financial performance and guarantee a sustainable future.

From this study, it is possible to conclude that Corticeira Amorim is growing and consolidating its presence in national and international markets, focusing its strategy in a sustainable innovation model, increasing the quality of its products and strengthening the business sustainability in the long run.

7.2. Limitations

Even though this thesis was cautiously prepared, it is necessary to be aware of some limitations and shortcomings with mainly regard to the research.

The first limitation is related with the information of cork industry, financial data and evolution of this industry. It was not easy, and sometimes even impossible, to find updated information. This is explained by the fact that cork industry's studies are, in several cases, just made of four within four years. For example, in the case of APCOR, every year this Association launch new cork industry studies but, the information contained in them is quite old, which, in turn, makes it difficult to collect information for further conclusions.

As previously mention in the discussion section, Corticeira Amorim is the largest player in this industry, leaving other companies far below of it. In line with this, the second limitation is

related with the fact of not having another cork company at a similar level of CA, so to be possible to make comparisons and to be easier to improve the assessment of sustainable innovation in CA. In other words, even concluding that CA is having a sustainable innovation, there are no other cork company that enables to see if exists another way to pursue a sustainable innovation and, if it exists, to evaluate if it is or not better than the current one.

The third and last limitation is concerned to the aim of this thesis, since it is a practical contribution for existing theories and it is not a development of a new conceptual framework or theory to the existing literature and existent information. Basically, it was used the literature review and an existent conceptual framework to observe if Corticeira Amorim can has a sustainable innovation and which are the drives that the company follows to achieve sustainable innovation's outcomes.

7.3. Future research

For further research, it could be to analyzed the second biggest player in the cork industry. It is important to explore others perspectives from a different company, in order to find out if they follow any type of sustainable innovation orientation strategy. If they do, it will be interesting to discover if that orientation strategy could be compared with the strategy perceived by Corticeira Amorim or if is completely different.

Another research that can be done, is regarding to the importance of small family business in the cork sector. Nowadays, most of cork oak forest area is detained by small family business, being the oak forests an important part of the cork's life cycle, since it is where cork grows and gains his qualities before being sold to other companies that transform cork for different industry usability's.

To better understand the future sustainability of this sector, it is also relevant to do a further research about the evolution of the produced cork over the years and discover which kind of challenges will show up to family's producers in the cork industry.

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9. Appendixes

Appendix 1 – Interview e-mail / request

Dear Andreia and Nuno,

In the field of my dissertation of the Master in Business Administration of the ISCTE Business School, it is being developed a dissertation that aims to study the relation between sustainability and innovation and to explain why it is important to have a sustainable innovation strategy in today's companies.
Since the cork industry is highly dependent of natural resources, it is even more important to be aware of this issue in this industry. To be well-succeed in the dissertation elaboration, it is crucial to have an in-depth knowledge about how in practice, companies like Corticeira Amorim manages these two concepts in order to pursue a sustainable innovation strategy, increasing its competitiveness competitive and growing in the market.

In this regard, the information required is concerned about the following topic:

- Understand the dynamics of the cork industry:
  - What drivers?
  - What are the future trends? How can Corticeira Amorim be prepared for these trends?
  - How important is innovation in the cork industry?

- Innovation and sustainability at Corticeira Amorim:
  - How important is innovation to the company?
  - Why there is a need for a sustainable innovation?
  - Why are nowadays this concepts so related?
  - How can sustainable innovation be achieved?
  - How to have a sustainable innovation strategy in Corteira Amorim?
  - Corticeira Amorim is known for its high quality. How to guarantee this quality?

According to this, I request for your cooperation and collaboration for the concession of a face-to-face interview. The interview it will not take more than 60 minutes. Please note that your contribution is very valuable for my dissertation.

I hope to hear from you soon

Thank you in advance.

Kind regards,

Duarte Nobre

Appendix 2 – Interview with Corticeira Amorim

1. Considering the importance of innovation for companies, how do you see the role of innovation in Corticeira Amorim?

2. How do you classify the type of innovation implemented by CA? (Incremental = processes improvement; Radical/Disruptive = New, new concept / new product).

4. Do you think that Corticeira Amorim tries to have a sustainable innovation? If yes, how? What is the path for that?

5. Too much innovation can jeopardize the sustainability of an industry, especially when it primarily uses natural resources as raw material. Do you agree with this sentence? Why yes / not?

6. Corticeira Amorim is known as a company with very high quality standards. How CA control these standards?

7. Do you believe that quality is directly related to innovation?

8. By analysing the sustainable innovation orientation framework, proposed by Varadarajan, R. (2015), can you confirm that this framework can be directly applied to CA? Also, considering this framework, which is the sustainable innovation orientation strategy that better describe the CA sustainable innovation scenario?

9. Do you think that, by having a sustainable innovation orientation strategy, companies can increase its competitiveness and guarantee the success of their business in the long term?

10. What will be the future trends for the cork industry?

11. In your opinion, will be the cork industry sustainable in the long term?

Appendix 3 - Interview with Cork producer and supplier

1. In Portugal, most of the cork oak areas are held by small family businesses, which are dedicated to control, stripping and commercialization of cork bark in its natural state. According to this, do you think that there is a direct relationship between cork producers and suppliers? Is there any sharing of knowledge that would facilitate or improve processes?

2. The bargaining power of suppliers in the cork sector is considered weak or non-existent. This situation is creating opportunity for vertical integration of medium, large companies (Example: CA). Do you agree with is? Why yes / not?

3. During the last few years, cork industry has been growing significantly, creating opportunities for new products and new cork applications. Considering this fact, do you think that the state, public organizations or even private organizations promote the grow of this sector by investing in it? Do you think that the cork industry, sometimes, is supported by national and international bodies?

4. In the moment of harvesting the cork:

- How the negotiation is done? Is there any risk of damaging the cork oak? If yes, how often does it happens? How it is possible to protect the cork from such situation?

5. In the moment of selling the cork.

- How the negotiation is done? Which kind of companies are looking for this type of business? Do the values negotiated correspond to "your" expectations? Why?

6. The recognition of cork throughout its uniqueness and environmental efficiency has been promoted by national and international manufacturing companies as well by cork associations (example APCOR).

- In addition to contacts made during the cork harvesting, is there any more contact between family businesses and manufacturing companies? Is there, or not, any sort of information/knowledge flow that can help on the improvement of quality of the production process?

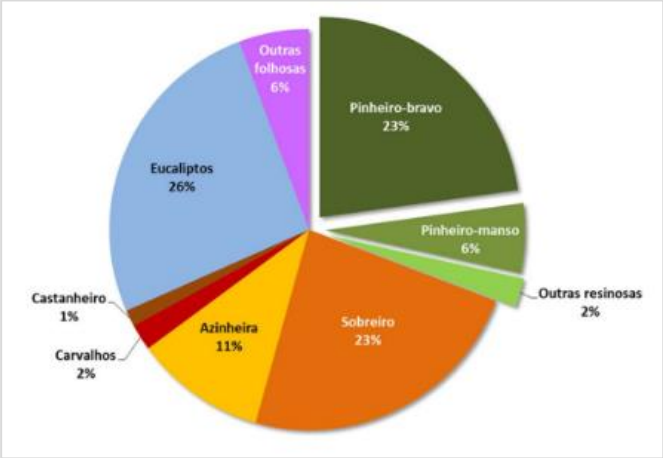
7. In your opinion, what still needs to be done to have a sustainable innovation and to guarantee the success of this industry/sector in the long-term?

Appendix 4 – Interview Guide

DURATION	MOMENT	DESCRIPTION
10 Minutes	1st - Presentation	- Mutual Presentation; - To present the theme of dissertation and the problem under study; - Outlining the main objectives of the interview.
40 Minutes	2nd - Development (interview process)	- Questions and discussion.
10 Minutes	3rd - Conclusion and Acknowledgments	- To sum up the interview (make the main conclusions); - To thank the availability, cooperation and contribution.

10. Annexes

Annex 1 - Distribution of total areas for species / species group



Source: Inventário Florestal Nacional 2013

Annex 2 - Production process applications

Distribution of cork by the various applications (at the moment it enters the production process) Average values	30 % Thin Cork Bark	40 % Disks
		60 % Blocks
	25 % By-product	
	5 % Pieces	
	40 % Stoppers	

Source: Cork Information Bureau 2015

Annex 3 - Portuguese corks exports by country

Period	Trade Flow	Reporter	Partner	Code	Trade Value	NetWeight (kg)	Quantity Unit	Trade Quantity	Flag
2015	Export	Portugal	World	4504	$487,323,452	120,816,051	8	120,816,051	0
2015	Export	Portugal	USA	4504	$79,251,040	16,503,893	8	16,503,893	0
2015	Export	Portugal	France	4504	$76,769,679	10,691,596	8	10,691,596	0
2015	Export	Portugal	Germany	4504	$59,465,511	28,989,116	8	28,989,116	0
2015	Export	Portugal	Italy	4504	$57,478,674	8,090,990	8	8,090,990	0
2015	Export	Portugal	Spain	4504	$31,903,057	5,668,690	8	5,668,690	0
2015	Export	Portugal	Russian Federation	4504	$31,647,781	9,556,924	8	9,556,924	0
2015	Export	Portugal	China	4504	$14,121,334	3,282,919	8	3,282,919	0
2015	Export	Portugal	Canada	4504	$9,376,186	3,316,491	8	3,316,491	0
2015	Export	Portugal	Chile	4504	$9,062,621	1,183,031	8	1,183,031	0
2015	Export	Portugal	Poland	4504	$8,778,518	2,491,231	8	2,491,231	0
2015	Export	Portugal	Belgium	4504	$8,171,872	2,384,808	8	2,384,808	0
2015	Export	Portugal	United Kingdom	4504	$8,152,065	1,673,060	8	1,673,060	0
2015	Export	Portugal	Australia	4504	$7,641,655	1,124,542	8	1,124,542	0
2015	Export	Portugal	Netherlands	4504	$6,846,363	3,105,544	8	3,105,544	0
2015	Export	Portugal	Denmark	4504	$5,228,303	2,866,666	8	2,866,666	0
2015	Export	Portugal	Switzerland	4504	$5,084,405	2,212,786	8	2,212,786	0
2015	Export	Portugal	South Africa	4504	$5,058,144	569,250	8	569,250	0
2015	Export	Portugal	Finland	4504	$4,985,421	2,284,308	8	2,284,308	0
2015	Export	Portugal	Austria	4504	$4,842,178	1,392,074	8	1,392,074	0

Source: United Nations Commodity Trade Statistics Database 2015

Annex 4 - Final price of cork's products

Cork Product	Price (€/kg)
Cork Stoppers	13.5
Building Materials	1.74
Raw Material	1.45
Others	7.04

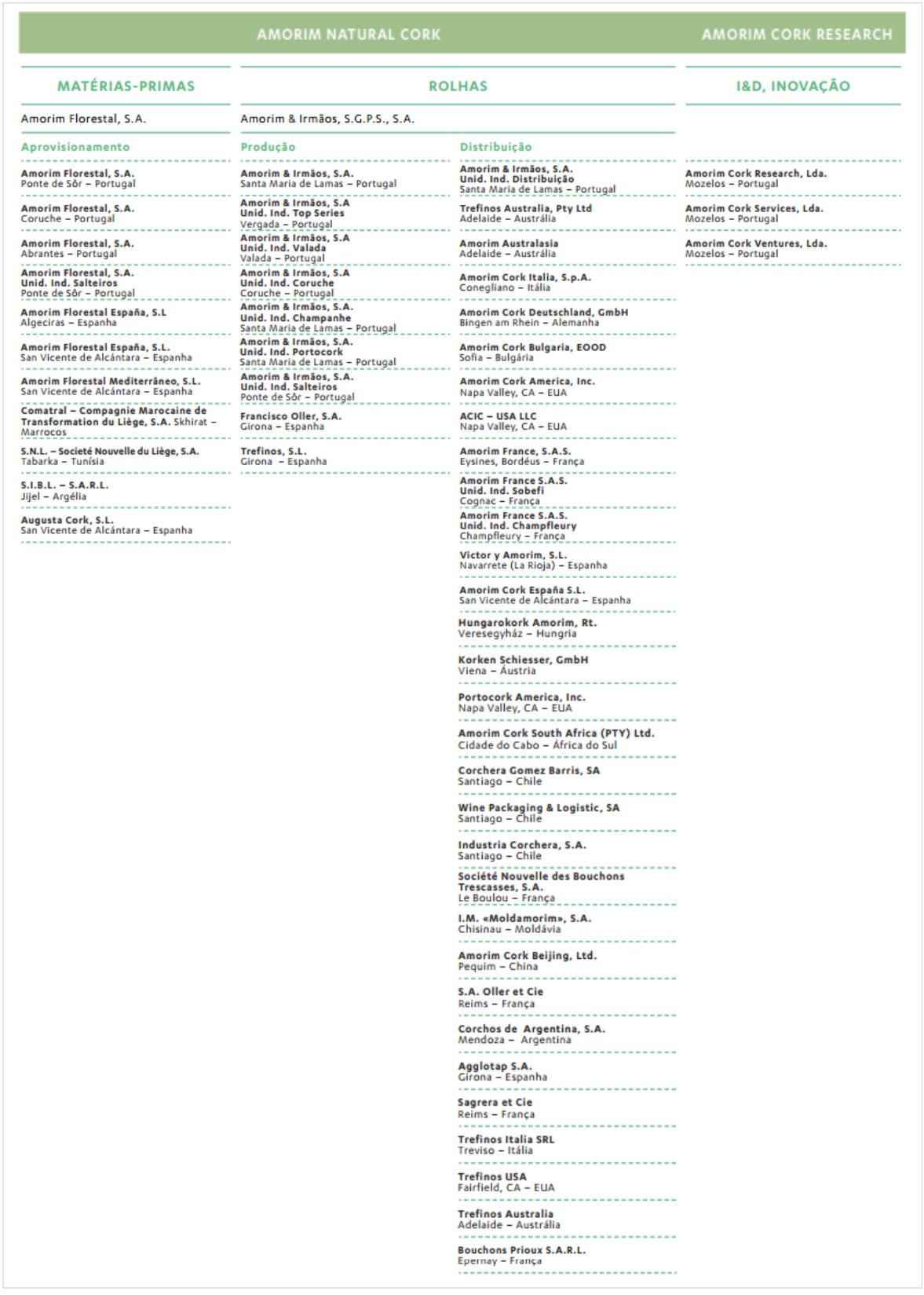
Source: Own creation with data from Cork Information Bureau 2015 and APCOR Anuário de Cortiça 2015

Annex 5 - Corticeira Amorim's best movements towards R&D

Year	Facts
1991	The Amorim Academy was founded. An institution to promote wine as well good practices concerting to its conservation.
1999	Amorim & Irmãos invested in the R&D department to solve the TCA's problems in cork stoppers.
2002	Some departments of Corticeira Amorim were restructured.
2004	Intesification of Corticeira Amorim's competences and partnerships regarding to R%D practices to be transversal to all organization. CA created also a department for new applications to expand and transfer knowledge across the organization.

Source: Adapted from Corticeira Amorim website, 2016

Annex 6 - Corticeira Amorim organigram – Amorim Natural Cork and Amorim Cork Research



AMORIM NATURAL CORK

MATÉRIAS-PRIMAS

Amorim Florestal, S.A.

Aprovisionamento

- **Amorim Florestal, S.A.** Ponte de Sôr – Portugal
- **Amorim Florestal, S.A.** Coruche – Portugal
- **Amorim Florestal, S.A.** Abrantes – Portugal
- **Amorim Florestal, S.A. Unid. Ind. Salteiros** Ponte de Sôr – Portugal
- **Amorim Florestal España, S.L** Algeciras – Espanha
- **Amorim Florestal España, S.L.** San Vicente de Alcántara – Espanha
- **Amorim Florestal Mediterrâneo, S.L.** San Vicente de Alcántara – Espanha
- **Comatral – Compagnie Marocaine de Transformation du Liège, S.A.** Skhirat – Marrocos
- **S.N.L. – Societé Nouvelle du Liège, S.A.** Tabarka – Tunísia
- **S.I.B.L. – S.A.R.L.** Jijel – Argélia
- **Augusta Cork, S.L.** San Vicente de Alcántara – Espanha

ROLHAS

Amorim & Irmãos, S.G.P.S., S.A.

Produção

- **Amorim & Irmãos, S.A.** Santa Maria de Lamas – Portugal
- **Amorim & Irmãos, S.A Unid. Ind. Top Series** Vergada – Portugal
- **Amorim & Irmãos, S.A Unid. Ind. Valada** Valada – Portugal
- **Amorim & Irmãos, S.A Unid. Ind. Coruche** Coruche – Portugal
- **Amorim & Irmãos, S.A. Unid. Ind. Champanhe** Santa Maria de Lamas – Portugal
- **Amorim & Irmãos, S.A. Unid. Ind. Portocork** Santa Maria de Lamas – Portugal
- **Amorim & Irmãos, S.A. Unid. Ind. Salteiros** Ponte de Sôr – Portugal
- **Francisco Oller, S.A.** Girona – Espanha
- **Trefinos, S.L.** Girona – Espanha

Distribuição

- **Amorim & Irmãos, S.A. Unid. Ind. Distribuição** Santa Maria de Lamas – Portugal
- **Trefinos Australia, Pty Ltd** Adelaide – Austrália
- **Amorim Australasia** Adelaide – Austrália
- **Amorim Cork Italia, S.p.A.** Conegliano – Itália
- **Amorim Cork Deutschland, GmbH** Bingen am Rhein – Alemanha
- **Amorim Cork Bulgaria, EOOD** Sofia – Bulgária
- **Amorim Cork America, Inc.** Napa Valley, CA – EUA
- **ACIC – USA LLC** Napa Valley, CA – EUA
- **Amorim France, S.A.S.** Eysines, Bordéus – França
- **Amorim France S.A.S. Unid. Ind. Sobefi** Cognac – França
- **Amorim France S.A.S. Unid. Ind. Champfleury** Champfleury – França
- **Victor y Amorim, S.L.** Navarrete (La Rioja) – Espanha
- **Amorim Cork España S.L.** San Vicente de Alcántara – Espanha
- **Hungarokork Amorim, Rt.** Veresegyház – Hungria
- **Korken Schiesser, GmbH** Viena – Áustria
- **Portocork America, Inc.** Napa Valley, CA – EUA
- **Amorim Cork South Africa (PTY) Ltd.** Cidade do Cabo – África do Sul
- **Corchera Gomez Barris, SA** Santiago – Chile
- **Wine Packaging & Logistic, SA** Santiago – Chile
- **Industria Corchera, S.A.** Santiago – Chile
- **Société Nouvelle des Bouchons Trescasses, S.A.** Le Boulou – França
- **I.M. «Moldamorim», S.A.** Chisinau – Moldávia
- **Amorim Cork Beijing, Ltd.** Pequim – China
- **S.A. Oller et Cie** Reims – França
- **Corchos de Argentina, S.A.** Mendoza – Argentina
- **Agglotap S.A.** Girona – Espanha
- **Sagrera et Cie** Reims – França
- **Trefinos Italia SRL** Treviso – Itália
- **Trefinos USA** Fairfield, CA – EUA
- **Trefinos Australia** Adelaide – Austrália
- **Bouchons Prioux S.A.R.L.** Epernay – França

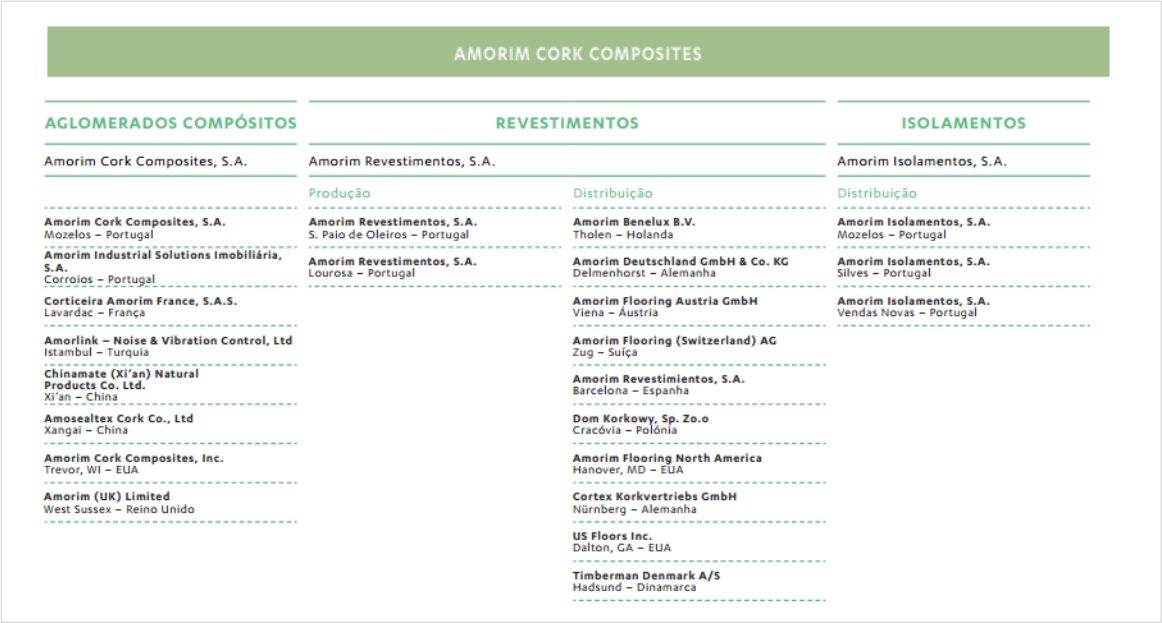
AMORIM CORK RESEARCH

I&D, INOVAÇÃO

- **Amorim Cork Research, Lda.** Mozelos – Portugal
- **Amorim Cork Services, Lda.** Mozelos – Portugal
- **Amorim Cork Ventures, Lda.** Mozelos – Portugal

Source: Adapted from Corticeira Amorim Annual Report 2015

Annex 7 - Corticeira Amorim organigram - Amorim Cork Composites



Source: Adapted from Corticeira Amorim Annual Report 2015

Annex 8 - Corticeira Amorim worldwide's presence

Source: Corticeira Amorim website, 2016

Annex 9 - Corticeira Amorim business units

Raw Materials

Composite Cork

Cork Stoppers

Floor amd Wall Coverings

Isolation Cork

Source: Corticeira Amorim website, 2016