# THE CORK SECTOR: FROM THE FOREST TO THE CONSUMER

## FINAL REPORT: EXTENDED SUMMARY

FEBRUARY 2020

APCOR
Associação Portuguesa da Cortiça

cork.


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**Proprietor:**

**APCOR** - Portuguese Cork Association

Avenida Comendador Henrique Amorim,
Nº. 580, Apartado 100
P - 4536 - 904 Santa Maria de Lamas
Portugal

**GPS:** 40°58'47.56"N 8°34'00.37"O

**Tel:** +351 227 474 040

**Fax:** +351 227 474 049

**E-mail:** info@apcor.pt / realcork@apcor.pt

**Site:** www.apcor.pt / www.realcork.pt

Facebook: www.facebook.com/apcortica/

Youtube: www.youtube.com/apcortica

**Study authors:** CEGEA - Centro de Estudos de Gestão e Economia Aplicada | Universidade Católica Portuguesa

**President:** João Rui Ferreira

**Director:** Joaquim Lima

**Coordination:** Claudia Gonçalves

**Design:** Plenimagem LDA.

**Photography:** Jorge Sarmento, Nuno Correia, Pedro Sadio, Paulo Magalhães and Simple Forms Design

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# AUTHORS


Alberto de Castro (general coordinator) Invited Full Professor at Católica Porto Business School. PhD in Economics from the University of South Carolina.

Francisco Avillez (technical-scientific coordinator in the forest domain) Professor Emeritus of the Instituto Superior de Agronomia. PhD in Agrarian Economics from Instituto Superior de Agronomia.

Vasco Rodrigues Associate Professor at Católica Porto Business School. PhD in Economics from Universidade Católica Portuguesa.

Francisco Gomes da Silva Assistant Professor at the Instituto Superior de Agronomia. PhD in Agronomy from Instituto Superior de Agronomia.

Fernando Santos Guest Lecturer at Católica Porto Business School. PhD in Business and Finance from Universidad Carlos III de Madrid.

Francisco Rebelo Guest Lecturer at Católica Porto Business School. Master in Economics and International Management from the Faculty of Economics of Porto.

Manuela Nina Jorge Master of Business Administration (MBA) from Universidade Nova de Lisboa.

Nélia Aires Degree in Forestry and Natural Resources from Instituto Superior de Agronomia.


This report was prepared by the Centre for Management Studies and Applied Economics at Católica Porto, with the collaboration of Agro.Ges, in response to a request from APCOR. The opinions expressed in this document are the authors' only and do not bind the Catholic University of Portugal or APCOR.

Porto, 28 February 2020

Alberto Castro

# INDEX

# EXTENDED SUMMARY

This report was prepared with the “fundamental objective of providing a strategic framework for decision making by the SMEs of the cork sector, thus contributing to their success and development”. With this purpose in mind, the first part of the report presents a characterization of the situation and recent evolution of the sector that supports the diagnostic and strategic prospective exercise presented in the second part.

# PART 1

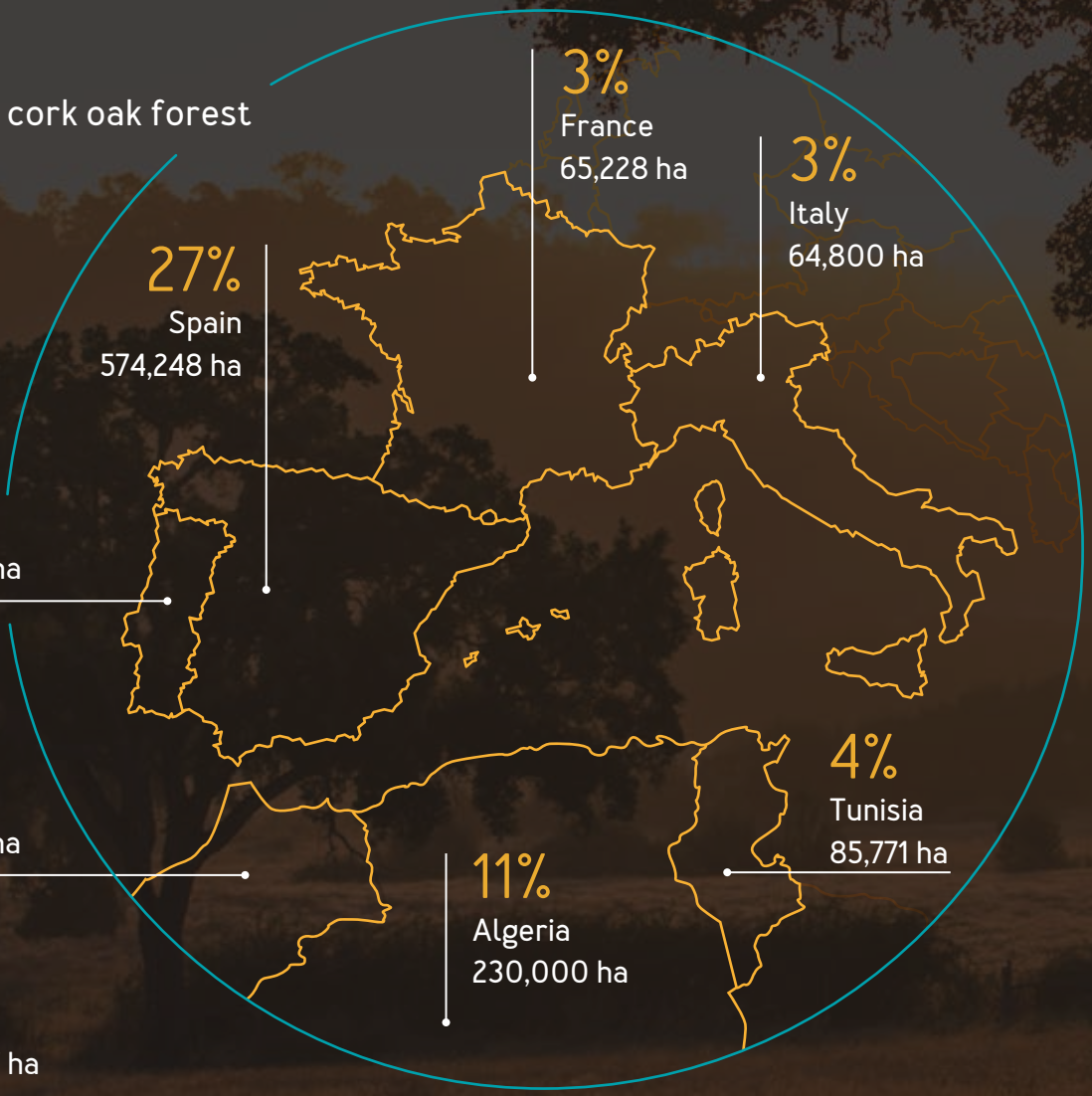
The first part of the report is organized in seven chapters. The first characterizes the situation and evolution of the cork oak forest in Portugal and the second describes the legal and administrative framework under which these forests are managed. The third chapter deals with the business structure of the cork sector and the fourth presents an in-depth analysis of the economic and financial situation of its companies. The fifth chapter focuses on investment and innovation in the sector. The sixth is dedicated to the international trade in cork and cork products. Finally, the seventh chapter characterizes the situation in the markets for the two main cork products: cork stoppers and building materials.

CHAPTERS 1 AND 2

# THE CORK OAK FOREST

Forests occupy more than a third of the Portuguese territory, and are almost entirely private property. With 720,000 hectares, cork oak (quercus suber) represents almost a quarter of the national forests. Portugal has about a third of the world area of cork oak forest, followed by Spain, with more than a quarter, Morocco with almost a fifth and Algeria with around a tenth.

## Area of cork oak forest




TOTAL:
2,123,067 ha

Sources: Portugal: IFN6, 2019; Spain: MARM, 2007; Italy: FAO, 2005; France: IM Liège, 2005; Morocco: HCEF Marroc, 2011; Algeria: EFI, 2009; Tunisia: Ben Jamaa, 2011.

In Portugal, cork oak is the second most prevalent species in forest area, with values similar to eucalyptus and maritime pine that occupy the first and third positions. The Alentejo region represents 85% of the national cork oak forest area. Since 2000, there has been a relatively continuous and stable succession of public measures to support investment in the *montado* *. Between 2000 and 2014, 188.9 million euros of public funds were dedicated to this purpose, enabling the improvement/regeneration of some 35% of the *montado* area. Investment has continued under the current PDR 2020. However, after having increased significantly up to the mid-1990s, the *montado* area has shown little dynamism in this century. Besides, inadequate management practices and poor tree health have limited the productivity of many explorations. The estimates of the most recent National Forest Inventory point to the production of 83,000 tons of cork in 2015, which represents a decrease of 2.6% compared to estimates made a decade earlier.

In addition to their relevance as a source of raw material for the cork industry, the *montados* have important environmental functions, in regulating the water cycle, in soil conservation, as carbon sinks, and as a support for biodiversity. Their economic and environmental importance justifies that, in addition to the general regulation of the national forest, cork oak is subject to specific legislation, established by Decree-Law No. 169/2001. These regulations, analysed in chapter 2 of the report, include limitations on the conversion, cutting or grubbing out of cork oak trees and the regulation of cork extraction.

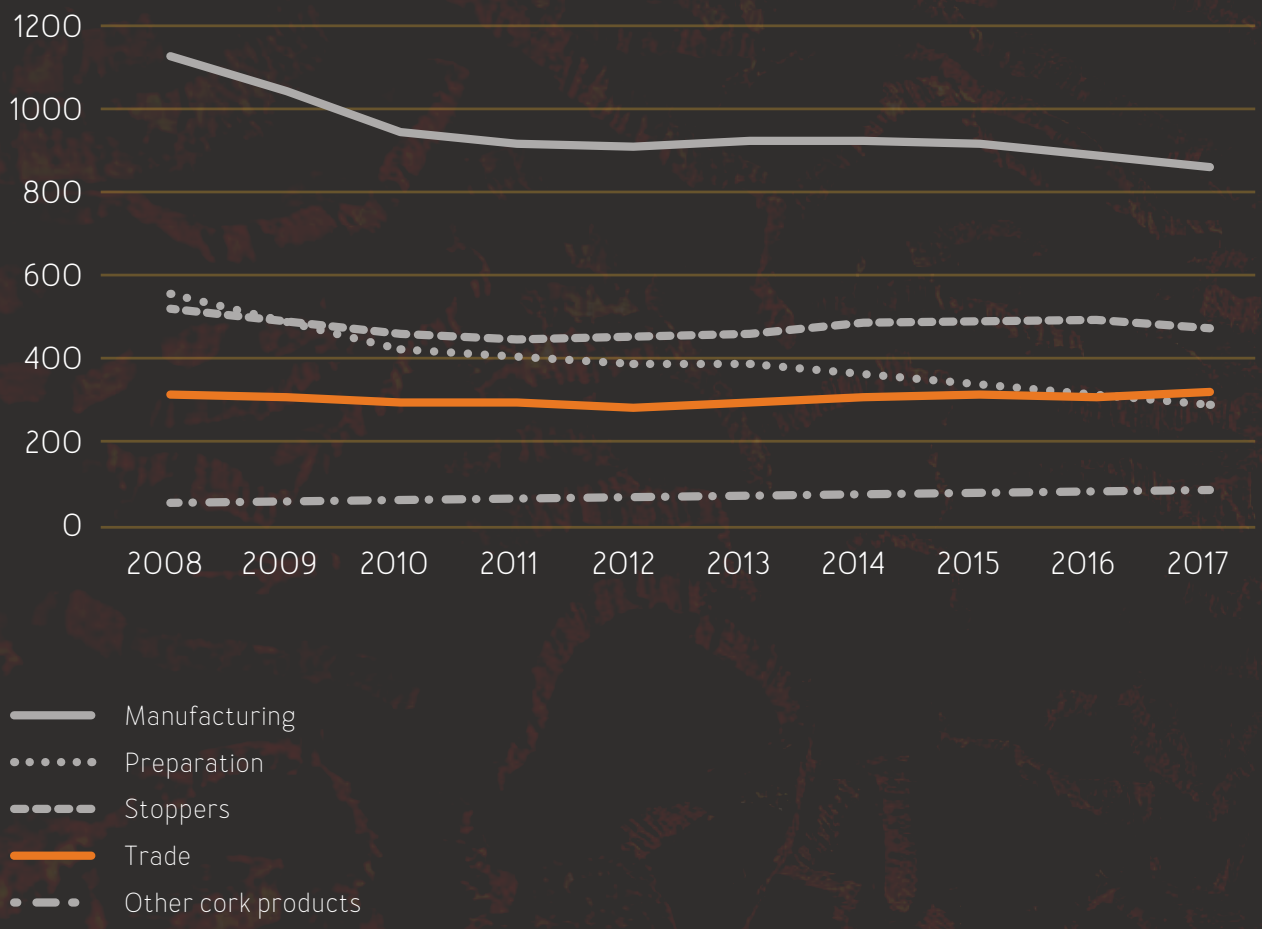
Source: INE. | * In Portugal, cork oak forest areas are known as *montado*.

CHAPTERS 3 TO 5

# THE BUSINESS FABRIC OF THE CORK SECTOR

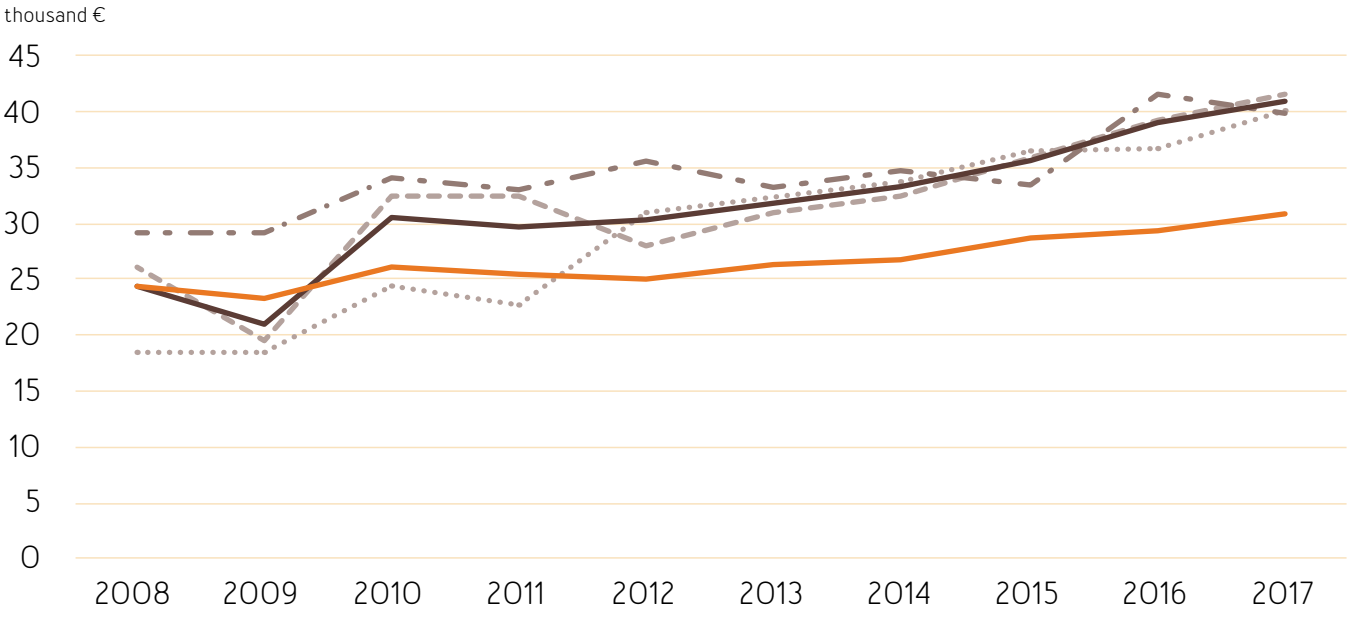
Cork is the fundamental business of numerous commercial and industrial companies in Portugal.

## Number of companies, by activity (CHART 1)



There are more than 300 companies engaged in the cork trade, with a strong focus on the Alentejo region, where the cork oak forests are predominantly located. Most of these companies are quite small, with total employment in the sector only around 600 people. Industrial companies are considerably more numerous and larger, but their number has dropped by about a quarter in the last decade, mainly due to a sharp reduction in the number of cork preparation companies. Currently, there are about 850 active industrial companies. These are strongly concentrated in the north of Portugal, where almost all the cork stopper manufacturers are located and most of those that produce other products in cork.

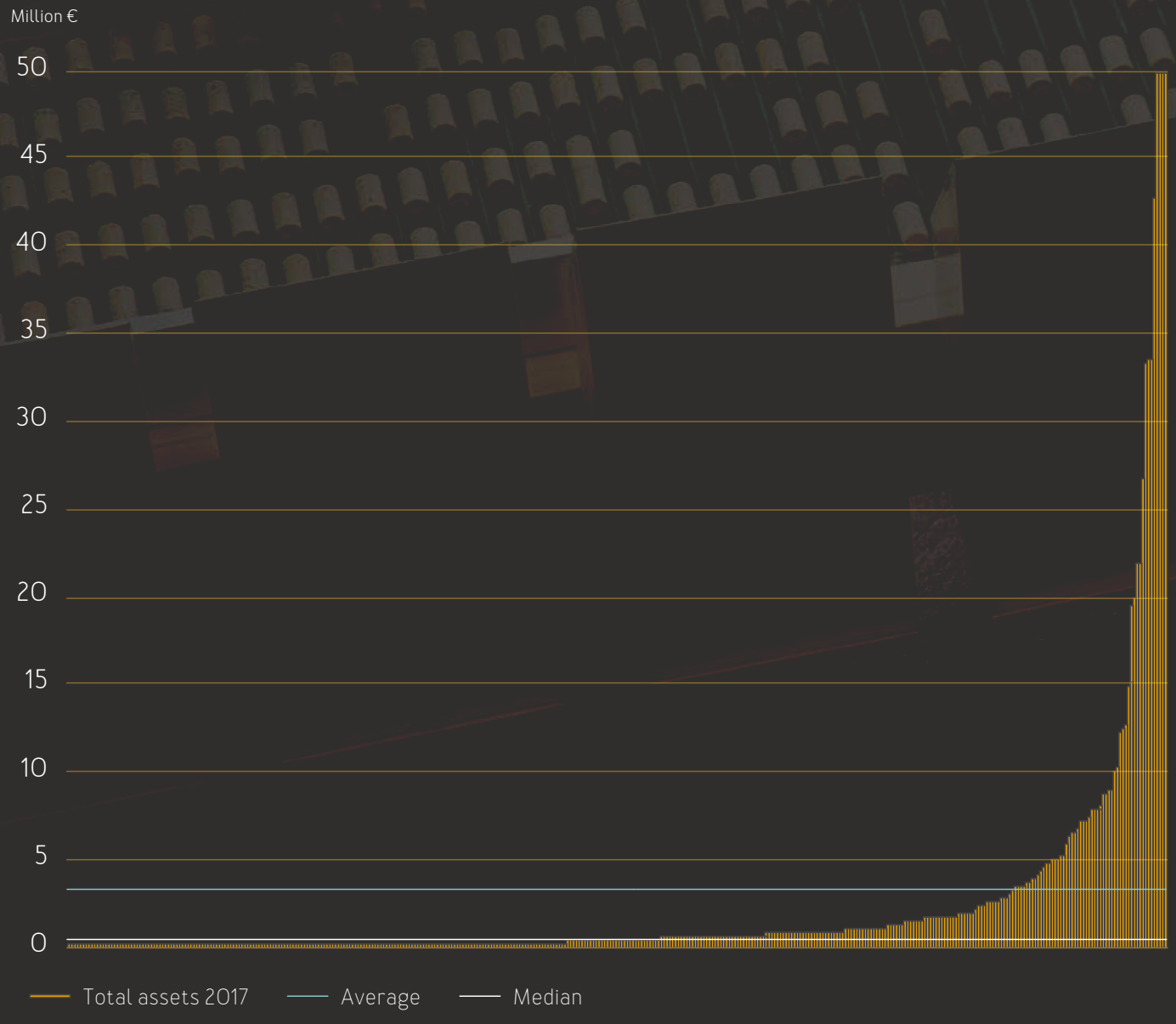
## Gross value added by worker, by activity (€) (CHART 2)




In 2018, the cork industry employed around 8,600 people, more than half of whom were in cork stopper producing companies, corresponding to about 1.2% of total employment in Portuguese manufacturing industries. Sectoral employment has fallen by 22% in the last decade, which has not prevented the added value of the industry from increasing significantly. Consequently, within a decade, productivity in the sector went from being about average to 30% higher than the average for Portuguese manufacturing industries. Simultaneously, there has been convergence between the productivity levels of the different branches of the cork industry.

Chapter 4 studies the economic and financial situation of the sector, through an in-depth examination of the accounts of 406 industrial companies and 72 commercial companies that were permanently active in the 2014-2018 period. These companies are extremely heterogeneous: 50 per cent of the industrial companies have total assets that do not exceed half a million euros, but the average of this variable is 3.8 million euros, and its maximum reaches almost 250 million.

## "Total Assets" of manufacturing companies in the cork sector (2018) (CHART 3)




Source: SABI. Own calculations.
Note: For readability, the vertical axis has been limited to 50 million euros, which does not allow the correct representation of 5 companies with "total assets" of 62, 83, 116, 182, and 249 million euros.

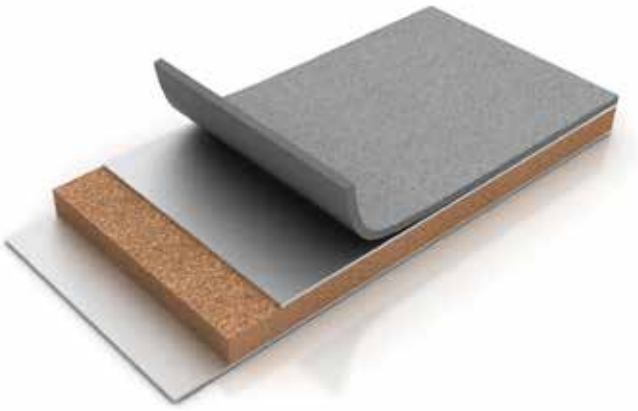
## Main financial ratios for a sample of manufacting firms in the cork sector (TABLE 2)

| Ratio | Decomposition | Number outliers | 2018 Average | 2018 Median | 2014 Average | 2014 Median |
|---|---|---|---|---|---|---|
| ROA | | 89 | 5% | 3% | 3% | 2% |
| | Net Profit / Operating Income | 110 | 5% | 3% | 3% | 2% |
| | Operating Income / Total Assets | 21 | 109% | 102% | 112% | 108% |
| ROE | | 108 | 12% | 9% | 13% | 9% |
| | Net Profit / Profit Before Taxes | 69 | 82% | 80% | 82% | 79% |
| | Profit Before Taxes / EBIT | 76 | 92% | 99% | 88% | 99% |
| | EBIT / Turnover | 105 | 7% | 5% | 5% | 4% |
| | Turnover / Total Assets | 19 | 109% | 101% | 111% | 106% |
| | Total Assets / Equity | 93 | 247% | 209% | 313% | 254% |

Source: SABI. Own calculations.
Note: Firms that present values of a ratio above the third quartile plus one and a half times the difference between the third and the first quartiles are considered outliers.

This analysis reveals considerable improvement in performance over this period, translated, namely, in the increase of profitability and the reinforcement of the financial structure, to very satisfactory levels, trends that are common to both commercial and industrial companies. Nonetheless, in 2018, 7.9% of the companies analysed had negative financial autonomy and 12.8% had negative return on assets.

These global trends hide strong heterogeneity in the situation and trajectories of individual companies. An analysis of these trajectories reveals that cork manufacturing companies show considerable capacity to change their economic and financial performance, even in critical areas such as profitability and capital structure: as can be seen in Table 3, in 2018, most companies were in a profitability bracket different from the one they had been in 2014, and about half had also significantly changed their level of financial autonomy.



## Return on assets: transition matrix for manufacturing companies (TABLE 3)

| | | 2018 | | | | |
|---|---|---|---|---|---|---|
| | | <0% | 0%-5% | 5%-10% | 10%-15% | >15% |
| 2014 | < 0% | 5.4% | 8.6% | 3,.% | 1.7% | 4.2% |
| | 0%-5% | 3.7% | 28.8% | 5.9% | 3.2% | 3.0% |
| | 5%-10% | 2.0% | 6.2% | 2.% | 2.2% | 2.5% |
| | 10%-15% | 1.2% | 1.5% | 2.7% | 0.7% | 0.5% |
| | >15% | 0.5% | 2.5% | 1.5% | 3.4% | 2.7% |

Source: SABI. Own calculations.

The same source is explored in chapter 5 to quantify sectoral investment at the level of the sample studied. The cork industry has been making a major effort to modernize, with annual investments exceeding 40 million euros. The average annual investment on tangible assets per manufacturing firm in the years 2015-2018 was 337,000 euros. However, 80% of this investment was made by firms with assets in excess of 5 million euros, which represent only 12% of the sample studied. The incentive systems in place, namely COMPETE 2020, have been an essential lever for this effort, both for companies and for sectoral institutions, supporting investments of more than 100 million euros in the same period. Despite the investment made, in the last two years there has been a slowdown in the registration of patents related to the sector.

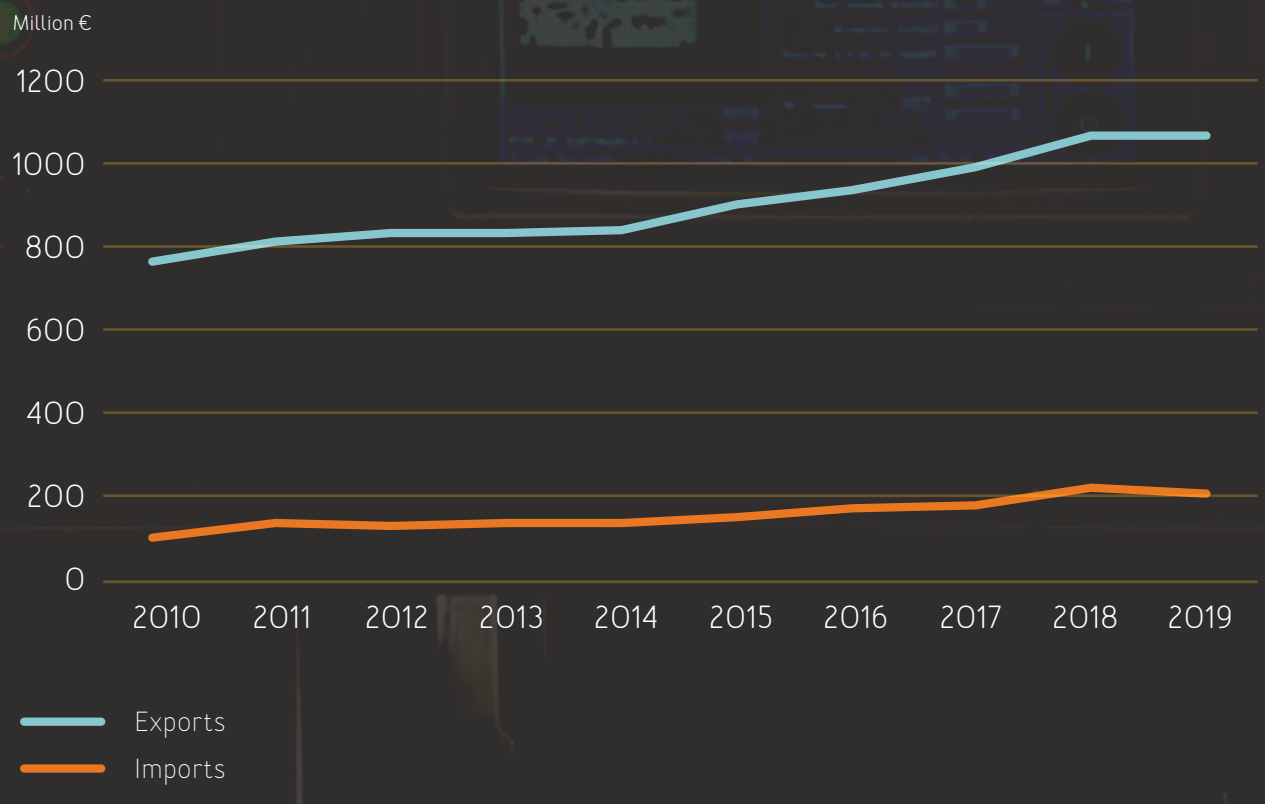
CHAPTER 6

# FOREIGN TRADE

World exports of cork and cork products grew by 42% between 2009 and 2018, when they crossed the 1.8 billion euros threshold. Portugal is responsible for more than 60% of this amount. France, with 15.6% of the total, is the world's main importer, but has been losing share to the countries that follow, namely the USA, Portugal, Spain, and Italy.

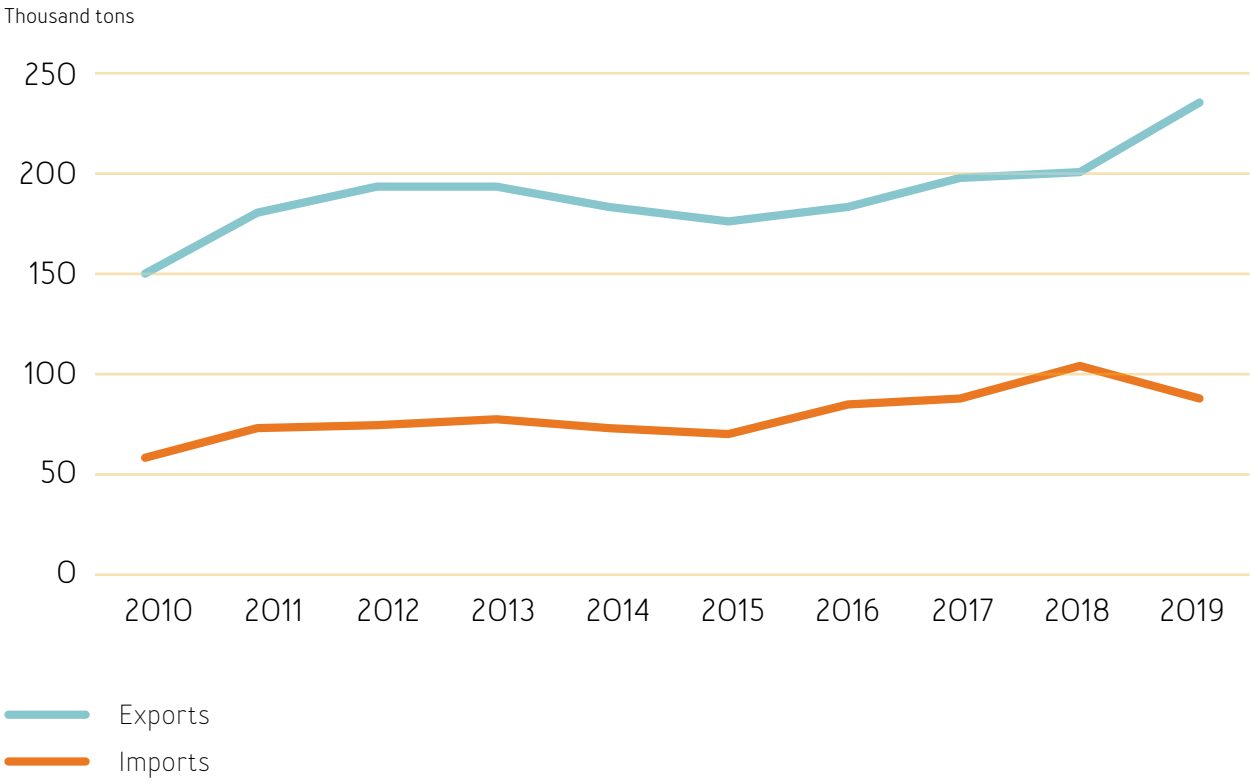
Over this decade, Portuguese cork exports increased by more than 39%, having exceeded one billion euros. Although much smaller than exports, Portuguese imports of cork grew at an even faster pace, having increased by 94% since 2010. This growth was mainly driven by imports of natural cork, which increased by 82%, responding to the needs for raw material by the Portuguese cork industry. Spain is Portugal's main supplier, accounting for more than 80% of our imports, the remainder coming mainly from Italy and north Africa.

## Portuguese external trade of cork and cork products (value) (CHART 4)



France (17.8%) is the main market for Portuguese exports, but it has been losing share to the USA (16.9%) and Spain (15%). Cork stoppers represent more than 70% of Portuguese cork exports, with the share of construction materials exceeding a quarter of the total. In value, natural cork stoppers represent the majority (57%) of cork exports, as of 2019, but in the last decade they lost 6 percentage points to technical stoppers. In tonnage, their share is only 23.5%, reflecting the large price difference between the various categories of stoppers. Germany was traditionally the main market for Portuguese exports of construction materials in cork, but in 2018 it was overtaken by Spain, to which Portuguese exports grew by more than 298% in the last decade.

## Portuguese external trade of cork and cork products (quantity) (CHART 4)




Source: International Trade Centre (2020).

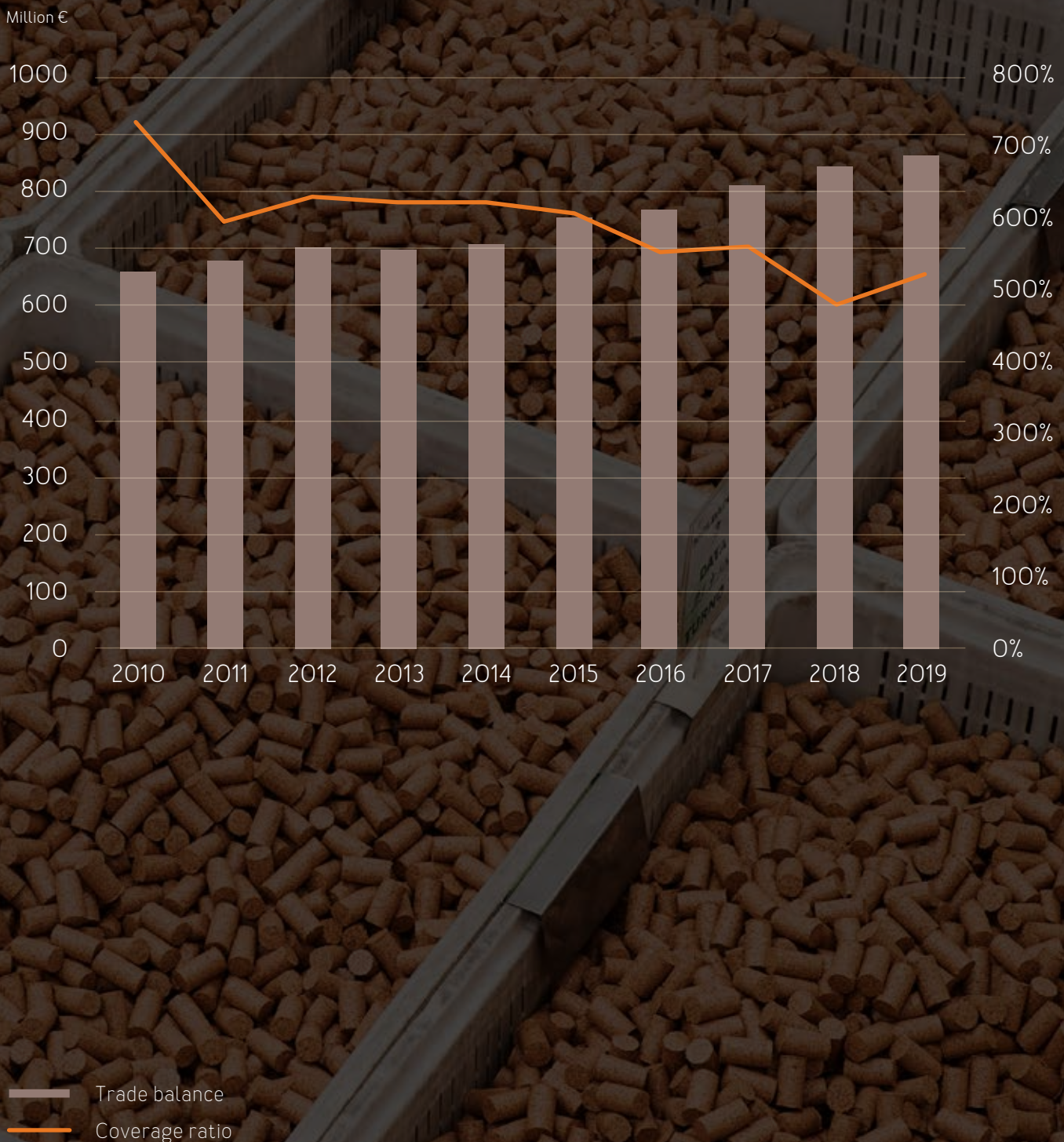
## Main destination for Portuguese exports of cork (TABLE 4)

| | 2010 | | 2019 | | Change 2010-2019 |
|---|---|---|---|---|---|
| | 1,000 € | % | 1,000 € | % | |
| FRANCE | 153,952 | 20.1% | 189,138 | 17.8% | 22.9% |
| USA | 118,667 | 15.5% | 180,088 | 16.9% | 51.8% |
| SPAIN | 84,790 | 11.1% | 159,043 | 15.0% | 87.6% |
| ITALY | 66,971 | 8.8% | 104,447 | 9.8% | 56.0% |
| GERMANY | 71,285 | 9.3% | 77,914 | 7.3% | 9.3% |
| UNITED KINGDOM | 16,659 | 2.2% | 43,551 | 4.1% | 161.4% |
| RUSSIA | 22,714 | 3.0% | 37,620 | 3.5% | 65.6% |
| CHILE | 18,435 | 2.4% | 26,870 | 2.5% | 45.8% |
| CHINA | 23,029 | 3.0% | 21,301 | 2.0% | -7.5% |
| AUSTRALIA | 11,792 | 1.5% | 20,452 | 1.9% | 73.4% |
| **Top 10** | **588,294** | **77.0%** | **860,424** | **80.9%** | **46.3%** |

Cork represents 1.84% of Portuguese exports of goods, but only 0.29% of the national imports. In 2019, the international trade of cork generated a trade surplus, for Portugal, that exceeded 860 million euros, one of the highest in the entire Portuguese economy, having increased by 31% since 2010. The rate of coverage of imports by exports was 528%, the highest of any Portuguese industry.

Source: SABI. Own calculations.

## Evolution of Portuguese trade balance and coverage ratio for cork (chapter 45 of the Combined Nomenclature) (CHART 5)



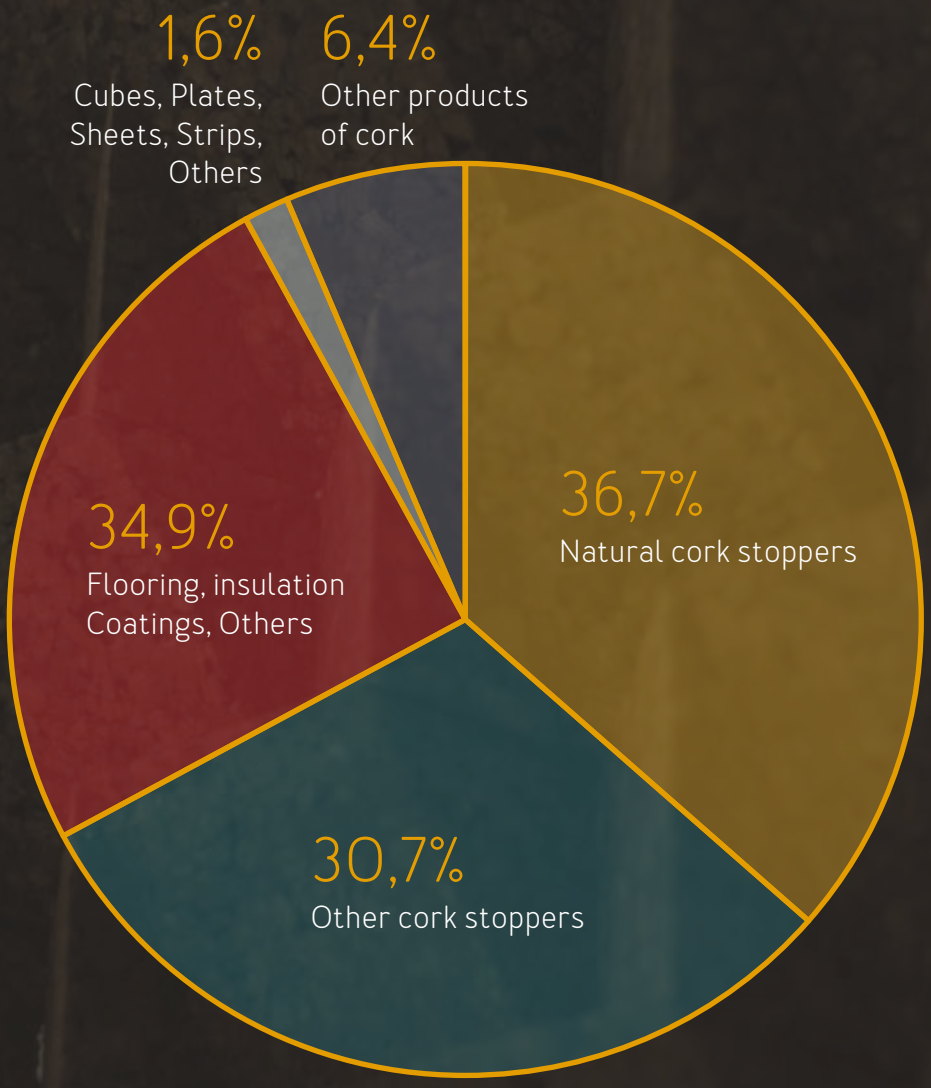

Source: SABI. Own calculations.

CHAPTER 7

# DOWNSTREAM MARKETS

The demand for products from the cork industry is fundamentally derived from the demand for more complex products, in which the former are integrated, namely the demand for bottled wine and for homes and offices. The first part of the report therefore closes with a chapter dedicated to the markets for wine packaging and construction.

## Sales of cork, by type of article (2019 Provisional) (CHART 6)




Source: INE and APCOR, 2020.

In the former, demand is dictated primarily by the annual production of wine, and supply by the diverse alternatives available to package it. Although with strong fluctuations, mainly associated with weather conditions, world wine production has remained relatively stable in recent years, with an annual average of around 270 million hectolitres. Production has a strong geographical concentration, with only three countries, Italy, France and Spain, representing about half of the world total. Looking at the recent evolution of the vineyard area, it seems likely that there will be an increase in production in Chile and the USA in the coming years. Large importers of bulk wine, namely the United Kingdom, also appear to be markets with high demand for wine packaging solutions.

## Area of vineyard and wine production worldwide (2009-2018) (CHART 7)


Source: OIV (2019)

On the supply side of this market, the cork stopper faces double competition. On the one hand, that of other devices for closing the glass bottle, namely synthetic stoppers and screwcaps. On the other hand, the more radical competition of solutions for wine packaging that do not require the glass bottle and, consequently, their seal, such as bag-in-box, pouches, tetra pack and even bottles in plastic. Innovation and development, in terms of the technical characteristics of the stopper, and the pricing policy are instruments that the cork industry can use to confront the first type of competition. Its effectiveness in dealing with the second is much more limited, because what is at stake is the comparison of the bottle + stopper pair with alternative solutions, implying that the success of the cork stopper does not depend only on its own merits.

The statistical information available about this market is very scanty. In terms of international trade, exports of "devices for closing containers" in plastic and metal are 4 to 5 times those of cork stoppers. However, it is not known what part of these exports is directed at the packaging of wine. A survey[§] conducted regularly in the USA indicates that 70% of wine producers there use natural cork stoppers, 40% technical stoppers, 34% metallic capsules and 10% plastic devices. The lack of information on the proportion in which each producer uses each of the solutions and on the volume of wine bottled by each does not allow firm conclusions about the relative importance of these alternatives, but the evolution of these values over the years suggests a strengthening of the use of technical stoppers and metal to the detriment of natural stoppers.

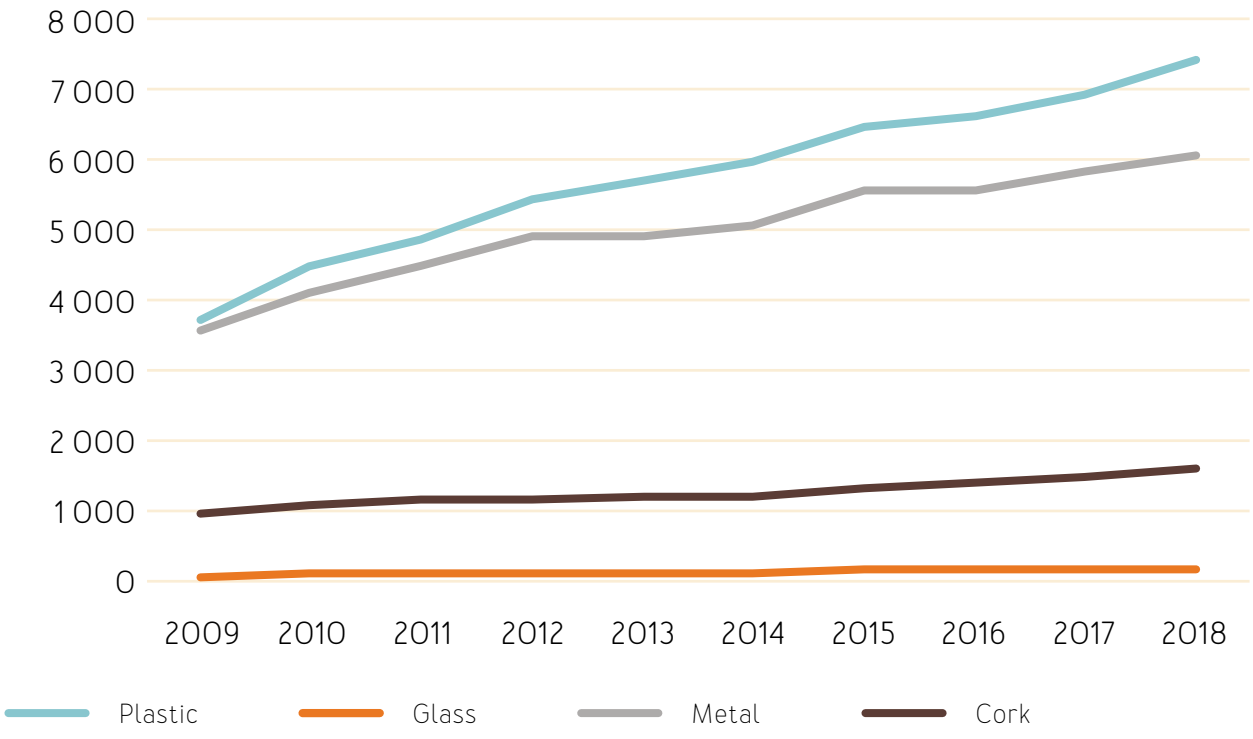
§ These percentages sum more than 100% because each producer may use more than one type of stopper.

In the construction market, the same type of limitation exists in terms of information. On the demand side, in the last decade, the main Portuguese export markets for construction materials in cork can be divided into two groups regarding the evolution of the construction activity: as in Portugal, in Spain, Italy and the Netherlands, construction suffered a sharp contraction in the first half of the decade, recovering thereafter, albeit, in some countries, without reaching the initial levels of activity; on the contrary, in Belgium, France, Germany and Poland, construction activity was more stable, even showing a growth trend in some of them. The same happened in the U.S., while China seems to be going through a period of stability, after strong growth until 2014.

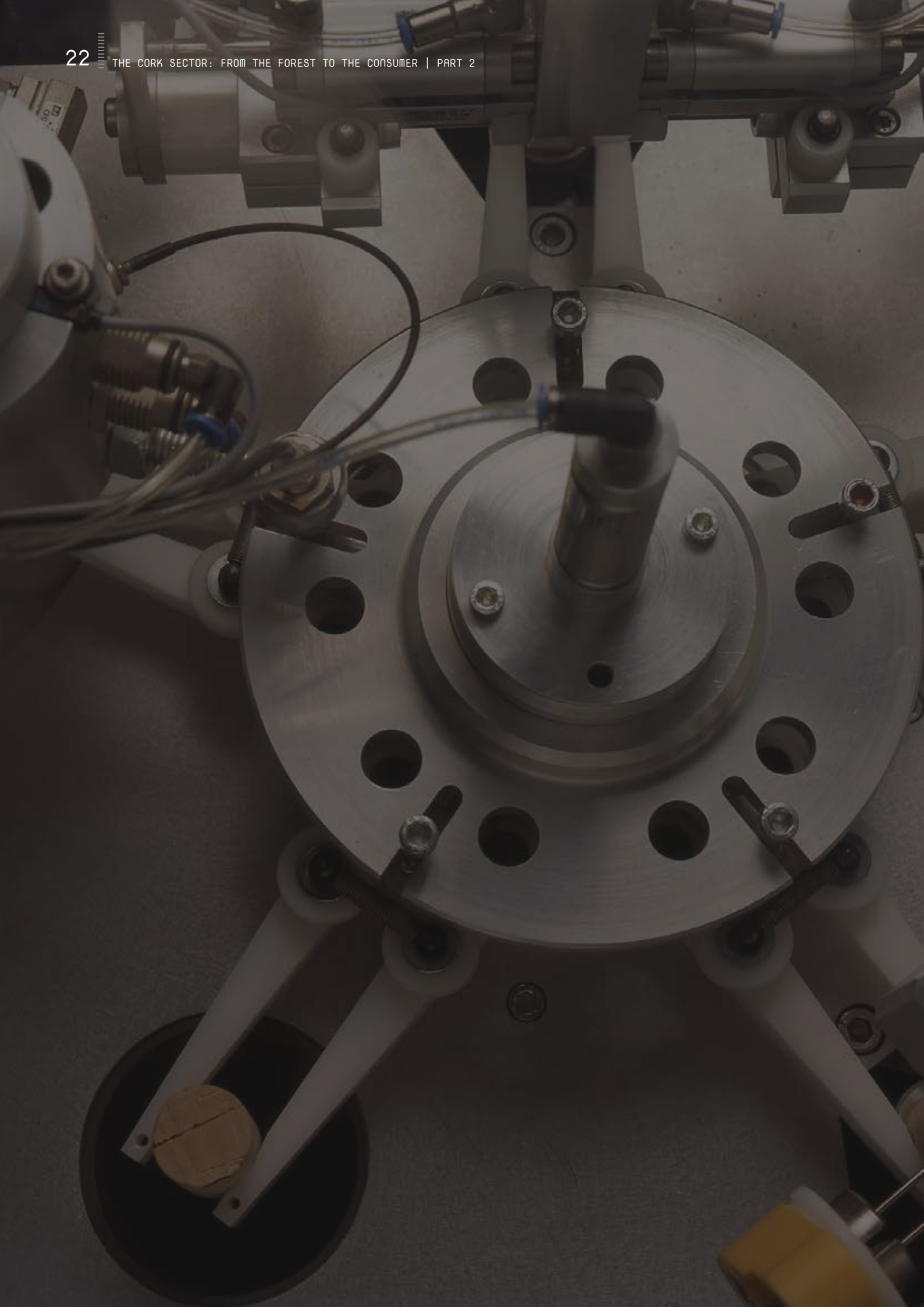
The analysis of the supply side of the building materials market is strongly conditioned by the diversity of cork products and available alternatives, as well as by the scarcity of statistical information. The situation differs greatly depending on the country and the specific use in question.

## Worldwide exports of devices for closing containers (CHART 8)

Million €




Source: International Trade Centre (2019) and Eurostat (2019).

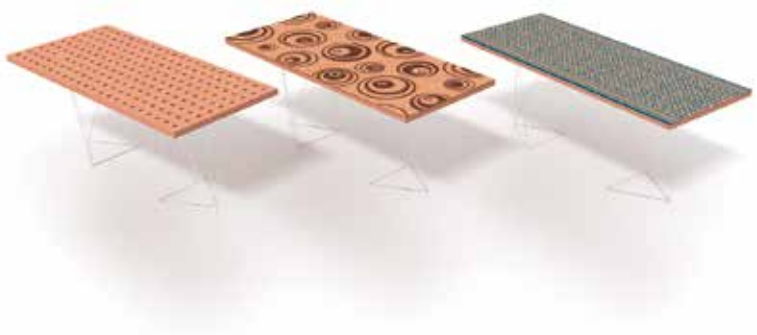


# PART 2

The information presented in the first part of the report is the support for the diagnosis and strategic prospective exercise presented in the second. The final chapter of the report begins with the discussion of ten "lines of force" that will predictably mark the future of the cork industry:

- Cork oak forest: a source of raw material, but not only - the relevance of the cork oak forest in the generation of so-called "ecosystem services" is of fundamental importance in demanding public policies that defend and promote it.
- Procurement of cork - the mere continuation of the trends that have marked the recent evolution of the Portuguese cork oak forest points to a progressive worsening of the supply conditions of raw materials for the cork industry, suggesting the need for an urgent change of course.
- Climate change - the climate changes that are predicted for the coming decades, which will tend to reduce the productivity of the cork oak forest in its current preferred areas of implantation, are an additional argument in favour of this change of course.
- Difficulties in recruiting labour - it is expected that the cork sector will be faced with increasing difficulties in recruiting labour, both for certain industrial tasks and for forest exploration activities.

- The growing importance of technology - the capitalistic intensity of the sector will tend to increase sharply, as the technology takes on greater importance in promoting the productivity of the cork oak tree, in guaranteeing the quality of the natural cork stopper and in replacing labour.
- Business structure of the cork industry - this growing capital intensity will generate a tendency to reinforce business concentration, given the greater difficulty of smaller companies in making the necessary investments.
- Sustainability and circular economy - the prominence that sustainability issues assume in public policies and consumer preferences is a "double-edged sword" for the cork industry: although the products of the industry, namely the natural cork stopper, are exemplary from an environmental point of view, the same is not true of its almost indispensable complement, the glass bottle.
- Stoppers and competing products - the loss of share of the glass bottle in wine packaging is therefore one of the greatest threats facing the sector; in the short term, in terms of competition with other bottle seals, it is essential to make rapid progress to guarantee the quality of the natural cork stopper, particularly with regard to contamination with TCA; this progress is also indispensable to achieve a more sustainable balance in competition between different types of cork stoppers.



- Other cork products - the future success of the sector will entail the reinforcement of the importance of other cork products, which requires an increased effort to publicise its potential among prescribers, such as architects and engineers, as well as with regulatory authorities of construction activities, in markets with little knowledge or sensitivity to the potential of cork.
- The role of sectoral institutions - in an industry with such a large number of predominantly small and medium-sized companies, sectoral institutions - such as APCOR, CTCOR, CINCORK and FILCORK - are indispensable to harmonise the creation of conditions for the most capable to develop their projects with capacity building initiatives for those who have weaknesses, but show potential for evolution; the defence of the collective interest of the industry should not, however, be confused with the defence, at all costs, of the status quo.

In this context, the cork industry presents strengths but also weaknesses, and is faced with opportunities and threats that can be summarised as follows:

# STRENGTHS

- Importance of the cork oak forest in the provision of ecosystem services and in territorial planning
- Privileged access to the world's main providers of raw material
- Geographical clustering of the industry
- World leadership of the sector
- Tradition and experience

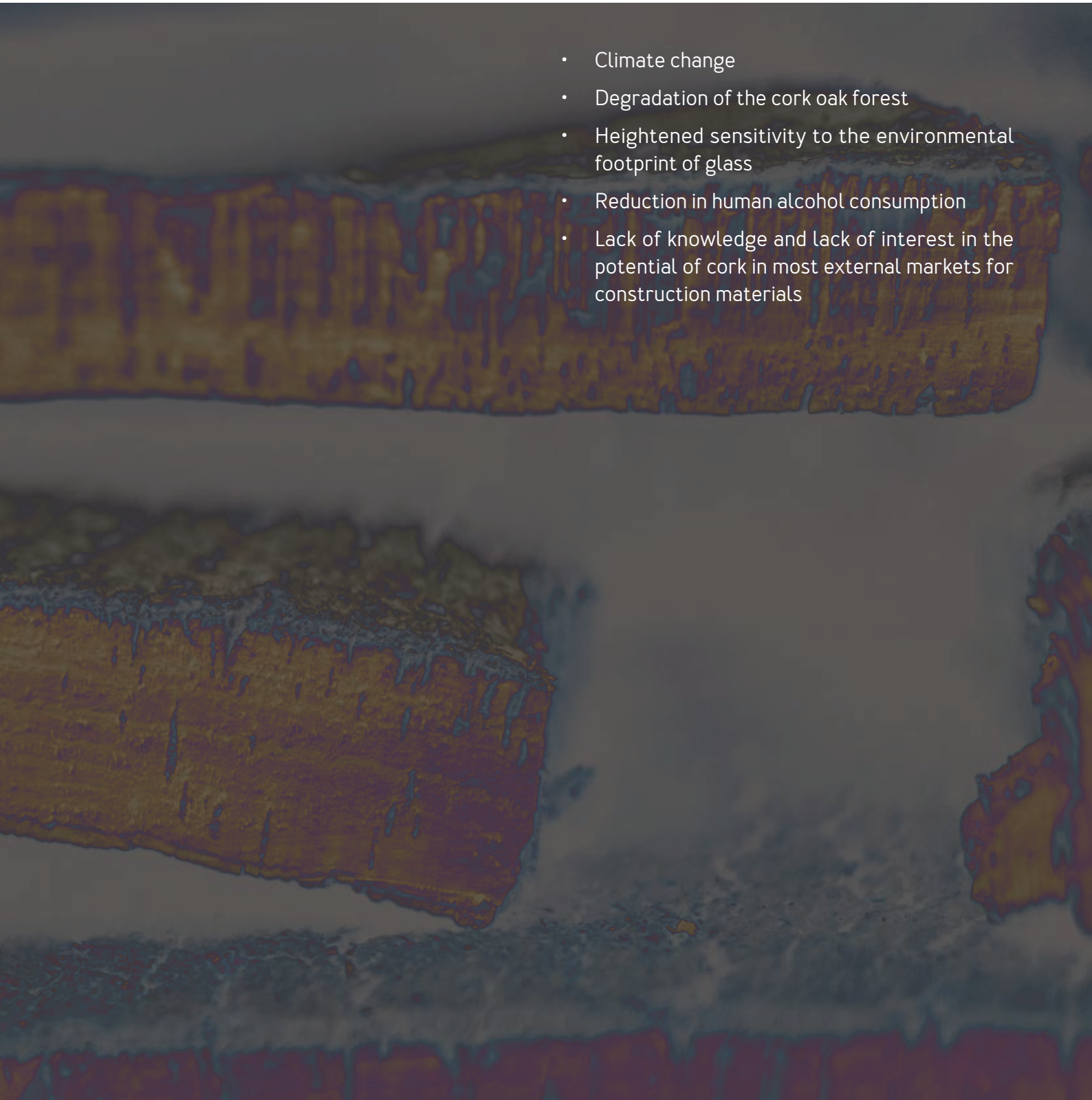
# WEAKNESSES

- Degradation of the density of the "montado" areas and of their health and vegetative state
- Limited involvement of the manufacturing businesses in forest issues
- Limited exploration of the potential of the Technological Centre and Training Centre
- Low propensity to collaborative initiatives
- Risk aversion associated with the concentration of business ownership

# OPPORTUNITIES

- Access to environmental and regional development funds
- Technological development both in manufacturing and in the forests
- Market appetite for sustainable products
- Potential of geographical markets still under explored
- Cork applications for construction

# THREATS

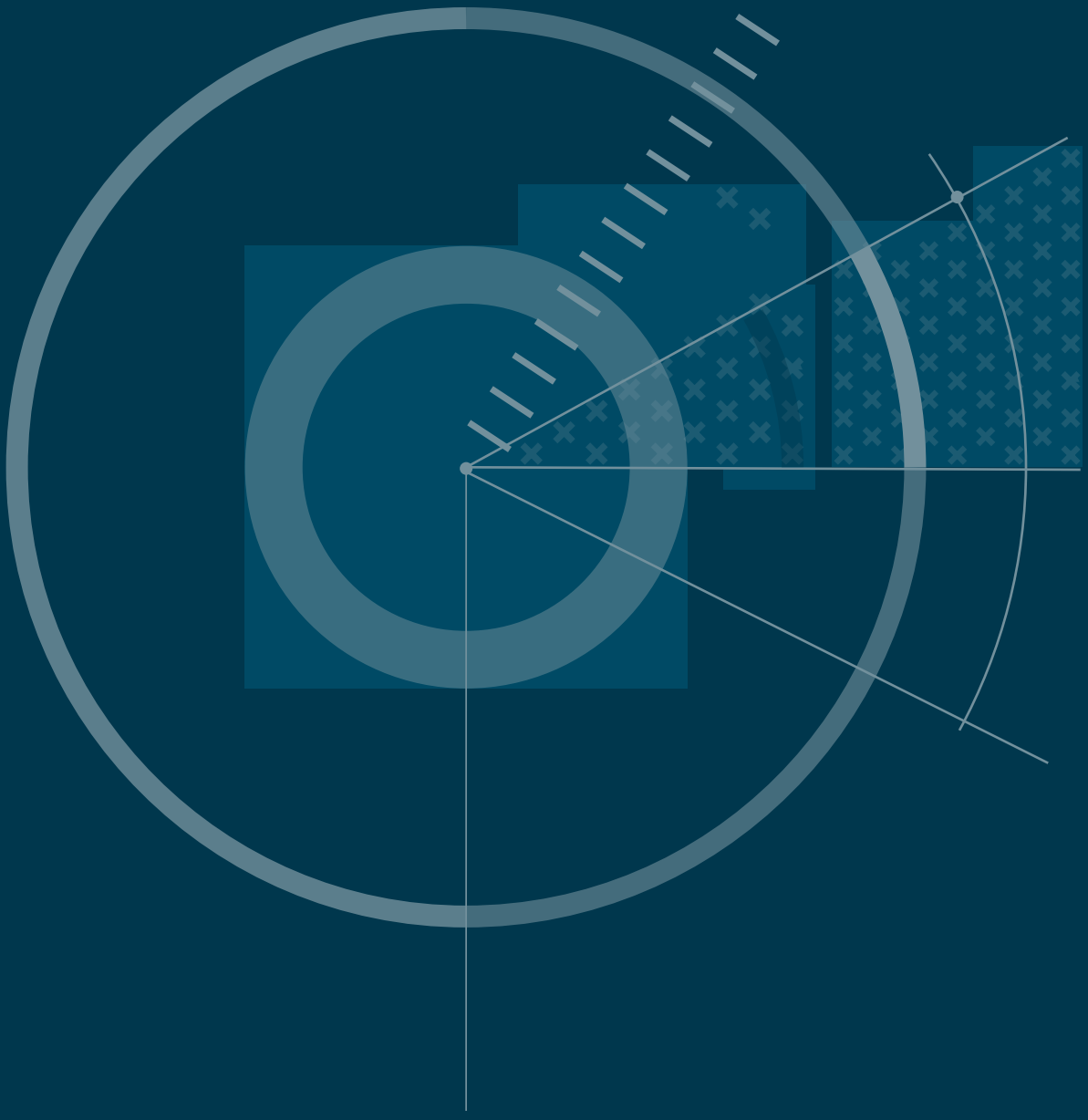


- Climate change
- Degradation of the cork oak forest
- Heightened sensitivity to the environmental footprint of glass
- Reduction in human alcohol consumption
- Lack of knowledge and lack of interest in the potential of cork in most external markets for construction materials

# STRATEGIC AXES

This understanding of the situation of the sector leads to the proposal of the following four fundamental strategic axes for the strategy of sectoral institutions:

- Forest and procurement;
- Technology and innovation;
- Promotion and communication;
- Business capacity building.



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