

**QUALIFYING SUSTAINABILITY:
A STUDY OF FIRM-BASED STRATEGIES**

By

Mafalda Cristina de Oliveira Pinto Coelho Nogueira

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To my grandmother Rosalina, my sweet Vovó, who used to tell everybody that I was studying to be a Doctor and once I finished she would open a clinic for me, no matter how many times I explained that “this” was not that kind of doctor. Vovó, you did not get the time to understand what kind of Doctor I want to be, but you were part of this adventure every single day.

ABSTRACT

The academic and practitioner-based literatures often invoke notions such as “corporate sustainability” or ‘sustainable firms’ without questioning the processes through which these labels are acquired and become firmly established. By focusing on qualification processes, this thesis challenges the usage of these taken-for-granted definitions, aimed at producing stable qualities. This study endorses a relational view of strategy to investigate how sustainability qualities emerge and how different actors influence, and/or are influenced by a company’s ability to develop and establish sustainability qualifications. This thesis is positioned at the intersection of the three theoretical frameworks: 1) studies of qualities and qualifications, 2) studies on developing sustainability strategies and creating sustainable firms, and 3) studies that adopt a relational view of strategy (namely Actor-Network Theory (ANT) and the Industrial Networks (IN) approach).

Drawing on a relational ontology, four case studies were analysed and within these 23 practices contributing to build up sustainability qualities were selected and studied in-depth. The resulting findings led to the development of a framework to investigate the establishment of firms’ sustainability qualifications. This framework comprises four types of strategising processes: framing, valuing, enrolling and stabilising. By opening up the discussion from the qualification of goods in consumer markets to the qualification of firms in industrial settings, and by taking a strategic approach to understand qualification-requalification processes, this framework extends previous work developed on qualification

processes. This study also adds to the IN approach and to the strategic management literatures by providing an empirical study that describes the relational nature of the processes through which a qualification strategy emerges and the role of non-humans in the processes of strategising. Finally, the thesis contributes to the ongoing debates within IN and the 'greening the business' literature on what constitutes value. It suggests a redirection of focus to analyse processes of valuing, rather than assuming a linear relationship between strategies and value creation.

Key words: qualification of firms; sustainability; value and valuation; relational approaches to strategy.

The author hereby declares that, except where duly acknowledge, this thesis is entirely her own work and has not been submitted in the same form for any degree to Lancaster University or to any other university.

Mafalda Nogueira

Lancaster, July, 2013

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At a less pleasant stage of this adventure, someone told me that if I wanted to succeed as much as I wanted to breathe, then I would be successful. For that, I would just have to focus on how bad I wanted to breathe! Thank you so much for the metaphor! On multiple occasions this PhD project took my breath away, and I am very grateful to everyone who helped me to keep breathing along the way. I could not possibly refer to every single person who kept on encouraging me over the past years, but I would like to express my gratitude to some in particular.

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TABLE OF CONTENTS

| | |
|------------------------|-------------|
| ABSTRACT | III |
| ACKNOWLEDGMENTS | VI |
| LIST OF FIGURES | XIII |
| LIST OF TABLES | XIV |

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES _ 1

1. Introduction _____ **1**

1.1 Setting the research context _____ **1**

1.2 Establishing sustainability qualifications: the research questions ____ **4**

1.3 Outline of the thesis _____ **10**

2. Exploring the Establishment of Qualifications as a Strategic Matter ____ **15**

2.1 Introduction _____ **16**

2.2 Greening the business _____ **18**

2.2.1 Sustainability and sustainable development: evolution and meaning _____ 20

2.2.2 Socio-technical transitions to sustainability _____ 24

2.2.3 Sustainability strategies and sustainable companies _____ 30

2.3 NETWORK APPROACHES TO STRATEGY _____ **38**

2.3.1 Actor-Network Theory (ANT) _____ 39

2.3.1.1 Conceptualizing actors _____ 40

2.3.1.2 The sociology of translation _____ 42

2.3.1.3 On performativity and practices _____ 48

2.3.1.4 Adoption of ANT on “greening the business studies” _____ 50

2.3.2 The Industrial Network approach _____ 53

2.3.2.1 Role of actors _____ 55

2.3.2.2 Relational view of strategy _____ 56

2.3.2.3 Adoption of IN in “greening the business” studies _____ 60

2.4 Theoretical perspectives on qualifications and valuation s _____ **62**

2.4.1 Qualification studies: from labour to goods _____ 63

2.4.2 Qualification of products: singularities _____ 65

2.4.3 Qualification-requalification of goods as a strategic game _____ 67

| | | |
|---|--|------------|
| 2.4.4 | On valuations and calculations | 74 |
| 2.4.4.1 | Value creation in networks | 74 |
| 2.4.4.2 | On valuations and calculations | 77 |
| 2.5 | Conclusions: what remains to be done? | 82 |
| | | |
| PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY | | |
| | QUALIFICATIONS | 87 |
| 3. | <i>Methodological Choices and Research Design</i> | 87 |
| 3.1 | Introduction | 88 |
| 3.2 | Ontological and epistemological position | 89 |
| 3.3 | Research strategy: case research | 95 |
| 3.4 | Research process | 103 |
| 3.4.1 | Moving towards systematic combining | 103 |
| 3.4.2 | Unit of analysis | 106 |
| 3.4.3 | Field selection and research design | 108 |
| 3.4.4 | Data collection | 113 |
| 3.4.4.1 | Collecting and analysing documents | 114 |
| 3.4.4.2 | Conducting interviews | 117 |
| 3.4.5 | Data organisation, analysis and presentation: building the cases | 118 |
| 3.4.6 | A final comment on the credibility of the research | 124 |
| 3.5 | Conclusions | 127 |
| 4. | <i>Presenting the Research Setting</i> | 128 |
| 4.1 | Introduction | 129 |
| 4.2 | CORKCO: "Nothing is wasted, everything is transformed" | 129 |
| 4.3 | PULPCO: "Managing business activities in a sustainable way" | 133 |
| 4.4 | TECHCO: "A model of sustainability" | 138 |
| 4.5 | WOODCO: "Recycling is good!" | 141 |
| 4.6 | Conclusions | 144 |
| 5 | <i>Publishing Sustainability Reports</i> | 146 |
| 5.1 | Introduction | 147 |

| | | |
|-------|---|-----|
| 5.2 | Reporting as an opportunity for reflection | 149 |
| 5.3 | Reporting to whom? | 151 |
| 5.4 | Reports are legitimised | 154 |
| 5.5 | Reporting as a proof of commitment towards sustainability | 155 |
| 5.5.1 | Companies' main "capability" to act as environmentally-friendly | 156 |
| 5.5.2 | Mission, values and principles/commitments | 162 |
| 5.5.3 | Reports as drivers for future actions | 166 |
| 5.6 | Reports as "evidence of action" for sustainable businesses | 171 |
| 5.6.1 | Describing offerings as sustainable solutions | 172 |
| 5.6.2 | Certifications and awards | 174 |
| 5.7 | Conclusions | 177 |
| 6 | <i>Evaluating Uses for Waste</i> | 180 |
| 6.1 | Introduction | 181 |
| 6.2 | Valuing forestry waste as biomass | 182 |
| 6.3 | Valuing cork waste as a by-product | 189 |
| 6.4 | Using recycled wood as by-products | 193 |
| 6.5 | Searching for new uses for dry ash and organic waste | 196 |
| 6.6 | Conclusions | 201 |
| 7 | <i>Developing 'Sustainable' Offerings</i> | 204 |
| 7.1 | Introduction | 205 |
| 7.2 | Developing sustainable offerings - the 'soft' way | 206 |
| 7.3 | Developing sustainable offerings - the 'hard' way | 214 |
| 7.3.1 | Developing retrofitting operations | 215 |
| 7.3.2 | Creating new business units to embrace new offerings | 218 |
| 7.3.3 | Launching new offerings with business partners | 222 |
| 7.4 | Conclusions | 228 |
| 8 | <i>Adopting Clean Technologies</i> | 231 |
| 8.1 | Introduction | 232 |
| 8.2 | Adopting cogeneration systems | 233 |
| 8.2.1 | Defining cogeneration | 234 |

| | | |
|---|--|------------|
| 8.2.2 | Drivers and barriers of CHP systems _____ | 237 |
| 8.2.3 | The adoption of CHP systems _____ | 242 |
| 8.3 | Expanding and modernising a mill _____ | 247 |
| 8.4 | Protecting a sand dune _____ | 250 |
| 8.5 | Conclusions _____ | 253 |
| 9 | <i>Setting Up Special Projects</i> _____ | 255 |
| 9.1 | Introduction _____ | 256 |
| 9.2 | Implementing a suppliers' education programme _____ | 257 |
| 9.3 | Implementing a recycling project _____ | 263 |
| 9.4 | Conclusions _____ | 279 |
| PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS _____ | | 281 |
| 10 | <i>Towards a Framework for Establishing [sustainability] Qualifications</i> 281 | |
| 10.1 | Introduction _____ | 282 |
| 10.2 | Deconstructing sustainability strategies as relational and (re)qualification processes _____ | 285 |
| 10.3 | Producing frames for sustainability _____ | 292 |
| 10.4 | Valuing sustainability as a quality _____ | 300 |
| 10.5 | Enrolling actors in (re-)qualification processes _____ | 309 |
| 10.6 | Stabilising the sustainability quality: seeking legitimacy _____ | 313 |
| 10.6.1 | Legitimising through consistency of actions _____ | 316 |
| 10.6.2 | Legitimising through actors' endorsement _____ | 319 |
| 10.7 | Proposing a framework to map the establishment of qualifications _____ | 323 |
| 11 | <i>CONCLUSIONS</i> _____ | 330 |
| 11.1 | Introduction _____ | 331 |
| 11.2 | Revisiting research goals and answering research questions _____ | 332 |
| 11.3 | Contributions of the study _____ | 339 |
| 11.3.1 | Contribution to theory _____ | 339 |

| | | |
|-------------|--|------------|
| 11.3.1.1 | Qualifying firms in industrial markets | 342 |
| 11.3.1.2 | A relational view of strategy and the role of non-human actors in qualification strategies | 348 |
| 11.3.1.3 | Valuing processes versus value creation | 352 |
| 11.3.1.4 | Enriching the role of policy-making | 355 |
| 11.3.2 | Contribution to practice | 358 |
| 11.3.2.1 | Using reports to delineate views on sustainability | 358 |
| 11.3.2.2 | Building on credible claims by matching action with discourse | 359 |
| 11.3.2.3 | Searching for and taking advantage of network connections | 360 |
| 11.4 | Limitations of the research | 362 |
| 11.5 | Directions for future research | 364 |
| | REFERENCES | 366 |
| | APPENDICES | 388 |
| | APPENDIX 1: ANALYTICAL FRAMEWORK POST-PILOT STUDY | 389 |
| | APPENDIX 2: INTERVIEW GUIDE | 391 |
| | APPENDIX 3: SECOND STAGE OF DATA ANALYSIS | 395 |
| | APPENDIX 5: "ENQUIRING CODING" created in ATLAS.TI | 397 |
| | APPENDIX 6: EXAMPLE OF A CODING NETWORK FROM ATLAS.TI | 400 |

LIST OF FIGURES

| | |
|---|-----|
| Figure 1-1: Positioning of the study and research questions | 9 |
| Figure 1-2: Outline of the thesis | 11 |
| Figure 2-1: Outline of Chapter 2 – Exploring the establishment of [sustainability] qualifications as a strategic matter | 17 |
| Figure 2-2: Bridging theoretical frameworks with research questions..... | 83 |
| Figure 3-1: Outline of Chapter 3 – Methodological choices and research design | 89 |
| Figure 3-2: Building the cases | 122 |
| Figure 4-1: Outline of Chapter 4 – Presenting the research context | 129 |
| Figure 4-2: Sustainability timeline in CORKCO | 132 |
| Figure 4-3: Sustainability timeline in PULPCO | 136 |
| Figure 4-4: Sustainability timeline in TECHCO..... | 140 |
| Figure 4-5: Sustainability timeline in WOODCO | 143 |
| Figure 5-1: Outline of Chapter 5 – Publishing sustainability reports | 147 |
| Figure 6-1: Outline of Chapter 6 – Evaluating uses for waste | 181 |
| Figure 6-2: Applications of cork waste as by-products..... | 190 |
| Figure 7-1: Outline of chapter 7 – Developing ‘sustainable’ offerings..... | 206 |
| Figure 7-2: Benefits of the solution for stakeholders | 225 |
| Figure 8-1: Outline of chapter 8 – Adopting clean technologies | 233 |
| Figure 8-2: Components of CHP systems..... | 236 |
| Figure 9-1: Outline of Chapter 9 – Setting up special projects..... | 257 |
| Figure 9-2: Kicking off the project..... | 266 |
| Figure 9-3: Getting access to used stoppers | 268 |
| Figure 9-4: Recycling cork stoppers - the big picture..... | 273 |
| Figure 10-1: Outline of Chapter 10 – Towards a framework for establishing [sustainability] qualifications..... | 284 |

| | |
|---|-----|
| Figure 10-2: Framework to map the establishment of sustainability qualifications..... | 326 |
| Figure 11-1: Outline of Chapter 11 – Conclusions of the study | 331 |
| Figure 11-2: Theoretical contributions | 341 |

LIST OF TABLES

| | |
|---|-----|
| Table 2-1: Special issues on bridging management theories with sustainability issues .. | 19 |
| Table 3-1: Example of "Enquiring coding" | 120 |
| Table 4-1: CORKCO's practices under study..... | 133 |
| Table 4-2: PULPCO's practices under study | 137 |
| Table 4-3: TECHCO's practices under study..... | 141 |
| Table 4-4: WOODCO'S practices under study | 144 |
| Table 5-1: Following a practice through SRs..... | 168 |
| Table 7-1: Developing sustainable offerings in CORKCO | 208 |
| Table 7-2: Developing sustainable offerings in PULPCO | 210 |
| Table 7-3: Developing sustainable offerings in WOODCO | 212 |
| Table 7-4: Developing sustainable offerings in TECHCO | 215 |
| Table 10-1: Illustrating framing ability | 297 |
| Table 10-2: Identification of valuation processes by interviewees | 303 |
| Table 10-3: Different perceptions of value within the same initiative..... | 306 |

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

1. INTRODUCTION

1.1 SETTING THE RESEARCH CONTEXT

Debates around sustainability and Sustainable Development (SD) are contributing a great deal to a fast-changing and competitive environment in consumer and industrial markets. In the last 30 years, particularly since the publication of the Brundtland Report in 1987, which presented the most widely recognised and cited definition of SD to date, firms, markets and industrial systems were placed in the spotlight and held partly responsible for the current state of environmental degradation. Defining SD as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCDE, 1987b, p.43), the report called special attention for the responsibility of firms in producing, and at the same time tackling, sustainability problems.

Since then a substantial amount of work has been done in the Management Studies field bridging the issues of business and sustainability. Many different perspectives were employed to study, and to contribute to solve, the complexities of creating sustainable business - for example, studies of environmental supply chains and operations management (Gupta, 1995, Kleindorfer et al., 2005, Walker et al., 2008), studies promoting greening philosophies as potential

sources of competitive advantage (Porter and van der Linde, 1995), studies centred on strategy and ecological strategic change (Andersson and Sweet, 2002), policy studies directed to understand transitions to sustainable socio-technical systems (Kemp, 1994, Kemp et al., 2001, Smith et al., 2005), research specifically focused on sustainable strategic management (Stead and Stead, 1992, 1996, 2004), studies looking at marketing's role in a green supply chain (Sharma et al., 2010), to name but a few.

A common perception around these studies is that companies started slowly around the 1980s to engage in reactive initiatives to cope with the new challenge of performing in sustainable ways, mainly based on compliance with environmental legislation and pollution prevention, but they showed few signs of a proactive behaviour towards the implementation of sustainability strategies or a determination to be recognised as sustainable firms. Nowadays, it is no longer surprising to observe the proliferation of rankings such as “The World’s most sustainable companies” (FORBES, 2012) or “The World’s greenest companies” (SMARTPLANET, 2012) or headlines like “Statoil is the most sustainable corporation in 2011” (GLOBAL100, 2011) and “Novo Nordisk is the most sustainable company on earth, according to a new ranking” (FORBES, 2012).

Given this tendency to classify firms according to particular labels, this thesis aims to investigate the processes through which firms develop overarching sustainability qualities that in the long run become firmly attached to their reputations. The empirical focus of the study is on the quality of ‘being

sustainable' and, simply put, it asks what makes a firm become recognised as sustainable. Yet, it could also ask what makes a firm become recognised as 'the most innovative', 'the most competitive', the 'best for human resources' or even 'the worst firm' in a number of ways! For this reason, in this thesis the word 'sustainability' often appears in brackets to denote that the subject being discussed is expected to be relevant to understand qualification processes in general.

As far as this thesis is concerned, labels attributed by external auditors and organisations and publicized in ranking and benchmarking lists, are an outcome of the careful assessment of the characteristics that better represent the quality of being sustainable. This study is not concerned with how auditors decide who deserves to be qualified as such, but rather on what firms do to construct this particular quality and become recognised and accepted according to the label 'sustainable firm'.

Although firms' qualities are condensed in labels, they result from complex processes. As Callon et al (2002) point out "...all quality is obtained at the end of a process of qualification, and all qualification aims to establish a constellation of characteristics, stabilized at least for a while." (p.199). The focus of the study is thus placed on qualification processes aimed at producing stable definitions of sustainability labels. Several questions arise from reflecting on the broad aims of this research. What does it mean to be a 'sustainable company'? What is meant by sustainability or sustainable business? What does it mean to create 'sustainable

value'? How do sustainability strategies unfold to produce sustainability qualities?

To uncover answers to some of these questions this study challenges the use of taken-for-granted definitions of 'sustainable things' (e.g. firms, practices, resources) and acknowledges that there is a lack of integration between what is considered and framed as 'sustainable' and how these things become qualified as such. The following section positions this study in terms of existing theoretical frameworks and summarises the research goals.

1.2 ESTABLISHING SUSTAINABILITY QUALIFICATIONS: THE RESEARCH QUESTIONS

Management researchers dealing with sustainability issues tend to use holistic qualification labels in a taken-for-granted fashion. Expressions like 'sustainability strategy' (Stead and Stead, 1992, Throop et al., 1993, Shrivastava, 1995b), 'eco-enterprise strategy' (Stead and Stead, 2000), 'sustainable corporations' (Shrivastava and Hart, 1995), 'sustainable enterprise' (Hart and Milstein, 2003), 'sustainable company' (Laszlo, 2005, Vitols and Kluge, 2011), 'sustainable value' (Laszlo, 2008) and so forth are examples of these labels all pointing to the particular qualification of 'being sustainable'. Hence, the key proposition of this study is to look at these 'sustainable' labels as an outcome of different processes emerging within qualification strategies. Surprisingly, studies in the so-called 'greening the business' literature do not question what makes a firm, a practice,

or a strategy qualify as sustainable; these labels are employed without questioning the processes through which they emerge to the point of becoming recognised and firmly established.

The goal of this research is to develop a coherent approach to investigating qualification processes as a strategic matter, particularly qualification processes that lead to sustainability labels. Thus the main goal of this study is to answer this question:

How do companies strategise to build up a (sustainability) qualification and make it recognised, accepted, established and legitimised?

“Greening the business” studies recognize sustainability as a crucial issue that needs to be considered as a strategic priority of firms and raises important questions regarding policy-making aimed at managing transitions to more sustainable socio-technical systems. However, it does not provide any enlightenment on how these sustainability qualities emerge and become attached to particular objects. Hence, this study is concerned with the considerable use of taken-for-granted objects qualified as sustainable (goods, firms, practices, strategies) in the absence of a qualification approach that might explain those labels. As a result, and narrowing down the general research question, this study seeks to find answers to three questions.

First it asks *'How do companies construct their labels of sustainability qualifications?'* Adopting insights from qualification studies on singularization (Callon, 1980, Karpik, 1996, Callon et al., 2002, Callon, 2005, Karpik, 2005), objectification, attachment and detachment (Callon et al., 2002), the aim of this question is to unveil the processes through which firms define and describe themselves as sustainable – and as *performants*¹ of sustainability strategies – in qualification-requalification practices.

The main claim of these studies is that exchanges cannot take place without qualification and judgment, which in turn involves a variety of intermediaries – such as rankings, benchmarking lists, guides, patents, brand names – used to connect supply and demand (Cochoy et al., 1998, Karpik, 2000, Callon et al., 2002). This perspective offers some convincing arguments on how goods (and potentially firms) acquire qualities. Although the focus of these studies is very much on consumer markets and on the qualification of goods, my research aims at transposing its contributions to the qualification of firms in business-to-business markets.

Another aspect that deserves further questioning in the 'greening the business' studies is related to the frequent recommendations made on inter-firm cooperation as a solution to develop and implement sustainability strategies. Nevertheless, in these studies it seems that both sides are treated as self-

¹ *"Performants"*, as derived from French, is an expression commonly used by some of the managers interviewed in this study, to refer to "firms that perform well in a given context". As such the expression is often used throughout the dissertation.

governing entities and little is said on how these inter-organisational relationships evolve and to what extent exert influence on the development of the companies' sustainability strategies. This is not to say that these frameworks are useless. On the contrary, they are crucial to recognising the need, and understanding the challenges, in adopting a strategy perspective on the construction of sustainability labels. Yet, they are of limited assistance in understanding these challenges precisely because they tend to assume a firm-centric standpoint to explain a phenomenon that emerges within networks linking a variety of actors (e.g. business agents, government, resources, NGOs, rankings, technologies, the natural environment, etc).

Hence, and to overcome some of the problems encountered, this study endorses a relational view of strategy to investigate how sustainability qualities emerge and how a number of actors of different natures influence, and are influenced by, the companies' ability to develop and establish a sustainability qualification. This view is provided by two complementary theoretical frameworks. First, this study employs ideas and concepts derived from Actor-Network Theory, particularly the conceptualisation of actors (Callon, 1986b, Law, 1992) and the work done on the sociology of translation (Callon, 1986b). And second, it embraces a relational view of strategy (Axelsson, 1992, Araujo and Easton, 1996b, Gadde et al., 2003, Baraldi et al., 2007) offered by scholars from the Industrial Marketing and Purchasing (IMP) group.

The second and third questions are directed at the very issue of strategising practices and the credibility of the constructed qualities within it. It asks: ***'How do strategic practices unfold towards obtaining a qualification and which devices are used to support it? And how is a qualification strategy developed into a legitimised and recognised one?'***

Given the limitations of the 'greening the business' literature, it is assumed that understanding the processes of building up qualifications within sustainability strategies demands a redirection of focus, from the sovereign firm able to design its own strategy and obtain a desired qualification, to a relational view of the firm able to build up a qualification in a network of relationships which actively influence the strategy making, as proposed by the IMP and ANT frameworks.

As illustrated in Figure 1-1, this research is thus positioned in the intersection of three frameworks: 1) studies on qualities and qualifications, 2) studies on developing sustainability strategies and creating sustainable firms and 3) studies that offer a relational view of strategy and strategising.

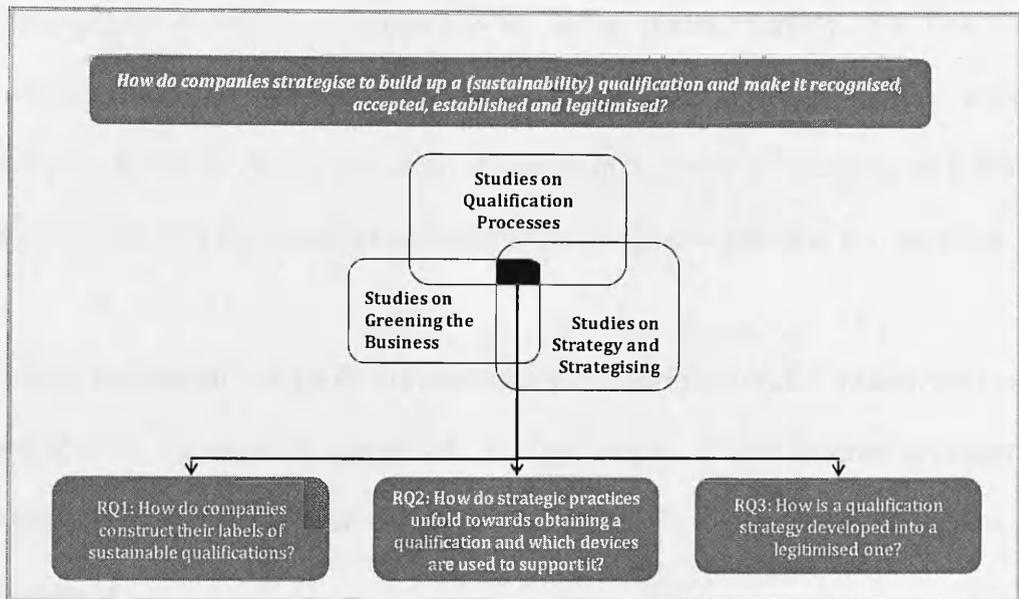


Figure 1-1: Positioning of the study and research questions

Each of the three theoretical frames provides valuable insights for looking at strategising towards (sustainability) qualifications from different angles. Qualifications studies offer a relational approach to qualification and quality construction of goods according to which qualities are not properties already existing or observable, but constructed within interactions between the good and economic agents. The IMP and ANT frameworks also provide distinct insights to look at strategising from a relational point of view. Rather than looking at a firm with agency to impose their strategic choices on a faceless environment, the IMP perspective looks at agency and firms as being mutually constituted from the relations and interdependences between organisational actors, resources and activities. ANT, in turn provides useful concepts for understanding strategy as a series of translation processes that lead to established qualifications. It also directs attention to the variety of actor-networks, socio-material devices and

metrologies involved in processes of going green, namely, on how the interdependencies between different actors (human and non-human) affects firms' capacity to translate green demand into green production and other business processes, strategies and ultimately into green products and services.

Having positioned this study in terms of the relevant theoretical frameworks and introducing the research questions, the last section of this chapter presents a brief overview of the remaining chapters and illustrates how the thesis is organised.

1.3 OUTLINE OF THE THESIS

This thesis comprises 11 chapters and is organised in three parts: Part I reviews the theoretical frameworks adopted to investigate the establishment of qualifications. Part II presents the methodological decisions and the description of the cases. Part III is dedicated to the discussion of findings and to the conclusions of the study. Figure 1-2 illustrates how the thesis is structured.

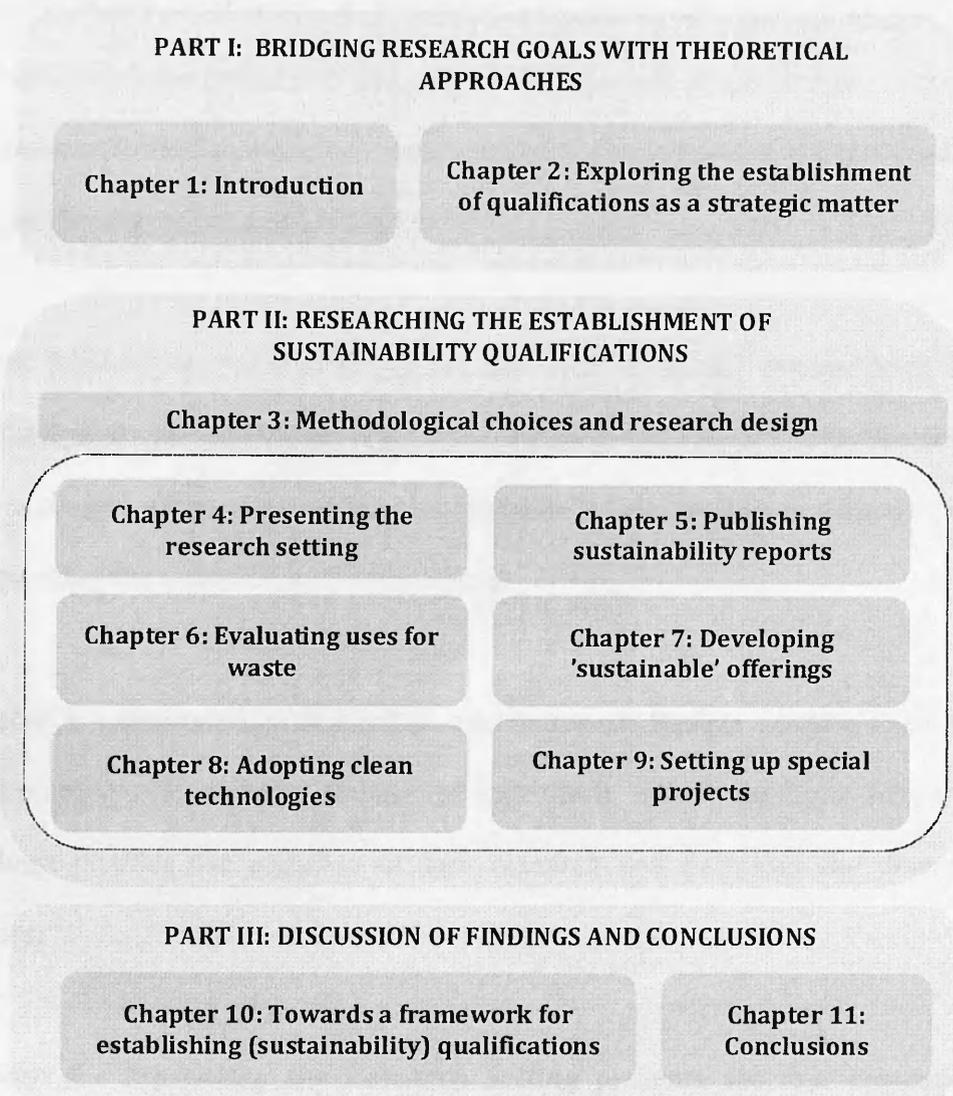


Figure 1-2: Outline of the thesis

The next chapter – *Chapter 2 - Exploring the Establishment of Qualifications as a Strategic Matter*, presents the theoretical background of this study. Given the research goals, and in order to position this study within the relevant theoretical frameworks, three areas are reviewed: theoretical perspectives on qualification studies; ‘greening the business’ literature dealing with the interface between sustainability and business; network approaches, particularly Actor-

Network Theory (ANT) and Industrial Marketing and Purchasing group (IMP), to provide a relational view of strategising. The last section of the chapter compares and contrasts these perspectives and provides a conceptual framework towards the qualification of [sustainable] firms.

This is followed by the second part of this study: **Part II – Researching the establishment of sustainability qualifications**, comprising a description of the methodology employed to conduct the research in Chapter 3, with Chapters 4 to 9 presenting the empirical part of the study.

Chapter 3 - Methodological Choices and Research Design elaborates on the underpinning philosophical stances of this thesis influenced by a relational ontology, justifies the adoption of case research and describes the research process.

Chapter 4 – Presenting the Research Setting presents the four companies studied, their approach towards sustainability strategies and respective qualifications and the practices they engaged in to achieve those qualifications.

Chapter 5 – Publishing Sustainability Reports describes the process of producing and publishing reports as representations of the firms' sustainability strategies. Companies get involved in many different types of practices and projects that are communicated under the label 'Sustainability Report'. Hence this chapter describes what is reported, to whom and with which aims, and

draws attention to the way companies frame their sustainability strategies through discourses, according to their strategic priorities.

Chapter 6 - Evaluating Uses for Waste illustrates how companies describe initiatives linked to waste use as part of their sustainability strategies. Finding new ways to re-use waste and attributing new value to its use is definitively a highlight of the companies' sustainability strategies. Four examples of this type of practice will be described: the use of forestry waste as biomass to produce energy, the incorporation of cork waste as a by-product to produce new cork-based products, the use of recycled wood as a by-product to produce wood panels and lastly, the evaluation of dry ash and organic waste as by-products to (yet-to-be-found) alternative uses.

Chapter 7 - Developing 'Sustainable' Offerings describes the companies' approach to the development of offerings based on green arguments. The adoption of the tense '*developing*' draws on the recognition that, whether focusing on products or services, the companies construct their offerings by embedding the quality of 'being sustainable' in their features.

Chapter 8 - Adopting Clean Technologies deals with practices that involve the adoption of particular technologies, involving physical technology mentioned by the companies as *clean tech*; that is to say, technologies that were reported as solutions to reduce the impact of the companies' activities on the environment in particular situations.

The purpose of **Chapter 9 – Setting Up Special Projects** is to describe two cases that, contrary to the cases described in the previous chapters, have a limited time frame, i.e., they do not concern daily practices and were designed and put into practice with clear sustainability-related objectives.

The last part of the study, **Part III – Discussion of Findings and Conclusions**, discusses the empirical material described in the second part. In **Chapter 10 – Towards a Framework for Establishing (Sustainability) Qualifications** the focus of analysis and discussion is placed on the processes and the strategising actions in place to bring about a quality and stabilise it to the point of becoming an established and recognised one. The chapter starts by deconstructing the journey of developing sustainability strategies as a relational process aimed at qualifying each firm as sustainable. Within the qualifying route, four types of processes are discussed as key aspects that firms need to cope with and work on: producing frames for sustainability, valuing sustainability, enrolling actors and stabilising the quality of ‘being sustainable’. The chapter concludes by proposing a framework to map out these processes.

Chapter 11 – Conclusions revisits the research goals, provides answers to the research questions and outlines the main contributions of this research to theory, to policy and to practice. This is followed by a discussion of its limitations and directions for future research.

2. EXPLORING THE ESTABLISHMENT OF QUALIFICATIONS AS A STRATEGIC MATTER

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

**Chapter 2: Exploring the establishment
of qualifications as a strategic matter**

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

**Chapter 4: Presenting the
research setting**

**Chapter 5: Publishing
sustainability reports**

**Chapter 6: Evaluating uses for
waste**

**Chapter 7: Developing
'sustainable' offerings**

**Chapter 8: Adopting clean
technologies**

**Chapter 9: Setting up special
projects**

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

**Chapter 10: Towards a framework for
establishing (sustainability) qualifications**

**Chapter 11:
Conclusions**

2.1 INTRODUCTION

This chapter presents the theoretical background of this study. As stated in the introduction, the research takes a strategic approach to look at the complexities and intricacies featured in qualification processes. The aim is to understand the dynamics of constructing, introducing and stabilising a particular quality – the quality of sustainability – as a strategic variable to consider, not only when comparing competing offers in markets, but also when comparing firms across different industrial settings.

Figure 2-1 illustrates the outline of the chapter which is organised as follows. Given the research goals, and in order to position this study within the relevant theoretical frameworks, three perspectives need to be considered. The first section provides a critical review of how sustainability qualities are examined in studies dealing with the interface between sustainability and business. The second theoretical approach brings together concepts from network and relational backgrounds, particularly Actor-Network Theory (ANT) and the Industrial Marketing and Purchasing group (IMP), to provide a relational view of strategising. This is followed by a review of studies on qualification and valuation. The last section of the chapter combines and contrasts these theoretical approaches and introduces the research questions of this investigation.

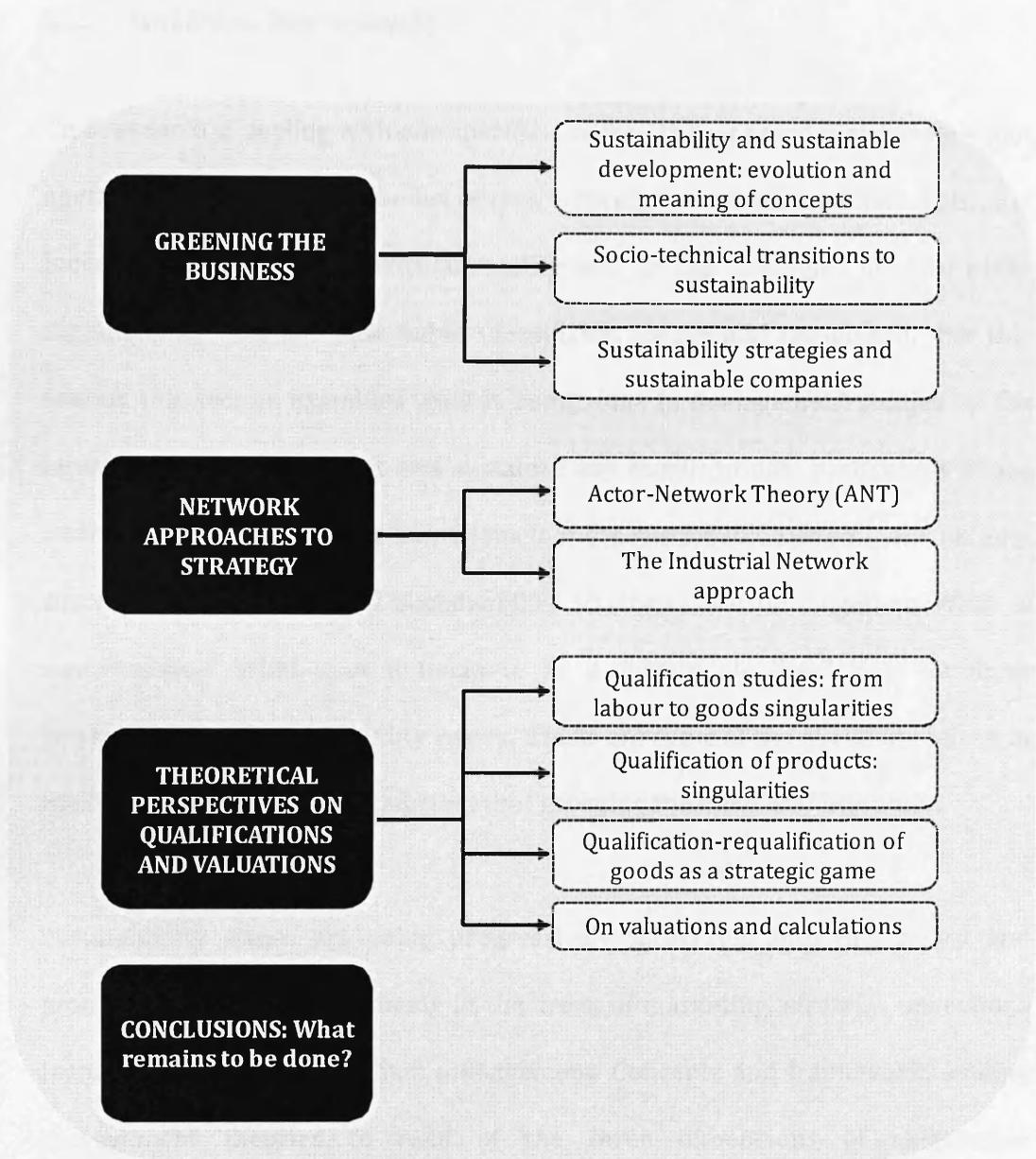


Figure 2-1: Outline of Chapter 2 - Exploring the establishment of [sustainability] qualifications as a strategic matter

2.2 GREENING THE BUSINESS

This research is dealing with one specific quality – that of being sustainable – that agents strive to include in the list of their offerings and firms' qualities. Thus, the focus is placed on this particular quality and on the strategies used to make sustainability qualities observable, identifiable, valued and recognised. For this reason, this section examines what is being done in management studies on the interface between business and sustainability qualifications, particularly those interested in understanding transitions to more sustainable systems, and on how sustainable companies and sustainability strategies are put together. What is sustainability? What does it mean to be a sustainable firm? How do firms strategise around sustainability issues? These are some of the questions raised in the following sections, here labelled the "greening the business" literature.

Sustainability issues are being progressively integrated into the theory and practice of management, namely in the areas of marketing, strategy, operations management, and supply chain management. Concepts and frameworks linking management theories to each of the three dimensions of sustainable development – economic, social and environmental – are no longer ignored in management journals. It is thus not surprising that special issues on this topic have been published in different fields of management (see some examples on table 2-1).

| Journal | Special issue | Guest Editors/Year |
|---|--|--------------------------------|
| The Academy of Management Review | <i>Special Topic Forum on Ecologically Sustainable Organizations</i> | 1995 |
| Journal of Marketing Management | <i>Green Marketing: The 'Fad' That Won't Slip Slide Away</i> | (Prothero, 1998) |
| Academy of Management Journal | <i>Introduction to the Special Research forum on the Management of Organizations in the Natural Environment: A Field Emerging from Multiple Paths, with Many Challenges Ahead.</i> | (Starik and Marcus, 2000) |
| International Journal of Operations and Production Management | <i>The sustainability debate</i> | (Wilkinson et al., 2001) |
| Production and Operations Management | <i>Sustainable operations management</i> | (Kleindorfer et al., 2005) |
| Journal of Operations Management | <i>Supply Chain Management in a Sustainable Environment</i> | (Boyer and Swink, 2007) |
| Journal of Cleaner Production | <i>Sustainability and Supply Chain Management</i> | (Seuring et al., 2008) |
| Organization Studies | <i>Climate Change and the Emergence of New Organizational Landscapes</i> | (Wittneben et al., 2010) |
| Industrial Marketing Management | <i>Green marketing and its impact on supply chain management in industrial markets</i> | (Chan et al., 2012) |
| Journal of Marketing Management | <i>Re-Visiting Contemporary Issues in Green/Ethical Marketing</i> | (McEachern and Carrigan, 2012) |

Table 2-1: Special issues on bridging management theories with sustainability issues

The growth of interest in this topic has also led to the birth of a number of journals dedicated to combining management and strategy with sustainability issues namely: “Sustainable Strategic Management”, “Business Strategy and the Environment”, “Organization & Environment”. Given this amount of existing research it is unfeasible to provide an extensive review of the intersection between management studies and sustainability issues. Thus the following sub-sections provide a review of the themes that are most closely linked to the goals and challenges of this study. First, the meaning and evolution of the notions of sustainability and sustainable development are addressed, followed by a brief review of the literature dedicated to the study of transitions to sustainable systems. The following sub-section questions three fundamental concepts that this research aims to explore: how are sustainable companies defined, what is interpreted as sustainability strategies and what is interpreted as sustainable value?

2.2.1 SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT: EVOLUTION AND MEANING

Sustainable Development (SD) has been the subject of debate for over 40 years, since the emergence of a consciousness to protect the environment against the degradation of ecosystems and the exhaustion of natural resources provoked by human activities. The number of existing definitions and interpretations is large. In the 1990s, 70 definitions were already in circulation and most of them encompassed the idea that three interdependent pillars of SD must be considered: environmental, economic and social (Elliot, 2006).

The Stockholm Declaration is considered as one of the first global efforts to tackle environmental problems, by suggesting a set of principles to guide people in the preservations of the environment (UN, 1972) and by establishing the United Nations Environment Programme (UNEP), focused on the promotion of international environmental cooperation (Rogers et al., 2008).

A formal definition of SD, and the most recognised emerged in the 80s, provided by the World Commission for Environment and Development (WCED), in their report "Our common future", often known as the "Brundtland Report". This report, considered as the guiding principle behind environmental policy (Faucheux et al., 1996), defined SD as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCDE, 1987a, p.43). By "needs" the report understands fundamental needs as food, employment, energy, water and hygiene, which mean the achievement of socio-economic objectives such as the access to resources and the equitable distribution of the costs and benefits of development.

Later on, in 1992, 173 States committed themselves to SD, at the Rio Earth Summit, by underwriting the "Rio de Janeiro Declaration on the Environment and Development" and a document of more than 2500 proposals for actions - "The Agenda for the 21st century", commonly called Agenda21. According to Jacquot et al (2005), the world leaders admitted, at the Rio Summit, that the present models of consumption and nonviable production, primarily from the industrialized countries, are the main causes for the continuous degradation of the world environment. Therefore, firms should be the first concerned with this

phenomenon, whether they are leaders or followers, SMEs or multinationals, and act towards SD goals by developing both products and technologies respecting the environment and society's values throughout their life cycle.

Following "Agenda 21", the Kyoto Protocol, an international agreement linked to the United Nations (UN) Convention on Climate Change, was adopted in Kyoto, Japan, in 1997 and has been in force since 2005. Its major trait was to set obligatory targets for the reduction of greenhouse gas for 37 industrialized countries and the European Union (an average of 5% below the levels they produced in 1990, over the five-year period 2008-2012). In 2002, the Agenda 21 was again discussed by 104 countries in the World Summit on SD held in Johannesburg. A more diverse range of stakeholder groups was involved to reassess the implementation of Agenda 21 (Rogers et al., 2008). Issues related with human rights, poverty, social justice and business responsibility were discussed (Elliot, 2006). From the establishment of these agreements onwards, a considerable number of follow up conventions and summits to monitor outcomes and readjust goals are held every year.

As far as business responsibility is concerned, countless reports may be found in international organisations' websites, to help managers engage in new practices towards the reduction of their companies' ecological footprint. For example, a report jointly published by the International Institute for SD, Deloitte & Touche and the World Business Council for SD, presents a list of business strategies for SD. According to this report (IISD, 2002, p.1) "For the business enterprise, sustainable development means adopting business strategies and activities that

meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future". This definition highlights the need to protect every entity that is affected by the organization's activities, including shareholders, customers, suppliers, employees and communities.

Giving this scenario, the role organizations and supply chains can play in sustainability problems solving is being widely discussed and a growing body of literature is arising from this awareness. The problem is that the very notions of sustainability and sustainable businesses are difficult to conceptualise, leading to different approaches on how companies should act. Moreover, it has become a fashionable and politically correct term to justify, describe and qualify policies, companies' strategies and courses of actions, many of which have little or nothing to do with actually performing sustainably. Thus ideas around sustainability and sustainable business has generated a huge academic and non-academic literature using loaded terms and complex arguments with little effect on real business practice.

This study aims to reduce this complexity by asking which processes allow transitions to more sustainable businesses that, in turn contribute to building the qualities and characteristics of being sustainable and overall classifications of sustainable companies. Hence, it cannot ignore those studies within socio-technical studies that deal with the meanings of sustainable business and explore the transitions towards sustainability.

2.2.2 SOCIO-TECHNICAL TRANSITIONS TO SUSTAINABILITY

Concepts and ideas regarding transitions between socio-technical systems have been used to explore a varied set of historical events that led to the emergence and development of major technological transformations present in today's society such as the shift to electrical systems, sewing systems, railroad networks, telephone systems and the internet. In the last decade, this approach has been adopted to address the problem of moving towards more sustainable systems and has been producing insightful contributions on socio-technical transitions to sustainability (Kemp and Soete, 1992, Kemp, 1994, Kemp et al., 1998, Berkhout, 2002, Elzen et al., 2004, Geels, 2010, 2011).

There are two key concepts in this literature: socio-technical regimes and technological transitions. A socio-technical regime is defined as the complex of scientific knowledge, engineering practices, production process technologies, product characteristics, user practices, skills and procedures, and institutions and infrastructures that make up the totality of a technological system (Kemp, 1994). The definition incorporates the influence of several groups of actors like scientists, users, firms, societal groups (Rip and Kemp, 1998) to represent the interaction between social groups and the creation of networks with mutual dependencies and coordinated activities (Geels, 2004, Geels and Kemp, 2007). A technological transition, in turn, is defined as the transformation process of an old regime (or set of regimes) into a new one (Kemp et al., 2001). Rather than a change of existing processes and products, a technological transition encompasses a more fundamental change of basic technologies whether related

to production, transport or consumption, as for example, the replacement of hydrocarbon-based energy supply or the use of renewable energies (Kemp, 1994). Technology, in this sense, has a much broader connotation than an artefact or technique, as something embedded in, and shaped by particular systems of belief and social, economic, political, cultural and institutional structures.

According to Kemp (1994), the dominance of particular technological trajectories is strongly related to the adaptation of the 'selection environment' to fit the old technological regime. This term is used to highlight the role of institutions and socio-technical relationships in the selection of technologies. It includes all the factors that determine selection, namely scientific knowledge, cultural meanings, knowledge transfer between supplier and user that enable the exchange, social processes related to habituation and taste formation (consumers' preferences, habits, lifestyles and the way they adopted and used past technologies) and political factors, which enhance the role of government in the generation of knowledge, taxation regimes, public procurement and regulation. All these elements are "...reproduced, maintained and transformed by actors such as firms and industries, policy makers and politicians, consumers, civil society, engineers and researchers" (Geels, 2011, p. 24). In the long run, technological regimes become outdated and are replaced by new ones.

Much of the work done to conceptualize change and intervention in the 'systems in transition' literature (Kemp et al., 2001, Geels, 2002, Geels, 2005, Geels and Kemp, 2007) uses Rip and Kemp's (1998) 'multi-level' model of innovation,

which describes regimes shifts and transitions between three levels: macro, meso and micro. The macro-level is formed by the socio-technical landscape, formed by exogenous aspects of the environment such as economic growth, political coalitions, cultural values, normative rules, environmental problems. The meso-level comprises the socio-technical regime discussed previously. The micro-level is related to the emergence of radical innovations in niches, which interacts with the established regimes at the meso-level, within a macro-landscape (Geels and Kemp, 2007). According to these authors, system innovations are a result of the interplay between processes that occur within and across these levels, in different phases. However, the shift into a new technological regime depends primarily on the previous context which means that although a new paradigm has evolved, the old and the new may co-exist for a long time. Furthermore, shifting to a new regime is a complex process where strong barriers need to be overcome. Strategic niches (where radical novelties can be nurtured), system-builders (entrepreneurs), institutional support and actors' capabilities are seen as playing important roles in regime shifts (Kemp et al., 1998, Kemp et al., 2001).

In the context of the sustainability debate, the success of transitions to sustainable technological regimes depends on a wide range of factors (Kemp, 1994): technical advances achieved, future cost efficiencies that might be accomplished in production and consumption, evolution of market demand shaped by users' needs, preferences and environmental awareness and finally on government policy (in the form of R&D subsidies, favourable tax incentives, environmental standards, etc.).

The problem, as noted in the literature, is that shifting to sustainable regimes is a complex process that involves not only technological changes, but also profound changes in the organizational and social dimensions. This is because transitions towards sustainability observe some particularities, as recalled in Geels (2011). First, and in contrast to other historical technological transitions which were emergent and often triggered by entrepreneurs to explore commercial opportunities, sustainability transitions are goal-oriented. This means that there is a concrete objective to address and tackle persistent environmental problems, that is, to pursue a collective good ('sustainability'). It also means that private actors have little incentive to pursue such a good, giving rise to free rider problems. Hence public authorities and non-business organisations have a crucial role in developing incentive schemes and supporting green niches.

A second characteristic of this type of transition is that it involves sustainable solutions that are not obvious replacements of established solutions. There are disagreements regarding what constitutes green technologies and vested interests that will try to resist them. Hence, the intervention of policy makers is indispensable to change economic and market conditions that may make sustainable solutions more desirable. A third characteristic relates to the type of industry that most needs to transit to more sustainable systems (transport, energy and agro-food). These are normally constituted by large companies owning or with access to R&D resources and capabilities, thus being in a good place to accelerate green innovations. These companies, on one hand, might be inclined to support the development of green niches if the right incentives are available, but they might also resist pioneers and protect existing systems. Both

scenarios call for a strategic reorientation of firms in order to make them willing to support transitions to more sustainable solutions.

This literature is thus very much focused on policy making in a macro context and places a great deal of emphasis on niche development. As such it has been subject of several criticisms such as ignoring the role of agency in transitions, the hierarchical conceptualization of the three levels of the model, the use of single case studies constructed from flawed secondary sources [see for example Genus and Coles (2008) and Shove and Walker's (2010) critics of the multi-level model and Geels (2011) responses to it]. From the point of view of this study, this literature provides a view of the complexity of moving to more sustainable solutions and highlights the need to look at the different technological regimes that need to interact to breakthrough certain niche-innovations. As exemplified by Geels (2011), heat and electricity systems interact to provide cogeneration systems (combined heat and power), the electric vehicle links transport and electricity systems and a variety of solutions emerge from the interaction between different regimes comprising multiple actors.

Recognising the variety of links and interactions between different socio-technical regimes necessary to move to more sustainable solutions emphasizes the need to take a broader view of the problems faced by companies in their journeys to build sustainability qualifications, particularly the role of policy-making in their actions and the systemic nature of the qualification process. What is missing in this stream of research is a more concrete view of how this process unfolds from companies' strategies and from their daily practices. By

placing too much emphasis on green niches, the systems-in-transitions literature misses the opportunity to explore how established business practices also contribute to move towards sustainability. Moreover, although it is assumed that agency is always present in the multi-level model since socio-technical-systems are reproduced by actors, it is also recognised that the model could be enriched from insights of other theories namely from business studies and strategic management (Geels, 2011).

This study research aims to contribute to the debate on transitions towards sustainability by looking at companies' efforts to build up the quality of 'being sustainable' and by treating the construction of sustainability qualities as a strategic matter. This is because transitions are also the result of specific strategies that are followed by companies, or that emerge given their strategic priorities and goals at any given moment. From this study's point of view, the way through which strategic priorities are set up and strategies are pulled together, determines the success of transitions to more sustainable systems. Focusing on how sustainability qualifications are constructed in, and influenced by, the socio-technical system where the firm is embedded, might lead to a better understanding of how transitions occur. In this sense, the process of building and establishing sustainability qualities cannot be fully understood without a focussed perspective on it means to develop sustainability strategies and what might be interpreted as a sustainable company.

2.2.3 SUSTAINABILITY STRATEGIES AND SUSTAINABLE COMPANIES

Since the publication of the Brundtland Report, studies that combined management decisions and sustainability issues proliferated, particularly in the strategic management area. Accepting the fact that firms are at the forefront of the transitions discussed above implies changes in their strategic priorities and orientations. Hence the business case for sustainability goes hand-in-hand with the integration of this 'public good' – sustainability – into the firms' strategic plans, to the point that sustainability is now considered a strategy in its own right.

The term 'sustainability strategy' was first introduced by Stead and Stead (1992) to suggest that strategic management decisions must balance the goals of enhancing a firm's profitability with their responsibility to protect the environment. The underlying principle of this approach, labelled as Sustainable Strategic Management, is that sustainability strategies are not simply a compromise to enhance long-run profitability while causing as little ecological damage as possible. Instead, they are integrative strategies that provide firms with competitive advantages by serving "the sustainability need of various stakeholders, including regulators, shareholders, customers, employees, the greater community and the planet itself" (Stead and Stead, 1992, p.69). Since then a great deal of research has been done on the topic, to the extent that Sustainable Strategic Management was considered as an emerging and crucial field and "the next evolutionary stage in the discipline of strategic management" (Stead and Stead, 2008, p. 65).

Following the same reasoning, Throop et al (1993) adopted the term 'sustainability strategy' to describe the integration of ecological concerns into the strategic management process and called for the urgent need to link organizational studies with the natural environment. Subsequent studies followed this trend. Shrivastava (1995b), for example, suggests three types of sustainable competitive strategies based on least cost, differentiation and niche strategies. Hart (1995) provides a natural-resource-based-view of the firm (NRBV), further developed in Hart and Dowell (2011), which offers three key strategic capabilities in developing sustainability strategies. In the first stage, companies focus on pollution prevention strategies and gradually evolve to a second stage of product stewardship strategies. Here, firms go beyond pollution prevention to achieve competitive advantages along the product life cycle. In the third stage, firms should focus on sustainable development strategies designed to expand their markets in developing countries, hence contributing to their social and economic development. Hart's ideas are further developed in the work of Aragón-Correa and Sharma (2003) who combine the natural resource based view of the firm with contingency theory, to look at how different types of environmental strategies depend on the firm's external business environment.

Gradually the focus on sustainability strategies as firm-centred shifted to a more systemic view. The very concept of 'sustainable strategic management' was reinterpreted to encompass all the processes needed to integrate sustainability goals into the firm's core strategic management, referring to "all internal cognitive, strategic, structural and operational processes... [as well as] external alliances, networks and relationships wishing to function in sustainable ways"

(Stead and Stead, 1996, pp. 179-180). A fully integrated environmental strategy should shape the company's relationships with customers, suppliers, policymakers and all its stakeholders . Thus, effective implementations require companies to operate with other firms and stakeholders in industrial ecosystems . The concept of stakeholder is widely used in studies merging management and sustainability issues, to imply that "...the operation of the firm is dependent on a number of interacting groups of interdependent and interconnected interests, the sum of which is greater than the individual parts" (Ulhøi et al., 1996, p.247).

While helpful in understanding actors' influence on strategy development, the "stakeholder perspective" (e.g. Fineman and Clarke, 1996, Perrini and Tencati, 2006, Rivera-Camino, 2007) puts too much emphasis on the company's ability to respond to stakeholders' needs and the stakeholders' ability to influence the company's strategy towards environmental sustainability. What is striking is that these studies recommend inter-firm cooperation as a solution to develop and implement sustainability strategies that companies must follow, but treat both sides as autonomous entities and little is said on how these inter-organisational relationships evolve and to what extent they exert influence on the companies' strategies. Stead and Stead (1995) undertook an empirical investigation focused on the implementation process, but the study mainly targets the firm's motives and outcomes to engage in this type of implementation and suggests a distinction between process-driven and market-driven strategies. An exception is Shrivastava's study (1995a) on how to build cooperative strategies through efficient resource use. Discussing the concept of eco-centric management, the

author illustrates how cooperative strategies were developed in an industrial network in Denmark, where several companies established industrial relationships through waste exchange. Cooperation relies on the companies' ability to share and reduce the use of natural resources by using each other's waste and by-products (steam, ash, oil and so forth).

Along with discussions on sustainability strategies, studies employing the label of 'sustainable corporations' also started to emerge. A model for creating 'sustainable corporations' was proposed by Shrivastava and Hart (1995) to denote the need to redesign strategies centred on 'total environmental management' and 'sustainable organizational design'. Although no definition of 'sustainable corporations' is provided, the authors suggest a complete redesign of the firm's operations centred on limiting the environmental damage of their activities and an organizational redesign aimed at creating "a new type of corporation with a fundamentally different relationship with the natural environment" (ibid, p. 157).

A definition of a 'sustainable enterprise' is put forward by Hart and Milstein (2003) as "one that contributes to sustainable development by delivering simultaneously economic, social, and environmental benefits – the so-called triple bottom line" (p. 56). This definition entails the idea that pursuing enterprise sustainability is to reconcile the public good of sustainability with the objective of creating shareholder value. The creation of value is a recurrent notion in the greening the business literature. In a book entitled "The sustainable company", Laszlo (2005) presents four business cases for sustainability

describing how companies were able to create, capture and deliver sustainable value for its shareholders and stakeholders thus becoming sustainable companies. The key feature of a sustainable company is then the creation of value through social and environmental performance.

Recently, Vitols and Kluge (2011) proposed a new view on the concept of the 'sustainable company' as an alternative to shareholder value models; according to the authors their concept differs significantly from Laszlo's (2005), in the sense that the need for formal mechanisms of worker involvement and a binding legal framework for sustainability are taken as key drivers for creating sustainable companies. They ask "What is the sustainable company?" (Vitols, 2011) and answer with a set of six elements that a company must observe to become sustainable:

- "A multi-dimensional concept of sustainability and stakeholder value is the central guiding principle of a Sustainable Company.
- In accordance with this guiding principle the Sustainable Company has a *set of sustainability goals and a detailed strategy* for achieving these goals.
- *Stakeholders, in particular employees, are involved in decision making* in the Sustainable Company.
- The Sustainable Company has an *externally verifiable reporting system* on both financial and nonfinancial (environmental, social, etc.) performance which allows for measuring progress on the achievement of sustainability goals.

- Incentives within the Sustainable Company are designed to support sustainability. A central role is played here by *tying a portion of executive remuneration the achievement of sustainability goals*.
- The ownership base of the company is dominated by *long-term responsible investors* concerned not only with financial return but also with the social and environmental impacts of their investments." (ibid,p. 24, emphasis in original).

In Vitols and Kluge's (2013) study more details are provided to understand the underlying principles of sustainable companies, particularly the need to adopt a strategic orientation towards sustainability, but still the emphasis is placed on internal aspects of the firm that lead to value delivered to stakeholders.

Overall, the literature establishes a clear link between the need to develop sustainability strategies and build sustainable firms and the creation of sustainable value recognised by stakeholders. Hence, the way value is interpreted in these studies deserves further elaboration. Most of these studies see sustainability value as "stakeholder value", to illustrate that a company is better prepared to achieve competitive advantage when following a sustainable business pathway fostering the development of capabilities to create stakeholder value (Hart and Milstein, 2003, Laszlo, 2005, Epstein, 2008, Laszlo, 2008, Stead and Stead, 2009). The need for a sustainable value approach emerges from the consideration that relationships with stakeholders are changing the drivers for business value. According to this view, consumers, employees, investors, NGOs and all sorts of stakeholders are now able to access data about any company and

have the power to act upon the creation of such value. Thus, creating value for stakeholders, which has been previously marginalized by corporations, is now becoming “a source of competitive advantage rather than only a moral obligation” (Laszlo, 2008, p. 119). The sustainable value framework suggested by Laszlo (2008), however, embraces a linear approach to value creation: “Business value created by a company is always associated with a stakeholder value that can be either positive or negative. Value is created when a business adds to the capital or well-being of its stakeholders. It is destroyed when a business reduces their capital or undermines their well-being” (p. 120).

The present study disputes this vision on value creation (this aspect will be further elaborated in section 2.4.3). First, it challenges the idea that value is created or destroyed *by* a company as if the power of value creation/destruction was in the hands of a company alone. Instead, following the work of Ramirez and et al (Normann and Ramirez, 1989, 1993, Ramirez, 1999) it endorses a broader view of value creation where sustainable value is not necessarily attached to stakeholder value and created by a company, but co-produced between the company and its stakeholders in value creation systems. As argued by Stead and Stead (2009), the stakeholder value perspective needs broadening. These authors claim that: “...creating sustainability value for the numerous stakeholders in a firm’s stakeholder network requires a much broader framework that reflects the symbiotic co-evolutionary relationships between the firm and the greater society and ecosystem” (ibid, p. 133). They further add that such relationships are network-based because stakeholders have many direct and indirect interdependencies that result in different influences. Taking

stakeholders' influence into the equation, companies should then design and implement sustainability strategies that might enable sustainability value added through eco- and socio-efficiency.

Secondly, this study also challenges the idea that value is created when a business adds to the capital of a stakeholder in a value chain, linear fashion. The inter-organisational relationships needed to set up a value-oriented strategy are not taken into account. It is here assumed that the potential for value creation emerges from the interactions between many different stakeholders and other entities where value is not *added*, but co-produced and shaped in relationships involving different and distributed practices. Instead of embracing a linear view, where value is added in each node of stakeholder relationships, this study favours a network view on the processes through which sustainability value might emerge (this issue will be further elaborated in section 2.4.3.).

The literature reviewed in this section suggests that there is a growing need and clear pressure from stakeholders to engage in business strategies that might lead to the creation of sustainable firms and sustainable value. These pressures constitute major challenges to managers who are responsible for the development of "sustainable firms" and who deal with the strategising issues of how to achieve these qualifications, but also to scholars who seek to provide sound frameworks and guidance to practitioners.

Clearly, the frameworks presented here are crucial to understand the need to adopt a strategy view on the construction of sustainability labels. However, they are of limited assistance in understanding these challenges precisely because they tend to assume a firm-centric perspective to explain a phenomenon that emerges within networks of inter-organisational relationships. To overcome some of the problems encountered in the “greening the business” literature the following section offers alternative frameworks to conventional views on strategy – Actor Network Theory and the Industrial Network approach.

2.3 NETWORK APPROACHES TO STRATEGY

This section aims to provide an alternative approach to the conventional perspectives on strategy development reviewed in section 2.2. A number of limitations were highlighted in the way the strategic management literature deal with issues of sustainability, particularly how the concepts of sustainability strategies and companies are used in a taken-for-granted fashion. In this section two main approaches are reviewed to develop a better understanding of strategy and strategising practices: the sociology of translation provided by ANT scholars .and the industrial network approach offered by the IMP group.

2.3.1 ACTOR-NETWORK THEORY (ANT)

Actor-Network Theory (ANT) was originally developed by French sociologists Michel Callon and Bruno Latour as a methodological and conceptual approach to understand the emergence and dominance of technological facts and ideas (Callon, 1986a, b, Latour, 1987a). Concepts and ideas behind ANT have been extensively applied in diverse scientific fields (e.g. management, medicine, politics, and technologies²), for example, to look at the adoption and diffusion of information systems (Lea et al., 1995, Orlikowski, 1996), accounting systems (Chua, 1995, Lowe, 2001), performance models (Hansen and Mouritsen, 1999) or management strategies (Knights et al., 1993, Parker and Wragg, 1999, Hensman, 2001). It has also been adopted in a few studies to understand processes of “going green” (Newton, 2002, Egels-Zandén and Wahlqvist, 2007, Ählström and Egels-Zandén, 2008) which challenge taken-for-granted definitions of sustainability and the key role played by policy and corporate actors (managers, firms) in changing processes. To better understand what ANT has to offer in the context of these studies, this section reviews its main theoretical ideas, namely the way actors are conceptualized (Section 2.3.1.1), a view on strategy inspired by the sociology of translation (Section 2.3.1.2), the contributions of ANT to the performativity program (Section 2.3.1.3) and the way these ideas have been adopted in greening the business studies (section 2.3.1.3).

² For an exhaustive list of ANT applications please refer to “Actor-Network Resource” website from Lancaster University, Department of Sociology available at: <http://www.lancs.ac.uk/fass/centres/css/ant/antres.htm>

2.3.1.1 *Conceptualizing actors*

From an ANT perspective, an actor is not necessarily an individual, a business unit or a firm. As discussed by Law (1992), ANT embraces a material semiotic approach to argue that human and non-human entities are produced in relations and achieve a particular form as a result of the relations they are embedded in. Ideas, actors, artefacts, concepts – things – get performed and perform themselves within relations that become durable and stable. Hence, both human and non-human actors are relational outcomes or effects.

The advantage of this conceptualization is that the expression ‘actor-network’ highlights the inseparability of the actors from its networks, i.e., the impossibility of explaining the actions of an entity without taking its network into consideration. This is because actors and networks are mutually constitutive. Thus, actors do not have inherent qualities of their own; they assume forms and acquire their characteristics by interacting with other actors. This is described as relational materialism (Law, 1992): “The argument is that thinking, acting, writing, loving, earning – all the attributes that we normally ascribe to human beings, are generated in networks that pass through and ramify both within and beyond the body. Hence the term actor-network – an actor is also, always, a network” (ibid, p. 384). This means, that contrary to IMP studies, ANT does not grant primacy to the actor as a central point of a network, or to a network as the nest where actors relate to each other. What this approach expects from the researcher is avoid privileging any actor’s’ position or point of view (Callon, 1986b). Human actors, material devices, texts, abstract entities (such as power,

economy, sustainability and so on) are all materially embodied and can be observed empirically as network effects. The advice is to “follow the actor” avoiding judgments of what is social or natural, micro or macro, right or wrong, and focusing on how those actors are brought into particular relationships in an actor-network (Latour and Woolgar, 1979). This also implies that a network is “*not just out there*” and actors go in and go out of the network strategically as they wish (Latour, 1987a). Callon (1991) defines an ‘actor’ or ‘actant’ as “any entity able to associate texts, humans, non-humans and money. (p. 140)”. So, an actor/actant does not need to be human in order to be active in a network.

This conceptualization of actors and agency has given rise to strong critiques (e.g. Amsterdamska, 1990, Collins and Yearley, 1992, Elam, 1999). The questions raised concern the ability of artefacts or non-human actors to exercise agency or to express will and how this ideas favour the dissolution of actors’ humanity, morality and psychology. Latour (1987b) had previously elaborated on the main criticisms directed towards ANT. He suggested that these critiques appear because the concept of actor (and actor-network) is misread. Actor or ‘actant’ is, from an ANT point a view, a semiotic definition to signify something that acts or anything which is granted to be the source of an action. And Callon (1999) reminds us that one of the strengths of ANT is precisely these assumptions on the radical indeterminacy of the actor. ANT “...was developed to analyse situations in which it is difficult to separate humans and non-humans, and in which the actors have variable forms and competencies” (p. 183). In his analysis, markets are interpreted as institutions made of relations between a mix of human (economic agents) and non-human (circulating goods and allocated resources) actors.

The key point is that relations, transformations, movements and actions are formed between human and non-human entities which define and construct one another. As such, an actor is not an entity with intentional behaviour but a more abstract term which can refer to either human or non-human entities. Following this line of reasoning, the next section returns to the very issue of strategy development and discusses the notion of translation as a key concept to understand strategising practices from a relational point of view.

2.3.1.2 *The sociology of translation*

The most central idea in ANT to describe the establishment of definitions and facts is the concept of translation. To ANT, which is also known as the sociology of translation, the concept of translation is the building-block of actor-networks, interpreted as a manifestation of interaction between actors (Callon, 1980, Callon, 1986a, b, Latour, 1986, 1987a, Law, 1992). According to Callon (1980), translation manoeuvres aim at shifting actors' interests, concerns and significations into one single field, by relocating a problem from one set of significations to another, i.e. by relating things that were previously unrelated and different. Hence the goal of translation is to assemble complex actors (human and non-human) into a single object or idea that can be mobilised and put into circulation (for example a good is translated into a product, or an idea is translated into a taken-for-granted fact). It is through interactions between actors that translations create networks, the actors and the objects/ideas that become stable over time. The concerned individuals or collective actors may

ignore, alter or appropriate the ideas/objects. Whichever action they take will influence the establishment of the object/idea in time and space (Latour, 1986). Callon (1986b) suggests that the process through which an actor-network is built up, develops in four moments of translation: problematization (or how to become indispensable), intersement (or how the allies are locked into place), enrolment (or how to define and coordinate the roles) and mobilisation (or how allies are mobilized to follow a representative spokesmen).

The first moment – *problematization* – is related to the establishment of a problem to be solved or a goal to be achieved. The actors that define the problem/goal start by determining which other actors are involved and what do they want – the definition of the problem/goal is turned into an “obligatory passage point” through which other actors must necessarily pass. By defining a problem/goal as an obligatory passage point, the actor “in charge” defines the network, the actors involved and the relationships between them, i.e., problematization is about describing “... a system of alliances, or associations between entities thereby defining the identity and what they ‘want’”(op. cit., p. 206). Problematization is therefore set up by an actor (or group of actors) which does not mean that is immediately accepted by other involved actors. The entities identified in the first moment might accept their integration as part of the problem or solution, but they might also refuse to do so by “defining its identity, its goals, projects, orientations, motivations, or interests in another manner” (op. cit., p. 207).

The second moment, *interessement*, is about bringing all the other actors “on board”, i.e., attempting to form and adjust other actors’ identities and goals during action. It is through *interessement* that alliances are formed in the sense that potential competing identities or associations are disrupted. If the process of *interessement* thrives it means that the devices, strategies and mechanisms adopted were able to interrupt alternative definitions and make their own prevail. This means that actors were enrolled in the proposed definition. The moment of *enrolment* describes “the group of multilateral negotiations, trials of strength and tricks that accompany the *interessements* and enable them to succeed.” (op. cit., p. 211).

Having all actors enrolled in one single definition, the last moment of translation is about mobilizing allies, i.e., to designate a representative or spokesman who will speak in the name of the allies. *Mobilisation* implies acting as a unit of force composed by other actors and chains of intermediaries, which render their definitions credible, through one sole spokesman. Nevertheless, these units of force and alliances might stabilize or might be contested at any moment. In this case, the network of relationships built up is subject to new translation processes, in a “never ending-story” fashion.

The main idea is that ideas, facts or objects exist all the time; people pass them on to each other, translating them according to their personal frames of reference. Translation is therefore a transformational act and outcome of carrying those ideas, facts, objects forwards in a way that the interests of different actors are aligned in a given place, space and time. An implication is that a definition

becomes established and taken-for-granted as long as it is constantly reproduced within its actor-network. This notion of taken-for-granted, or “black-boxed” entities in ANT terminology, refers to the general acceptance of the definition by multiple actors, i.e., it depicts a long lasting translation. This means that the actor-network formed around the definition constantly defends it from competing views proposed by other actors. In this sense, actors accepting a given definition continuously enrol others to support their preferred definition of a subject and, at the same time, inhibit other actors to change sides, i.e., to become enrolled in other actor-networks supporting competing definitions.

For example, the idea of “climate change” is a black-box formed by considerations on solar rays and carbon dioxide emissions, measuring instruments, scientific experiences and laboratories, industrial development and so on. This blacked-boxed concept of climate change is at the heart of political discussions, governmental and environmental negotiations, public reports production (such as the Kyoto protocol) within other actor-networks struggling to enrol other actors with the idea of promoting environmental sustainability.

So what are the implications of the notion of translation to the study of strategy and, particularly, to the study of strategising practices towards the construction and establishment of qualifications? Two main features of ANT offer great potential to assist this endeavour. First, it describes and explains how networks of support are built around definitions of technology/facts/ideas, so that they become stable and taken for granted. Second, as will be further discussed, ANT defends a symmetrical view of the natural and social worlds in the sense that no

entity (human and non-human) has a particular power or lies outside the network. Hence, the approach views technologies/facts/ideas and the networks of human and non-human actors linked to them as mutually constitutive; both are built up gradually and simultaneously while central actors – or ‘ translators’ in ANT parlance – succeed in mobilizing other human/non-human entities as supporters of the proposed definition.

From this perspective, any entity can be defined in terms of the actor-networks that support it. A strategy might be interpreted as a definition proposed by an actor or collective actor (a firm, an organisation, a department) that becomes real by the network of human and non-human entities that are translated to support the proposed definition of strategy (Denis et al., 2007). A few scholars have already proposed the application of ANT ideas to the study of strategy and strategising (Knights et al., 1993, Parker and Wragg, 1999, Demers and Charbonneau, 2001, Hensman, 2001, Denis et al., 2007). All these papers look at strategising processes in terms of the construction of actor-networks. Hence, the idea behind these studies is that strategic orientations and practices might be explained by the translation ability of the strategy proposers to build a network of support that dynamically emerges around the definition. As Denis et al (2007) suggest: “Strategizing, within this definition, becomes a ‘translation’ process with all the potential elements of problematization, intersement, enrolment, and mobilization leading potentially (but not deterministically) to the irreversibility of a well defined strategy” (p.185).

The authors also call attention to the possibility that certain artefacts acquire agency in the process of strategizing. Strategic plans (or sustainability reports for that matter), for example, once in place have the ability to define, limit or regulate the roles and identities of human actors. Demers and Charbonneay (2001) illustrate how an organizational strategy document (a plan to build a dam for electricity production) positions the interests of the actors involved, including the strategy authors, in terms of the reasons why the strategy should be supported. The text, in this sense, discursively constructs a network of meanings to translate the interests of a variety of actors into a shared ground. Similarly, the study by Parker and Wragg (1999) invokes a 150-year-old document to manage conflicting views on a public sector strategy (a plan for river navigation). ANT concepts are used in this study to demonstrate, on one hand, the creation of competing networks fighting over the control of a strategic issue (the river navigation) and on the other hand, the role of a text in cementing together existing durable networks.

Overall, these studies suggest that ANT offers rich insights understand strategy and strategizing. Denis et al (2007) rightly point out that “would-be strategists (or ‘translator’)” looking at the world from an ANT point of view will “recognize the need to think simultaneously in terms of both strategies and the networks of support that they can engage” (p. 189). This implies a consideration of the different meanings that strategic orientations may have for different actors, and a reflection on how to build networks around strategic orientations that render those meanings more or less attractive. It also implies the recognition of the potential role of non-human actors in the construction of the strategies.

2.3.1.3 *On performativity and practices*

One important contribution put forward by STS studies, and further advanced by ANT theorists, is the performativity programme. In the context of social studies of markets, the performativity programme, also known as practice-based approach to markets, was developed to investigate how theories and methods contribute to, and actively participate, in configuring markets (see for example Callon, 1998; Slater, 2002; Kjellberg and Helgesson, 2006; MacKenzie, Muniesa and Liu, 2007).

Focusing on the performativity of economics, Callon's (1998) edited volume "The laws of the market" was highly influential in setting out the performativity approach. Callon's idea was that "that economics, in the broad sense of the term, performs, shapes and formats the economy, rather than observing how it functions" (p.2). That is to say that economics does not describe the 'economy' but contributes to bringing economy into being. A practice-based approach has also been adopted in marketing to investigate how marketing contributes to the shaping of markets (see for example Araujo, 2007; Araujo and Spring, 2006; Araujo et al, 2008; Kjellberg and Helgesson, 2006, 2007a, b).

The main assumption of the practice-based approach is that exchanges and markets are not stable states but entities 'in the making'. In other words, markets and exchanges are ever-changing entities shaped and enacted by multiple and distributed calculative agencies (Callon and Muniesa, 2005; Kjellber and Hegelsson 2006, 2007a). Hence academic disciplines such as economics,

accounting or marketing play a performative role in constructing markets, that is to say, their models, methods, ideas, experts, techniques and practices actively participate in the production and shaping of the phenomena they aim to describe (Callon, 1998; Cochoy, 1998).

The notions of calculative agencies and market devices are central in the performativity program. These concepts will be further developed in section “2.4.3 On calculations and valuations”, but for the sake of clarification it is important to stress here that markets are performed and shaped by multiple calculative agencies, combining metrics, ideas, artefacts and market devices (Callon and Muniesa, 2005), aggregating assemblages of materials and discourse such as pricing models, merchandising tools, benchmarking lists, ranking lists (Muniesa et al, 2007).

The importance of the performativity programme for this investigation also lies in the connection between markets and politics. According to Callon (1998, 2010) studying the performativity of economics is about addressing the relations between political debate and the working of economic devices, mediated by economics. Referring to these relations Callon, Lascoumes and Barthe (2009) propose the notion of ‘dialogical democracy’ to denote that markets can be put to the service of political action,. Put differently, markets can be designed to internalize political questions such as the ones discussed in this thesis. For example, markets are changing because firms face pressures to become socially responsible. This thesis will illustrate cases where suppliers are gradually compelled to obtain environmental certifications, where firms fight for ‘green’

classifications on the waste they produce or where firms invest in clean technology to benefit from green tariffs. All these examples illustrate that political issues are being delegated to the market. But, because the economy is performed, and the relations between economy and politics are constantly in flux, fuelling controversies of which relations should be delegated to the market and which should be outside of it, the economy and politics cannot be separated. In Callon's words "We could even say, exaggerating slightly, that politics and the economy are produced jointly in the same performance process" (2010, p. 165).

2.3.1.4 *Adoption of ANT on "greening the business studies"*

So far, only a few authors have advocated the adoption of ANT ideas to understand processes of "going green" (Newton, 2002, Egels-Zandén and Wahlqvist, 2007, Ählström and Egels-Zandén, 2008) while others recognise the advantages of a relational perspective to sustainability to complement, and critically review, the literature on socio-technical transitions (Genus and Coles, 2008, Shove and Walker, 2010, Garud and Gehman, 2012). Newton (2002) claims that many of the "greening the business" writers adopt a taxonomic approach to strategy similar to conventional approaches to strategy. He criticizes authors in the field for not engaging in 'less' linear (e.g. Mintzberg, 1988; Weick, 1987) or more critical orientations to strategy (e.g. Alvesson and Willmont, 1995; Knights and Morgan, 1991; Whittington, 1993), and suggests ANT as an alternative theoretical framework to support research in the environmental strategy field, particularly Callon's (1991) work on techno-economic networks.

What these works have in common is a sceptical view on taken-for-granted definitions of sustainability and the key role played by policy and corporate actors (managers, firms) in changing processes, ignoring the agency and interests of other vital actors. Endorsing Newton's (2002) view, this study acknowledges that "greening the business" literature represents a challenge to traditional management approaches in the sense that it has generated increasing interest within green organization studies and often envisaged a radical reordering of society through the promotion of sustainable values. He further suggests that in order to further advance research on these topics, studies would benefit from a network approach such as ANT: "it is more productive to research the configuration of interdependent networks that support or impede greening processes (...) rather than the decisions and actions of individual sovereign actors" (op cit., p. 525); that is to say, it is more relevant to explore the networks through which managers became enrolled as green strategists and at the same time are able to translate others in the organisation as greening agents.

Discussing issues of agency, Newton (2002) brings ANT conceptualization of actors into the equation and discusses the influence of non-human actors in processes of driving (or impeding) the greening of organisations: "ANT stresses the theoretical centrality of non-human actors, such as in the case of Chernobyl nuclear power plant, which became 'an uncontrolled and autonomous force... an actor in its own right (Callon, 1991: p. 142)'" (p. 530). He stresses that this focus on non-human actors brings new light to the understanding of greening strategies. Individuals or groups' actions towards the achievement of greener

outcomes may be amplified, modified, subverted or erased through the interweaving of their actions with those of other, human and non-human, actors. Other scholars take similar positions. In a study on the implementation of Corporate Social Responsibility (CSR) among suppliers in a post-partnership project, Egels-Zanden and Wahlquist (2007) investigate if such project can *“successfully establish stable definitions of corporate responsibility”* (p. 3). The authors call for the need to understand why and how certain types of inter-organisational negotiations, and not others, precede the establishment of stable definitions of corporate responsibility which eventually come to be taken for granted, or black-boxed in ANT parlance. Combining ANT and institutional theory insights, their study provides a theoretical framework to understand how legitimacy linked to CSR strategies is achieved. They claim that ANT has rarely been used in this type of studies due to the lack of focus in previous research into the inter-organisational negotiations that precede the establishment of definitions of corporate responsibility.

Egels-Zanden and Wahlquist (2007) argue that it is through translation processes comprising the acts of negotiation and persuasion that companies are able to set their CSR agendas. The ability to enrol NGOs, unions, governmental organisations and other actors as supporters of their proposed definition of a responsible company leads to the achievement of legitimacy. This point implies that legitimacy is provided or conferred by influential stakeholders, who do so because they were previously successfully enrolled. In this sense, from an ANT perspective, the stakeholders of a “definition” might consist of both human and non-human actors; artefacts and texts may be potentially constituted as another

influential stakeholder group that, along with 'human' actors are able to confer legitimacy to the proposed definition of CSR.

2.3.2 THE INDUSTRIAL NETWORK APPROACH

The IMP framework derives originally from empirical studies on the nature, content and development of business relationships, from which IMP scholars developed the 'Interaction Model' (Håkansson, 1982). As a descriptive rather than a normative approach, it grants pivotal importance to the mechanisms through which relationships evolve within interaction processes, providing both constraints and possibilities for action (Ford and Håkansson, 2006).

The 'Industrial Network' approach emerged as a development of the interaction model (Håkansson, 1987, Axelsson and Easton, 1992, Håkansson and Johanson, 1992, Håkansson and Snehota, 1995) and is mainly rooted on the idea that industrial markets are not atomistic, i.e., formed by independent firms performing transactions with anonymous counterparts. Instead, markets are viewed as networks of connected relationships between active and heterogeneous firms, interacting with each other and seeking solutions to their different problems. As claimed by Easton (1992): "What the industrial network approach adds to the interaction approach is the knowledge that the focal firm (a) cannot be managed in isolation from the other relationships a firm has and (b) represents a conduit to other relationships through which resources may be accessed" (p. 25). Thus firms do not operate in isolation, but in the context of interconnected business relationships forming industrial networks. The notion of

connectedness is crucial here. Relationships are not only interdependent but also connected to each other forming an aggregate structure, i.e., a network (Håkansson and Snehota, 1995).

Hence, according to this framework, studies based on a single company are inevitably limited and biased, providing an incomplete and inadequate view of the world surrounding the company. Assuming that companies' actions influence and are influenced by a diversity of other organisations' actions in inter-organisational relationships and that networks have no centre and no objective boundaries, makes the task to researchers examining unfolding network outcomes a difficult one. A Network Model was developed to address this complexity (for a comprehensive review of the model see: Håkansson, 1987, Håkansson and Johanson, 1992, Håkansson and Snehota, 1995). It suggests that network outcomes, are multi-faceted and multi-layered and might be examined along three interdependent dimensions: actors, resources and activities. The model (henceforth ARA model) pictures an overall structure of networks where actors are defined by the activities they perform and the resources they control. To perform activities, actors use resources to transform other resources and lastly, resources are used by actors as a mean to perform their activities (Håkansson, 1987). This view obviously challenges conventional views of strategy. Although strategy development and strategising practices have not been broadly discussed in the Industrial Network approach, they have received great attention from IMP scholars (Håkansson and Snehota, 1989a, Axelsson, 1992, Araujo and Easton, 1996b, Mattsson, 1998, Gadde et al., 2003, Baraldi et al., 2007, Baraldi, 2008, Harrison and Prencert, 2009).

2.3.2.1 *Role of actors*

In the strategic management literature, 'actors' are seen as autonomous and self-sufficient firms able to develop their own strategies relying mainly on their own resources and competencies. This view is challenged by the IMP Group whose work provides an alternative to "classical" marketing models, whereby exchange and market structures are examined in terms of buyer-supplier relationships and the industrial networks within which those relationships are embedded (Ford, 1980, Håkansson, 1982, Axelsson and Easton, 1992, Håkansson and Johanson, 1992, Håkansson and Snehota, 1995).

In contrast with strategic management mainstream, IMP scholars argue that no company alone has the necessary skills, technologies or resources to satisfy their strategic needs. Hence they are dependent on the actions and intentions of counterparts to get access to resources they need and do not own (Ford et al., 2002). In the often-quoted ARA (actors-resources-activities) model (Håkansson, 1987, Håkansson and Johanson, 1992), actors are broadly defined as entities (single individuals, groups of individuals, firms, groups of firms) that perform and develop activities based on access to resources, directly by ownership or indirectly through relationships. According to this framework, industrial networks are conceptualised as a structure of connected relationships within which dynamic actor bonds, resource ties and activity links emerge in a context of simultaneous stability and change. All these connections are an outcome of interactions amongst actors.

The usefulness of this perspective is that it denies the autonomous and independent nature of the firm portrayed in strategic management as a self-governing entity able to “...develop and implement its own independent strategy based on its own resources, taking into account its own competences and shortcomings” (Ford, 2002, p.2). Instead, it favours a view where firms have limited discretion for action. Firms depend on and are influenced by the action and attitudes of counterparts with whom relationships are conducted.

2.3.2.2 *Relational view of strategy*

The literature on strategy is usually concerned with a firm’s ability to triumph in competitive environments and the efforts of one actor to gain power positions against rivals in an external and anonymous environment (e.g. Porter, 1980, 1985). Gadde, Humer and Håkansson (2003) emphasize that mainstream literature on strategic management grants too much importance to this competitive aspect of strategy and neglects interdependence and collaboration within inter-organisational relationships as crucial facets of strategic action. From an IMP perspective, competitive advantage is not about being “‘against’ others but mostly “in relation to others” (Baraldi et al., 2007, p. 884). Nevertheless a few contemporary strategy scholars have also acknowledged the importance of relationships and interactions in strategic processes (Dyer and Singh, 1998, Gulati et al., 2000, Pettigrew et al., 2002).

An interesting question raised by Araujo and Easton (1996b) concerns the definition of strategy provided by Mintzberg (1978). Their claim is that Mintzberg proposes a processual definition of strategy as a “pattern in a stream of actions and decisions” (op. cit., p. 368) but ignores the processes that lead to such patterns, that is, ignores the way in which consistency of strategic behaviour might occur over time. Discussing sources of consistency as internal (cognitive, cultural, political, economic/technological processes) and external processes (market exchange relationships, institutional exchange relationships and network structures), the authors argue that consistency arises from the interaction between the inside and the outside of the firm. They further note that even the internal processes are often produced by external social, economic and political forces. For these reasons they present a “relational view of strategy (...) as “embedded in a set of practices and relations lasting long enough to allow us to attribute consistency and strategic intent to the behaviour of firms” (p. 361).

Strategising, in turn, is about a firm’s efforts to influence its position in the network which involves collaboration and mutual dependence within business relationships (Johanson and Mattsson, 1992). That is to say, strategising is not about a company’s self-contained pathway to achieve particular goals but about “identifying the scope of action, within existing and potential relationships and about operating effectively with others within the internal and external constraints that limit that scope” (Håkansson and Ford, 2002, p. 137).

Although the strategic management literature suggests that firms should avoid being over dependent on and controlled by others, the Industrial Network

approach stresses the importance of building interdependences systematically in order to obtain benefits through cooperation (Dubois, 1998, Håkansson and Ford, 2002, Gadde et al., 2003). The implication is that identifying the scope for action in a strategising process means assessing present and future relationships in order to identify which counterparts should be activated in the development of the strategy, given its activities and resource bases (Håkansson and Snehota, 1989a, Gadde et al., 2003)

One other feature of conventional approaches to strategy is the assumption that achieving competitive goals is about allocating known and controlled resources, the value of which is perceived as given. A network perspective clearly challenges this view by questioning the degree of control that a firm might have over resources (Araujo et al., 1999, Ford and Håkansson, 2006). This is because a firm partially controls resources owned by other firms and has its own resources partially controlled by the requirements of counterparts (Araujo et al., 1999). Companies involved in close relationships have to continuously reassess how their resources should be combined and with which counterparts given that those decisions will affect resources' features and value. This implies that the value of a resource is not given, as assumed in the microeconomic view of the firm. Instead, and as it possesses multiple features and can be used in many different ways, its value is dependent on the way it is used and combined with others (Håkansson and Snehota, 1989a). Furthermore, the systematic process of combining and recombining resources within relationships brings further opportunities for the development of new resources. Relationships are therefore

an important resource and also a tool to change the use and value of other resources (Gadde et al., 2003).

Business relationships are also taken to be strategic resources in the sense that through relationships the resources of a company are tied to resources in other companies giving rise to systematic combination of resources (Håkansson and Snehota, 1989a). This view of relationships as resources and as providers and consumers of other resources reveals new features for strategic action given that "... a significant part of a company's total resource base is located beyond its ownership boundary and is controlled bilaterally with other firms" (Gadde et al., 2003, p.359).

In summary, in the Industrial Network approach a company's position is determined by the activity links, actor bonds and resource ties which emerge from their business relationships, that is to say, "... the position of a company is determined more from the outside than from the inside, and is contingent on how the company relates to the firms with which it actually is involved in business exchanges" (Gadde et al., 2003, p.362). As far as this research is concerned, this relational view of strategy offers better explanations of strategy development than traditional approaches where strategy is conceived as an outcome of independent actions and facing anonymous actors in competitive environments. Using the words of Baraldi et al (2007) "there is a scope for an empirical study employing an industrial networks conceptual framework to unravel and understand the details of how strategies (however they are defined) are formed and emerge in a network context" (p.890). The present study

attempts to unravel some of those details by exploring how sustainability strategies aimed at building up an overall corporate qualification are constructed in a network context.

2.3.2.3 Adoption of IN in “greening the business” studies

IMP frameworks have also been used in a number of empirical studies dealing with strategising issues towards sustainability. For example Andersson and Sweet’s study (2002) focused on strategic actions taken by a food retail chain to implement an environmentally sustainable system for waste recycling. The study, inspired by the industrial networks approach (Håkansson and Johanson, 1992) and the idea of strategic actions in overlapping networks (Mattsson, 1998), stressed the importance of creating new activity links between both systems and integrating activities in the whole recycling activity chain, from food suppliers to waste handling firms and showed how the roles of organisational actors involved necessarily had to change to adapt to a higher degree of technical interdependencies and to a new way of performing activities. Similar conclusions were drawn in Håkansson and Waluszewski’s (2002) study on IKEA’s chlorine-free catalogue paper where the new “green” catalogue required new bonds with several actors and resources to allocate new combinations of different technologies. This study led to the development of the “resource interaction” framework (labelled 4 R’s model) which was later used by Baraldi, et al (2009, 2011) in a study on the creation of an eco-sustainable solution.

Baraldi et al (2011) looked at the creation of a specific network to build an environmentally-friendly house with zero CO₂ emissions - the Loccioni's "Leaf Community" project - and focused particularly on the embeddedness of resources in a new complex solution and the changes that occurred in the network during such embedding. This study also sheds some light on the issue of value creation in networks. Defining the value of eco-sustainability as "a value that is created when specific products and facilities cause as little as possible negative impact on natural resources" (op. cit, p.3), the authors claim that the value of a resource might be created not only when it serves its encoded purpose but also when it adds environmentally-friendly features to the final product. They further highlight that embedding such a positive value in a specific resource requires that several resources from different actors get combined.

The relevance of these studies for the present investigation is that they provide empirical exemplars of the significance and usefulness of IMP frameworks to research strategic actions towards sustainability. The relational idea of interdependence and connectedness between actors to delimit the scope of a firm's actions but equally emphasizing other actors' resources and activities as delimiters of those actions is particularly valuable, as far as this research is concerned; not because of the notion of relational connectedness *per se*, which is also part of ANT's framework, but because it provides a structured view of networks of organisations, resources and activities, evolving from many different connections, rather than a narrowed view of organisations as actor-networks.

In summary, the insights drawn from these frameworks can be combined and integrated to suggest a coherent and rich view on strategising, even though they are not entirely commensurable. Before engaging in a discussion on how IMP and ANT may together contribute to the understanding of strategising towards the establishment qualifications, the next section reviews the last and most important theoretical construct of this chapter, that is, the theoretical perspectives on qualification and valuation processes adopted throughout this research.

2.4 THEORETICAL PERSPECTIVES ON QUALIFICATIONS AND VALUATION S

Over the last three decades a large and growing body of literature on the study of qualities and qualification has emerged within the social sciences. The relevance of these concepts for this research is obvious since it aims at investigating the processes through which firms are qualified as sustainable. This section is thus dedicated to critically reviewing the development and employment of the concepts of quality and qualification in market studies and to elaborating on its usefulness for this study. It starts by giving an account of the origins and use of the concept in French sociological literature and its extension to the study of product qualifications and singularities in markets. This is followed by a review of the particular view of goods' qualification and requalification as a strategic game in section 2.4.2 and some comments on the issues of valuations, calculations and qualculations in section 2.4.3.

2.4.1 QUALIFICATION STUDIES: FROM LABOUR TO GOODS

The notion of qualification was first used in French sociology to describe and evaluate labour and workers. The concept was used with a double meaning: to refer to who/what is qualified (e.g a skilled or unskilled worker) and the process (e.g. job) by which someone/something is qualified. It embraced a dialectical movement between constructing the set of professional qualities held by a worker and the set of qualities needed to perform a job³.

The main idea of these studies that later helped building the sociology of worth within the 'conventions school' (Boltanski and Thévenot, 1991, 2006) was the recognition that "personal *qualities* result from the social construction of *qualification* by the bargaining between groups that promote different definition of qualities and qualification" (Musselin and Paradeise, 2005, p. S91, italics in original).

The notion was then transposed to economics by Eymard-Duvernay (1986) to contest the homogeneity of markets and study their segmentation according to different qualities of products and services, and later used and further elaborated by Karpik (1989), who introduced the term "economics of quality" in his study on the pricing of services in monopolistic professions. Studying the moderate prices of legal services where excess profits could be taken, Karpik opened the debate

³ For a brief review of the origins and use of the concept of qualification see: MUSSELIN, C. & PARADEISE, C. (2005) The concept of quality: a brief historical review in the French social sciences and three questions. IN MUSSELIN, C. and PARADEISE, C. (Eds.) Quality: a debate. Sociologie du Travail. Vol. 47, pp. S89-S123

on the quality of services as something that cannot be constructed outside the customer-producer relationship (Karpik, 1999).

Discussions around quality, qualities, qualification and qualifications of goods followed in the fields of 'economics of conventions' and 'sociology of socio-technical networks' to provide definitions of goods and products and explanations of the features of market exchanges based on contextualised relations between products, customers and suppliers. For example, a quality approach was used to discuss industrial certifications in Cochoy et al (1998), to theorize on the processes through which goods are qualified in consumer markets (Callon et al., 2002), to discuss markets as collective devices whose function is to create agreements on the quality of goods and on price mechanisms (Callon and Muniesa, 2005) or to propose that exchange in markets of singular products (such as luxury goods, fine wines, arts, professional services) is based on qualification (judgements) rather than on prices (calculative reasoning) (Karpik, 2010).

This relational approach to qualification and quality construction of goods is a fundamental keystone of this research which aims to transpose the approach to the qualification of firms. Hence it deserves further treatment in the following sub-sections which elaborate on two themes of particular relevance to explain qualification processes: the notions of quality and singularities, and the strategic games involved in qualification-requalification.

2.4.2 QUALIFICATION OF PRODUCTS: SINGULARITIES

As mentioned above, the notion of quality transposed to commodities (goods and services) was put forward in Karpik's works on the "economics of quality" and "economics of singularities" (1989, 2005, 2010). The main idea behind these frameworks is that goods and services are ultimately defined by their qualities and not by their price. Karpik (2005) uses the terms "quality products", "singular products" and "singularities" interchangeably to denote the existence of two different forms of market coordination: that around homogeneous/differentiated products and that around quality products or singularities. The main difference between them is that in "markets of singularities" – characterised by quality uncertainty and quality multidimensionality – the coordination mechanism to adjust producers and customers is not based on price competition, but on quality competition (Karpik, 1989).

In this context of quality primacy over price competition, final choices on which goods to buy are determined by the *identification* and *evaluation* of their attributes. Identification of attributes, which has been a central topic in Eymard-Duvernay (1986, 1989), Boltanski and Thévenot (1987, 1991) and more recently Callon et al (2002), is facilitated by the construction of agreements, conventions and categories that produce contextualized classifications of multiple and co-constructed, rather than unique or intrinsic, attributes. According to Musselin and Paredeise (2005), these studies overlook evaluation as a necessary function to reduce uncertainty. This aspect was brought to light by Karpik (1996) to establish that exchanges are made possible through judgment devices and

promise devices that influence buying decisions. Hence the qualification process based on multiple and constructed attributes makes the good identifiable and singular but it also provides a basis to evaluate these attributes.

From this perspective, market exchanges cannot take place without qualification and judgment, which in turn involves a variety of intermediaries and collective intermediation arrangements – such as rankings, benchmarking lists, guides, patents, brand names – used to connect supply and demand (Cochoy et al., 1998, Karpik, 2000, Callon et al., 2002). According to Karpik (1996, 2010), since exchanges are dependent on judgement, intermediaries and intermediation arrangements play a crucial role on the evaluation of quality.

First, judgment regarding quality is mainly based on personal and impersonal trust and confidence. Hence, exchange participants tend to mobilize personal networks to reduce the uncertainty on the quality of goods and services and to support their evaluation processes. A variety of different actors is thus involved in the evaluation and qualification process (e.g. exchange participants, intermediaries, market actors) in what Callon et al (2002) call hybrid forums (these forums will be further discussed in section 2.2.3). Secondly, as singularities are recurrently contested and renewed, reducing quality uncertainty requires “quality market equipment” made of external arrangements (judgment and promise devices) (Karpik, 2005, p. S112). Hence, the interaction between actors and devices such as intermediaries, networks, experts, business consultants, labels, rankings, reputation, guides, brands, provides knowledge and

trust to support customers' decisions and determines the final qualification of singularities.

In summary, the economics of singularities framework proposed by Karpik (e.g., 1989, 1996, 2005, 2010) grants primacy of quality judgements over calculative reasoning and highlights the role of judgment devices to orient consumers' choices. Given the research goals of the present study, the singularities perspective offers valuable insights to move towards a broader investigation of how firms get qualified in particular and stable ways. As remarked by Karpik himself (2005), his analysis is "...limited to commodities, but it could be extended to other bearers of singularity like corporations" (p. S114).

Although Karpik's work focuses on the singularity of commodities as a key function of market coordination, it overlooks the processes through which qualities are attributed and stabilised. This aspect is contemplated by Callon et al (2002) whose work on the so-called "the economy of qualities" brings a significant contribution to assist this research. This perspective is discussed in the following section.

2.4.3 QUALIFICATION-REQUALIFICATION OF GOODS AS A STRATEGIC GAME

The "economy of qualities" framework proposed by Callon et al (2002) looks at qualification of goods as a strategic game to deal with competition by positioning and repositioning goods in the market. The authors propose the notions of

objectification, singularization and *attachment-detachment* to refer to the structuring mechanisms of qualifying goods according to economic agents' strategic goals.

These terms in use are inspired by Karpik's work reviewed above, but it is highlighted that a focus on *qualities* rather than on *quality* is privileged to move away from a focus on the configurations that lead to the quality of products, to a more encompassing treatment of the multidimensional qualities that influence the processes of qualification-requalification.

To explain the multidimensionality of qualification processes, Callon et al (2002) call attention to the variety and heterogeneity of actors that exert influence on the definition and evaluation of characteristics of quality. Referring to the proliferation of the so-called *hybrid forums*, the authors discuss how the functioning and organization of markets are discussed in public spaces by many different economic and non-economic actors (firms, consumer associations, economists, anthropologists, sociologists, international organisations, protestors, biologists, climatologists, non-governmental organisations) with contrasting roles and sometimes holding opposing views.

The point here is that all these actors contribute to produce knowledge about markets, influencing their organisation and functioning, by sharing their viewpoints, critics or support, about products, brands, firms – and their qualities – in public arenas. Given this plethora of economic and non-economic agents/opinion-makers, the question around qualification of products concerns

the strategies through which actors establish the qualities of their products and mobilize a whole series of actors to support their proposed definitions.

An important distinction provided by Callon et al (2002) is the one between products and goods. A product is a process constituted by a series of transformational operations (production, circulation and consumption) where it is changed, moved and passed through different hands and sites until turned into a form judged useful by economic agents. The economic good, in turn, corresponds to a state in a moment of time where its characteristics are stabilized in order to make it tradable. Hence, the journey from products to goods is that of qualification and requalification where its attributes emerge and change from the co-construction of agreements, categories and conventions that continuously define its quality and make it identifiable. Hence "...the product is thus a process, whereas the good corresponds to a state, to a result, or more precisely, to a moment in that never-ending process" (ibid, p. 197). Even after exchange and consumption the qualification of the good continues (the quality of a second hand car, for example, is redefined and judged valuable by a new buyer).

Similarly to Karpik's view (1989), a good is defined by a combination of characteristics that make it singular and also comparable to other goods with similar or dissimilar characteristics. Thus defining a good is about "...positioning it in a space of goods, in a system of differences and similarities" (Callon et al., 2002, p.198). The question raised by the authors is how the goods' characteristics are defined and established. Answering this question might lead

to conclusions concerning the goals of this study, namely the definition and establishment of firms' qualities.

The same authors suggest that the process of defining a good's characteristics is that of *objectification*, meaning that they are not properties already existing or observable, but "revealed" within interactions between the good and agents where tests and trials take place (ibid, p. 198). This, in turn, requires investments in metrological equipment and work through which controversial decisions must be made, such as which characteristics should be taken into account or which value should be attributed to each of them. The aim of these qualification trials is to reach an agreement on the characteristics of the goods that determinate its qualities. Since this process of objectification evolves as the product develops within its transformational operations, Callon et al (2002) prefer to talk about qualities and a continuous process of qualification-requalification: "All quality is obtained at the end of a process of qualification, and all qualification aims to establish a constellation of characteristics, stabilized at least for a while, which are attached to the product and transform it temporarily into a tradable good in the market." (Callon et al., 2002, p. 199) .

The value of this perspective, as far as this study is concerned, is that it offers some compelling questioning about what lays behind the establishment of goods' (and potentially firms') qualities. Theorists of qualification have generally not explained the processes through which qualities are attributed, stabilized and objectified throughout a good's journey. Moreover by providing the distinction between products and goods, and recognising the various metamorphoses of the

goods' transformational operations, the "economy of qualities" framework à la Callon et al (2002) encourages a way to look at qualification processes from a strategic point of view.

Using Chamberlain's insights (1946), Callon et al (2002) remind the reader that since the product is a strategic variable and since the ability to modify the list of qualities is a strategic resource, the qualification-requalification of goods is a "strategic game of positioning" (p. 201). Hence, the processes through which goods' qualities are defined are central to economic competition and the functioning and organization of markets. However, they also point out that firms cannot force consumers to accept their definitions of quality and tell them how to rank their goods in relation to competitors'. Thus, the participation of consumers in this game becomes a crucial part of the game.

Goods are only stabilized from the set of qualities that define them, if these qualities are clearly identifiable and made comparable with other goods. This task, however, is not successful if consumers are not able to recognise the quality and consider it as a variable for comparing offerings. In this sense, they are active participants of the qualification-requalification process because "it is their ability to judge and evaluate that is mobilized to establish and classify relevant differences" (ibid, p.201). As consumer decisions are also influenced by intermediaries and debates in hybrid forums, the strategic management of qualification-requalification processes evolves from the interactions between goods and a variety of heterogeneous actors. So which strategies, or structuring mechanisms, are employed to qualify goods and organise markets? Callon et al

(2002) suggest two mechanisms through which competition is structured: singularization of products and attachment/detachment of goods to/from consumers.

The mechanism of *singularization* is related, on one hand, to how consumers perceive and evaluate differences between products, ranking them in terms of preference; and on the other hand, to how suppliers ensure that the properties of their products are identified and positively evaluated. This process entails a gradual definition of the properties of the product, through which it becomes both comparable to and different from other products (Callon, 1980, Karpik, 1996). Products then become linked to each other through classifications, clustering and sorting. Is the establishment of these relations immersed in a space of qualities that allows for comparison (Callon et al., 2002, Callon and Muniesa, 2005).

Debating the issue of uncertainty linked to goods' qualification, and inspired by Chamberlain's work, Callon (2005) reminds us that the process of singularization "might be acted upon patents, brand names, special packaging or containers, style, colour, the convenience of the seller's location, his business practices, reputation for honesty, courtesy, efficiency" (p. S95). All these aspects contribute to situate the different products in relation to each other within socio-cognitive arrangements strategically set up to support consumers' evaluations (Callon et al., 2002, Cochoy, 2008).

The second mechanism, that of *attachment*, occurs when the work on singularization succeeds, that is, when the products' qualities corresponds to those wanted by consumers. Here, the consumer is attached to the good. As observed by Callon et al (2002) "competition between firms occurs precisely around this dialectic of attachment and detachment" (p. 205). Hence as attachments are constantly threatened, competition leads to constant processes of attachment of consumers to some products and detachment of consumers from other products.

Detachment, in turn, occurs when consumers participate in the requalification of products, when they re-evaluate their preferences and reorder their preferred list of products. However, consumers are often caught in routines and their evaluations remain objectified and stabilised. Thus, detaching consumers requires the work of "...professionals of qualification (...) who constantly try to destabilize consumers, to extract them from routines and prompt them to re-evaluate the qualities of products, hoping that requalification might be favourable to them" (Callon et al, 2002, p.206).

In summary, the application and extension of "the economy of qualities" à la Callon et al (2002) to the context of firms' qualification appears immediately obvious and appealing. Although the work reviewed here is very much focused on consumer markets and on the qualification of goods, this study proposes to use these contributions and transpose them to the qualification of firms in business-to-business markets.

2.4.4 ON VALUATIONS AND CALCULATIONS

The notions of value and value creation are key subjects in management studies, particularly in the areas of strategy and marketing. After all, as Normann and Ramirez would put it, strategy is the art of creating value (1993). As mentioned in section 2.1, the creation of stakeholder value or sustainable value, is discussed as the key goal of sustainability strategies. However, the processes through which value is generated are described as ready-to-implement toolkits in a linear, prescriptive and taken-for-granted fashion.

This section presents an alternative view to value creation in contrast to conventional ideas employed in strategic management studies (and sustainable strategic management). Hence, two particular viewpoints are reviewed: one centred on a networked view of value creation and one centred on valuations and calculations.

2.4.4.1 Value creation in networks

Scholars endorsing network approaches to value creation (e.g. Normann and Ramirez, 1989, 1993, Parolini, 1999, Ramirez, 1999) challenge conventional approaches to strategy, where value is equalled to price and value creation is interpreted as occurring in a sequential value chain (e.g. Porter, 1985, 1990, 2001).

In marketing, studies are typically divided into two main streams: value of products/services and value derived from relationships (refer to Lindgreen and Wynstra, 2005 for a comprehensive review). Some of these studies have a specific focus on dyadic relationships and how interactions provide sources of value for buyers, suppliers or both (Tzokas and Saren, 1997, Walter et al., 2001, Möller and Törrönen, 2003, Ulaga, 2003). Others open up the examination of value creation processes to a network level where the unit of analysis is shifted from business dyads to encompass other direct and indirect relationships in a wider network (Möller and Rajala, 2007, Cova and Salle, 2008, Storbacka and Nenonen, 2011, Corsaro et al., 2012).

Within the IMP group, scholars have focused on interactions and relationships as sources of value (Axelsson and Easton, 1992, Håkansson and Snehota, 1995, Ford, 2002). These studies debate the dimensions of the ARA model discussed in section 2.4.1 - activity links, resource ties and actor bonds – as potential sources of value. It is the interplay between the three layers that dictates the value of the connections between them (Håkansson and Snehota, 1995). Given that relationships are connected to each other in a way that their effects are transmitted beyond their boundaries, the IMP framework suggests that the sources of value are not comprised in single companies, or even in dyadic interaction; instead value is created through several overlapping interactions happening simultaneously in a complex network of relationships. This view is similar to that of Normann and Ramirez (1993), who introduced the idea of value constellation to challenge sequential and linear views of value chains/systems.

According to this view, value is co-produced by actors who interact with each other. From the IMP perspective, it is through interaction that actors get access to resources they do not own, combine them in different configurations through interfaces with other actors and generate new opportunities for value creation (Baraldi and Strömsten, 2006). Thus an individual resource may be used and valued in different or overlapping networks as suggested by Mattsson (1998) and the different networks may interact and overlap with each other, giving rise to new resource combinations and consequently new resource developments (Håkansson, 1993). Hence, the IMP framework, in a sense, extends Normann and Ramirez' work by considering a variety of interacting situations and configurations whereby value might be created.

This study is, to a great extent, influenced by this idea that the value of an offering, a resource, a relationship, is an outcome of the interdependencies between many different actors. The difficulty here is to understand the creation of a particular type of value, one that is intangible, difficult to identify and measure, and multidimensional. This is because the value linked to sustainability can be related to green branding, corporate image, green products, sustainable practices and so on. Hence, considering that different values emerge from different dimensions of sustainability contribute to an overall definition of sustainable value, the questions is how is/are these value(s) created and perceived within sustainability strategies and what is the role of inter-organisational relationships in this process?

A network approach draws attention to the various ways in which relationships produce the opportunities for value creation, but this study deals with a particular quality whose value is uncertain, difficult to identify and measure. In parallel with Karpik's (2010) notion of singularities, sustainability is a "unique" quality, valued in different ways, by different actors with different perceptions and judgment abilities. Hence understanding the processes through which sustainable value emerges could be further explored by complementing network views on value creation with a sociologically-driven approach to valuation and calculation. The following sub-section elaborates on this topic.

2.4.4.2 *On valuations and calculations*

In section 2.2.3 it was made clear that working on processes of qualification and requalification of products mobilizes a whole series of collective arrangements and groups of actors, not only internal but also external to the market, that can interfere with the qualification process of clients' attachment to products. Some of these actors are not visible at the transaction moment, but without them the objectified good could not have been attached to the buyer (Callon et al., 2002, Callon, 2005).

In this theoretical framework, the value of goods is discussed in terms of this process of attachment: "Since a good is an individualised product, its value corresponds to the strength of its attachment to the buyer's socio-technological world" (Callon, 2005, p. S99). Hence valuation is a result of a successful process of attachment, but it might also create the conditions for subsequent processes of

detachment. Evaluating the worth or quality of goods only becomes possible through relationships with other actors with whom opportunities to create, enhance or perceive value emerge. However, from an ANT perspective, goods and actors are not conceived as external to one another. Hence this process of attachment cannot be reduced to the characteristic of the things being valued nor the evaluating actors' systems of meanings; instead it is produced by a series of adjustments between them, supported by the actors' calculative methods and equipment (Callon and Muniesa, 2005, Callon et al., 2007) and influenced by a diversity of other aspects of the social such as the law, politics, economic expertise, environmental knowledge, all bound up in what Callon et al (2002) labelled hybrid forums.

One important aspect of the evaluation process is the need to constantly ask what counts as valuable and by what measures (Stark, 2009). Instead of discussing *value* from an economic perspective or *values* from the point of view of social relations, Stark suggests a fusion of both concepts into the notion of 'worth'. Inspired by the work of Boltanski and Thévenot on 'The economies of worth' (originally published in 1991 and translated in 2006), Stark argues that instead of the static notions of value and values, the term 'worth' focuses on ongoing processes of *valuation* (2009). So how are these processes of valuation developed and what comes out or what gets constructed from it?

It was already commented above that, in an approach centred on singularities, value is identified and perceived through judgments of quality rather than price determination (Karpik, 2010): "When products are singularities, when the actors

give more weight to qualities than to price . . . *choice takes the form of judgment*' (p. 39, emphasis in the original). The emphasis is shifted from decisions based on logic and calculation, to judgment. Judgment, in turn, is "an art of doing, a practice" (p. 43) that integrates a plurality of criteria to make qualitative choices based on value and knowledge, rather than on price. Among other signals, price can, and often does, signal the quality of a good, but it is not a component of its quality nor a unique representation of its value (Eymard-Duvernay, 2005), especially when something that stands normally outside market exchange, like sustainability, comes to be attributed as a quality with an economic value. Hence valuations are developed within judgment rationales, rather than purely economic or tangible ones.

It should be noted though that judgment does not mean that calculations are not in place, but that tangible value (price/money) is just one axis by which actors commonly assess the 'worth' of things (Boltanski and Thévenot, 2006). Moreover, as argued by Callon and Muniesa (2005) "calculating does not necessarily mean performing mathematical or even numerical operations (Lave, 1988). Calculation starts by establishing distinctions between things or states of the world, and by imagining and estimating courses of action associated with those things or with those states as well as their consequences" (p. 1231). Calculations are, in this sense, ways of establishing distinctions between objects, i.e. ways of comparing. Comparisons are thus necessary to list, rank and establish qualities of goods and corresponding orders of value; as Boltanski and Thévenot (2006) would put it, to qualify is to establish equivalencies between goods. Hence metrics, tools, instruments, devices are needed to support comparison and

valuation processes. On this matter, Karpik argues that, in order to dissipate the “opacity of the market” and to reduce buyers’ “cognitive deficit”, consumers are supported by judgment devices or *dispositifs* (p. 44-45). Ranking systems, for example, function as a key judgment device to hierarchically express different qualities through a shared metric (Espeland and Stevens, 1998, Karpik, 2000, 2010). Rankings, Karpik (2010) argues, commensurate and produce distinctiveness in ways that other comparison devices do not. Commensuration, as defined by Espeland and Stevens (1998) is “the expression or measurement of characteristics normally represented by different units according to a common metric “ (p. 315). Hence, it flattens and homogenises qualitatively different things into quantities/numbers that can be easily compared into one list. In due course these ranking systems might induce future reactivity from institutions, in the sense that their behaviour might alter “in reaction to being evaluated, observed, or measured” (Espeland and Michael Sauder, 2007, p. 6). Apart from rankings, Karpik (2010) suggests other types of judgment devices that support valuation processes, such as personal and impersonal networks (e.g friend’s recommendations/practitioners networks), “appellations” that convey meanings and define something as unique (e.g. brands, labels, product identity), “cicerones” that offer expert’s evaluations (critics, guidebooks like the Michelin guide) and finally confluences, which defines the apparatus of marketing and sales (techniques to channel buyers).

Here, a parallel with the idea of socio-technical devices put forward by Callon et al (2002) can be established. These authors claim that “The perception of differences and their evaluation, a dual operation that constitutes the exercise of

judgement, implies a consumer immersed in a socio-technical system of which the different elements will each, in its own way, participate in the implementation of that dual operation.” (op cit., p. 203). Socio-technical devices, taking the form of human competencies and material devices (e.g. rankings, metrics, shopping lists, packaging, supermarkets, shopping carts) are thus designed by economic agents to support valuation processes in the sense that they facilitate the framing and construction of spaces of calculability. These calculative spaces can be provided by a variety of devices, as for example an Excel spreadsheet encompassing the names and prices of competing products or a supermarket where goods are displayed on shelves or a sustainability report where awards, certifications and practices are presented to position the firm in terms of ‘sustainable performance’. Hence, socio-technical devices also participate in valuation processes in the sense that they construct the boundaries of the calculative spaces where things are compared to each other (products, firms, practices). Callon and Muniesa (2005) postulate that the calculative power of agencies is dependent on these devices and varies from agent to agent. Thus by equipping buyers with different calculative devices, different calculative abilities are constructed.

This discussion of what lies behind processes of valuation and calculation ends the review of the theoretical approaches adopted in this research. The next section summarises the key ideas that contributed to develop a mind map to understand processes of qualifications of firms and presents the research questions based on the gaps and complementarities found in the reviewed literatures.

2.5 CONCLUSIONS: WHAT REMAINS TO BE DONE?

This section concludes the review of the theoretical frames employed in this study. It has two principal objectives: first, to reveal how the main ideas that emerged from the theoretical discussion are compatible and complementary to study the processes of developing firms' sustainability qualifications, thus providing an alternative perspective to the "greening the business" literature; and second, to formulate the research questions investigated in this study, thus highlighting that there is still space for enquiry.

The literature reviewed in this chapter and the considerations aligned in the above section attempted to demonstrate that each individual perspective addresses particular aspects that, combined, constitute a multifaceted theoretical base to answer the research questions of this study. This research endorses a relational view of strategy to understand how sustainability qualities emerge and how a number of actors of different natures influence, and are influenced by, the companies' ability to develop and establish a sustainability qualification. As illustrated in Figure 2-2, the focus of this research is thus positioned in the intersection of three frameworks: 1) studies on qualities and qualifications, 2) studies on developing sustainable strategies and creating sustainable firms and 3) studies that offer a relational view of strategy and strategising.

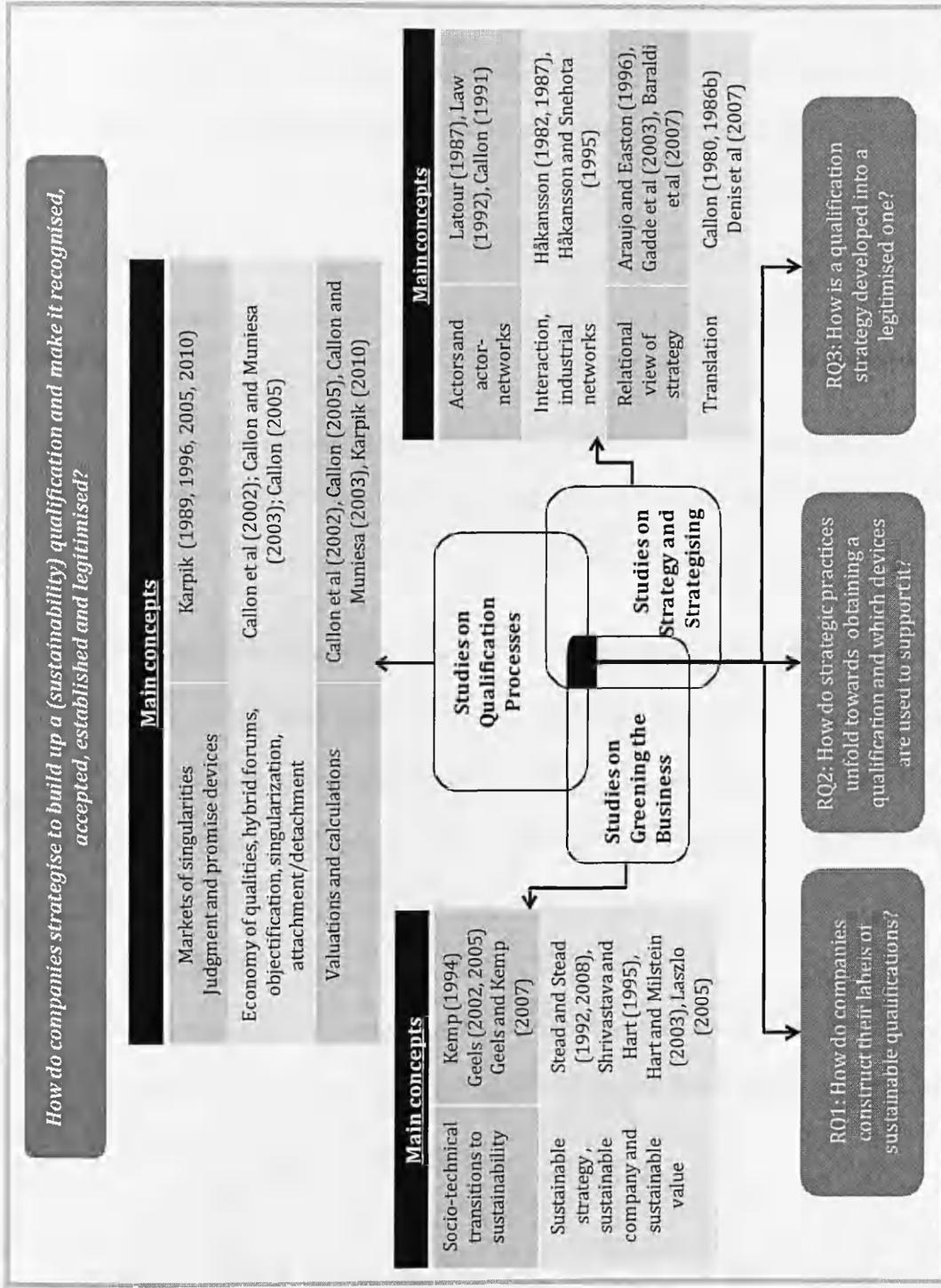


Figure 2-2: Bridging theoretical frameworks with research questions

Figure 2.2. illustrates the mind map used throughout this research to position the study in theoretical terms but also to guide the analysis of the cases and the search for answers to the research questions. Each of the three theoretical frames provides valuable insights allowing us to examine strategising from a different angle and suggests different roles for actors. Hence insights drawn from these frameworks were integrated to guide the investigation of qualification processes as a strategic matter (in this case qualification towards sustainability)” or as stated in the overarching ambition of this research, to answer the question:

How do companies strategise to build up a (sustainability) qualification and make it recognised, accepted, established and legitimised?

The theoretical framework “studies on greening the business” was extremely valuable to recognize the importance of integrating sustainability issues into the list of strategic priorities of firms. Studies on socio-technical transitions and sustainable strategic management raise important questions on the complexity of transitions to more sustainable systems. These studies were also very helpful to acknowledge the proliferation of terms such as ‘sustainability strategy’, ‘sustainable firm’ or ‘sustainable value’. However these perspectives do not provide any explanation on how these labels, or how these qualities, become attached to the qualified objects.

The first concern of this study was the considerable use of taken-for-granted objects qualified as sustainable (goods, firms, practices, strategies) in the absence

of a qualification approach that might explain those labels. As a result and narrowing the general research question, this study aims at finding answers for three questions. First it asks ***'How do companies construct their labels of sustainability qualifications?'*** This question is mainly addressed through the insights of the second theoretical framework – “Studies on qualification processes”. The concepts of singularization, attachment and detachment will be utterly important to unveil the processes through which firms define and describe themselves as sustainable – and as *performants* of sustainability strategies – in qualification-requalification practices and how these strategies are communicated in terms of its contribution to more sustainable industries.

The second and third questions are directed to the issue of strategising practices and the credibility of the constructed qualities within it. Hence it asks: ***'How do strategic practices unfold towards a qualification and which devices are used to support it? And how is a qualification strategy developed into a legitimised one?'*** Both the IMP and ANT frameworks provide distinct insights to look at strategising from a relational perspective. IMP offers an alternative view of firms and their strategic positioning. Rather than looking at a firm with agency to impose their strategic choices to a faceless environment, the relational view looks at agency and firms as being mutually constituted from the relations and interdependences between organisational actors, resources and activities. ANT, in turn, provides useful theoretical concepts for understanding processes of establishing definitions that become black-boxed. Adopting the ANT lenses allows for a study on strategising actions as translation processes and directs

attention to the variety of actor-networks, socio-material devices and metrologies involved in processes of going green, namely, how the interdependencies between technology, staff, marketing personnel, R&D, texts, scientists and so on affect the company's ability to translate green demands into green products. To do so, researchers need to acknowledge that these interdependencies are established between the natural and the social domains, hence human and non-human actors may play symmetrical roles regarding power and agency. Studies on the qualification of goods, the ANT and IMP approaches also provide rich insights on defining and creating sustainable value. IMP provides compelling arguments on value creation as a relational process. ANT and qualification studies shed light on what it means to value, calculate and judge the quality of things, which in turn provides insights on the processes of valuing sustainability as a quality coming in different shapes and implying very different forms of calculability.

To investigate these questions a set of philosophical assumptions and methodological decisions were necessarily taken. The following chapter deals with these issues and describes the methodological procedures developed along this study.

**PART II: RESEARCHING THE
ESTABLISHMENT OF SUSTAINABILITY
QUALIFICATIONS**

3. METHODOLOGICAL CHOICES AND RESEARCH DESIGN

**PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL
APPROACHES**

Chapter 1: Introduction

**Chapter 2: Exploring the establishment
of qualifications as a strategic matter**

**PART II: RESEARCHING THE ESTABLISHMENT OF
SUSTAINABILITY QUALIFICATIONS**

Chapter 3: Methodological choices and research design

**Chapter 4: Presenting the
research setting**

**Chapter 5: Publishing
sustainability reports**

**Chapter 6: Evaluating uses for
waste**

**Chapter 7: Developing
'sustainable' offerings**

**Chapter 8: Adopting clean
technologies**

**Chapter 9: Setting up special
projects**

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

**Chapter 10: Towards a framework for
establishing (sustainability) qualifications**

**Chapter 11:
Conclusions**

3.1 INTRODUCTION

Research projects are underpinned by researchers' beliefs about what is the nature of reality, i.e. how they see the world (ontology), what is the relationship between researcher and the known, i.e. what they think can be known about it (epistemology) and how they think they can gain knowledge from it (methodology and research methods). In order to make the reader aware of how this research project was carried out, this chapter presents the ontological and epistemological position of this study and explains the research method employed.

The chapter is structured as follows (Figure 3-1): the next section elaborates on the underpinning philosophical stances of the research influenced by a relational ontology. Then, in section 3.3 the adoption of case research is presented and justified as the methodological approach that better suits this study. Section 3.4 starts by describing the research process (3.4.1) and then moves on to clarify the decisions made on defining the unit of analysis (3.4.2), the choice of field for empirical enquiry and the research design (3.4.3), the techniques and procedures for data collection (3.4.4) and the strategy for organisation, analysis and presentation of the cases (3.4.5). The section concludes with some comments on the credibility of the research (3.4.6).

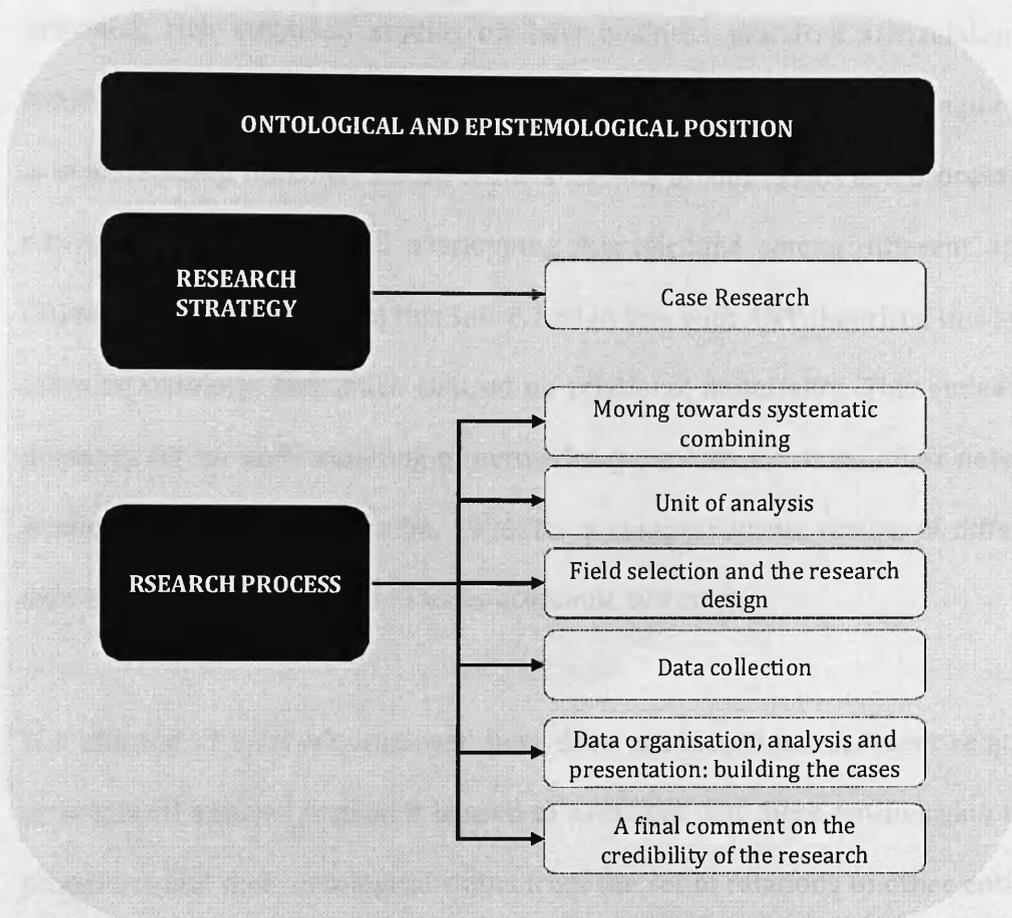


Figure 3-1: Outline of Chapter 3 – Methodological choices and research design

3.2 ONTOLOGICAL AND EPISTEMOLOGICAL POSITION

This study deals with qualification processes whereby different business practices contribute to build up a particular quality – that of being sustainable; this quality might be attached to different business objects, namely, to products, offerings, strategies, practices or a company. As demonstrated in previous chapters, the investigation draws on actor-network theory (ANT) and the industrial networks approach (IN), which share a common ground in terms of philosophical assumptions. Both embody a strong relational ontology, thus

providing rich empirical studies on how business practices are relationally constituted as actor-networks and within industrial networks. The main purpose is to understand the construction of sustainability qualifications as a process that emerges from ongoing and overlapping relationships among different actors (human and non-human). In this sense, and in line with ANT theorists, this study takes an ontology very much centred on relational materiality. This endeavour demands for an understanding of networks quite different from other network studies (see Araujo and Easton, 1996, for a comprehensive review of different uses of the network concept in socio-economic systems).

The concept of network employed here does not intend to represent relations among fixed entities; instead it is used to ascertain that these entities gain their properties and their ontological status from the set of relations to other entities, human or material. Embracing a relational ontology implies looking at qualification strategies as an outcome of heterogeneous networks. By posing the question of how a given strategy unfolds to create and establish an overarching sustainability quality, in this study it is considered that this quality emerges from interactions between heterogeneous actors that are more or less successful in reproducing and stabilising it. The focus of the research is on the construction of a firm's sustainability quality but is specifically concerned with the heterogeneous bits and pieces that make it up – economic agents, resources, legislation, reports, machines, NGOs, nature, benchmarking lists, products and its environmental labels and so on. Hence, a firm's sustainability quality is interpreted as an actor-network where elements from the social, the material,

the natural and the textual 'worlds' are translated into a common definition of a sustainable firm.

The same arguments based on relational materiality are used to discuss ANT's views on reality. For ANT theorists, science creates the realities it describes, i.e. reality is the consequence of scientific work (Latour and Woolgar, 1979). As emphasized by Law (2004), realities are being relationally constructed by the practices of science, not by people. He stresses that "...a) the making of particular realities, b) the making of particular statements about these realities, and c) the creation of instrumental, technical and human configurations and practices, the inscription devices that produce these realities and statements" are all produced together (Law, 2004, p.31).

The argument developed in *Pandora's Hope* (Latour, 1999) is that reality emerges through the interplay of subjects (humans) and objects (nonhumans), so in a sense reality is an emergent phenomena that becomes 'real' when actors interact. In the same line, Mol (1999) discusses the concept of 'ontological politics' to suggest that reality is not stable, immutable, given or universal. Reality is *done*, in the sense that it "does not precede the mundane practices in which we interact with it, but is rather shaped within these practices" (Mol, 1999, p. 75). Hence it is through materially heterogeneous practices that reality is enacted, shaped and contested (Mol, 2002). Hence, as remarked by Mol (1999) "realities have become multiple" (p. 75). She further stresses that multiplicity is different from plurality. Realities are not plural in the sense that entities stand separately in identical fields. Instead, different realities may include each other

but they can also be contradictory. In other words one entity can be performed within different practices, locally situated, and at the same time. Mol uses the example of how different practices contribute to 'doing' a disease (the disease is differently enacted by a patient, a surgeon, a radiologist, by the instruments they use, and the treatments they employ).

One outcome of thinking in term of ontological politics is that 'every time we make reality claims in science we are helping to make some social reality more or less real' (Law and Urry, 2004: 396). This means that from an ANT point of view, we, as social science researchers, do not observe an external reality from a neutral standpoint. We too are a product of our research practices.

These views also point towards a constructivist ontology which has to be clearly distinguished from social constructionism. ANT theorists move away from social constructionism by following the principles of "generalised symmetry" and "free association " introduced by Michel Callon in his paper on the domestication of scallops and fishermen of St. Brieuc Bay (1986b). Symmetry refers to an equal distribution of agency among human and non-human actors, which entails a completely different ontological stance to that of social constructionism. The latter tries to explain the construction of reality in terms of the conscious goals, intentions and actions of human actors and purposeless actions of all other actors, while for the former, the very intentionality of human actors is a product of its relational constitution.

To ANT theorists, stable social structures rarely exist and structural influence is better explained, not by attributing causal powers to larger structures, but by tracing the connections between actors. This technique of tracing particular connections between agents to explain any sort of influence (or “alliance” in ANT vocabulary) is known as the methodological principle of “free association”. Callon suggests that human and non-human actors are causally equivalent and avoid a priori categorizations of actors’ identities and relationships between them. To capture the “alliances” developed within these relationships, the researcher must allow actors’ identities to “fluctuate”, and the “unpredictable relationships between these different entities (...) to take their course” (Callon, 1986b, p.222).

From an ANT perspective social explanations arise from tracing the connections and associations between heterogeneous actors, which are not constituted prior to and independent of those relations, but within and from those relations. The consideration of human actors as pre-constituted outside their relations to other human and material actors denies the conception of agents and agency as relational, which leads to the old debates on structure versus agency. By conceiving all entities as relationally constituted, the structure-agency problem is superseded.

The advice then is to avoid a priori conclusions on the attributes of actors and to focus on the processes through which these actors are brought together into particular relationships in an actor-network. By ‘following the actors’, as advised by Latour (1987a), this research looks at different actors that contribute to

produce a sustainability quality, with the same lenses. Economic agents, sustainability reports, clean technologies, waste, eco-labels, NGOs are perceived as equally active in the network, defining and constructing one another.

The search for explanations of stable social structures is hence criticized by ANT theorists who advocate instead the search for explanations of unstable and fluid social structures. Instead of a sociology of the social, Latour proposes a “sociology of associations” (2005, p.9), a model that does not accept that power or influence arises from some central social source and is then diffused through society. As an alternative, the sociology of associations suggests that power and influence are always passed through chains of mediators, i.e., actors who have the ability to translate that influence towards their own interests. The sociology of associations provides key insights on how this research looks at strategising towards a qualification. The ability for a firm to become known as sustainable emerges from the actors’ translating power. The heterogeneous bits and pieces that are fitted together towards the establishment of a qualification are somehow translated into a stable definition of a sustainable firm. This definition, in turn, might be, and often is, challenged and contested by other actors employing their own translating abilities.

In sum, the adoption of relational ontology in this study rejects the idea that science and knowledge in general, and sustainability qualifications and business practices in particular, are social constructions in the sense of being the pure products of human creation. To understand the construction of sustainability qualifications, better explanations are needed on the relational practices of all

agents, human and non-human, that contributed to its emergence. Having positioned this research in terms of ontological and epistemological beliefs, the following sections deal with the practicalities of the research process. It starts by presenting and justifying the methodological preferences towards the use of case studies.

3.3 RESEARCH STRATEGY: CASE RESEARCH

It is commonly accepted that the choice of a research method is influenced by some key aspects, namely, the nature of the phenomena under study, the purpose of the research, the type of research questions, the researcher's degree of control events and the temporal focus of the research (Bonoma, 1985, Yin, 1994). Moreover, an aspect deserving growing attention among management researchers concerned with the choice of research strategies is the relationship between theories, methods employed and empirical phenomenon (Dubois and Araujo, 2007, Van Maanen et al., 2007, see also the *Industrial Marketing Management* special issue on case study research in industrial marketing (vol. 39, 2010), Dubois and Gibbert, 2010).

As suggested by Dubois and Araujo (2007) the relationship between research objectives, theories and methods must be considered when methodological decisions are to be taken , since "...methodological choices cannot be divorced from theoretical positions nor can theories be regarded as method-neutral" (p. 171). For these reasons, this section aims to justify the reasons for the adoption

of qualitative methods, particularly the adoption of case research, to conduct this investigation.

Adopting a relational and networked view of strategy, this research questions what companies strategically do to be qualified and recognised as sustainable. Given the nature of the research questions and reflecting on the important interplay between methods, theory and sources of empirical data used in this study, case research immediately appeared as the most suitable method to employ in this investigation.

Easton (2010) defines case research as a “method that involves investigating one or a small number of social entities or situations about which data are collected using multiple sources of data and developing a holistic description through an iterative research processes” (p. 130). This is precisely what this investigation aims to accomplish, that is, to explore and explain the complexities of building up and establishing a firm’s holistic qualification based on the investigation of smaller situations – in this study, practices that contribute to constructing and explaining that qualification. Each practice or each embedded case (as will be explained in sections 3.4.3 to 3.4.5), is constructed from diverse data sources, analysed and triangulated to make up the case. Case research thus provides the necessary apparatus to engage in this type of investigation.

Given the discussion above it is not surprising that case research has become so popular among industrial marketing scholars. In fact, it is said to provide a strong contribution to the development of theory in management fields and is intensely

adopted and viewed as “...the primary tool to develop and illustrate concepts within the industrial networks research programme” (Dubois and Araujo, 2004, p. 207). ANT studies are also characterized by an exclusive emphasis on case studies and empirical observations that emphasize the need to follow the actors in order to explain the construction of taken-for-granted facts.

Qualitative studies typically justify the suitability of case studies based on the arguments developed by Yin (1981, 1994). Yin (1994) claims that case study methodology is appropriate to answer explanatory “how” and “why” questions since “such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence” (p. 6). This point is also highlighted by Easton (1998) who argues that case methods are concerned with dynamics and changes over time. Hence, research on networks, considered as dynamic structures evolving over time, demand for a case-based method able to provide longitudinal data.

A key feature of case research, as applied to this investigation, is that it provides the tools to learn about firms’ practices towards sustainability outcomes within its own context. Yin (1994, p.13) defines the scope and features of a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomena and context are not clearly evident”. This definition highlights that, in contrast to quantitative research methods where data are collected independently of the context of the research (Dubois and Gibbert, 2010), in case research the

boundaries between the phenomena under study and its context tend to be blurry (Bonoma, 1985, Yin, 1994, Stake, 1995).

On this matter, Bonoma (1985) argued that some phenomena cannot be understood if studied outside their social context. He claims that particularly in the marketing field, case research may offer significant opportunities. Because of their complexity, wideness, and temporal dimension through which events happen, “many issues of interest to marketers cannot be studied outside the context in which they naturally occur” (op. cit, p. 202). A similar argument is presented by Johnston et al (1999). They argue that in business-to-business contexts, where multiple variables influence organizational behaviour, the study of phenomena like inter-firm relationships and networks of buyers and sellers may benefit from case research, as they take place within rich contexts, over which “researchers have little control and that must be considered in order to fully understand the phenomena” (p.203). Also, they highlight that isolating the research problem from its context is pointless, since what makes a specific phenomenon interesting is precisely its relation to context.

Easton (1998) reinforces this viewpoint, claiming that Yin’s statement is wholly applicable to research on industrial networks, where large numbers of actors are connected and the boundaries between one net of actors and another are messy. Nevertheless, as claimed by Dubois and Araujo (2004), because neither phenomena or its context are known a priori, the conduct of case studies is more problematic than implied by Yin’s definition. Accordingly, both context and boundaries of the phenomena are progressively constructed as outcomes of the

research process, "...as theory interacts with methodological decisions and empirical observations" (Dubois and Araujo, 2007, p. 171). Moreover, as pointed out by Dubois and Gadde (2002), learning from cases, considered in the context within which they evolved, should be regarded as a strength rather than a weakness as "...case studies provide unique means of developing theory by utilizing in-depth insights of empirical phenomena and their contexts" (ibid, p. 555).

There are several main criticisms of case studies on the basis of rigor, validity and reliability (see for example, Yin, 1981, Daft and Lewin, 1990, March et al., 1991). Bonoma (1985) refers to three problems that arise from case research in marketing studies: conceptual (is difficult to develop), executional (access to suitable companies is difficult to obtain) and political (given the trend towards quantitative studies in marketing, qualitative research is strongly defied to prove its benefits). Yin (1994) discusses three "prejudices" against case studies: lack of rigor, little basis for generalization and too time consuming to produce huge and dense documents. Siggelkow (2007), in turn, lists two obstacles faced by case researchers: they are accused of working with small samples and pressured to defend their findings against non-representativeness.

Despite these challenges, and particularly among industrial networks scholars, case research has been widely adopted precisely because its methods allow the capturing of multiple perspectives in industrial networks (Järvensivu and Törnroos, 2010), it favours the production of richer pictures of the phenomena being study given the complexities of network links between actors (Easton,

2010) and takes into account temporal and process aspects to capture the dynamics of business and market practices, particularly concerned with business-to-business market strategies (Quintens and Matthyssens, 2010).

A particularly interesting argument favouring case research is put forward by Siggelkow (2007), who discusses motivation, inspiration and illustration as important outcomes of the method. The author claims that case research constitutes a powerful tool to motivate research questions towards a particular theory based on real-life situations. He also remarks that inspiration for new ideas arises when the researcher is immersed in rich case data, and that cases can serve as powerful illustrations of a conceptual contribution. A similar argument is put forward by Platt (1992), who claims that even when the researcher holds a clear initial intention, as the case research is carried out, unexpected findings emerge and inspire new ideas.

During this study it became clear that as triangulation and analysis of data unfolded, new ideas emerged on how the subject of qualification should be dealt with from a strategic point of view. The pilot study, in particular, inspired new ideas on how sustainability qualities come into being and served as an illustration that there was a need to sharpen existing theories on sustainable strategic management and industrial networks.

In network studies, difficulties also arise from delimiting relevant time periods, defining boundaries of the study and dealing with the dynamic nature of relationships embedded in networks. These problems can be more obviously

circumvented with the use of case studies since they are well equipped to deal with interdependencies as well as changes over time (Easton, 1998, Dubois and Gadde, 2002, Dubois and Araujo, 2004, Dubois and Araujo, 2007).

This study deals with the dynamics and practicalities attached to the construction of firms' qualifications under the label of sustainability strategies. Given that the objective is to investigate how a given qualification strategy emerges and how it produces outcomes linked to sustainability qualifications, the origins of the strategy must be traced, and the intricacies of the relational practices that made this strategy possible explored. Thus the rationale of "follow the actors" (human and non-human) suggested by ANT theorists (Latour and Woolgar, 1979, Callon, 1986b) is endorsed here; following actors involved in the production of those outcomes demands a careful analysis of the relationships among them that contribute to materialising the desired sustainability qualification. In this sense, only case research provides the tools to explore this research problem.

A final comment on the advantages of adopting case research in the present study is suggested by Dubois and Gadde (2002). Inspired by the concept of "abduction" originally suggested by Peirce (1931), the authors propose "...systematic combining as a proper case study approach" (ibid, p. 555). The argument is that engaging in case studies allows for an intertwined research process, in contrast with linear versions described in most textbooks on qualitative research methodology, particularly the work by Yin (1994).

Case studies from a systematic combining perspective allow the researcher to handle the interrelatedness of different research activities, for example to move from one type of activity such as performing empirical observations, to another completely different like polishing theoretical frameworks, and moving back to empirical observations. Systematic combining is, thus particularly useful to develop new theories and refine existing ones, and defined as “... a process where theoretical framework, empirical fieldwork, and case analysis evolve simultaneously (...) in terms of two processes. The first is matching theory and reality, while the second deals with direction and redirection.” (Dubois and Gadde, 2002, p. 554).

This study reflected a massive need to move back and forth as envisaged by the systematic combining approach. Moving from theory to empirical analysis and trying to figure out how companies set up sustainability strategies from inter-organisational relationships, required a constant movement back to theory, searching for new orientations on how the quality of being sustainable was constructed, new angles on the importance of material aspects in a sustainability strategy and ultimately on the very (re)definition of the object of study – ‘the case’ (this aspect will be discussed in section 3.4.4).

To better inform the reader on how this research process unfolded, the following section details the steps of this research process developed following a systematic combining approach.

3.4 RESEARCH PROCESS

It is commonly argued that case studies demand a rigorous research design. The literature on the topic (e.g. Johnston et al., 1999, Yin, 2002) advise researchers to follow three steps that should be carefully developed: 1) definition of unit of analysis (section 3.4.2); 2) selection of the appropriate cases to study (section 3.4.3); 3) decisions on what data to collect (section 3.4.4) and how to analyse it. It was also considered that the way data are presented is crucial to draw attention to the richness of the case. Data analysis and case presentation are thus jointly discussed in section 3.4.5.

Following these steps does not mean, however, an engagement of a sequential step-by-step research process. The iterative approach of systematic combining was present at every stage and forced constant back and forth moves between theory and empirical realm countless times. The next section aims at clarifying this need to intertwine research activities rather than following a sequential research design.

3.4.1 MOVING TOWARDS SYSTEMATIC COMBINING

The focus of the study was first set at understanding the processes through which companies engage in sustainability strategies. The industrial network approach's model based on the interdependencies between actors, resources and activities (ARA) was adopted as the main theoretical framework to assist the investigation of these processes. The objective was to look at sustainability strategies as a bundle of ARA configurations, illustrate that these strategies could

not be developed in isolation, but only through inter-organisational relationships, and finally demonstrate that companies set up sustainability strategies relationally, producing outcomes for the company, for the dyads involved and for the network where the dyads are embedded in.

A pilot study was first undertaken in one company, CORKCO, a producer of cork and cork-based products. To arrange the first interviews, their website and the sustainability reports available online were briefly scrutinised to identify the department and people responsible for the company's sustainability strategy. The analysis of the sustainability reports was also part of the preparatory work. Projects/practices/events highlighted in the reports were listed and studied to organise the interviews accordingly. In this first stage, the interviews were based on open-ended questions regarding their main ideas about ways to integrate sustainability concerns into their businesses and "best practices". The interviews with the person responsible for the sustainability strategy in CORKCO and the chairman of the Industrial Association of Cork Producers, allowed me to conclude that the main focus of their sustainability strategy (and the majority of cork producers) was placed on environmental sustainability and that their main practice was the process of waste valuation and revaluation. Based on the evidence gathered and the Industrial Network approach, an analytical framework was designed (see appendix 1), an interview guide was set up (see appendix 2) and a unit of analysis was defined as "processes of environmentally-friendly change".

As data analysis developed, the material collected in the first and second stages of interviews pointed to something slightly different from what was first thought. In a tentative way of fitting the data to the analytical framework, the cases were first described in relation to the companies' "strategizing actions through actors", "strategizing actions through resources" and "strategizing actions through activities". The result was that nothing new came out of this analysis and the opportunity to explore complementary, or even alternative, angles to interpret data, was almost missed. As pointed out by Dubois and Gadde's (2002) "data should not be forced to fit preconceived or pre-existent categories, asserting that categories are to be developed from data" (p. 556). Although this argument matches the principles of grounded theory, what the authors suggest is that matching is not a one-way direction from data to theory, but a bi-directional process of going back and forth from data to theory and vice versa, with no obvious patterns, i.e., "there is never one single way of matching" (ibid, p.556).

The data were then re-analysed with a simple question in mind: "looking at the data, what can be interpreted as sustainability strategies?" (Appendix 3 illustrates one exemplary outcome of this direction-redirection process). At this stage, the findings of the empirical materials guided the search for new and complementary theories that could be more useful. After numerous exercises of data analyses, the first conclusion was that each practice follows its own course of action - some were implemented recently to achieve particular sustainability qualifications such as environmental certifications or reporting awards, others were implemented decades ago and were reported as key projects for the company's sustainability strategy. Moreover, the data hinted at the companies'

concerns on building up sustainability qualifications and its demonstration through material devices such as reports, certifications, eco-labels and so on. Consequently, the study was gradually re-oriented towards a focus on qualification and re-qualification processes, rather than a focus on strategy development based on a sequence of stages and ARA dimensions (actors, resources, activities). After looking at alternative theoretical frames, concepts from actor-network theory were combined with the Industrial Network approach to redefine the research problem, and data that were previously ignored for not fitting the original framework, ended up being included in the analysis.

3.4.2 UNIT OF ANALYSIS

In a special issue of the *International Journal of Research in Marketing* dedicated to the “Markets as networks” approach, the editors draw attention to the importance of defining the unit of analysis in network studies. The difficulties that may arise from this definition relate to “...the essential distinguishing feature of any network approach [which] is the recognition of interdependencies among the entities under study” (Easton and Håkansson, 1996, p. 407).

In contrast to much current marketing research that focuses on atomistic views of markets and defines individual actors as unit of analysis, the IN approach looks for interdependence as an empirical matter. This shift from individual actors to interdependency between actors demands a different view on the units of analysis. These are defined as dyads, triads or even networks. In IMP terms,

networks are ultimately “boundaryless”; hence, from a research point of view and given the methodological constraints attached to the study of “a network”, artificial boundaries need to be delineated according to a given criterion, which leads to the definition of the unit of analysis as a “focal net”. As elucidated by the authors: “Focal nets comprise the actors that a focal actor has relationships with” (op. cit., p. 408). So the criteria to define the boundaries of a focal net must be aligned with the research objectives.

This research is concerned with strategising practices, constituted in, by and through relations among actors of different nature, that contribute to building and establishing sustainability qualifications. Inspired by the theoretical frameworks reviewed in Chapter 2, this study posits that constituting these practices is not dependent on the individual company alone, but on the decisions, actions and similar qualification practices of other organisations. The research objectives are therefore linked to the relations formed, and interdependences raised, in practices with outcomes explicitly linked to the construction of sustainability qualifications. These practices were thus interpreted as focal nets, where the boundaries were determined by:

1. The outcome of the practice which has to be necessarily linked to the company’s sustainability strategy (for example, practices set up to deal with reporting, certifications, recycling, new product development, etc.);
2. The actors (human and non-human) involved in the design and constitution of the practice;
3. The time frame of the practice (e.g. a sporadic project, a routine practice, an annual practice).

Given the research goals, and to encompass different taxonomies used by companies to refer to these events (e.g. project, initiative, practice, programme, process), the unit of analysis was defined as "*strategising practices that, directly or indirectly, contributed to build up sustainability qualifications*". To gather information about these practices, data were collected from human actors (e.g. project managers, departmental directors, staff involved in the initiatives, people from NGO's) and on non-human actors (e.g. texts – media articles, sustainability reports, marketing plans, and artefacts, technologies, products, by-products, waste).

The following section describes the casing process, i.e., the decisive factors adopted to select the companies of the study and, within each company, the criteria to select the practices that better match the research goals.

3.4.3 FIELD SELECTION AND RESEARCH DESIGN

No matter how many arguments one can use to justify the geographic setting of a piece of research, one of the first aspects to consider is the likelihood of access the field. Unless the aim is to study a phenomenon that only occurs at a specific point of the globe, the geographical settings are selected in relation to research opportunities that might arise and the often limited resources to conduct the research. It is not surprising then, that the resource advantage (time, money, language and connections to easily access potential companies to approach) dictated the decision to develop this study in a Portuguese industrial setting.

The choice of whether to conduct a single or multiple case study and the company(ies) and practice(s) to study, demanded much careful thought. For reasons that will be discussed next, this study adopts a research strategy based on multiple case studies. Although it is commonly argued in case research literature that multiple case studies provide a better basis for replication, more compelling, robust and testable findings and stronger basis for theory building than single case studies (Eisenhardt, 1989, Yin, 1994, Johnston et al., 1999, Eisenhardt and Graebner, 2007), these are not the reasons that justified a multiple case design. Easton (1998) observes that some researchers using multiple case studies “seek to do a number of case studies as if greater numbers (...) increased the explanatory power of what they have been doing” (p. 82), i.e., he claims that multiple case studies may provide more breadth, but less depth. Dubois and Araujo (2007) reinforce this viewpoint by stating that in qualitative studies “case selection is the most important methodological decision” (p. 179) and using statistical arguments to justify the adoption of multiple case studies may be misleading. Instead, solid theoretical justifications should be provided.

The selection criteria followed the principles of *purposeful sampling*, a term suggested by Paton (1990) to denote that in qualitative studies cases are not randomly selected, but deemed more or less important in relation to the research aims (Dubois and Araujo, 2007). Since the aim is to understand how sustainability qualifications are constructed in business contexts, the cases needed to mirror good examples of companies holding this quality, i.e., those recognised in the public arena as “sustainable companies”. An appraisal of potential companies to study was first made through the Portuguese Business

Council for Sustainable Development (PBCSD). Through PBCSD's website it was possible to list the companies that were publishing sustainability reports in the last two years prior to data collection (2006 and 2007). Afterwards, with the help of COTEC, the Portuguese Business Association for Innovative Companies, the list was narrowed down to four companies from different industrial sectors, here pseudo named as CORKCO, PULPCO, WOODCO and TECHCO, dedicated respectively to provide cork-based products, pulp, wood-based panels, and electrical systems. COTEC was also helpful in ensuring access to these companies. The companies were selected based on COTEC's perceptions and knowledge of good examples of sustainable companies, but also based on their size and industrial sector.

On one hand, large companies were chosen because the opportunities to examine the integration of multiple practices are larger than in small and medium-sized companies which may not have the resources or motivations to develop sustainability strategies. Companies with practices that seemed more challenging and complex were favoured, such as those engaged in shifting to renewable energy systems, changing product/service offerings to sustainable ones or implementing supply chain recycling schemes, rather than discrete and relatively minor practices such as initiating paper and plastic recycling activities and changing bulbs to more efficient solutions. Additionally, it was also assumed that companies with a certain size would be more inclined to publish sustainability reports, as they are likely to suffer greater stakeholder scrutiny. Size and visibility relate to stakeholder and regulator pressure and are associated with a greater commitment towards sustainability (Artiach et al., 2010). Hence,

companies observing these characteristics would provide more empirical data to enrich the cases. On the other hand, different sectors were selected to provide a diverse range of findings and to allow for comparisons between different industrial systems.

A single case study based on CORKCO was first considered. The investigation of several practices from CORKCO provided a fairly rich description of how one particular company develops a sustainability strategy and achieves a sustainable qualification. However the fact that their production processes rest upon a 100% recyclable and reusable raw material provides CORKCO with endless opportunities to get involved in practices qualified as sustainable. Hence, it was considered that CORKCO, and potentially any other company from the cork industry, might easily build up this type of qualification. For this reason it was decided to include other sectors which could offer a different, and possibly more accurate, view of what it means to develop a sustainability qualification and also a richer picture on how the concept of sustainability and sustainability qualifications is constructed in different industrial settings. In this sense, a multiple case study approach was adopted from where different perspectives of the same qualification strategy could be obtained. Thus, the research design was extended to encompass multiple sectors and multiple strategising practices.

The study comprises four focal companies that continuously work on building up and stabilising their sustainability qualifications. The cases are therefore defined as “strategies towards the construction of sustainability qualifications”. Within each case, a number of practices was selected (again following the principles of

purposeful sampling) that better exemplify the contribution of the practice towards the sustainable qualification. Each company case is thus constituted by a number of embedded cases. After a thorough analysis of potential practices to include in the study (after the interviews, around 30 potential practices were listed), the study narrowed down to 23 cases to favour comprehensive, rather than superficial analysis and description of each initiative. The decision process on which practices to include in the study was dictated by three key principles:

1. The importance given to the practice by each company as a potential contribution to an overall sustainability qualification. Following Callon et al (2002) it is assumed that qualities are multidimensional and emerge from all productive activities ex-ante the exchange moment. Hence from this research point of view, different practices (e.g. productive, marketing, reporting) leading to different outcomes in terms of sustainable labels influence the firm's qualification-requalification processes. Each practice is perceived by interviewees as a more or less important provider of sustainable outcomes. Thus the selection of practices was conducted based on that perception.
2. The potential for identifying and analysing network interdependences given the number of actors involved in each initiative and their different nature. Firstly, adopting ANT's semiotic approach, practices were looked at as emerging from relations between human and non-human actors, which in turn gained particular forms for being embedded in those practices. Hence practices involving actors of different nature were

favoured. And secondly, taking a relational approach to strategising as suggested by IMP scholars implies looking at the inter-organisational relationships that unfold within particular practices, and lead to particular outcomes, rather than looking at independent firms able to design and implement their own strategies.

3. The amount of information available to build up a story. Obviously the amount of data gathered on each practice influenced the decision process. Practices frequently mentioned in reports, interviews and media were preferred in relation to practices where information about their origins and development was scarce.

In this sense, the urge to select the same number of cases per company was avoided and the cases selected were the ones which better fitted the decision criteria. This means that some companies had more practices reported here than others (the way themes were identified and cases were organized will be described in section 3.4.5). The decision process on what data to collect and from which sources, is described in the following section.

3.4.4 DATA COLLECTION

Case researchers are advised to use multiple sources of data and data collection methods to ensure triangulation and corroboration of findings (Bonoma, 1985, Dubois and Gadde, 2002, Yin, 2002). Although most textbooks recommend the

triangulation of different sources of data to verify its accuracy, in systematic combining this is not the main concern: “Rather, multiple sources may contribute to revealing aspects unknown to the researcher, i.e., to discover new dimensions of the research problem. (...) This may result in redirection of the study.” (Dubois and Gadde, 2002, p.556)

This study uses mainly two types of data sources: a vast range of documentation (e.g. websites, legislation, newspaper articles, annual reports, sustainability reports) and semi-structured interviews. Additionally, in some of the companies it was possible to visit the facilities and technologies adopted in their recycling systems; access was also granted to final products and by-products derived from waste reutilization.

3.4.4.1 *Collecting and analysing documents*

Documents were the main source of information to build up the cases, including sustainability reports, annual reports, newsletters, media news, PowerPoint presentations, technical reports, NGO reports, environmental legislation, industrial reports from industrial associations like APCOR and CELPA (respectively, Portuguese associations for cork and pulp industries), academic reports from universities involved in particular projects, all information on sustainability strategies available in the companies' websites, to mention a few.

Since the interest was on practices that contribute to build up sustainability qualifications, the focal companies' sustainability reports were used as points of departure to start data collection. These reports are thus the most important source of empirical material. From the most recently published reports for each company, the highlighted practices were selected and their origins traced from previous reports, in order to discuss them with interviewees. The objective was to build a rich image on each company's sustainability strategy, before engaging with the interviewees, to be able to discuss the practices involved with some reasonable knowledge. Versions in Portuguese and English were analysed to aid my role as interviewer and as case writer during the translation processes. In this sense, 56 sustainability reports were collected (41 sustainability reports from the 4 focal companies⁴ and 15 sustainability reports from customers and suppliers involved in the focal companies' practices).

This study is not so much concerned with issues of discourse and rhetoric used by firms to communicate their sustainability strategies, but it acknowledges that firms who proactively report on their sustainability activities to an external audience (since this is not a legal requirement) are potentially more reflective of their strategic priorities. Aras and Crowther (2009), discussing the massive trend of reporting on Corporate Social Responsibility or Sustainability⁵, claim that companies who engage in sustainability reporting demonstrate that they "developed an understanding of the priorities for their own business –

⁴ 10 SRs from CORKCO: 2006-2010; 2 Environmental Reports and 13 SRs from PULPCO: 1998 – 2010; 10 SR from TECHO: 2006-2010; 6 SRs from WOODCO: 2006-2008/2009

⁵ According to these authors CSR reports or Sustainability reports are different labels for similar documents.

recognising that CSR has many facets and needs to be interpreted differently for each organisation – and made significant steps towards both appropriate activity and appropriate reporting of such activity.” (p. 283). Hence, it is reasonable to assume that sustainability reports are reliable representations of the firms’ strategic activities towards sustainability. Given the importance granted to this source of data, Chapter 5 – Publishing Sustainability Reports – provides detailed explanations of how reports were used and analysed in this study.

A huge number of complementary documents from other companies, which were not personally contacted for interviews, were also collected as a source of additional information about the focal companies’ practices and sustainability strategies. For example, newsletters from customers and suppliers were analysed whenever they made references to the focal companies. Using the name of the practice as a search device in Google, it was possible to retrieve dozens of files documenting the company’s participation in, and/or opinion about, the focal companies’ sustainability strategies. This information provided a different perspective on how the focal companies’ practices and strategies were perceived by their stakeholders. Moreover, it constituted an additional source of information to build up the cases.

Media articles were also a rich source of data to corroborate information gained in interviews and sustainability reports. Since the focal companies are very well known in Portugal, it was also possible to collect a vast number of newspaper articles making reference to the companies’ projects. On several occasions, the perception of the companies’ practices given in the interviews changed after

reading a media article with a different opinion on the project. This aspect led me to recognise a degree of inconsistency between the data collected via interviews and the data retrieved via documents. It was acknowledged however, that different views on the same project would provide a richer picture of the practices involved. Being aware of these differences reinforced the need to be reflexive and to make every effort to think critically about each case. Triangulation was fundamental in this reflexive process. By continuously moving back and forth comparing documents of different nature and the voices of different respondents, it was possible to mitigate the biases that these single perceptions could generate on each of the projects studied.

3.4.4.2 *Conducting interviews*

After the pilot study and the complete change of mindset explained in section 3.4.1, the interview guide was opened up to let the interviewees to talk freely, about the process of putting together a sustainability strategy, the practices they valued more and its respective goals. A first interview was set up in each company with the person responsible for the sustainability strategy. From these interviews, other interviewees were identified using a snow-balling sample where other actors involved in their companies' practices were recommended as useful respondents. In total, and between September 2008 and November 2009, 21 interviews were undertaken in 12 companies to discuss around 30 practices. Appendix 4 presents the table of interview dates, companies, interviewees and their roles (for confidentiality reasons, the names of interviewees were

concealed). Some interviews included two interviewees from different departments which was extremely helpful to spot potential internal disagreements regarding a particular project.

The interviews were recorded and transcribed (except in two cases: one respondent refused to be taped and another preferred to be interviewed on the phone). During the interviews, notes were also taken and explanatory drawings on specific situations collected from interviewees. In a few situations, interviewees asked me to stop the recorder or ignore particular statements. This was upsetting but also enlightening. Although none of these statements was used it became clear that very often sustainability reports are manipulated to provide stakeholders with a rose-tinted glasses' view of the company's practices.

In summary, being in the field to collect data was an arduous but enjoyable process. The same cannot be said when regarding the massive volume of data collected and the analysing stage – this was a messy and time-consuming process. The following section describes the data organisation process and the decisions made on data analysis and presentation.

3.4.5 DATA ORGANISATION, ANALYSIS AND PRESENTATION: BUILDING THE CASES

One of the biggest challenges of case research is to organise the data and field notes in a way that facilitates and assists the analysis and presentation of the cases, and the ultimate presentation of the research outcomes (Miles and

Huberman, 1984, Eisenhardt and Graebner, 2007). This section describes the decisions made on data organisation, analysis and presentation of the cases so that the reader might follow how the findings and research conclusions were derived from the data collected.

To keep track of data, a conventional database of folders organised by company was created. Each company's folder comprised the transcribed interviews, SRs, Annual Reports, media articles and newsletters, documents from partners referring to the practices and institutional information. Additionally, Atlas.ti (qualitative analysis software package)⁶ functions on primary documents were used to list and easily access all the documents uploaded in the software, and to assist the analysis.

Through Atlas.ti, a single database containing all documents was built up and several codes of analysis were created, inspired by the exercise pictured in Appendix 3. These codes represented the questions that needed answers, as theory-neutral as possible; Table 3-1 illustrates two examples of this “enquiring coding” process (the full table comprising 7 families and 54 codes is presented in Appendix 5).

⁶ Atlas. Ti (<http://www.atlasti.com/index.html>) is a software for qualitative data analysis that consolidates large volumes of documents and keeps track of all notes, annotations, codes and memos inserted into a variety of sources of data such as texts, images, videos, audio. The program provides tools to code and annotate findings in primary data material, to weigh and evaluate their importance, and to visualise the often complex relations between them through networks of codes (as exemplified in Appendix 6).

| WHAT DO I WANT TO KNOW? FAMILIES / SUB-FAMILIES | | ENQUIRING CODE | |
|---|---------------------------------|---------------------------|-------------------------|
| 1. Sustainability Strategies are pulled-off through what? | Projects, practices | What type of project? | SS_PROJ_[ProjName]_WHAT |
| | | With whom? | SS_PROJ_[ProjName]_WHOM |
| | | Why this project? | SS_PROJ_[ProjName]_WHY |
| | | How was it "implemented"? | SS_PROJ_[ProjName]_HOW |
| | | When and for how long? | SS_PROJ_[ProjName]_WHEN |
| 2. Sustainability Strategies are framed as what? | Part of the corporate strategy? | Part of the mission? | SS_CS_Mission |
| | | Part of the values? | SS_CS_Values |
| | | Part of the commitments? | SS_CS_Commitments |
| | | What else? | New code? |

Table 3-1: Example of "Enquiring coding"

After numerous coding-re-coding exercises and after trying different connections between the codes (as illustrated in appendix 6), each type of practices identified in family 1 (code SS_PROJ_[ProjName]_WHAT) was defined as a theme to explore. After a first analysis of this code, five main types of practices that constituted the focal companies' sustainability strategies were identified: reporting, evaluating uses for waste, developing offerings based on the green argument, adopting clean technologies and setting up special projects.

Each theme corresponds to a chapter of the empirical part of this study (Chapters 5 to 9) within which each "Type of practice" is analysed in depth. For each type of practice, several projects, initiatives, actions developed by the companies were

analysed and compared. Figure 3-2 illustrates how Types of practices and practices were organised around the 4 cases.

From the observation of Figure 3-2 some features of the cases, that will be later uncovered in the empirical chapters, become clear. First, it shows that the distribution of practices per company/case is uneven. This is because the companies belong to different industrial settings. Hence there are particularly practices that are important in the context of developing sustainability strategies in some settings and not so relevant for others. At the same time, it was also interesting to analyse how, despite their different sectors and activities, they became engaged in similar practices.

The first theme – publishing sustainability reports – emerged from the observation that the four companies of this study are highly committed to producing and communicating their sustainability strategies in public spaces. Chapter 5 covers this theme and describes why it is so important to engage in this type of practice and how each company uses the opportunity to produce these reports to frame their sustainability strategies through discourse. It also illustrates that the publication of this type of report is part of a bigger picture, rather than simply communicating the companies' actions towards sustainability. It is also a sign of credibility directed to financial markets to attract investors and a proof of legitimate behaviour toward stakeholders, particularly regulators.

| 4 cases = "Strategies towards sustainability qualifications": | | | | | |
|---|--------------------------------|--|---|---|--|
| | CORKCo | PULPCo | WOODCo | TECHCo | |
| 5 Types of practices = 5 THEMES (empirical chapters) | 1. Publishing sust. reports | Reporting | Reporting | Reporting | |
| | 2. Evaluating Uses for waste | Forestry waste = biomass Cork waste = by-products | Forestry waste = biomass Dry ashes & organic waste = by-products | Forestry waste = biomass Recycled wood = by-products | 4 practices feed theme 1 6 practices feed theme 2 |
| | 3. Developing offerings | Cork -based products | Pulp | Wood panels | 6 practices feed theme 3 |
| | 4. Adopting clean technologies | Cogeneration | Cogeneration Mill modernisation Dune protection | Cogeneration | 5 practices feed theme 4 |
| | 5. Setting up special projects | Used stoppers recycling project | Suppliers education | | 2 practices feed theme 5 |
| | 6 embedded cases from CORKCo | 8 embedded cases from PULPCo | 5 embedded cases from WOODCo | 4 embedded cases from TECHCo | |
| | | | | ? = 23 practices | |

Figure 3-2: Building the cases

The second theme – evaluating uses for waste – resulted from the analysis of three of the four cases studied (CORKCO, PULPCO and WOODCO). It became clear that, for companies in particular industries, finding alternative uses for waste is a crucial feature of their sustainability strategies, whereas for others like TECHCO it is either a secondary concern, or no concern at all. Chapter 6 deals with this type of practice and illustrates that there are specific practices, like valuing forestry waste as biomass, that are common to industries using forestry raw-materials, and other practices that depend on the specific characteristics of each industry. This is why Figure 3-2 presents “Forestry waste = biomass” as a common practice in the first row of the theme ‘evaluating uses for waste’, whereas the second row represents practices that are specific of each company. The fourth theme – adopting clean technologies – emerges from the same rationale: communicating the use of this type of technology is more important to some companies than others. Chapter 7 explains why the adoption of cogeneration systems is so important to companies working with forestry raw-materials and thus, common to CORKCO, PULPCO and WOODCO.

The third theme is common to the four companies being studied. “Developing offerings” based on green arguments is definitely one the major concerns of the four companies. Chapter 7 illustrates that each company constructs its concept of “sustainable offering” by embedding the quality of being sustainable in its features. The uneven distribution of practices within this theme results from the conclusion that developing and promoting definitions of sustainable offerings is more easily achieved by some companies (like CORKCO, PULPCO and WOODCO) than others like TECHCO that need to be more creative to do it.

The fifth theme – setting up special projects – emerged from the consideration that there are particular projects that do not fit into routine or daily practices dealing with sustainability. Due to their time frame and original goals these were here treated differently from the practices described earlier. Chapter 9 illustrates that for CORKCO and PULPCO, two of their major projects are of vital importance. They were designed and put into practice with clear sustainability-related objectives and limited time frames, and although initiated by one company, their implementation necessarily involved other companies, without which the projects would have been unfeasible. Because of their features, these two projects were considered special when compared with all the other practices.

3.4.6 A FINAL COMMENT ON THE CREDIBILITY OF THE RESEARCH

Presenting the methodological decisions and the research process may not provide enough evidence on the quality and plausibility of the research findings. If “the quality of a case study is predicted on whether the case, together with the suggested theoretical contribution manages to persuade the reader or not” (Dubois and Araujo, 2007, p. 175), it is the reader who judges whether the interpretation presented here is valid or not.

To assist the reader, this chapter provided arguments and comprehensive explanations on how the theoretical frameworks were aligned to the research goals, how the decisions regarding methodological choices were taken, and how the messy procedures of the casing process were dealt with. The credibility of

this research is thus dependent on the quality of the data reported (in the empirical chapters), the triangulation of data and the transparency and honesty with which the difficulties of the “casing” were described. As claimed by Ragin’s (1992) “... Casing often involves sifting through empirical evidence to define cases and thus bring a measure of closure to vaguely formulated theoretical concepts or ideas. Cases often must be found because they cannot be specified beforehand. In some research areas, delimiting the case may be one of the last steps of the research process.” (p. 220). Although contrary to the initial research proposal, the final casing was not designed and planned a priori the case description and analysis. Instead, casing, description and analysis emerged together. Hence, to avoid falling in situations whereby “...strong preconceptions are likely to hamper conceptual development” (Ragin, 1992, p.6), the researcher needs to continually ask the question “What is this a case of?” and treat any answer as tentative. It was only after writing down the embedded cases organised within themes that this question was finally answered. Each case is about the construction of sustainability qualifications in business-to-business settings, and each embedded case is a case of how strategising practices unfold to build sustainability qualifications.

Sound theoretical justifications on the case research design were also provided. The choice of a multiple case study does not fall into prescriptions such as Eisenhardt’s (1991) which suggests that the appropriate number of cases necessary to develop good theory and allow for generalisations should be between 4 and 10. Gibbert et al (2008) remark that one of the criteria used to assess the rigor of field research – ‘external validity’ or ‘generalisability’ - cannot

be observed with single or multiple case studies, but this does not mean that case research is entirely lacking of generalisation potential.

Flyvbjerg (2006) also adds to this debate by arguing that it is a misunderstanding to say that one cannot generalise from single case studies. In qualitative studies there is less concern with statistical generalisations and more concern with analytical generalisations and the transferability of findings (Mitchell, 1983, Yin, 1994, George and Bennett, 2005, Dubois and Araujo, 2007, Gibbert et al., 2008). In this sense, while statistical generalisations refers to the ability to generalise from empirical observations to a population, analytical generalisation aims at generalising from empirical observations to theory (Gibbert et al., 2008).

The choice of different industrial settings and the selection of a variety of practices provided the raw materials to investigate the research questions and explain the causal relationships that produced the “sustainability outcomes” within each practice. This means that, on one hand, the cases were purposefully selected, not to provide a basis for statistical generalisations, but to produce detailed explanations on the construction of sustainability qualifications. On the other hand, it also means that the interpretation of the cases might be produce theoretical explanations applicable to other industrial settings.

3.5 CONCLUSIONS

This chapter described the research process in terms of philosophical beliefs and methodological choices. Having introduced a relational ontology, the adoption of case research was justified as a suitable strategy to investigate the research questions. The chapter highlighted the process of systematic combining as a valuable guiding principle of the study and provided detailed descriptions on several aspects of this study: the definition of units of analysis as strategising practices contributing to the construction of sustainability qualifications; the shift from a single to a multiple case study design; the constant back and forth movements between theory and data to build the cases; the data collection procedures and how important documentation became to build up the cases; and finally the organisation of the data that led to its analysis and presentation in the empirical chapters. The chapter concluded with a commentary on the credibility of this research hoping to have helped the reader assess the plausibility of the findings.

The next chapter initiates the empirical part of the study with a presentation of the four companies studied, their approach towards sustainability qualifications and the practices they engaged in to achieve these qualifications.

4. PRESENTING THE RESEARCH SETTING

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

4.1 INTRODUCTION

This chapter launches the empirical part of this dissertation. Throughout Part II, the set of practices that contributed the most to produce sustainability qualifications in the four companies studied will be described. The first step is thus to provide a characterisation of these companies and an overview of the main practices that comprise their sustainability strategies. As illustrated in Figure 4-1, each section of this chapter is dedicated to each focal company.

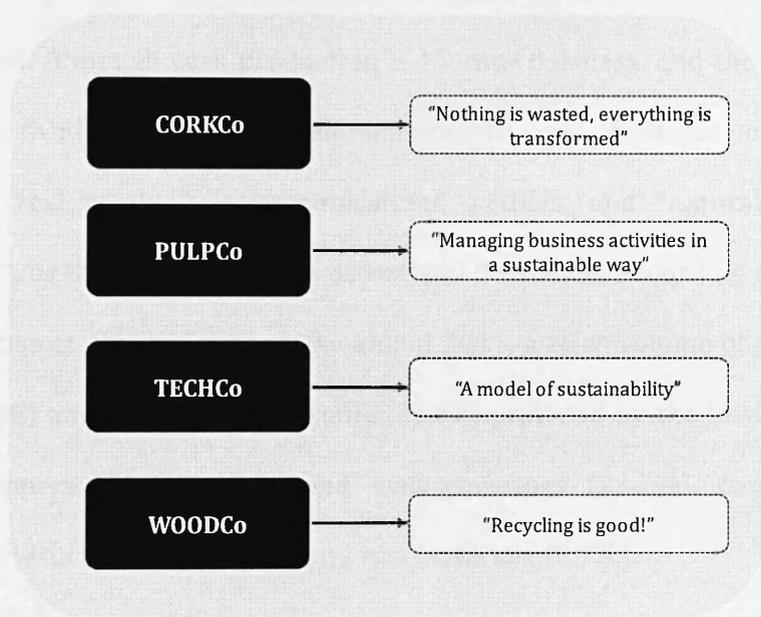


Figure 4-1: Outline of Chapter 4 – Presenting the research context

4.2 CORKCO: “NOTHING IS WASTED, EVERYTHING IS TRANSFORMED”

CORKCO is a Portuguese industrial group dedicated to the production of cork and its incorporation in a variety of applications (e.g. stoppers, memo boards, flooring, wall covering). Given the wide range of cork applications, the group is organised in four main business units (BU) – cork stoppers, floor and wall

covering, cork composites (agglomerates, granulates and cork rubber) and insulation cork (100% natural insulation materials) – and two supporting units dedicated to dealing with raw materials and research and development, respectively.

Currently, CORKCO is the world leading producer in the cork stoppers and construction material markets; it transforms and commercializes 30% of the world cork production with installed facilities in 26 countries and around 3000 employees. Although cork production is its core business, and the focus of this research, CORKCO expanded their activities to other business areas, namely, tourism, real estate, telecommunications, textiles, and “natural sustainable products”, as they call them, such as red and Port wine. According to their 2011 Annual Report, CORKCO had, at the end of 2011, a sales volume of 494.8 million Euros (M€) and a net profit of around 25 M€ provided by the business units of cork stoppers (58,9%), floor and wall coverings (23.7%), composite cork (14,9%), insulation cork (1.7%) and raw materials (0.7%).

CORKCO started operating in 1870, as a small family-run unit, producing cork stoppers to supply the local wine industry. By 1930, and thanks to the growing use of cork as an alternative product for thermal and acoustic coverings, CORKCO started producing cork for other applications, and exporting their products to Japan, Germany, England, Holland, Belgium, Sweden, Switzerland, Brazil and the United States. Since their opening CORKCO’s story is long and full of interesting events, but it was from 1963 on that the group triggered their expansion process

with the establishment of an industrial unit to produce cork granules and agglomerates. As described in CORKCO's story:

"The initial aim was to use up 70% of the waste that CORKCO generated with the manufacture of cork stoppers, transforming the waste into granules and the granules into valuable agglomerates, pure and mixed. These in turn made it possible to produce a set of new applications in cork."

(CORKCO's institutional website)

This was the first practice that marks CORKCO's approach to sustainability, although the rationale to set up this new unit at that time was a long way off a sustainability agenda. Nowadays, their activities are claimed to be unique in terms of sustainability practices, on the one hand, because they represent a crucial contribution for the exploitation and preservation of cork oak forests across Southern Europe and North Africa. On the other hand, given the characteristics of cork as a raw material and as a final product, the company's opportunities to act in an environmentally-friendly manner are endless.

For 50 years, CORKCO has had a sustainable approach to its internal operations and final offerings and has shown this by adopting the motto that in the cork industry *"nothing is wasted, everything is transformed."* The practices that deserve more emphasis in their sustainability strategy are those which foment this motto (see Figure 4-2). CORKCO's activities are based on a zero-waste policy by using, recycling and re-using cork waste in their different business areas. Declaring their commitment towards a zero-waste policy, the company looks for opportunities to reuse cork waste, valued as a by-product, by setting up new

products entirely based on the generated waste (e.g. granulated cork, agglomerated cork). Internally, CORKCO also engages in energy efficiency projects based on co-generation systems (CHP – combined production of heat and power) through which energy (power and heat) is produced from cork waste and used to feed their manufacturing operations.

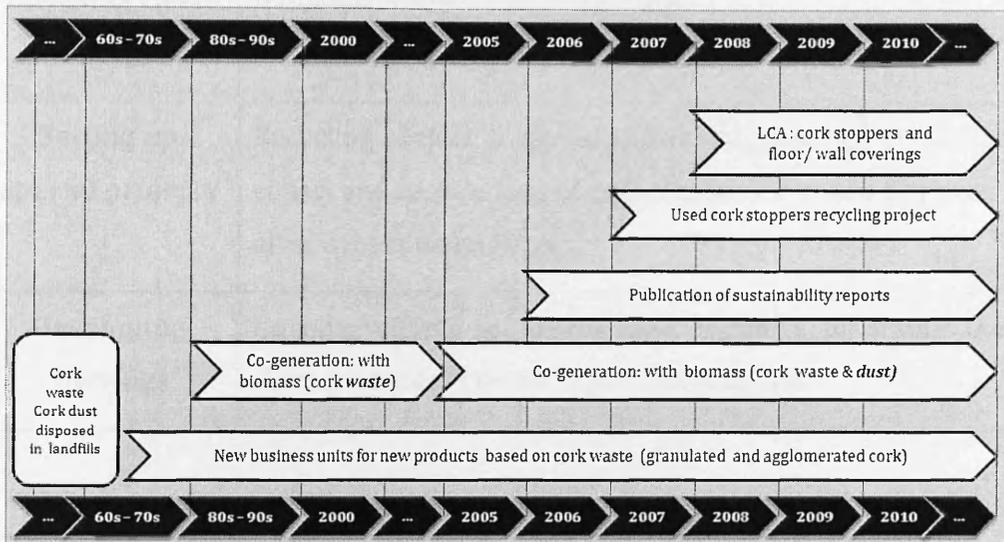


Figure 4-2: Sustainability timeline in CORKCO

By analysing the set of sustainability reports and interviews from CORKCO, five main events (illustrated in Figure 4-2) were identified as the building-blocks of CORKCO’s sustainability strategy accompanied by the ongoing efforts to develop new products based on green arguments. Following the logic of Figure 3-2 on the casing process (Chapter 3), the empirical chapters will describe and analyse six embedded cases from CORKCO (Table 4-1).

| Type of practice | CORKCO's practices under study |
|------------------------------------|--|
| Reporting | Publication of sustainability reports since 2006. |
| Evaluating uses for waste | Use of forestry waste as biomass and subsequent classification of cork dust as biomass. |
| | Efforts to set up new products entirely based on cork waste. |
| Adopting clean energy | Adoption of cogeneration systems. |
| Setting up special projects | Recycling project: a special project triggered by CORKCO to collect and recycle tons of cork stoppers that are disposed of after wine consumption. |
| Developing offerings | Ongoing efforts to create new products or frame their characteristics in terms of green arguments. |

Table 4-1: CORKCO's practices under study

4.3 PULPCO: "MANAGING BUSINESS ACTIVITIES IN A SUSTAINABLE WAY"

PULPCO is a Portuguese company which produces a high quality short fibre pulp from *Eucalyptus globules*, particularly suitable for very specific types of paper and cardboard. One of their main brands is recognised in the market by its high quality, particularly concerning low levels of imperfection, consistency of bleaching levels, physical, chemical and paper properties. These characteristics recommend its use for fine printing papers, laminated decorative papers and cardboard for high quality printing. 96% of PULPCO's production is exported to

the European Union, namely the Benelux countries, Spain, Germany, the United Kingdom, France and Italy. At the end of 2010, with a taskforce of around 240 employees, PULPCO reported a sales volume of 330 M€ and a net profit of 39.9 M€.

Established in 1965, PULPCO was founded from a partnership between a Swedish company and one of the largest Portuguese groups at that time. The company's location, close to the coast, was chosen due to a number of advantages that would make it ideal for the installation of the mill site, namely, the proximity to forest areas with availability of raw material, the abundance of water, vital for the production process, closeness to a commercial harbour and the availability of a qualified labour force. The company started up in 1967 producing soluble pulp, intended for the production of textile fibres, and was afterwards adjusted to produce paper pulp with a capacity, at that time, of 120, 000 tons per year.

In 2006, a Portuguese Industrial Group (henceforth referred as PortGroup) announced the acquisition of 100% of voting rights in PULPCO. PortGroup was established in 2005, after a restructuring process of its former group, incorporating at that time two companies: one dedicated to paper pulp production, forest management, wood production and production of energy from renewable resources and the other, dedicated to the production of special types of steel and storage systems. In 2006, PortGroup also acquired 50% of the capital of a producer of energy from renewable sources, with the main goal to support the energy needs of the group and to expand their activity into a sector that they

considered highly interesting from a strategic point of view – the renewable energy market.

Regarding PULPCO's approach to sustainability, and in comparison with the three other companies, it seems to be the more mature and experienced in terms of developing and implementing sustainability strategies, probably due to its Swedish legacy (see Figure 4-3).

Their activities have been reported in the Swedish group's environmental reports since 1998. After the acquisition, and although the Group comprises several companies, each one has presented their independent sustainability reports since 2006. Their sustainability discourse is very much directed towards the production processes, rather than offerings. The slogan used in their communication channels – *“managing business activities in a sustainable way”* – pinpoints their major concern, which is to reduce the impact of their production processes on the environment. Pulp production is inevitably environmentally-unfriendly. It implies the destruction of vast areas of eucalypt oaks and generates large amounts of waste in terms of polluted water, ash, organic waste and forestry-based waste. Moreover, their final offering – pulp – does not benefit from CORKCO's advantage of being recyclable and reusable, i.e., it has one purpose only, which is to be incorporated in paper production. So the main argument to justify a sustainable performance is placed on the adoption of clean technologies and environmental management processes, namely, forestry management, waste valuation and water effluent treatment.

As their raw material is sourced from the forest, they also benefit from the biomass produced in the wood processing activity. Therefore claims linked to the production of green energy and energy-efficient systems are also emphasized.

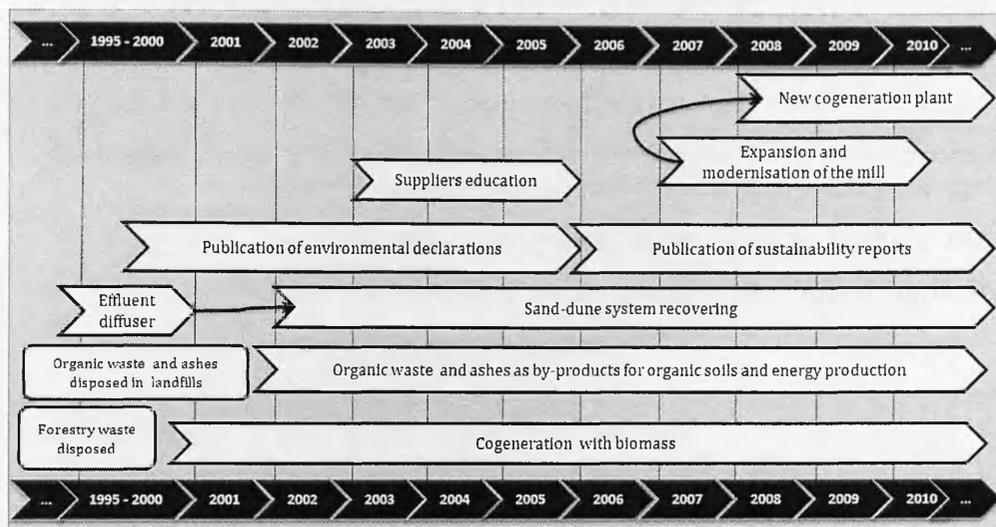


Figure 4-3: Sustainability timeline in PULPCO

By analysing the set of environmental declarations, sustainability reports and interviews eight main events, depicted in Figure 4-3, were considered as key projects to build up PULPCO's sustainability strategy. Again, as in CORKCO's case, following the logic of Figure 3-2 on the casing process (Chapter 3) the following practices from PULPCO will be described and analysed (Table 4-2):

| Type of practice | PULPCO's practices under study |
|------------------------------------|--|
| Reporting | Publication of annual environmental reports since 1998, first as environmental declarations and from 2006 on as sustainability reports. |
| Evaluating uses for waste | Use of forestry waste (biomass) as fuel. |
| | Efforts made to eliminate the amount of dry ash produced by the bark boiler and organic waste sent to landfills and its posterior valuation as by-products for forest/agriculture soils and energy production. |
| Adopting clean energy | Adoption of cogeneration systems. |
| | Ongoing projects to recover the sand-dunes nearby the mill after the construction of a submarine effluent diffuser first implemented to drain the water effluents from the facilities. |
| | Expansion and modernisation of the pulp mill accompanied by the construction of a new thermoelectric biomass plant to produce green energy. |
| Setting up special projects | Suppliers' education programme to promote the best environmental practices among its main suppliers. |
| Developing offerings | Ongoing efforts to create new products or frame their characteristics in terms of green arguments. |

Table 4-2: PULPCO's practices under study

4.4 TECHCO: “A MODEL OF SUSTAINABILITY”

TECHCO started operating in 1948 as an equipment manufacturer for the electricity market and evolved into a high-tech supplier of products and engineering projects, providing products and solutions to the energy, engineering, transport, buildings and renewable energy sectors. Initially their activities were mainly dedicated to the production of electric motors, but gradually they started producing a variety of electric solutions such as transformers, hydraulic pumps, traction systems, components for telecommunications systems, equipment for public transport (buses, underground) and automated warehouses, to name but a few.

Today TECHCO is the largest Portuguese company serving the needs of the electricity market, in terms of equipment and solutions to produce and distribute energy. They work under a “Systems Integrating Contractor” philosophy, as they call it, i.e. their offerings work as integrators between different components from varied electrical systems (e.g. construction, transportation, warehousing). Also, their main competence is to work as “bespoke tailors” where each project is unique and designed according to the customers’ specifications.

In terms of market segments they are organised in three main groups of business activities within which they have different business units: 1) energy solutions with business units dedicated to transformers, high and medium voltage switchgear; 2) engineering solutions and services with business units serving

engineering, automation, maintenance, environment and renewable energies; and finally 3) a group with two business units dedicated to transport and logistics.

By the end of the 1980s, they decided to pursue an internationalization strategy which up to the present day, remains their main priority. By 2010 TECHCO was already present in more than 65 countries with around 4,600 employees. Following a strategy to export systems, rather than products, their orders reached 1000 M€ in 2009.

Since this study is concerned with how companies embrace sustainability and how they search for ways to build up sustainability qualifications, TECHCO's case is quite inspiring. TECHCO declares itself as "a model of sustainability" (an expression that can be found on their website, in newsletters and sustainability reports). TECHCO assumed a formal position towards sustainability in 2004, by becoming a member of the Portuguese Business Council for Sustainable Development and by launching an internal program to develop, implement and communicate a credible sustainability strategy.

As their offerings, as well as raw materials and waste produced, are physically not sustainable *per se*, i.e. non recyclable or reusable, they use the utility of the offerings in energy markets as the main claim to justify their contribution to sustainability. Their argument is based on their efforts to be present in the so-called emergent renewable energy markets using their capabilities in the energy technologies sector to expand their offerings. As such they continuously look for

solutions that might bring more efficient results to the energy systems they are integrated in:

“The search for innovative and sustainable solutions for the businesses is one of the hallmarks of TECHCO, which has invested around 10 M€ in R&D over the last 2 years and has around 150 employees concentrated exclusively on this activity. R&D activities have been crucial to the development of new solutions, products and services.”

(TECHCO, institutional website)

It is unsurprising then that the major practices highlighted as building-blocks of their sustainability strategy (Figure 4-4) are related to the development of offerings rather than production processes or raw materials, as in the CORKCO or PULPCO cases:

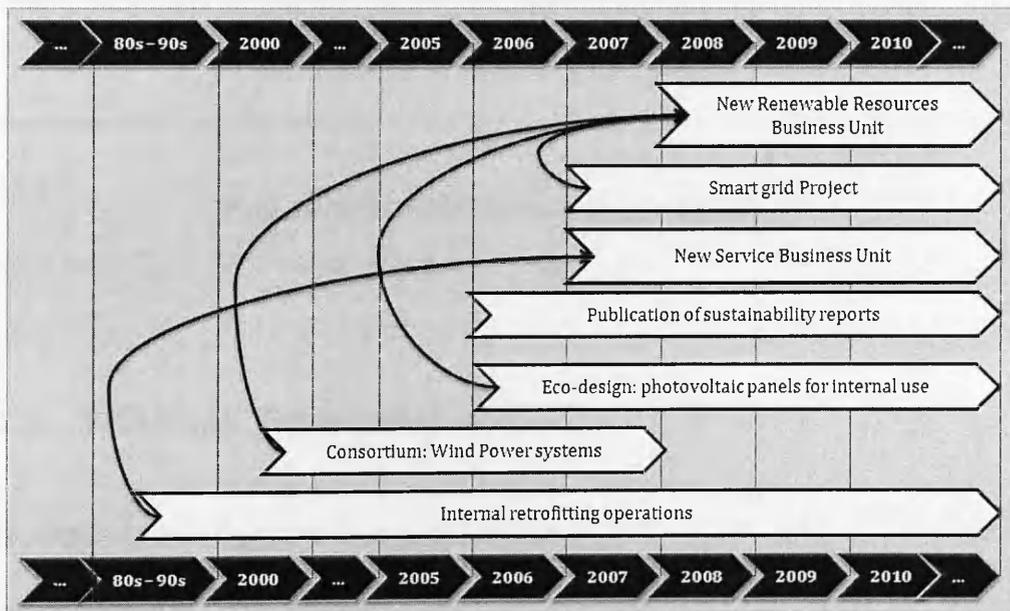


Figure 4-4: Sustainability timeline in TECHCO

By analysing the set of sustainability reports and interviews in TECHCO, seven key events within their sustainability strategy were identified. In terms of the cases' description and analysis, Table 4-3 organises these events in two types of practices and four embedded practices (refer to the “Casing process” – Figure 3-2, in Chapter 3):

| Type of practice | TECHCO's practices under study |
|-----------------------------|--|
| Reporting | Publication of sustainability reports since 2006. |
| Developing offerings | New service: retrofitting operations |
| | Creation of new business units to embrace new offerings: Service BU and Renewable Resources BU. |
| | Launching new offerings with business partners: participation in a wind power production consortium and participation in a 'smart grid' project. |

Table 4-3: TECHCO's practices under study

4.5 WOODCO: “RECYCLING IS GOOD!”

WOODCO is a Portuguese company dedicated to the production of wood-based panels suitable for furniture, construction, refurbishment and decoration purposes. Established in 1959 to produce high pressure decorative laminates, the company began its expansion and diversification process in 1971 with the acquisition of a particleboard company and with a vertical integration strategy

through two new production lines, dedicated to produce melamine surfaces and components for furniture and interior decoration.

Through the 80s the company expanded their activities to other countries (Ireland and the United Kingdom) and to other business areas namely retailing and shopping malls. Success was achieved in both areas. By 1989 they were already the market leader in wood-based panels in Portugal. In turn, the investments made in retailing and shopping malls paid off rapidly and steadily to the point that nowadays the institutional name of the company is associated with retailing and shopping malls, rather than wood based panels. In a series of restructuring actions undertaken in the early 90s, two different companies were set up to separate their business areas. From 1993 on WOODCO began a new stage of rapid growth and internationalisation entering the wood-based panels market in Spain, Canada, Brazil, South Africa, France and United Kingdom. After a sequence of mergers and acquisitions, by 1999 WOODCO became the world leader in the manufacture of wood-based panels. In parallel they diversified their product portfolio by entering in adjacent markets such as Oriented Strand Board (OSB), softboards, plywood, resins. By 2010, they reported a total turnover of 1,283 M€ (relative to 2009) and their workforce numbered around 5300 employees on 28 production facilities and sales locations in 8 countries: Portugal, Spain, France, Germany, United Kingdom, Canada, Switzerland and South Africa.

In terms of WOODCO's approach to sustainability there are similarities with both CORKCO and PULPCO since they all work with forestry-based raw materials, benefiting from the possibility to produce energy from cogeneration systems

with biomass. The novelty of WOODCO's strategy is the source of these materials. Wood based panels incorporate a high percentage of sawmill co-products and wood residues as raw materials: forestry residues, pallets, old/used wood based panels and old/used furniture. In the UK's production facility this percentage reaches 98%. So the major arguments in use to formalise a commitment towards sustainability are related to the role played by wood-based panels in the sustainable exploitation of forestry resources. By recycling and transforming all these materials into processed wood there is no need to destroy forestry areas, which means that wood-based panels represent a natural alternative to solid wood in a variety of applications in the construction, furniture and decoration areas. In this sense the company recently adopted the motto *"Recycling is good!"* in the UK production site, to reposition WOODCO's image as a sustainable company.

Figure 4-5 illustrates the timeline for the highlighted practices in WOODCO, which are mainly based on the use and/or re-use of recycled materials.

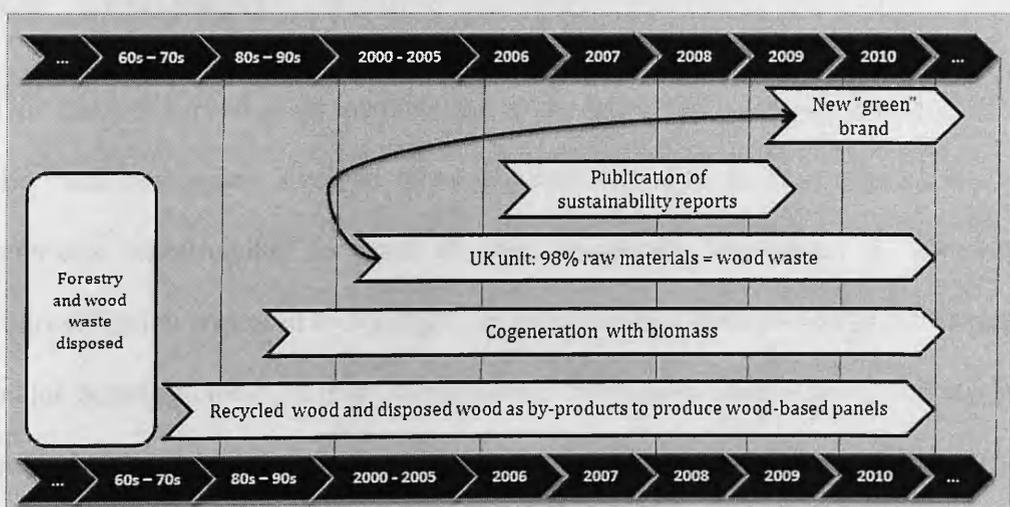


Figure 4-5: Sustainability timeline in WOODCO

Again, following the logic of Figure 3-2 on the casing process (Chapter 3) five practices from WOODCO summarised in Table 4-4 will be described:

| Type of practice | WOODCO's practices under study |
|----------------------------------|--|
| Reporting | Publication OF sustainability reports since 2007. |
| Evaluating uses for waste | Use of forestry waste (biomass) as fuel. |
| | Efforts to maximize the use of recycled wood as raw material |
| Adopting clean energy | Adoption of cogeneration systems. |
| Developing offerings | Development of wood based panels as a sustainable product and the launch of a new "green brand" to support this claim. |

Table 4-4: WOODCO'S practices under study

4.6 CONCLUSIONS

This chapter served as an introduction to the empirical material. The profiles of the focal companies involved were described as well as their approaches to embrace sustainability as part of their corporate strategies. A "timeline" representation was used to highlight the practices that each company declared as major building-blocks of their sustainability strategies. Investigating the stories behind these practices will provide a better understanding of how each type of practice contributes to construct and stabilise the companies' sustainability

qualifications. As such, the practices highlighted in the timelines will be further described in the following chapters.

As explained previously (see Chapter 3 on methodological issues), these practices were organised by themes and grouped according to the type of practice covered in each empirical chapter. This means that practices from different companies are described and compared simultaneously whenever possible. In this sense, Chapters 5 to 9 describe the research findings in terms of five main types of practices, respectively: reporting, evaluating uses for waste, developing offerings, adopting clean technologies and setting up special projects.

5 PUBLISHING SUSTAINABILITY REPORTS

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

5.1 INTRODUCTION

The aim of this chapter is to describe the process of producing and publishing reports as representations of the firms' sustainability strategies. Companies get involved in many different types of practices and projects that are communicated under the label "Sustainability Report" (SR). Figure 5-1 illustrates the themes covered in this chapter.

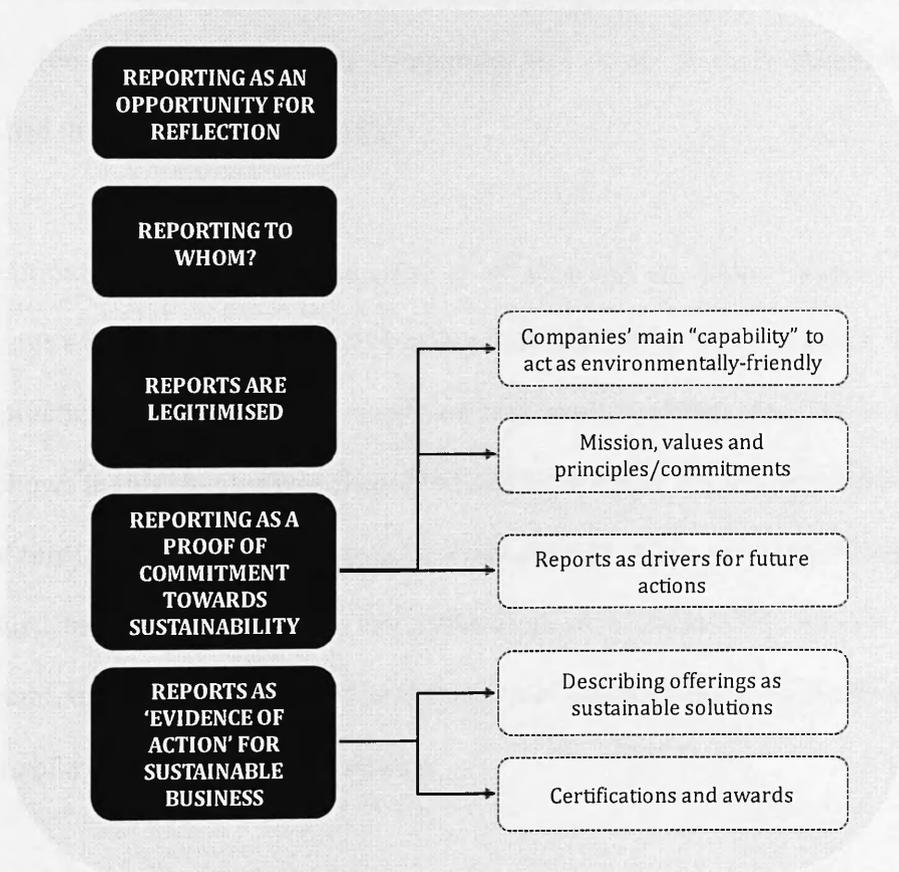


Figure 5-1: Outline of Chapter 5 – Publishing sustainability reports

By looking at these themes my aim is to uncover how sustainability reports are used by companies to publicly communicate their actions and efforts towards sustainability. The analysis developed here does not follow a content analysis rationale. It is rather a reflection of what companies choose to report (or not to report!), to whom they are targeting their messages and with what aims. The goal here is to draw attention to the way companies frame their sustainability strategies through discourse, according to their strategic priorities. Hence, the reporting initiatives developed by the four focal companies are analysed in terms of how sustainability strategies are framed and communicated through these reports (56 SRs from the focal companies and some of their stakeholders, published in the period 1999-2010).

As mentioned in Chapter 3, the process of building the cases derived from numerous exercises of coding and recoding data that led to the emergence of five main practices constituting the companies' sustainability strategies. The analysis that follows in this chapter was crucial in building the first theme of the empirical part of this investigation - Reporting. The sub-themes pictured in Figure 5-1 and described below will show why the publication of sustainability reports is so important, to the point of being considered one of the main building blocks of the sustainability strategy of each company.

5.2 REPORTING AS AN OPPORTUNITY FOR REFLECTION

The analysis of the reports reveals that its main function is to promote the credibility of the companies' sustainability strategies through public communication. Typical examples of what is reported are the description of specific projects (developed or in progress) towards the achievement of explicit goals linked to sustainability, the communication of environmental certifications (the most common being ISO14001 or FSC certification⁷), the type and scope of various sustainability awards obtained, the companies' performance in terms of the three dimensions of sustainable development (economy, society and environment) supported by a panoply of variables and measures.

The report is a key source of public information about the activities companies have undertaken in the past, are doing at present and intend to do in the future regarding their sustainability performance. Hence its main function is to communicate with stakeholders. As expressed by an interviewee *"Nowadays sustainability is a lot about communication..."* This somehow paradoxical comment implies that communication plays an important role on the development of sustainability strategies. Companies strive to assemble "things" to communicate as if the lack of sound examples of sustainable practices implies lack of commitment. In this sense, the process of reporting *per se* forces companies to reflect on their businesses and to assess which practices can be communicated as sustainable, which should be improved and which should be

⁷ ISO14001 is one of the International Organization for Standardization's certification for environmental management systems and FSC is the Forest Stewardship Council's certification for responsible forest management

rectified. This entails a huge effort to make an inventory of those practices. Reports are, in this sense, used as a tool to systematize past and present data (environmental, social and economic) that are held within the organisation. This process is particularly challenging when a company takes its first steps on sustainability reporting. Speaking about the moment they first started publishing SRs, the person responsible for the sustainability strategy in WOODCO, explained the complexity of the reporting process as follows:

"[the report is] an exercise, or the result of an exercise that took several months to complete; an exercise of reflection of what sustainability means to us. The report is only the tip of the iceberg. Much more important than that is the process behind it... the reflection of what is the meaning of sustainability, what we are doing in relation to it and what we should be, but are not, doing. This was the exercise we needed to do; it took six to eight months to complete, and demanded full-time dedication from many people."

(WOODCO, Person responsible for sustainability strategy, personal interview)

This is to say that by engaging in reporting activities companies have to start lengthy processes of reflection of what sustainability means to their business. This reflection process involves gathering data on their environmental performance, assessing and measuring the impact of their activities on the environment, formulation of plans to change practices that conflict with sustainability goals, collecting these data across business units; and reporting it in a single document.

5.3 REPORTING TO WHOM?

Typically, reports start with messages from the chairman or CEO of the company outlining the scope of the report. This message, directed at stakeholders, is an introduction to the relevant events of the year, the socio-economic context of the companies' annual performance and the main sustainability goals for the following year.

According to the GRI⁸ (Global Reporting Initiative) standards, reports must identify the main stakeholders affected by the companies' activities, the priorities that should be addressed regarding the effects provoked by those activities and the communication tools used to deliver this information. In general, companies identify the following stakeholders: customers, employees, government, suppliers, shareholders, media, non-governmental organisations (NGO), partners and society in general. These are the stakeholders to whom reports are directed; at the same time, by being involved in initiatives aimed at listening stakeholders, these players have a say in which subjects they would like to be informed about and so they are also responsible for the content of the report. Several companies undertake these so-called survey processes of "listen[ing] to stakeholders" to learn what they think about their sustainability strategies and to give voice to their main concerns about aspects that are not addressed in the report.

⁸ The Global Reporting Initiative (GRI) is a non-profit organization that provides guidance to report on sustainability. It offers a comprehensive sustainability reporting framework that companies and organizations use as a guideline to organize and report their information on sustainability.

Although reports hint at a balanced set of priorities as far as stakeholders are concerned, some interviewees' comments suggest that different companies give different weights to different groups of stakeholders. WOODCO, for example, is taking their first steps in the publication of SRs. For this reason, the person responsible for the sustainability strategy highlighted that they had to place employees as their most important audience since they wanted to first promote the concept of sustainability internally. Since this subject was not familiar among employees, they thought that they should be the first stakeholders to learn about the route WOODCO wishes to follow and the challenges they would have to overcome in the future.

The analysis of the reports suggests that another, not so obvious, type of stakeholder is targeted. Although there is no reference to competitors as explicit stakeholders, this group also influences (and is influenced by) a company's sustainability strategy. Typically, each company reserves a section of the report to describe the characteristics of their industries. By giving details on how a company within a specific industry might promote a more sustainable business, they publicise their strategies to competitors who might wish to mimic their actions. Interestingly, this is regarded as a positive behaviour in contrast with the traditional view that companies try to protect their strategies from competitors. For example in the cork industry, there is no doubt that CORKCO is leading the way in sustainability practices.

Moreover, as a worldwide market leader, they feel they have to lead by example. They invest in projects aimed at promoting the features of cork-based products

as environmentally-friendly against other materials such as plastic, aluminium, and so on (e.g. promotional videos on the environmental characteristics of cork products and life cycle analysis comparing cork to competing materials). In this sense, all companies working in the same industry benefit from these promotional activities. As mentioned by CORKCO's Corporate Sustainability officer:

"[CORKCO] is the only company producing a document of this nature and with this level of detail and transparency. After us, other companies started (...) to develop life cycle analysis of their stoppers, they started looking at our investments in biomass boilers and following our good practices. There was a follow-the-leader effect. (...) Sometimes those who mimic do not have to incur the costs of the first mover. They will get it right given that imitation effect. We have to push them somehow towards that direction. That is inevitable. We have to push... Regarding the communication of the sustainability features of the cork industry as a whole, we recognize that we have to develop this work on behalf of the industry."

(CORKCO, Person responsible for Corporate Sustainability, personal interview)

This statement illustrates how initiatives described in CORKCO's SRs were followed by competitors, which enhanced the overall cork industry response to sustainability. However the manager also called attention to the fact that not every company is able to follow their practices if they do not perform an assessment of their own capabilities. He mentioned a few examples of bad investments (namely on co-generation technologies) that were made by some of CORKCO's competitors that did not succeed and ended up being discarded.

5.4 REPORTS ARE LEGITIMISED

The question of legitimacy is raised here to denote the importance granted to this issue by the interviewees. The discussion of what constitutes “legitimacy” as in institutional theories (Suchman, 1995), is not within the scope of this study. However the term is here used to emphasize that companies are concerned in being recognised as legitimate *performants* of sustainability strategies.

As explained by informants, to prove legitimacy, all reports start or finish with a section on the guidelines that governed their production. GRI standards are always referred to as the core directives followed in the reporting process. This implies that reports among the different companies under analysis have very similar structures and contents since they follow a list of criteria defined by GRI. Following these guidelines, all reports dedicate chapters to the three pillars of sustainable development (social, economic and environmental performance) and for each pillar they report on different aspects according to their related projects or practices. In the environmental performance chapter, results are reported in terms of quantitative assessment of emissions, waste generated and resources use, followed by the specific initiatives intended to translate environmental performance goals into practice.

Most of the reports conclude with an audit statement that legitimises the content. This document is issued by an independent institution (typically PriceWaterhouseCoopers or Lloyds) confirming the results in the report and vouching for the processes undertaken to arrive at those results.

Although reports follow a set of guidelines provided by the GRI framework, companies use them as a frame to signal specific aspects of their sustainability strategy. Hence decisions are made regarding the messages companies want to communicate publicly vis-à-vis their commitment towards sustainability supported by evidence of that commitment. These aspects are analysed in detail in the following sections.

5.5 REPORTING AS A PROOF OF COMMITMENT TOWARDS SUSTAINABILITY

The messages conveyed in SRs aim at promoting the arguments regarding how their businesses deal with sustainability issues. By using the SRs to display transparent information about the impact of their activities on the environment and how they are addressing that impact through several different initiatives, companies demonstrate their commitment and willingness to tackle the problems their activities cause to the environment. As declared in the preface of the first sustainability report published by one of TECHCO's partners in 2003:

"The production of a sustainability report results from the decision to adopt at the beginning of 2004, a set of sustainable development principles that will guide its activities and constitute a public commitment to this issue."

(TECHCO's partner, chairman, SR, 2003)

This message starts by revealing that the decision to publish SRs was taken after careful thought. He highlighted that:

"Sustainable development reporting should be more than just presenting environmental, social and economic performance indicators."

It should constitute a demonstration of our commitment, of our progress, and perhaps, of our failures, with a view to creating value for shareholders on a lasting basis, based on a proactive attitude towards environmental issues and on a social practice that builds on the company's traditions to answer the new needs of the community."

(TECHCO's partner, chairman, SR, 2003)

There are several ways of communicating this commitment such as: 1) placing the focus of the message on their main capability or strength to act as an environmentally-friendly company; 2) embracing the commitment towards sustainability within their statements of mission, values and principles; and 3) presenting the key projects developed or initiated each year and planned projects for the subsequent year. The style of delivering these three kinds of messages through SRs is described in the following sections.

5.5.1 COMPANIES' MAIN "CAPABILITY" TO ACT AS ENVIRONMENTALLY-FRIENDLY

Like any annual report, SRs start with a message from the chairman or CEO of the company directed explicitly to its stakeholders. This message is a preface of the company's approach to sustainability and a short summary of how sustainability issues are approached and dealt with by the company. The content of these messages alludes to what can be interpreted as the company's main capability or strength to act as environmentally-friendly. Each company uses a different argument to justify their position towards sustainability and the key practices they need to develop to reinforce that position each year.

TECHCO, for example, evokes their offerings (product or/and service provided) as their main capability to contribute to a more sustainable environment. Their strength regarding sustainability is to develop technological solutions for more efficient energy generation systems. In their 2009 sustainability report, TECHCO's chairman declares that:

"[TECHCO] is engaged in a range of activities that make a positive contribution toward environmental improvement. Besides the businesses of the Renewable Resources and Environment Units, we also emphasize the recovery of materials of the Servicing Unit, participation in [Customer X] project, the urban light railway projects, and the involvement in the development of the future electric vehicle charging network by the Transport Unit."

(TECHCO, Chairman, SR, 2009, p. 7)

In this sense TECHCO's contribution to minimise the environmental impact of its activities is placed on their portfolio of offerings alongside different projects with its customers. As summarised by the person responsible for sustainability reporting:

"... one of the crucial contributions that [TECHCO] might bring to the environment is really its renewable energy business (...) this is an enormous contribution to society."

(TECHCO, Sustainability Reporting officer, personal interview)

It should be highlighted though that an argument framed as such does not imply that the offering is sustainable itself; in TECHCO's case, is the adoption of the offerings that leads to a better sustainable performance of its customers, e.g., the outcome of the adoption of TECHCO's offerings in conjunction with the customers' activities is what converts the offering into a sustainable solution.

Hence, to some extent, sustainability goals are achieved in a systemic fashion where the offering alone makes no contribution to achieve those goals. Instead, the solution is environmentally-friendly only when combined with other parts of the system provided by other companies. The SRs of one of TECHO's major partners, the Portuguese leader of the electricity market, reinforce this argument. They claim that their capability is the combined offering of energy produced from renewable sources and energy-efficient services.

CORKCO, in turn, presents a different argument as their key strength to develop a sustainable business is placed on the physical, natural features of its products. In the preface of its 2009 sustainability report they state that:

"Any activity such as that of [CORKCO], based upon a 100% natural raw material such as cork – cyclically extracted from trees without damaging them and promoting the economic and social sustainability of regions at risk of desertification as well as encouraging the preservation of one of 34 world biodiversity hotspots – brings together unique characteristics to provide an integrated response to the new challenges and demands of society and, consequently, consumers."

(CORKCO, SR, 2009, p. 7)

In this case, the capability is to develop products from an ecological raw material – cork – which brings a double contribution to the environment: on the one hand CORKCO activities promote the proper exploration and protection of cork oaks which are recognised as carbon sinks and biodiversity nests. On the other hand, they offer cork-based products, which are intrinsically environmentally-friendly. In CORKCO's first sustainability report, published in 2006, the chairman recognises that the company benefits from a "gift of nature"; however he stresses

that it is only through a structure of business activities around this “*gift of nature*” that the company is able to guarantee the adoption of sustainable development practices. In this sense they pursue:

“... an integrated manufacturing process that is practically waste-free” whereby they are able to supply “*high value added products that maintain the unique and intrinsic characteristics of natural cork.*”

(CORKCO, SR, 2006, p.7)

This message is repeated in the following reports where the products offered are presented as the largest contribution to a better environment that CORKCO could provide. In 2007, the chairman reinforces the company’s position towards sustainability around the various applications of cork. He summarises this position by stating that CORKCO:

“... transforms cork into products which are uniquely positioned to respond to this [environmental] challenge. Whether it is cork stoppers for wine, floor coverings, insulation material for eco-construction, materials for large public works which have to comply with strict environmental standards, products or cutting edge solutions for the aerospace industry, or a wide range of products and solutions used by big names in international fashion, the diversity of [CORKCO]’s portfolio is enormous and illustrates clearly the great potential of this natural raw material – cork.”

(CORKCO, chairman, SR, 2007, p.3)

PULPCO, in turn, uses two main arguments to frame their capability to act in an environmentally-friendly manner. First, and similar to CORKCO, the advantages of working with a natural resource – wood and second, the adoption of state-of-

the-art production equipment to mitigate the environmental impact of the final product – pulp. In its 2006 sustainability report, PULPCO's chairman states that:

"Our starting point is quite favourable as we use a renewable raw material – wood. We strive to trace and ensure that all the wood we use is produced and harvested in a legal and sustainable way and that in our own activities we reduce the consumption of natural resources and do our utmost to manage the consumption of energy in a balanced way."

(PULPCO, chairman, SR, 2006, p. 7)

In 2007 the chairman's message announces that PULPCO's major challenge for the following two years is the accomplishment of the modernisation and expansion project of the mill which:

"(...) will allow an increase in the annual capacity to produce bleached eucalyptus paper pulp from the present 325 thousand tonnes to about 600 thousand tonnes. This investment of approximately M€ 320 will definitely place PULPCO among the most effective companies in the world."

(PULPCO, chairman, SR, 2007, p. 7)

During 2008 and 2009 and following the guidelines on the "best available techniques" suggested by the European Union, for the pulp and paper sector, PULPCO invested in equipping the mill with specific resources for environmental protection in order to attain an "(...) *ecologically balanced plant in conformity with the national and European legislation.*" (PULPCO, SR, 2008, p. 43). Given the dimension of such investment and the expected benefits for Portuguese industry, in 2009 this venture was classified by the Portuguese Government as a Project of National Interest. For this reason it was the subject of numerous references in

media articles, it was described in PULPCO's Annual and Sustainability reports and mentioned in other companies' reports that were affected by the project such as some of their suppliers. The project was said to represent a huge step to improving the environmental performance of the mill. The improvements are not so much related to changes in the production process itself but to the investments made on state-of-art technologies through which pollutant emissions and levels of energy consumption can be significantly reduced⁹.

Finally, for WOODCO the main capability is to offer an environmentally-friendly product for the construction industry, against concrete and steel products. The argument is that they provide wood-based panels which use recycled wood in their production and that might also be recycled after consumption. To reinforce this perspective, in their first sustainability report published in 2006, WOODCO included a section labelled "How wood-based panels contribute to sustainable development" where they express their view as follows:

"Compared to other construction materials such as steel and concrete, wood has significantly lower adverse environmental impacts when used as building material. Wood-based panels have a positive effect on global warming through improved energy efficiency, which enables home owners to reduce energy spending significantly. And when used for construction purposes, they function as carbon stores, thereby helping to mitigate CO₂ emissions. At the end of their service life, wood-based panels can be recycled and made into new products and in this way re-enter a continued recycling cycle."

(WOODCO, chairman, SR, 2006, p. 6)

⁹ This initiative will be further described in Chapter 9 "Adopting clean technologies."

The argument is similar to the one used by CORKCO and PULPCO in the sense that they invoke the natural characteristics of their product as the source of a sound contribution to sustainability.

5.5.2 MISSION, VALUES AND PRINCIPLES/COMMITMENTS

Mission, values and principles and/or commitments of the company are repeatedly presented in the introductory chapter of SRs. Sustainability concerns are frequently included as part of one of these three aspects. Since its first publication in 2006, CORKCO's mission is always related to sustainability concerns framed as:

"To add value to cork in a competitive, distinctive and innovative way that is in perfect harmony with Nature."

(CORKCO, SR, 2006)

Likewise one of the core values of the company – *"responsibility, respecting the principles of sustainable development"* has been systematically presented since 2006. There have been no major changes in this discourse since the first publication, and the last sustainability report published in 2010 reiterates these statements.

TECHCO, in turn, has not made a clear statement of its mission in SRs since their second publication in 2007. Aspects concerning mission, values and principles are combined in a *"Code of Personal Ethics and Conduct"* which gathers a set of corporate values that the company intends to follow: *"professionalism;*

responsibility; parsimony; integrity; social behaviour; quality, safety and environment; confidentiality; loyalty and team." (TECHCO, SR, 2007). Yet, mission and vision are clearly presented in their institutional website. Although mission does not make any reference to sustainability concerns, vision is stated as:

" [To] become a worldwide reference in products, services and solutions for which it has distinctive competencies in a sustainable and responsible manner, in complete conformity with its values and standards."

(TECHCO, SR, 2007)

In their first sustainability report published in 2006, WOODCO acknowledged that they needed to articulate and formalize their vision, mission, core values and principles in a "Code of Conduct" with four cornerstones:

"the promotion of an entrepreneurial culture, a commitment to socially responsible business practices, responsibility towards our employees, and independence from political power."

(WOODCO, SR, 2006)

This was set up as an activity to be developed in 2007. In a joint report for 2008 and 2009, WOODCO finally states that their vision was formalized as:

"To be recognised as a sustainable world leader in the wood-based panels industry, consistently providing our customers with the best value products, upholding the highest standards of service and promoting responsible business and environmental practices. We base our operations on sound corporate governance, continuously improving the efficiency of our operations, actively promoting innovation and providing a motivated, safe and fair working environment."

(WOODCO, SR, 2008 - 2009)

They also gave a detailed explanation of the new corporate values on which they guide their business where the value of “responsibility” embraces environmental awareness. After 8 years of publishing environmental reports, PULPCO released their first sustainability report in 2006. The same mission is repeated in all reports, from 2006 until the last sustainability report published in 2009:

“To supply eucalyptus pulp produced in an economical and environmentally sustainable way, fulfilling the requirements and expectations of our customers.”

(PULPCO, SRs, 2006-2009)

Along with the mission they also present their set of values:

“Results and Total Quality oriented; Focus on customers' needs and expectations; Concern for environmental protection; Social responsibility; Openness towards changes; Professional competence and flexibility; Ambition to improve, innovate and be at the forefront; Delegation and responsibility; Informal personal relationships.”

(PULPCO, SRs, 2006-2009)

These examples illustrate how different companies from different sectors embrace the concept of sustainability in their missions, visions, values, principles and commitments. To do so they had to develop processes of articulating and formalizing their statements; this involved a thorough analysis of how their businesses negatively influence the environment and how their strategy might mitigate that harm. Some companies, like CORKCO and PULPCO, defined their vision towards sustainability as part of their core mission a long time ago and have maintained their statements since they first started to publish SRs until the present day. For CORKCO's chairman, for example, values linked to sustainability

have been part of the company's concerns for decades. He discusses the company's values and principles, where sustainability is included, as a core aspect governing its actions since the 19th century. In his message to stakeholders he claims that:

"The model of development adopted by [CORKCO] reflects its interpretation of the challenges facing the world, substantiated by the strategic options and actions set out in this report. A model of development founded upon core principles and values that have been handed down since the 19th century in which we take pride and that shall continue to govern the activities of [CORKCO]."

(CORKCO, Chairman, SR, 2009)

Others, like WOODCO, expressed the difficulties in formalizing these statements and made clear that this process was long and difficult. The need to report on sustainability issues brought about the opportunity to re-think and articulate what their mission is. As stated in their last sustainability report, published in 2009:

"In our first Sustainability Report (2006) we made a commitment to formalise the Vision, Mission and Values and Principles of [WOODCO]. The development of these concepts is a laborious process which has required the involvement of a large number of people to make the resulting outcome stable and applicable throughout the organization. This process was undertaken over 18 months through the involvement of those responsible in each geographical area in which we operate, as well as the HR departments, Corporate Governance Officer and legal departments."

(WOODCO, SR, 2008/2009)

This process is never concluded though. As stated by WOODCO's manager, companies keep polishing their statements regarding mission and values to make it clearer and more concise, or to shift the emphasis from certain aspects to others.

5.5.3 REPORTS AS DRIVERS FOR FUTURE ACTIONS

Reports contain, in general, an annual summary of the initiatives developed during the year reported regarding environmental, social and economic performance. But reports also signal what companies plan to accomplish in the future. It is common to find tables with information about the objectives or goals that the company aims to achieve in the following years as well as milestones for these activities. By reporting on future goals and plans, companies make promises to stakeholders and expose themselves to public accountability.

When a promise about future behaviour is made within the company's boundaries, and the promise is broken, it might start internal assessment processes to investigate why goals were not achieved. However, as the information is not publicly available, the company is protected from judgments of failure by outsiders. The opposite happens if the promise is made publicly, as they frequently are in SRs. In this case, stakeholders are informed about the company's commitments for the following year. Hence, if they fail to fulfil the promise, they will face not only their own judgment, but also the stakeholders' scrutiny. In this sense, public reporting of future actions constitutes a huge

stimulus to achieve the goals targeted, to avoid negative scrutiny from the outside. As WOODCO's CEO expressed in its 2007 report:

"We found the process of developing our 2006 sustainability report to be a highly effective catalyst for change and a clear call to action on all fronts. Looking closely at our corporate strategies, risk management and operations through a sustainability lens, helped us to understand how sustainability is both a risk mitigator and a pointer towards innovation opportunities and ways to create more efficient and safer operational systems and processes."

(WOODCO, SR, 2007, p. 5)

By following reports over time it is possible to track down the story of each practice regarding its temporal framing, motivations, drivers and obstacles to implement it, partnerships developed and goals achieved. For example, CORKCO's 2006 sustainability report presents, as a goal for 2007, the development of actions to promote cork oaks as ecosystems and biodiversity keepers.

To achieve this goal they describe their plan to increase forestry areas with FSC certification and to foster R&D activities on the topic. By following this particular practice through several SRs, it becomes clear that reports stimulate future actions to fulfil promises (Table 5.1).

| 2006 SR | 2007 SR | 2008 SR | 2009 SR |
|---|---|--|--|
| <p>Goal:</p> <p><i>“to promote cork oaks as ecosystems and biodiversity keepers”</i></p> | <p>Action:</p> <p>Status: Under development – an agreement was signed in October 2007 between CORKCO and five other institutions</p> | <p>Follow-up:</p> <p>Status: “achieved”</p> <p>New challenge:</p> <p>Compete for the award of the “best practices for cork oak sustainability”</p> | <p>Follow-up:</p> <p>Award-winners for the “best practices for cork oak forest sustainability and related biodiversity” award</p> |

Table 5-1: Following a practice through SRs

Dozens of initiatives might be followed in the same way. The main argument is that reports are an open window to whichever projects or initiatives companies decide to pursue. By describing the status of initiatives, reports act as drivers to pursue goals. When a given sustainability report states that “next year our intentions are to do so and so” the following report has a follow-up account on which goals they managed to achieve and which ones are still being pursued. Moreover, it is also common to find an explanation of the obstacles standing in the way of achieving particular objectives. For instance, in its 2005 report, TECHCO declares that:

“In 2004 goals were set in the areas underlying the Group’s Principles of Sustainable Development. Of these, 21 were achieved in full, while 10 were only partially achieved or not achieved at all. One of the reasons for these last 10 is explained in the appropriate chapters.”

(TECHCO, SR, 2005)

Reports are used to describe goals, obstacles and achievements of particular initiatives. Some of those are short-term, i.e., in one year they are announced as a goal to achieve and in the following year they are already marked as “completed.” Many other initiatives are longer-term and are covered by SRs year after year. Some of PULPCO’s initiatives fall into this type and will be described in more detail in the following chapters. Here it should be emphasized that PULPCO presents initiatives that have been recurrently covered by public reports since 2000 until the present time (2011). PULPCO was an early starter regarding the publication of environmental statements (from 2000-2005) and SRs (from 2006 on). Since their first environmental statement, each year they report on a number of projects being developed. They begin by defining the start and the end date of the project, what was planned to be achieved and what was actually achieved during that year.

The following year, if the projects have not been concluded, they describe what was done during that year and they explain the reasons for the delay, setting new time frames in the process. For example, in 2000, PULPCO’s environmental declaration presented as a challenge to be pursued, the identification of a potential external value for the waste (ash, bark, wood) they produced. This practice will be described in Chapter 6, but for the purposes of this illustration it can be summarised as follows. Two projects of “waste valorisation” were undertaken, one aimed at reducing the amount of ash from the bark boiler deposited in the landfill and the other at reducing the amount of organic solid waste. Both projects were centred on the evaluation of waste for other uses.

The first project aimed at valuing ash as a by-product was started in 2000 and is still being developed. For over 10 years, several uses for ash had been studied in order to make them valuable for other processes. During this decade, reports produced explanations of what was being done and what was holding back the conclusion of the project. The progress of the project can be followed until the last available publication. In 2006, it was reported that “*no practical results were obtained from the contacts that were made with other companies that could be potential users of ash in their industrial processes.*” This led PULPCO to extend the time frame of the project, initially set for the end of 2006, to the end of 2007. Similar results were reported in 2007, when new contacts were made to test new applications, leading the extension of the time frame to the end of 2009.

The second project aimed at reducing the amount of organic solid waste (bark and other wood residues) sent to PULPCO’s Controlled Waste Landfill, by raising its value through two end-uses: energy production and composting for organic soils production. This project started in 2002, according to PULPCO’s environmental report at that time. In 2004 they were able to conclude the first experimental stage with a trial composting process using industrial organic waste. A second experimental stage started in 2005. By 2006, all organic waste containing bark and other wood was used in this trial instead of being disposed of in the controlled landfill. This led to the decision to build a composting plant. The operations of the new composting plant started in 2006 and have continued since then. All organic waste coming from the secondary effluent treatment and the wood processing, which would otherwise have been deposited in the controlled landfill, is sent to the waste composting unit. The result of this 5 year

project was finally considered satisfactory and the project was reported with status “completed” in 2007.

These examples illustrate how SRs might stimulate actions in order to comply with publicly formulated goals. The follow-up of initiatives as a driver for action, the communication of the companies’ capabilities to pursue sustainability goals as well as the companies’ statements of missions, visions, values, principles and commitments are all part of the sustainability report. By reporting on these themes, companies reveal their willingness and commitment to change.

5.6 REPORTS AS “EVIDENCE OF ACTION” FOR SUSTAINABLE BUSINESSES

The examples described above can be interpreted as vehicles through which companies publicly demonstrate their commitment towards sustainable development. However, a demonstration of commitment and good intentions is not enough to build up an image of a sustainable company. It is also necessary to provide credible proofs that such commitments are being genuinely pursued. In this sense, SRs not only provide proof of commitment, but also evidence that intentions are translated into actions.

This aspect is addressed here through two types of evidence, one focused on the development of offerings presented as sustainable and another demonstrated via the importance of acquiring certifications and awards linked to sustainable performance.

5.6.1 DESCRIBING OFFERINGS AS SUSTAINABLE SOLUTIONS

Companies use SRs to communicate new products, services, brands, logos, business units and factories as contributors to the development of sustainable offerings and as proof of an enhanced sustainability performance. These offerings are framed in the reports as something that was achieved in sustainable ways and for that reason incorporates sustainability value.

For example TECHCO presents a section in its 2007 report labelled “New business opportunities in the environmental domain” where they describe the range of customers’ projects in which they are involved, setting up environmentally-friendly systems for wind power generation, water treatment and residual waste treatment. In 2008 the chairman announced that:

“Our organisation has identified existing market opportunities and has presented various solutions in relation to energy and sustainable transport. In this regard, our company's Renewable Resources activity features rather ambitious objectives and our firm presence in urban mobility projects (undergrounds and road and rail systems) will most certainly contribute toward a significant environmental improvement, thus helping our society in the reduction of CO₂ emissions.”

(TECHCO’s chairman, SR, 2008)

A direct relationship between TECHCO’s offerings and environmental improvement is highlighted among the reports. It is also in 2008 that they announce the consolidation of a new business unit – Renewable Resources BU. Finally in 2009 they express that its main objective is to:

“(…) to be present in the value chain of businesses associated with the activities developed by its ten business units, with special highlight to

those that have a positive impact on environmental quality and life of the Planet.”

(TECHCO, SR, 2009)

WOODCO is also using SRs as a communication tool to promote their offerings, by explaining the sustainability potential of its products against their competitors and by using sustainability commitments as a justification for new product development:

“Compared to other construction materials such as steel and concrete, wood has significantly lower adverse environmental impacts when used as building material. (...) As examples of our commitment to sustainability and innovation, we can highlight the launch of two new products in 2007. Our [XX] colour range, consisting of colour MDF boards produced with a service and eco-efficiency mindset (...)”

(WOODCO, SR, 2007)

In this sense, reports are also used to introduce products to markets and to inform customers about their sustainable features. In relation to this aspect WOODCO refers to the importance of developing what he called “*sustainable marketing practices*”, meaning the responsible marketing of their products:

“(...) providing our customers and end users with sufficient and reliable information about the nature and origin, correct usage, and disposal of our products. It also means using fair and straight-forward marketing practices and to proactively work with customers to provide optimal guidance on the appliance of our products”

(WOODCO, SR, 2007)

Regarding CORKCO, the number of “new products” that are annually launched and presented in their SRs is enormous. They have a department exclusively

dedicated to market research where R&D activities are permanently developed to conceive new cork based products and novel applications. In 2009 alone, and for the segments of cork stoppers, floor and wall coverings, composites and insulation cork, they presented 16 new products and 3 new registered patents (over the last 3 years they registered 17 patents). They present each one of these new products in the sustainability report, describing its features, instructions for adoption, and advantages against competitive products.

5.6.2 CERTIFICATIONS AND AWARDS

Reporting on certifications and rewards is a main feature of SRs. When a new certification or award is achieved it is, normally, mentioned in the chairman/CEO's messages to stakeholders to signal a legitimate commitment to sustainability with these certificates and awards as proof of that commitment.

To illustrate the importance of such labels, TECHCO's partner is a remarkable example. In the last report issued in 2009 two entire pages were dedicated to list all the awards and certifications they won in the previous year. The section where these awards were listed was categorized as "Recognition" which hints at deserving credits in sustainability performance. The chairman's message highlights the importance of such certifications and awards:

"In 2009, we strengthened our leadership position in terms of sustainability management. We now rank no. 1 in Europe and no. 2 in the world in our sector on the Dow Jones Sustainability Indices, the most demanding in the world. At the start of 2010, [ENERGYCO] was listed in

the Gold Class in "The Sustainability Yearbook 2010" published by SAM¹⁰, in recognition of the company's continuous improvement in practices across the different pillars of sustainability, in line with the 10 Principles of the "Global Compact", an international initiative promoted by the United Nations and which we joined in 2004."

(TECHO's partner, chairman, SR, 2009, p8)

TECHO also grants pivotal importance to the certifications and awards won. In 2006 they were granted with the 'Most Family Responsible Company' award, and in 2007 placed among the top ten candidates to win the 'Corporate Citizenship' award. During 2008, and in terms of environmental certifications, TECHCO developed a dedicated program to implement actions towards these certificates and at the end of the year all companies of the group in Portugal were certified:

"2008 featured an exceptional development as pertains certification of Environmental management Systems abiding by International Standard ISO 14001. This shows how environmental issues are a main priority for TECHCO."

(TECHCO, SR, 2008, p. 55)

In a similar fashion, WOODCO presents a table in its 2007 sustainability report listing all its plants and related certifications. They report on this aspect in a sequential manner, as if certifications were being ticked against a check list:

"all board plants are now ISO9001 certified and 16 of these are ISO14001 certified. In addition, seven plants have their safety management systems certified and 20 plants have their forest products chain-of-custody certified by PEFC, FSC or both."

(WOODCO, SR, 2007, p. 24)

¹⁰ SAM stands for Sustainable Asset Management, an investment group focused exclusively on the evaluation of investments made on sustainability projects.

PULPCO's, in turn, announces, on their 2008 report, the certification achieved in its chain of custody with two of the most renowned forest products certification schemes, the "Forest Stewardship Council" (FSC) and the "Programme for the Endorsement of Forest Certification" (PEFC). They explain why this certification is so important:

"These certifications give the customers full guarantee that the wood utilized to produce the pulp they are buying is either certified by one of the aforementioned schemes or, when this is not the case, it will not originate from unacceptable sources"

(WOODCO, SR, 2008, p. 24)

CORKCO takes a step further. They present a table with all their certifications and awards but they elaborate on the reasons why they have to be certified if they want to remain competitive in the markets where they operate. They give the example of the FSC certification and how it will influence the choices of their customers' customers (in the wine segment). They illustrate this aspect with Sainsbury's and the Co-op, two major supermarket chains in the UK who now demand FSC certification for their wine sealants. Awards are also being pursued regarding the features of the report itself.

In this sense, it is not enough to demonstrate proof of a sustainable business, but also of trustworthy reports. Companies are willing to invest time and resources in the production of the report as it might bring them awards concerning its quality, transparency and accuracy. It is frequent to observe statements like:

“The 2001 and 2002 editions received the prize for Best Portuguese Environmental Report, awarded by the Council of Statutory Auditors as part of the Portuguese edition of the European Sustainability Reporting Awards.”

(TECHCO’s partner, SR, 2003)

In sum, certifications, awards, products, services, factories, business units and all sorts of evidence are used to demonstrate how companies translate intentions into action. SRs are the public framing of this translation process as will be discussed in Chapter 10.

5.7 CONCLUSIONS

This chapter highlighted the role of SRs as building-blocks of sustainability strategies. The analysis revealed that building such strategies is very much dependent on how sustainability approaches and initiatives are articulated, i.e., how strategic discourse is differently framed according to the scope of the strategy. In this sense, the strategic discourse used in SRs is a key dimension to take into consideration to examine how companies integrate different practices into a sustainability strategy. It is this strategic discourse that frames and communicates the environmental sustainability performance of a company to the outside world, strengthening or weakening its reputation as a sustainable business. The chapter discussed how companies use reporting initiatives to publicly communicate their positions towards sustainability. These reports focus on two aspects: the company’s commitment to pursue and implement a

sustainability strategy' and the evidence that actions are undertaken to materialise that commitment.

Regarding the first aspect, the report itself might be interpreted as a signal of commitment. By reporting on sustainability, outlining the main capabilities to act in sustainable ways and providing follow-up reports on specific initiatives, companies provide proof of commitment that actions are being planned and implemented. In this sense, reports are tools to represent past, present and future actions. By providing information of what was done in an annual report, companies supply the outside world with a summary of initiatives and practices implemented in the name of sustainability. They also demonstrate their commitment to continue the sustainability journey by presenting the goals for the following year and the actions they plan, to achieve those objectives.

As far as the second aspect is concerned, SRs might also be interpreted as proof of action. Examples of how companies frame offerings within a particular discourse to embrace the sustainability concept and how companies are determined to achieve certifications and awards as recognition devices, illustrate the translation of commitment into action. In order to strengthen their positions, companies are being pressured to gain environmental certifications and awards, for their performance, as well as for the content and transparency of sustainability reports. These devices are interpreted here as evidence that companies are committed to develop sustainable strategies as a coherent set of practices developed over time. The interplay between reports and actual

initiatives may work as a device to gain (or lose) environmental legitimacy and to deliver (or break) promises to stakeholders.

Like financial reports, SRs are used to capture an image of a sustainable company at a moment of time. This image is static in terms of the 'picture frame' used – the sustainability report itself – but is also dynamic in the sense that it provides a chronological and evolutionary description of the sustainability strategy of the company.

The analysis developed in this chapter illustrates that the discourse adopted in sustainability reports hints at different arguments to justify companies' strategic options, which involves a process of decision making on which frames to produce that might reveal the quality of 'being sustainable'. As will be further discussed in Chapter 10, this notion of "framing" is of paramount importance in this investigation, in the sense that, to produce the content of these reports, firms need to evaluate which frames may bring the best opportunities to establish their propositions of sustainability qualities. Sustainability reporting might therefore be seen as a tool which, along with other types of initiatives (discussed in the following chapters), contribute to constructing the concept of a 'sustainable company'.

6 EVALUATING USES FOR WASTE

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

6.1 INTRODUCTION

This chapter deals with the cases that led to the construction of the second theme of analysis suggested in the methodology chapter – “evaluating uses for waste”. It illustrates how companies describe initiatives linked to waste use as part of their sustainability strategies. Finding new ways to re-use waste and attributing new value to its use is a highlight of the companies’ sustainability strategies. What is interesting about all the initiatives contemplated in this chapter is that they were not implemented in a context of sustainability, but were still framed as such. Four examples of this type of practice will be described in the following sections (Figure 6-1): the use of forestry waste as biomass to produce energy, the incorporation of cork waste as by-products to produce new cork-based products, the utilisation of recycled wood as by-products to produce wood panels and lastly, the evaluation of dry ash and organic waste as by-products to (yet-to-be found) alternative utilisations.



Figure 6-1: Outline of Chapter 6 - Evaluating uses for waste

The stories behind these practices will illustrate that setting up a strategy towards a sustainability qualification is not only about putting together novel ways of doing things, but also about framing the way mature practices or resources' use are communicated. It also illustrates that using new frames to describe mature practices and resources as sustainable leads to new processes of attributing value to things, according to these new frames.

6.2 VALUING FORESTRY WASTE AS BIOMASS

Industries that depend on raw materials from the forest to undertake their production activities tend to generate huge amounts of what is called “forestry waste” in the wood processing operations. Three of the companies studied, working in forestry-based industries centred on cork, pulp and wood production, perform similar operations to find a valuable destination for the waste produced, other than landfills. Given the similarity of operations performed by the three companies – CORKCO, PULPCO and WOODCO – this section presents a joint analysis of how and why this type of practice was set up and, more importantly, why it is considered as an important contribution to the companies' sustainability qualifications.

To start with, a brief summary of the practice is needed. It is basically about using the forestry waste classified as forest biomass, generated in the industrial processes, as fuel to produce heat and power. Because of the heating characteristics of forest biomass, it is highly cost-effective to burn it in industrial

boilers to produce heat, and through cogeneration technologies, also produce electricity. Heat and power produced internally are, in turn, used to feed the energy needs of the industrial equipment and production processes. It is important to mention that this type of practice has been part of the companies' operations since the very beginning of their existence. In fact, burning forestry biomass to produce heat and power has always been part of manufacturing operations since the Industrial Revolution. The practice may not be new, but the argument to justify it has suffered profound changes, since the instigation of the debate around businesses' sustainability. What is intriguing is the fact that what was once justified as an energy cost-reduction practice and reduce the dependency on the energy supplier, is now presented as a key sustainable practice. If before they would state that they burned wood waste as fuel, nowadays, they now report they use biomass as bio-fuel; moreover, as they collect forestry residues from the woods they also contribute to protect forestry areas from fires. On this subject, the President of PULPCO declared that:

"Our aim is to perform a global integration of the forest. Tree leaves, bark and all sorts of forestry residues are used as biomass. We don't waste anything! We have an integrated cycle. In old times these residues would remain in the forests feeding fires. Today we have this philosophy which is to integrate the entire cycle of the forest. (...) We can say that now around 150 tons of forestry residues are cleaned from the forest."

(PULPCO, Group's President, Media Interview)

The classification of this type of waste as biomass is certainly not new; what is new is the recent explosion of references to biomass use as a clean source of energy, in industrial communities. The discussions that arose in the 90s on how industrial systems are held responsible for the continuous degradation of the

environment led to a new necessity to reconfigure the companies' public discourse.

The three companies, CORKCO, WOODCO and PULPCO, found their way through the sustainability debate, by enhancing the practice of burning forest biomass to produce energy as a sustainable operation. In the past, the use of forestry waste brought a cost-efficient value to the companies' activities; in the present, the use of forestry biomass brings the 'value of being sustainable' to their processes since biomass is considered as an environmentally-friendly resource to produce energy.

For the sake of clarification, a brief explanation on why biomass is considered a clean source of energy is needed. Biomass generally refers to the organic substance obtained from plants and generated through the photosynthesis. The importance of biomass in the sustainability context is related to its characteristics. During biomass combustion, oxygen from the atmosphere is combined with the carbon in biomass to produce CO₂ and water. The process is therefore cyclic because the carbon dioxide is then available to produce new biomass. This is also the reason why energy produced from biomass is potentially considered as carbon-neutral and thus called green energy or clean energy, although some CO₂ emissions occur due to the use of fossil fuels during the production and transport of biomass.

Biomass is therefore considered as a source of renewable energy and considered as the environmentally friendly fuel of the future. CORKCO, WOODCO and

PULPCO are all engaged in this type of operation. They implemented cogeneration systems decades ago to produce energy from their forestry-based waste (mainly residues of wood):

"[PULPCO] has been using biomass to produce heat for many, many years, it was not something new! More than 85% of the energy used by [PULPCO] comes from the forest, following the flow of raw materials, which is wood. (...) In future, after the expansion project that we are developing, we will export the energy surplus to the national grid, as we will be self-sufficient in heat and electricity."

(PULPCO, Person responsible for sustainability strategy, personal interview)

In the pulp sector this operation is even more intensive. Wood is separated into cellulose (around 60%) and lignin (around 40%), a substance responsible for binding the cellulose fibres together. Cellulose is the core raw material to produce pulp, whereas lignin is burnt to produce heat and electricity. This operation has been part of the Portuguese pulp industry for decades:

"I don't remember having factories in Portugal without this process [of burning lignin to produce energy]. We have been doing this for more than 30 years! The integration of bark is more recent, maybe 20 years! Imagine that we consume 1 million cubic metres of wood: 60% is capitalised as cellulose but 40% is lignin with no use as raw material to produce pulp. I mean around 40% of lignin, 400 thousand cubic metres of wood would be wasted! It wouldn't cross anyone's mind to take those 400 thousand cubic metres of wood and dispose of it in landfills... with such richness in terms of energy! (...) So for decades and decades, this has been a complementary activity that allows the pulp and paper industry to be self-sufficient!"

(President of the Portuguese Association for the paper and pulp industry, personal interview)

In short, the cases illustrate that burning biomass to produce energy is a mature operation among companies who have privileged access to this type of waste. It is mature among particular industries but becoming more and more widespread since the proliferation of media and professional references to biomass as a clean source of energy. In the past these operations were developed for internal energy efficiency purposes. Nowadays it is becoming a source of opportunities to set up new businesses framed as environmentally-friendly. In this sense the sustainability debate brought about the conditions to add new value to this biomass: the value of promoting cleaner production processes. Furthermore it also brought about the conditions to add new value to the companies which engage in biomass burning instead of fossil fuels: the value of communicating sustainable operations. Companies who use waste as biomass (or waste as fuel) are enthusiastic about publicising the employment of this practice. By doing so, companies portray themselves as environmentally-friendly and promoters of sustainability practices.

The opportunities to communicate sustainable operations through biomass use, led companies to reassess their resources, i.e., to evaluate what resources they owned that could benefit from this classification. In CORKCO, for example, all cork processing activities (grinding, separation, transportation, finishing, etc.) generate cork dust in large quantities. 30 years ago cork dust was largely disposed of in landfills, which raised a debate about the environmental and health damages associated with this practice. Cork dust consists of very small particles, characterised by high flammability and when released in landfills, forms clouds of dust. Thus it is said to be a dangerous and difficult to handle by-

product that must be removed from industrial facilities by suction, collected in silos and burned. Although environmental problems might also arise from the ash produced in biomass burning operations:

"...it would be even more problematic to find an alternative destination for my cork dust like landfill disposal. This is not always the best solution! And moreover, there are some landfills which don't even accept cork dust!"

(CORKCO, Person responsible for the CHP system and environmental monitoring, personal interview)

It was this need to have cork dust burned and the high prices of fuel that led to the opportunity of producing heat and power to feed the factories in the 80s. In addition, when compared to other sorts of wood, cork dust:

"...has a monumental heating power! It's matchless! If wood has around 4800 Kilo/calories, cork must have something like 7000! It wouldn't make any sense to have boilers with fuel, and fuel already achieved 300 €/per ton, and have cork dust right there being sent to landfills! "

(President of the Portuguese Association for the paper and pulp industry, personal interview)

Until 2005 this was the normal procedure whereby dust was simply dust and burnt as fuel. However the cork industry thought that this type of waste should be classified as forestry biomass. Forestry biomass normally includes branches and crowns unused in harvesting sites, non-commercial wood, residues from forestry treatment like pruning and thinning, wood waste for construction or renovation and wood residues from transformation industries. So, cork dust was definitively not contemplated as a type of biomass.

This classification was established in 2005 by the Ministry of the Environment. However, before the formalisation of the classification, different actors were involved: the Portuguese Cork Industry Association (APCOR) triggered the process by proposing the classification of cork dust as biomass. Companies from the cork industry supported the proposition to benefit from the classification. Justifications and argumentations were given to support the proposal, the Government assessed and ended up accepting it, by publishing new environmental legislation to classify cork dust as a type of forestry biomass. After this classification, dust is now a type of biomass and as such it can no longer be treated as waste:

“Now is clearly written in the law that cork dust is biomass, okay? Thus, if it's biomass it can no longer be part of the normal scheme of waste treatment. If it is biomass, it should be valued as such!”

“Don't refer to it [cork dust] as waste! That is not waste! No, I would say it's a by-product of our process that is legally classed as biomass. (...)There are still a lot of people who think like that, even in our own industry, they talk about cork dust as if it was waste, but that must be seen as a fuel and always associated with biomass.”

(CORKCO, Person responsible for the CHP system and environmental monitoring, personal interview)

The main lesson retrieved from the analysis of this set of initiatives is that the three companies reconfigured their discourses and their resources to embrace a more sustainable performance. To do so, they made an internal assessment of their resources to evaluate how they might be interpreted in different ways. In some circumstances new interpretations are easily put together through a change in discourse (like forestry waste interpreted as forestry biomass), but

other cases demand more sophisticated strategies to allow new interpretations and trigger changes in other actors' perceptions (like dust waste becoming officially classified as forestry biomass and backed up by legislation).

6.3 VALUING CORK WASTE AS A BY-PRODUCT

Cork waste is generally referred to as the waste generated from the manufacturing process of stoppers, agglomerated and granulated cork. Traditionally, and since the 60s, CORKCO seeks to give a new life to this waste. Cork pieces from the production of cork stoppers are used as by-products to produce agglomerated and granulated cork. This is why they claim to have a "zero waste policy" whereby each business unit uses the waste produced by other business units. However, although this practice is hardly linked to sustainability concerns it is currently framed as such and proudly featured in SRs, but has its origins in the 60s as a way to deal with waste.

The process by which cork waste is transformed into new products can be described as follows. Waste from cork stoppers production is passed through a machine that breaks it into small pieces which are then washed and dried, and sent through successive grinders to further reduce the particle size. After being pressed into a mould and slowly heated, the process binds the cork particles into a solid block by activating their natural resins, giving rise to agglomerated and granulated cork. The sustainability argument linked to this practice is that, by using recycled cork as a by-product, the life cycle of cork products is extended

and CO₂ retention increased. For the sake of illustration, Figure 6-1 represents some of the applications that are employing the integral use of cork waste.

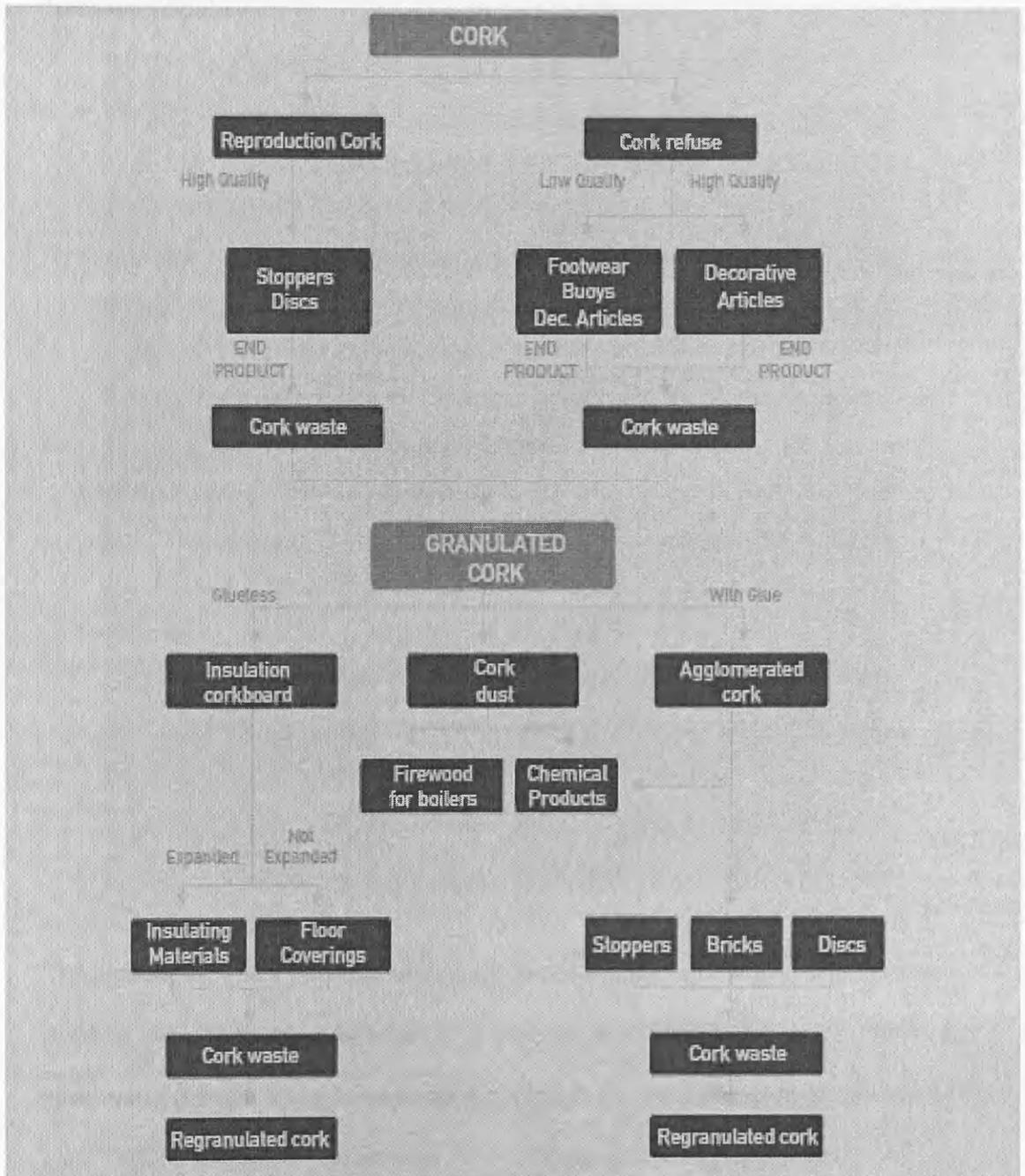


Figure 6-2: Applications of cork waste as by-products

Source: CORKCO, SR, 2006

This is the process that has been used in CORKCO since 1962 and that is now communicated as one of the cornerstones of their sustainability strategy, the “zero waste policy”:

“In the past we basically produced cork stoppers and a considerable amount of cork waste was generated from it. This is because from the cork that was employed in the production of stoppers, 20% would be stoppers and 80% would be waste. That’s when we started this practice that has being carried on for several years... but at that time this was one of the first sustainable practices implemented in the cork industry. In the 60s (...) a new company was created to work with those so-called wastes and develop new solutions based on cork. We can say that this first company was an incubator of several businesses. Nowadays we do investments on new applications even in the aerospace area... At the final stage we no longer have any waste, because even the smallest particle that cannot be used to produce new products, is reused as fuel – biomass.”

“We have a department at the holding level only dedicated to invent new products that are cork based. This department works in a joint partnership with Minho University, just to create new products.

(CORKCO, Person responsible for sustainability strategy, personal interview)

Throughout different business units cork waste is given a new use value as a by-product, operation after operation. In this sense, CORKCO claims to follow a systematic vertical integration strategy through the maximisation of the use of cork. CORKCO explains this strategy in their 2006 sustainability report:

“The optimisation of the quantity of cork throughout the production cycle is one of the sustainability strategies that we have identified. The cork waste produced during the cork stopper production process or the

cork that is not of a suitable standard for their production, are incorporated into other high value applications. The part that cannot be incorporated into products is valued as an energy source (biomass). Therefore there is no waste and no cork residues – nothing is discarded, everything is transformed. Today as always we make a continuous effort, namely in the R&D area, to optimise the added value of every kilo of cork.”

(CORKCO, SR, 2006)

This practice illustrates how CORKCO has reconfigured its discourse to frame a traditional operation as a highlight of their sustainability strategy. It is impossible to dispute this argument, but 50 years ago sustainability was not part of their concerns or the wider socio-economic agenda. This practice was set up with cost-efficiency goals in mind allied with the assessment of opportunities to develop new products and explore new markets. Using the sustainability lenses, one can say that the outcome of these practices is unquestionably environmentally-friendly. The reasons to implement it might not have been linked to sustainability, but the outcomes are definitely eligible as sustainable.

If sustainability was not the original motivation behind this operation, nowadays it is genuinely part of their concerns. For this reason they have a dedicated R&D department to investigate applications for cork where decisions on new product development are based on life cycle analysis studies to favour products with better environmentally-friendly features. As stated in their 2009 report:

“Deploying the most advanced technology, [CORKCO] now provides a vast range of products and applications across demanding industries – from wineries to construction, taking in aeronautics, aerospace, transport, footwear, sporting articles, etcetera –, in a continuous

commitment towards boosting the technical and environmental performance of our solutions. Additionally, [CORKCO] has been undertaking important work, in conjunction with its stakeholders, seeking to reinforce its already vast portfolio of cork applications, based upon the intrinsic technical and environmental characteristics of its raw material (cork), allied to strong organisational strategic commitment towards R&D and Innovation."

(CORKCO, SR, 2009)

In short, this practice is an example of how discourse reconfiguration gave place to actual initiatives and made sustainability assessment a rule instead of a simple frame.

6.4 USING RECYCLED WOOD AS BY-PRODUCTS

WOODCO's core business is the production of wood-based panels (such as particle boards, medium density fibreboards (MDF), hardboards and components for furniture, building, decoration and DIY industries) which are mainly produced from recycled wood. As stated by WOODCO's interviewee, this practice is the "apple of their eyes" in terms of communicating sustainable practices, but its origin is linked to the high prices and scarcity of virgin wood. The person responsible for sustainability reporting in WOODCO says that "*one critical issue in terms of sustainability is the origin of our raw materials.*" Raw materials, he considers to be the wood sourced from forestry but mainly what he calls "industrial by-products and wood waste" from furniture and carpentry industries, i.e., pre-consumption wood materials from furniture production and

post-consumption materials that are re-cycled as by-products to produce wood-based panels:

"Our products are "urban wood" or "urban forest"; products that are produced from the urban forest! By urban forestry we mean palettes, old furniture and so on. This is unquestionably a fundamental aspect of the sustainability of our business."

(WOODCO, Person responsible for sustainability strategy, personal interview)

The opportunity to incorporate wood waste as by-products in its processes depends on the type of panels produced and the geographical markets where they operate. For example, to produce MDF boards it is not possible to use high percentages of recycled wood, but for particle board this percentage is very high. In regions with a large population (e.g. cities) it is possible to collect large quantities of used waste when compared to rural regions. Therefore this possibility of re-valuing wood waste is very much dependent on place and product:

"In the European markets, and especially in the UK, there is an increasing consumer demand for products that demonstrate a high degree of eco-efficiency. Although the UK market is a key consumer of wood products within Europe, availability of virgin wood from domestic origin is fairly low. On the other hand, waste wood is relatively abundant compared to virgin wood. Therefore, a conscious decision was made in 1997 to specialise in the production of sustainable products based on the recycling of wood."

(WOODCO, SR, 2006)

One of its business units in Knowsley, near Liverpool, is referred to as the highlight of their sustainability strategy:

"This unit is the best we can do; it's the one that recycles the most and the one that allows us to demonstrate how far we can go. This is obviously the example to follow"

(WOODCO, Person responsible for Sustainability Strategy, personal interview)

This is the unit where the valuation of wood waste as a raw material takes a leading role. This unit was opened in 2000 specifically to use recycled wood fibres to produce panels for the construction and furniture industries. As stated in their UK website:

"Recycling is the core of our business. [WOODCO]'s distinguishing feature from other chip board manufacturers is its raw material, recycled woodchips. Recycled wood provides more than 98% of the raw material for our products and contains a high percentage of packaging material and other forms of post consumer wood waste."

(WOODCO UK, institutional website)

The sustainability arguments used in this business unit are easily constructed, given the nature and sources of its raw materials. In a similar fashion to that used by CORKCO and PULPCO, WOODCO argues that they are contributing to a more sustainable society by using wood waste as raw materials and producing wood-based panels, since: a) wood is a renewable resource and carbon store; b) packaging made from wood can be recycled; c) at the end of its lifecycle, energy can be derived from waste; and d) the process diverts wood waste away from landfill. This business unit in Knowsley is already the UK's largest wood recycler, using around 1200 tonnes of wood waste per day.

This example is not comparable to CORKCO's or PULPCO's "waste valuation" practice discussed previously, which has been done for years and is only now framed as a sustainable practice. In WOODCO this is a recent activity in the UK factory (10 years old), where production is totally based on recycled wood and the factory itself was built for that purpose. However, and similar to the initiatives described above, the company is also using mechanisms of discourse configuration since the original factory in Portugal has been performing such activities for decades. Although it might be interpreted and framed as truly sustainable, the motivations that led to the opening of this new factory were originally linked to cost-efficiency.

6.5 SEARCHING FOR NEW USES FOR DRY ASH AND ORGANIC WASTE

In the 90s PULPCO invested in the construction of a Controlled Waste Landfill (CWL) which started operating in 1998, after authorization by appropriate environmental licensing. Although this was a considerably large infrastructure, they also recognised that in the long term, the waste storage capacity would be inevitable drained. Given the expected space limitations of the landfill and the huge amount of waste (ash, green liquor production waste, wood waste that cannot be used for energy) that was being sent to the CWL, the company started to investigate processes to reduce the total amount of waste sent to the landfill.

Two projects were undertaken: one aimed at reducing the amount of dry ash from the bark boiler deposited in the landfill and one aimed at reducing the

amount of organic solid waste. Both projects are centred on the valuation of this type of waste as a by-product for other uses.

The project, based on the valuation of ash as a by-product, has been developed since 2000. For over 10 years several applications for the ash were studied in order to raise their external value. The first step was to obtain authorisation from the environmental authorities to try an experiment where the ash would be spread in a restricted forestry area of PULPCO to improve the quality of forest and agriculture soils. The main goal of this first experiment was the evaluation of costs and logistical aspects necessary to perform the spreading operations using a prototype of mechanical spreading equipment (Environmental Report, 2002) which was continued in subsequent years (Environmental Report, 2004). In 2005, after 3 years of using and testing the prototype, PULPCO decided that the results obtained were satisfactory since 11% of the total ash produced were being successfully used to improve the forestry soils. Thus, they duly licensed the prototype and requested, from the Environmental authorities, an authorisation to further increase the plantation area for the application of ash (SR, 2006). In 2007 the appropriate license was issued and by the end of the year the amount of ash used was 54% of the total dry ash produced (SR, 2008). The last report available (2009) informs that 30% of the total amount of dry ash produced was applied in forestry soils and that a small part was also used in the Waste Composting Unit.

An alternative use of ash was also investigated with the support of the Technological Centre of the Glass and Ceramic Industry where research was done

on the application of ash as by-products for the production of granules (Environmental Report, 2002). After 2 years of research that institute concluded that such an application was unfeasible, which led to the search for alternatives. A new set of contacts was carried out, aimed at identifying alternative possibilities for the use of ash in other industrial processes, namely, as a by-product for cement production (Environmental Report, 2004). In 2006, it was reported that *“no practical results were obtained from the contacts that were made with other companies that could be potential users of ash in their industrial processes”* which led PULPCO to extend the time frame for this project, initially set up for the end of 2006 and consequently redefined to the end of 2007. Similar results were reported in 2007, where contacts were repeatedly tried to test new applications, increasing the time frame to the end of 2009.

The second project was aimed at reducing the amount of organic solid waste (bark and other wood residues) sent to the CWL by raising its external value with two end-uses: energy production and composting for organic soils production. This project started in 2002, when PULPCO was part of a Swedish industrial group. At this time, the company established a partnership with a Swedish company that specialized in environmental technologies working with biomass and waste products. The initial aim of the project was to investigate the possibilities of using wood waste, mud, resulting from the secondary effluent treatment, and dry ash from the biomass boiler, as bio-fuel (Environmental Report, 2002). After obtaining the required environmental authorisation, they started to develop experiments in one of PULPCO's fields, which turned out to be unsuccessful due to adverse weather conditions and technical problems with

their partner's equipment. They were able to conclude a first experimental stage in 2004 with a trial composting process using industrial organic waste. The obtained compost was submitted to further analysis in a specialized laboratory in order to assess the possibility of being used in the production of organic soils. The assessment confirmed the quality of the compost which led PULPCO to require the necessary industrial licensing from the environmental authorities (Environmental Report, 2004).

A second experimental stage started in 2005 with the same partner, this time to investigate the possibilities to produce compost based exclusively on organic waste from wood processing. The aim of the project was to increase the organic content of the compost when compared with the results obtained in the first trial stage. By 2006, all organic waste containing bark and other wood was used in this trial instead of being disposed of in the controlled landfill. This led to the decision to build a composting plant in PULPCO within the process of obtaining an environmental permit for the mill site which was issued in 2006 (Environmental License Report, 2006). The operations of the new composting plant started in 2006 and have continued since then. All organic waste coming from the secondary effluent treatment and from the wood processing is being processed in the Waste Composting Unit which would, otherwise, have been deposited in the controlled landfill.

The results of this 5-year project, which was closed in 2007, were two-fold: firstly, the amount of organic waste sent to landfills reduced substantially and secondly, the composting unit brought the opportunity to produce organic

compost which has a market value. By the end of 2009, PULPCO was able to transform 66% of their organic waste into new applications for energy production, cement industry, forestry soils and composting. The remaining 44% was sent to the controlled landfill. Five years before, 78% of the organic waste produced was sent to the landfill (Environmental Report 2004).

Although these two initiatives rest upon the search for new waste usages, like the ones described in the previous sections, it gives a different perspective on how this process unfolds. In CORKCO and WOODCO cases, it seems instinctive and unproblematic to value forestry waste as both a by-product and fuel. In PULPCO the process of finding new value for a particular type of waste is not as straightforward.

Firstly, these initiatives demonstrate a persistent search for new uses and value for dry ash and organic waste, even when previous attempts failed. And secondly, it reveals a genuine concern for the waste produced. This does not mean that sustainability concerns were a top priority to invest in these initiatives. On the contrary, it shows that companies invest a lot of time and effort to avoid environmental complaints. At the end of the day, the discourse configuration mechanisms mentioned before are also present. The initiatives are thoroughly described in reports as part of their sustainability strategy, but these are examples of proactive behaviour towards environmental legislation.

6.6 CONCLUSIONS

The analysis of the set of initiatives described above revealed that it is common for companies to package existing and often mature initiatives with sustainability labels. Practices, once justified as cost-efficient, gain new interpretations to fit into sustainability qualifications. Reconfiguring combinations of actors, resources and activities to find alternative uses for waste is not an innovative practice brought about as a response to sustainability concerns as initially thought. This type of operation, whether observed in the cork, pulp or wood industries, has been part of the companies' routines for decades, as a cost reduction practice, as a proactive way to avoid environmental complaints and also as an opportunity to start up new businesses.

The inclusion of this type of practice as part of the companies' sustainability strategies poses a question of which event comes first – designing and implementing practices that contribute to better sustainability performance or framing existing practices as environmentally-friendly to fit into sustainability strategies. The initiatives described in this chapter point towards the second option, that is, the argument of sustainability is presented via discourse reconfigurations, i.e. through a framing process that allows the requalification of existing practices as part of the companies' sustainability strategies.

In this sense, and similarly to the conclusions drawn on the production of sustainability reports in chapter 5, the cases described here allow further elaboration of the concept of “framing ability” that will be presented in the

discussion chapter. From the analysis of these cases, it was again recognised that companies produce particular frames to match their strategic goals in a given moment in time.

Although these initiatives point to a discourse change, rather than a process change towards sustainability, there is no doubt that the outcomes represent less damage to the environment. In this sense, companies discuss these initiatives as clean operations. This implies that the companies' various offerings are entitled to be qualified as sustainable, not merely because of their intrinsic natural properties, but also because they result from sustainable resources and clean operations (in these cases operations that reduce the amount of waste sent to landfills). These two arguments – one based on the characteristics of the product and one based on the environmentally-friendly nature of the process – allow for an attribution of sustainable value to the offerings, meaning the value of causing less damage to the environment, and consequently confer the companies with the possibility to communicate sustainable offerings.

This aspect of “attributing sustainable value” to things raised important questions and became a central aspect of this investigation. Inspired by the cases described here, Chapter 10 presents the notion of “valuing processes” to discuss how things e.g. resources, offerings, practices, are valued. For example, the opportunity to value cork dust and forestry-waste as biomass in CORKCO and WOODCO emerges from the regular, and necessary, process of burning waste. The opportunity to value ash as a by-product emerges from a continuous process of searching for alternative uses for waste produced by PULPCO. Hence these

cases illustrate the companies' continuous efforts to identify opportunities to attribute value to things in accordance with their strategic priorities at a given time, and in comparison to alternative valuing processes.

7 DEVELOPING 'SUSTAINABLE' OFFERINGS

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

7.1 INTRODUCTION

This chapter describes the companies' approach to the development of offerings based on green arguments. Hence it explains the origin of the third theme suggested in the Methodology chapter – Developing offerings. The adoption of the tense '*developing*' draws on the recognition that, whether focusing on products like in CORKCO, PULPCO and WOODCO's cases or products and services like in TECHCO's case, the companies construct their concept of offerings by embedding the quality of 'being sustainable' in its features.

In Chapter 5 it was emphasized that reports evince sustainable offerings as proof of action to demonstrate commitment towards sustainability. In this chapter this topic is further addressed by describing the mechanisms that companies use to develop and promote their definitions of sustainable offerings.

The chapter is divided in two parts (Figure 7-1) to illustrate that this process is more easily achieved by some companies than others. Hence it first illustrates how CORKCO, PULPCO and WOODCO easily develop offerings based on green arguments, here labelled as the 'soft' way, because their production activities benefit from a natural and recyclable waste and/or final product. The second part of the chapter deals with TECHCO's case, that is, the 'hard way' of developing sustainable offerings where the offering itself does not offer any sustainable feature.

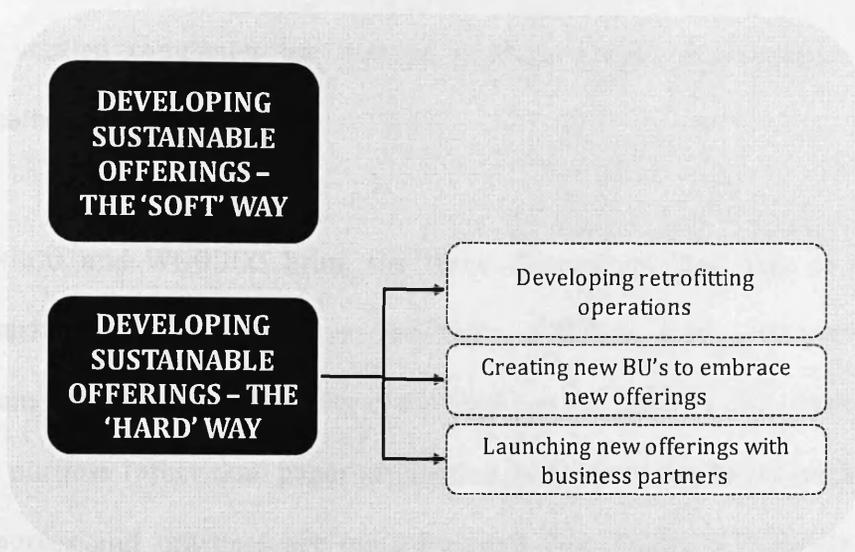


Figure 7-1: Outline of chapter 7 – Developing ‘sustainable’ offerings

7.2 DEVELOPING SUSTAINABLE OFFERINGS – THE ‘SOFT’ WAY

CORKCO, PULPCO and WOODCO benefit from a natural resource to develop their offerings – forestry-based raw materials – which makes the representation of their operations and final products a sustainable an easier task than other companies. Hence, companies who work with natural resources and produce equally natural products are in a fortunate position to describe their offerings as environmentally-friendly, pre and post consumption.

This section describes some of the strategies undertaken by CORKCO, PULPCO and WOODCO to embed their offerings with the quality of ‘being sustainable’. These strategies vary according to three dimensions highlighted as sustainable: the final product, the resources used and the production practices employed. By mixing and matching arguments for sustainability around these three dimensions

the studied companies are able to produce a fair representation of their sustainable business.

CORKCO and WOODCO bring the three dimensions into play as both raw materials and final products are recyclable. PULPCO, in turn, cannot use direct arguments on the sustainability of the final product itself as pulp does not serve any purpose rather than paper production, but arguments based on sustainable resources and practices are quite frequent (See Tables 7.1, 7.2 and 7.3 for examples of these representations).

From the set of companies covered in this research, CORKCO is the most enthusiastic in constructing the sustainability qualities of their products. The motto “nothing is wasted, everything is transformed” hints towards a diversity of strategies used to promote the sustainability of cork products. Table 7.1 illustrates some examples of how CORKCO develop their offerings, based on the sustainable aspects of their products, resources and practices.

| CORKCO | |
|------------------------------|--|
| Sustainable Products | <ul style="list-style-type: none"> • “[CORKCO] provides <i>a vast range of products and applications</i>– from wineries, construction, aeronautics, aerospace, transport, footwear, sporting articles, etc., in a continuous commitment towards <i>boosting the technical and environmental performance of its solutions</i>. • “[CORKCO’s] <i>products are uniquely positioned to respond to this environmental challenge.</i>” |
| Sustainable Resources | <ul style="list-style-type: none"> • “[CORKCO wants to] <i>reinforce its already vast portfolio of cork applications, based upon the intrinsic technical and environment characteristics of its raw material (cork).</i>” |
| Sustainable Practices | <ul style="list-style-type: none"> • “At that time this was <i>one of the first sustainable practices</i> (using waste from cork stoppers production) implemented in the cork industry”(CORKCO) |

Table 7-1: Developing sustainable offerings in CORKCO

Many examples could be used to illustrate CORKCO's efforts to construct sustainable offerings, some of which will be now presented. One practice briefly mentioned in previous chapters is the permanent investments made on Life Cycle Analysis (LCA) studies to assess the environmental impacts and the carbon footprint of their products.

These studies can be internally performed by CORKCO's R&D department or by an external auditor. The internal LCAs serve to investigate applications for cork where decisions on new product development are based on LCA studies to favour products with better environmentally-friendly features. The LCAs performed by

external organisations serve to compare their main products – cork stoppers and floor and wall coverings with their competitors’ and publicize the information. The decision to be assessed by an external auditor resulted from the pressures of competition, mainly the plastic and aluminium screw caps producers, who offer wine stoppers at lower prices. To counter those pressures, they started to invest in LCA studies in 2008. The goal was to compare the environmental impacts of cork stoppers’ production with its main competing products in order to reinforce their sustainability claims. Outsourcing these studies to external auditors, considered as credible and impartial judges to perform the assessment, was a way to legitimise their claims. Afterwards, the results were publicized in sustainability reports, websites, newsletters and media, which portrayed plastic and aluminium stoppers as ‘less sustainable’ products when compared with cork based products. Later they performed the same assessment, with similar results, on their construction materials. Although their core business is the production of cork stoppers, they started to target the construction sector, offering sustainable alternatives for wall and floor covering and promoting the concept of eco-efficient buildings.

Other initiatives comprise the production of short movies with well-known actors promoting the sustainability value of cork oaks and cork based products. A curious example of this promotion is CORKCO’s short movie on cork oaks’ protection, with the acclaimed comedy actor Rob Schneider. The 5m movie, with more than 460 million views on YouTube wraps-up with: “Save Miguel... and help

put a cork on pollution”¹¹. As mentioned by an interviewee, only a very attentive spectator would spot that CORKCO is behind the movie, since the goal was to promote the sustainability of cork oaks and cork stoppers (and criticise screw caps) and legitimise the entire cork industry as a truly sustainable one. PULPCO in turn, describes their offerings – pulp – as sustainable, not centred on the features of the final product itself, but on the resources used and the practices set up to produce pulp (See Table 7.2).

| PULPCO | |
|------------------------------|---|
| Sustainable Offerings | <ul style="list-style-type: none"> • “Our production unit was the first Portuguese unit in the pulp and paper sectors that produces a <i>totally chlorine free pulp</i>, since 1992.” |
| Sustainable Resources | <ul style="list-style-type: none"> • “Our starting point is quite favourable as <i>we use a renewable raw material – wood.</i>” (PULPCO) |
| Sustainable Practices | <ul style="list-style-type: none"> • “We strive to trace and ensure that all the wood we use is <i>produced and harvested in a legal and sustainable way.</i>” (PULPCO) • “[PULPCO] produces in a economical and <i>environmentally sustainable way</i>” • “The new mill allows us to develop a highly efficient production process and <i>enhance our environmental performance</i>, which places us among the <i>most sustainable companies</i> in the world.” |

Table 7-2: Developing sustainable offerings in PULPCO

¹¹ To watch “Save Miguel” follow the link:
<http://www.youtube.com/watch?v=kOiKBL2hEIM&playnext=1&list=PL00132F73DADF76E5>

Although they use the raw materials as an argument to justify their sustainable offerings, the main claims are directed towards their business practices. Some of the arguments in use are the compromise to buy wood from certified sources, the efforts to engage their suppliers in environmental education programs and the production practices based on clean technologies. As mentioned in Chapter 6, the latter is a key argument, particularly the investments made in state-of-the-art technology in the new mill and the new thermo-electric plant. Hence, their offerings are claimed to be sustainable because they result from high investments in the most advanced technologies in terms of environmental protection, both to produce pulp and to produce clean energy that feeds the production system.

Lastly, WOODCO develops their argument of sustainable offerings mainly as an outcome of recycling activities. Their raw materials are mainly post consumption wood collected from urban areas that is recycled to produce wood-based panels (See Table 7.3).

| WOODCO | |
|------------------------------|---|
| Sustainable Offerings | <ul style="list-style-type: none"> • “Compared to other construction materials such as steel and concrete <i>wood-panels have significantly lower adverse environmental impacts</i>” (WOODCO).” • “A conscious decision was made in 1997 to <i>specialise in the production of sustainable products based on the recycling of wood.</i>” (WOODCO) |
| Sustainable Resources | <ul style="list-style-type: none"> • “Our products are produced from the urban forest (...) By <i>urban forestry we mean palettes, old furniture</i> and so on. This is <i>unquestionably a fundamental aspect of the sustainability of our business</i>” (WOODCO) |
| Sustainable Practices | <ul style="list-style-type: none"> • <i>Recycling</i> [wood-based waste into by-products] is the <i>core of our business</i>” (WOODCO) |

Table 7-3: Developing sustainable offerings in WOODCO

The focus on recycling raised the opportunity to develop their offerings based on what they call the “urban forest”, a practice already discussed in Chapter 6, and revisited here to illustrate WOODCO’s efforts to create a new image of their offerings. These labels served as a platform to launch two new brands in the UK – “Real Urban Forest” and “Urban Chic” – that served to reposition the company as a sustainable one. In their newsletter WOODCO announces that:

“WOODCO launches itself with a distinctive brand on the market whose focus is the use of 98% of recycled wood in its production process. This fact led to the creation of the “Real Urban Forest” brand along with a green campaign in which WOODCO not only appears as a board manufacturer, but also as a company whose environmental conscience is one of its main values by which it wants to be recognised in the market.”

(WOODCO, Newsletter, 2010)

They claim that after the success obtained with the “Real Urban Forest” for wood-based panels they decided to adapt the same rationale to reposition their melamine surface products, creating the “Urban Chic” brand characterised as:

“...a form of lifestyle brand and presents the products in a way completely different than the usual, giving it an elevated perceived value.”

(WOODCO, Newsletter, 2010)

To launch these two brands, WOODCO used a varied range of communication and promotion channels, namely, product brochures, media advertising, exhibitions, and the Internet. The Chief Operating Officer of the UK factory claims that acknowledging and communicating the firm’s position towards sustainability is becoming a very important issue. He justifies the development of these two brands as an attempt to react quickly to the changing needs of their customers and face the competition with a distinctive offering:

“The new image, supported by this environmental, responsible brand, is a key foundation of our business development (...) This combination of a distinct brand and strong value proposition leaves us well positioned to take advantage of market opportunities despite the tough economic conditions. Now is the time to highlight core principles and concentrate on getting closer to our customer in order to really understand their needs.”

(WOODCO UK , Chief Officer, Newsletter Interview, 2010)

It was also in 2010 that WOODCO decided to change the company’s logo into a green spiral formed by two half eclipses; the two half eclipses attempt to represent the two sides of their core business: the transformation of wood-waste into wood panels. In a press release from 2010, the CEO explains that the choice

of green refers to WOODCO's "environmental responsibility value", their respect for the future of the planet and the recognition of the carbon storage capacity of their products.

Having described the mechanisms through which CORKCO, PULPCO and WOODCO justify the sustainability qualities of their offerings, the next section illustrates how TECHCO performs this task.

7.3 DEVELOPING SUSTAINABLE OFFERINGS – THE 'HARD' WAY

The examples described in previous sections were centred on companies who can easily develop their offerings as embedding sustainable features, given the key raw materials that physically constitute the final products. Other companies like TECHCO do not benefit from these advantages. In turn, their core businesses are linked to activities that use up resources hardly ever recovered, and therefore difficult to frame within a sustainability discourse. However the company evokes their offerings (product or/and service provided) as their main capability to contribute to a more sustainable environment. Their strength, regarding sustainability, is to develop technological solutions for more efficient energy generation systems. Hence, they have to use different arguments to portray their offerings as sustainable.

| TECHCO | |
|------------------------------|--|
| Sustainable Offerings | <ul style="list-style-type: none"> • “One of the <i>crucial contributions</i> that [TECHCO] might bring to the environment is really is its <i>renewable energy business</i>.” • “Our firm’s presence in <i>urban mobility projects (undergrounds, road and rail systems)</i> will certainly <i>contribute toward a significant environmental improvement</i>.” • “[TECHCO] wants to become a world-wide reference in products, services and solutions for which it has <i>distinctive competencies</i> in a sustainable and responsible manner.” |

Table 7-4: Developing sustainable offerings in TECHCO

Here three cases retrieved from TECHCO’s sustainability strategies are presented to illustrate the argument: the development of retrofitting operations, the launching of two new business units based on sustainable arguments and the participation in a new product development project with a business partner.

7.3.1 DEVELOPING RETROFITTING OPERATIONS

TECHCO produces equipment for grid sub-stations, transformers, and automated warehouses. Their activities typically destroy natural resources with barely any opportunities to re-use them in alternative applications, after consumption. Their strategy towards sustainability is described in terms of innovation and R&D activities to provide integrated products and services in the form of energy management solutions, rather than offering merely equipment.

For TECHCO, the difficulties related to engaging in potential environmentally-friendly practices are even more visible given that they tend to be involved in one-off projects. As they tend to work as 'bespoke manufacturers' each project is different. Hence they perform a continuous assessment on how to frame each project as sustainable. An exception to those one-off projects is the retrofitting service they provide to their customers – a sustainable new offer that derives from a mature and well established internal practice in TECHCO. The company used to perform a range of retrofitting operations to refurbish its old equipment so that it could be re-used instead of investing in new plant. In 2007, they decided to extend this type of operation as a new service offered to the market. Thus they started-up a new business unit, which was labelled Service business unit, where old or broken equipment is revamped or “where this equipment gets a new lease of life.” (TECHCO, Person responsible for Sustainability department, personal interview). Customers of this new service might bring equipment and machinery not only supplied by TECHCO but also from competitors:

“TECHCO has an important operation in the area of re-using most of the products it supplies (as well as those of other manufacturers). These activities, which are different from a conventional repair operation, due to the high level of intervention, significantly contribute to reducing consumption of materials.”

(TECHCO, SR, 2007)

According to the person responsible for the Sustainability area in TECHCO, these retrofitting operations are extremely costly and require high levels of intervention and skilled labour. This unit covers several repair and retrofitting operations *in situ* or at the customers' facilities such as: repair of transformers,

charge controllers, medium voltage apparatus; installation of systems for protection and safety in old equipment; adaptation of current circuit breakers to old switchboards; reconversion of machinery; reconditioning of mechanical components of engines and alternators; renovation or replacement of the magnetic core in alternators; reconditioning, balancing and testing of ventilators, pumps and submersible pumps, to name but a few.

TECHCO describes this business unit as an effort to act towards better sustainable performance. Although they started such activities internally to reuse their own equipment, nowadays they are able to provide their customers with a sustainable service. By re-using pieces of equipment that otherwise would be disposed of they are able to significantly reduce the consumption of materials – they reuse 50% to 90% of the materials applied in transformer, electrical equipment and rotating machine production. Moreover, they deliver retrofitted equipment with similar warranties to new equipment. An additional argument to justify this service is that:

"[TECHCO]'s products have a terrible characteristic from the market point of view: they last many years... They are projected with such a safety margin, that they never break! (...) These are very expensive pieces of equipment. These [retrofitting operations] are only possible in a market niche. If it was something cheap, we would throw it away and buy a new one. Using this argument and from the sustainability point of view, this is a very interesting area."

(TECHCO , Person responsible for Quality, Innovation and Sustainability department, personal interview)

This example illustrates how TECHCO framed a typical and mature operation as environmentally-friendly. The outcome of this practice contributes to enhancing TECHCO's sustainability qualification, but the reasons or motivations that triggered it were not sustainability-driven.

7.3.2 CREATING NEW BUSINESS UNITS TO EMBRACE NEW OFFERINGS

TECHCO performs a continuous assessment of their portfolio of products and services in terms of how up-to-date they are technologically, in order to select which should be maintained and which should be further developed in the future. In the last five years this assessment has shifted towards solutions that might contribute to a better environmental performance of their customers. One way to do so was to combine their resources and capabilities in energy-based technologies with the sustainability argument. This is to say that TECHCO realised that the sustainability debate could open up opportunities to enter into new markets. As stated in their 2007 report, with regard to sustainability concerns:

"[TECHCO]'s Group has paid special attention to questions raised about climatic changes, a position where the company has an important role. On the other hand, the planetary situation affords the development of new business opportunities, principally in the environmental domain."

(TECHCO, SR, 2007)

Supported by their existing capabilities in power energy technologies, they decided to invest in R&D activities to offer systematically new solutions, products

and services in the renewable energy areas. For TECHCO, the shift towards the production of technologies for renewable energies:

"[i]s a clear sustained opportunity to enter into new areas of equipment production, developing new technology, know-how and competence levels for better interaction with the company's target markets."

(TECHCO, SR, 2007)

One of TECHCO's strategies was to develop equipment for photovoltaic solutions as internal projects and use it as a showcase window to the market. As they claim in their 2006 sustainability report, their goal was to:

"...design and implement environmentally-friendly solutions as internal projects and use [them] as a window to the market. The so-called eco-design of equipment for photovoltaic panels to pursue energy efficiency with renewable sources in their facilities was one example implemented in 2006."

(TECHCO, SR, 2006)

Through this project, TECHCO managed to achieve two goals within their sustainability strategy. First, they implemented a solar power solution that produces energy to feed their entire building and reduces energy consumption. Secondly they introduced a new solution in the market using their own facilities as a display case, which attracted the attention of potential new customers:

"We started by producing energy from renewable sources... to feed our entire unit. At that time, this was an experiment, but now we are already working in a new consortium in [customer x] (...) This was a demonstrator project!"

(TECHCO, Person responsible for Quality, Safety and Sustainability department, personal interview)

The project with customer X mentioned by this interviewee was concluded in 2009 and was widely covered in the media as the world's largest implementation of a solar power plant in an urban environment that placed Portugal at the vanguard of the adoption of renewable sources of energy. The references to this project in the media placed TECHCO in a comfortable position as a potential partner in future consortia of this nature:

"[The consortium's president] praised TECHCO's capacity in finding solutions that made it possible to start up the power plant months in advance of the [date] initially planned."

(Media article, 2009)

Currently they are involved in a number of photovoltaic projects, namely in Spain and Bulgaria, and aim to expand their participation:

"Other photovoltaic and wind farms will be negotiated in Central Europe, a strategic market for the Group, seeking to create a project pipeline that will enable regular activity in the renewable business."

(TECHCO, SR, 2009)

A solid opportunity to enter into new markets emerged in 2008 after TECHCO's involvement in a consortium for wind power production back in 2002. TECHCO's participation as supplier of electrical and electromechanical systems gave them a major opportunity to enter into the renewable energy market:

"On the part of [TECHCO], who has a recognised technical capacity in the international market of electrical and electromechanical systems and equipment, this is a clear sustained opportunity to enter into new areas of equipment production, develop new technology, know-how and competence levels for better interaction with the company's target markets."

(TECHCO, SR, 2007)

This project, initiated with a public bid launched by the Government, was headed by a major Portuguese oil and gas company and was set up with some of the bigger players in the Portuguese market, namely a financial institution, a renewable energy company, a leading company from the metallic industry and a producer of wind turbines. This consortium was publicised in the media as:

"...an organiser of economic and technological development, the consolidation of an entire tier of companies and industries, in tandem with a clear contribution towards national economic and energy policies and objectives which concern the environment, society and technology."

(TECHCO, SR, 2007)

The outcomes of these projects for TECHCO were vital to strengthen their position in the renewable energy market:

"This is our recent business unit... in reality everything came into being because we were part of a consortium and from that point on we started moving forward with activities linked to renewable energies (...) That gained such dimensions that it allowed for the constitution of a new unit in the group that we called Renewable Energies (...) Before that we did not have any equipment or services for renewable energies! It was only after the adjudication of the project, that we had sufficient critical mass to build a factory in our facilities (...) which has been working for 2 years now."

(TECHCO , Person responsible for Quality, Innovation and Sustainability department, personal interview)

From those projects on they were involved in new consortia for wind power, solar power and micro-cogeneration until they finally decided to enter into that new market with a new business unit totally dedicated to the implementation of

renewable energy solutions. In 2008, they finally opened this new business – Renewable Resources Unit. Another business unit worth mentioning, as a milestone of TECHCO's entrance into new markets, is the Servicing business unit, which was initiated in 2007. This unit is dedicated to the retrofitting operations described in the previous section.

7.3.3 LAUNCHING NEW OFFERINGS WITH BUSINESS PARTNERS

TECHCO's strategy towards sustainability is framed in terms of innovation and R&D activities to provide integrated products and services in the form of efficient energy management solutions. Hence they often work in partnership with companies from the energy sector to develop these types of solutions. One of these solutions is the so-called SmartGrid, a project triggered by one of TECHCO's main customers, an energy producer, and developed within a consortium involving companies from different areas.

The goal of the project was to design a smart grid that could be installed both in houses and companies, and through which energy could be produced through micro-generation systems (e.g. solar panels) giving place to an energy network. The project was presented by TECHCO's customer in 2007 and promoted in 2008, in workshops and conferences, as a decisive answer to the environmental challenges faced by the energy market:

"The innovative project springs from the need to face the strong pressure on the electricity sector from challenges such as environmental sustainability, an increasingly consumer-oriented approach, security

and quality of the energy supply, and the energy market. Smartgrids will help move towards an intelligent electricity distribution system focusing on remote energy management that will revolutionise grids and their interaction with consumers and generators. In 2008, the prototype technological infrastructure that would support the initial implementation in 2009 was specified, designed, developed and implemented."

(TECHCO's customer, Annual Report, 2008)

Through smart grids, consumers turn into active participants of the electricity market since they will be able to regulate their consumption levels by balancing their demands with the grid's capacity to meet those demands. For example, when consumers inject energy into the grid or request an increase of energy capacity, the grid reacts immediately to these actions, redirecting energy flows and guaranteeing an uninterrupted electricity supply. Hence, the system allows operators to monitor the state of the entire grid at any moment of time.

The Smartgrid is considered to be a key solution to provide energy from renewable sources and promote micro-generation and electric mobility among millions of final consumers. In 2009, TECHCO's customer reinforced the benefits of this offering as an effort to provide more sustainable solutions for energy consumption:

"The changes in electricity supply and demand, resulting from the attainment of the objectives of energy policy, mainly the reduction of emissions of greenhouse gases, are rising and will continue to require distribution companies to make significant changes, particularly the progressive installation of more information and automation leading to "smart grids" which will also result in clear benefits to the consumer

and the producer. TECHCO is committed to this innovation process, emphasizing the SmartGrid Project.”

(TECHCO’s customer, SR, 2009)

In 2010 a pilot project – labeled “InovCity” – was developed in the city of Evora where 31.300 smart meters were installed in households affecting around 54.000 inhabitants. This “living lab”, as they called it, served as a basis to assess the need for technological standardization and integration between the nodes of the web, in order to roll-out the installation across Portugal, and future expansion to Spanish consumers. This will be one of the first Smart Cities in Europe which might bring new business opportunities to Portugal:

“This project could be a reference for others with regards to this type of technology helping to launch the image of the nation’s industry internationally.”

(Media article, Energy & Future Magazine, 2010)

According to TECHCO’s customer, the project will bring benefits to a wide range of stakeholders, namely, consumers, energy producers, energy suppliers and regulators (figure 7-2).

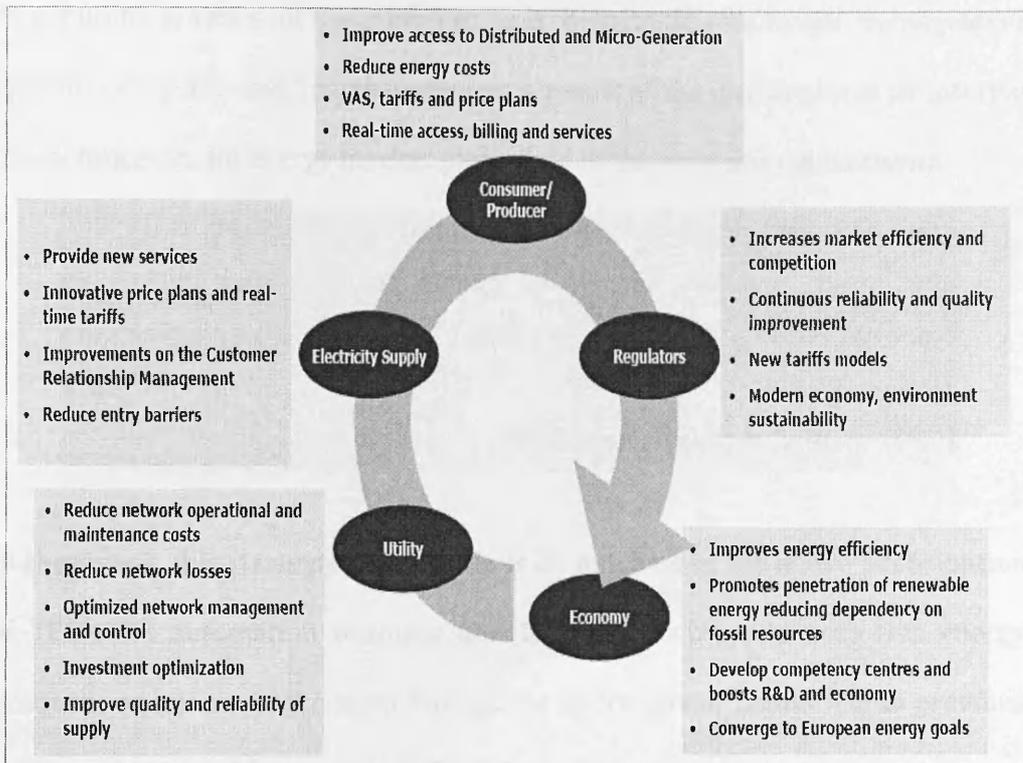


Figure 7-2: Benefits of the solution for stakeholders

Source: TECHCO's customer power point, 2009

This project was widely covered in the media as a partnership pulled together to design a revolutionary solution for efficient energy consumption. The consortium involved companies from different areas such as metering (MeteringCo), communication and distribution equipment (TECHCO), IT systems (ITCo) and scientific research institutions (ResearchInst). All companies involved published newsletters about their own role in the project and how this role enhanced the sustainable features of the final solution.

TECHO speaks about this project as the one they are truly proud to be part of. Their role is to produce and supply power control switches (remotes),

distribution transformer controllers and distribution network management systems. They see their participation as a result of the development of internal competences in the energy market (described in the previous sub-section):

“TECHCO, in line with its technological strategy that has been conducted since 2006, is aiming to answer the new energy and environmental challenges, developed a new range of solutions for smart grids.”

(TECHCO, Newsletter, January 2009)

In their view, this strategic partnership is an outcome of the active participation of TECHCO's automation business unit in previous projects with this energy producer and some of the main Portuguese hydro power plants. These previous projects were crucial to position TECHCO as a key partner for future projects:

“This experience was certainly considered by [TECHCO's customer] and therefore in the automation perspective, [TECHCO] sees themselves as an excellent partner in step with the challenge and mission that [TECHCO's customer] defined for the SmartGrid project.”

(TECHCO, R&D's flyer 'Participation in SmartGrid Project')

In their 2009 report, the CEO remarks the presence of TECHCO in this project as one of the highlights of their sustainability strategy:

“We also emphasize our participation in the SmartGrid project. This project aims to implement the concept of intelligent energy networks in Portugal, which will certainly have a major impact on the energy efficiency of the electricity distribution network. As part of this project, [TECHCO] developed a new product (...), which received an honourable mention in the 2nd edition of the Innovation Product Award, promoted by COTEC [Business Association for Innovation].”

(TECHCO, SR, 2009)

Insights into how the other involved companies communicated this new offering were also considered. A key player of this consortium is a Portuguese research institution [ResearchInst] that, within their Power Systems Unit, has been an active promoter of the development of intelligent electrical networks. According to the coordinator of the unit, this project will transform consumers' behavior regarding energy consumption:

"This project will enable the creation of energy intelligent houses that do not require a large investment from consumers. In fact, the system will induce behaviors that enable a better and more efficient use of energy at the domestic level."

(ResearchInst, Press release, 2010)

ResearchInst claims that with this solution the concept of "energy intelligent houses" is no longer an ideal, but a reality that was made possible because Portuguese companies and institutions were willing to invest their resources (around 12 million Euros during its first stage until 2010) and work together to develop the project ahead of competitors:

"This project is included in the concept of the future intelligent electrical networks. Either we wait for someone to develop these solutions and import them and use them on our networks, or we accept this challenge, taking advantage of this opportunity that will allow us to make a stand for the Portuguese industry in international markets."

(ResearchInst, Press release, 2010)

MeteringCo, in turn, was involved in the consortium as supplier of intelligent electricity meters. According to the company's President:

"This is a very important project for the country and [MeteringCo] is proud to be part of it."

(MeteringCo, Media article, October 2008)

ITCo was selected as the IT service provider for the project. In a White paper available on their website they state that:

"We have partnered with 3 companies and a university to develop the Portuguese SmartGrid solution (...). We are currently installing up to 50,000 Energy Box meters in customer premises, under a pilot project agreed with the Portuguese regulator. SmartGrids should bring significant benefits, including increased control over energy consumed, improved energy efficiency, increased flexibility of tariffs and value added services and greater penetration of renewable and micro generation."

(ITCo, White Paper on Electricity and Grids, date N/A)

The quotes above demonstrate that sustainability creates opportunities to develop new solutions for the energy market. Companies involved in the consortium communicated their participation as a step forward to develop more sustainable energy systems and as an opportunity that cannot be missed. This project illustrated how different companies supplying components to set up one single device, frame their offerings as contributors to more sustainable solutions. Each of these components is not sustainable *per se*, but they turn into sustainable offerings once they become part of a system.

7.4 CONCLUSIONS

This chapter highlighted that firms' processes to develop sustainable offerings are not only centred on conception and production stages but also, and more importantly on how they are described and communicated in the marketplace.

Qualities linked to sustainability are repeatedly included in the offerings' descriptions, whether by stressing the environmentally-friendly features of the offerings as such, or by laying emphasis on the resources, technologies and production processes that were blended together to make up the offering. Hence the empirical examples described in this chapter call attention to a "framing ability", mentioned in previous chapters and further developed in Chapter 10, through which companies develop alternative ways of framing offerings as sustainable, when these are not easily recognised as such. Moreover it highlights that promoting sustainable offerings is also about describing the resources used to produce it with the same frames (e.g. raw materials, by-products, technologies). These frames are used to describe not only physical resources as sustainable, eco-friendly, natural, green, carbon neutral, reusable, recyclable (or any other term to qualify resources with sustainability labels), but also intangible resources (R&D, engineering, innovation, marketing skills, etc.) that contribute to qualify final offerings as sustainable.

Two types of approaches were pointed out to illustrate how offerings are framed in sustainable ways. The 'soft' way described CORKCO, WOODCO and PULPCO's approaches and represents those companies whose core business allows for the construction of sustainable arguments around offerings in a relatively straightforward way, since their industrial processes rely on natural resources that can be recycled and reused. The 'hard way' metaphor, employed to describe TECHCO's approach, represents companies who need to justify the extent to which their offerings contribute to more sustainable solutions.

Hence, the soft way of developing sustainable offerings deals with offerings that are sustainable *per se*, regardless of how they are going to be used in future applications, while the hard way, dealing with non-sustainable offerings, justifies how these might contribute to put together sustainable solutions in their future applications. Both ways contribute to build and reinforce the companies' sustainability qualifications.

Another important aspect arising from the analysis of these cases, particularly TECHO's process of developing new offerings (e.g. the production of *smartgrids* or power plant consortia) is that the qualification of particular offerings is very much dependent on the companies' ability to enrol, or become enrolled by, others. This ability to enrol and get enrolled in third party projects will be discussed in Chapter 10 as one of the key processes that determine the successful establishment of sustainability qualifications. By getting enrolled in other projects, TECHO grabbed the opportunities raised by other actors' qualification processes to develop their own. From the wind power consortium project on, TECHO gained credibility to work on renewable energy solutions and was involved in other consortia for wind power, solar power and micro-cogeneration, to the point of creating a new business unit totally dedicated to renewable energy technologies, and communicated this entry as a key milestone in their sustainability strategy.

8 ADOPTING CLEAN TECHNOLOGIES

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

8.1 INTRODUCTION

This chapter deals with practices that involve the adoption of particular technologies, here labelled as “clean.” It is common to associate clean technologies with industrial processes that reduce the emission of pollutants; these are typically referred to as “end-of-pipe” technologies. But clean technologies, often nicknamed ‘cleantech’, are also related to processes that reduce the impact of industrial activities on the environment and there is a heated debate about what should be considered as cleantech or not. This research is not concerned with this debate or in providing insights about how cleantech should be defined. Without any theoretical preconceptions on what cleantech might be, this chapter analyses the fourth theme proposed in the methodology chapter – adopting clean technologies – covering practices and technologies mentioned by the companies as cleantech; that is to say, technologies that were reported as solutions to reduce the impact of the companies’ activities on the environment in particular situations.

The chapter is organised as pictured in Figure 8-1. First, the chapter describes how the adoption of cogeneration systems contributes to CORKCO, WOODCO and PULPCO’s sustainability qualifications. Then it presents the highlight of PULPCO’s sustainability strategy in the last 4 years: the expansion and modernisation of their mill. As a final point it concludes with PULPCO’s unsuccessful story on the implementation of a pipeline to dispose of effluents.

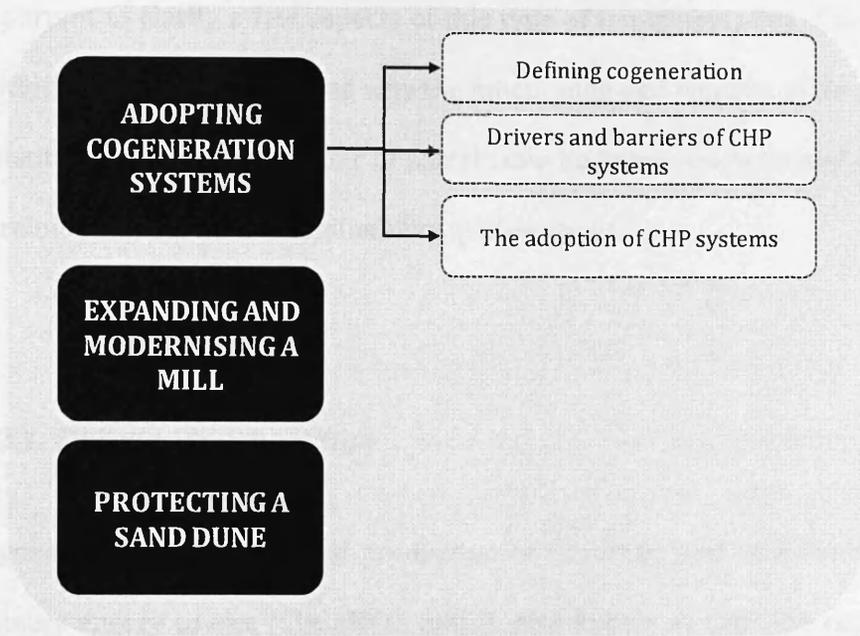


Figure 8-1: Outline of chapter 8 - Adopting clean technologies

8.2 ADOPTING COGENERATION SYSTEMS

Cogeneration technologies have been adopted for decades among industrial units to produce heat and power. In recent years, however, they were gradually framed as “clean” technologies, not in the sense that no harmful impacts to the environment are provoked, but in the sense that “clean” or “green” energy” is produced from CHP systems. Three of the companies of this research are early adopters of these technologies: CORKCO, WOODCO and PULPCO. The adoption of combined heat and power (CHP) is a natural step for companies which operate in forestry-rooted industries, since they can benefit from the opportunities of using forestry-based waste (biomass) as fuel to produce heat and power. To understand the reasons behind the adoption of CHP by the three companies, it is

important to clarify a few aspects of this type of implementation. The following sections aim at contextualizing why the functioning and benefits of these systems constitute arguments in favour of sustainable business practices and contribute to reinforcing the firms' sustainability qualifications.

8.2.1 DEFINING COGENERATION

Cogeneration is the combined production of electricity and heat from the same primary energy source (COGENCO, 2007). Also known as CHP, the cogeneration principle is based on reaching higher efficiency in terms of energy generation. According to the European Biomass Industry Association (EUBIA) conventional power generation, on average, is only 52% efficient, i.e. up to 48% of the energy potential is released as wasted heat. Through the utilisation of the heat, the efficiency of a cogeneration plant can reach 90% or more.

As the debate around global warming continues to grow, there is an urgent call for technologies that can reduce carbon emissions. CHP is claimed as a good solution to tackle such pressures. Using either fossil or renewable fuels as biomass, CHP is defended as “the single most efficient way to reduce carbon emissions and cut energy costs”(COGENCO, 2007). Independently of the type of fuel used, CHP technologies are said to provide higher energy efficiency, when compared with conventional plants, that is to say separate production of heat and electricity. Cogeneration compared to separate generation of electricity and heat, results in fuel savings in the range of 25-30%, for the same amount of total

electrical and heat generation. Therefore, when compared to conventional thermo-power generation, it ensures lower energy consumption and fewer emissions of pollutants (Moreira et al., 2007). For this reason, megawatts (KW) produced from CHP systems are often called “green MW.”

Associations like COGEN (European Association for the Promotion of Cogeneration), COGENCO (Specialist supplier of CHP solutions), EUBIA (European Biomass Industry Association) and ADENE (Portuguese Energy Agency) claim that CHP leads to lower emissions of carbon dioxide and as such the adoption of cogeneration technologies will contribute to meeting the targets of the Kyoto Protocol and to combat climate change (COGEN, 2006). Furthermore, this argument is even more reinforced when biomass is used instead of fossil fuels. According to EUBIA:

“Cogeneration using biomass is one of the best means of converting a renewable energy source into heat and power coupled with the CO₂ reduction potential when compared with fossil fuels.”

(EUBIA, Year N/A, p1.).

This study does not intend to fully present the set of detailed technological features of a cogeneration system. However, it aims to understand why the practice of adopting CHP contributes to companies’ sustainability qualifications. Therefore, a general picture on cogeneration technology must be provided.

In general five types of equipment must be installed to implement a cogeneration plant working with biomass based fuel: 1) biomass silos and conveyers; 2) Boilers; 3) Heat recovery steam generators; 4) Steam turbines and 5) generators.

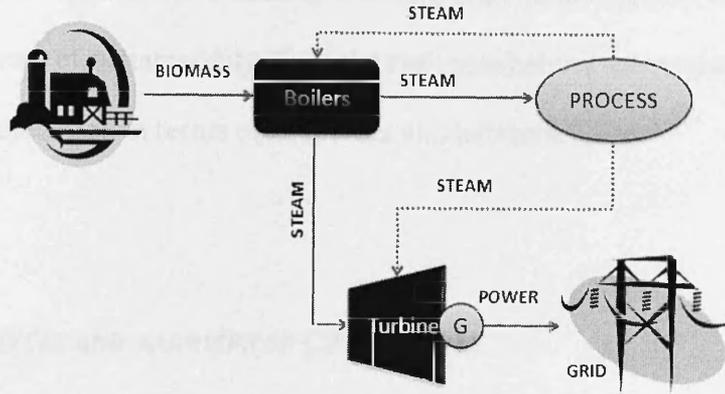


Figure 8-2: Components of CHP systems

As far as the companies studied are concerned, first it is necessary to provide the technology for suction in the production facilities. During all industrial stages to process wood (grinding, separation, transportation, finishing, etc.) a large amount of wood waste, that is biomass, is produced. The biomass is collected through suction filters implemented nearby those processes and stored in special containers, the so-called biomass silos which are said to function as lungs to guarantee the supply of the cogeneration plant. Those silos must be installed near the boilers (no more than 15 m away) where biomass is burned to produce steam. Firstly, the steam is incorporated in the production process and if the steam temperature is still adequate, it can be re-channeled to the steam turbine. If not, it can be re-heated in the boiler and then channeled to the steam turbine. Once in the turbine, which is connected to a generator, the steam is expanded then cooled and condensed in a heat exchanger where heat can be recovered and utilised. The steam is then transformed into electricity which is then transferred to the grid to be re-integrated in the company's energy system. This apparently straightforward practice has been part of CORKCO, WOODCO and PULPCO

operations for decades and used as a strong argument to justify the companies' roots in terms of sustainability. Thus the rationale behind this argument deserves further explanation in terms of its drivers and barriers.

8.2.2 DRIVERS AND BARRIERS OF CHP SYSTEMS

Although one might think at the outset that companies adopt CHP systems as a clean practice to perform more sustainable businesses, interviewees peremptorily affirmed that these systems are implemented with one main objective: to reduce the dependence on the energy supplier and consequently, reduce their energy costs and be more competitive. Although better environmental performance may be claimed as a potential benefit, the possibility to reduce energy bills is the leading argument to engage in this type of implementation. The production of thermal energy to feed production processes combined with the production of electricity is the foremost benefit that companies aim to achieve.

When biomass is used as fuel those benefits increase significantly. On the one hand, waste is being handled in accordance with environmental legislation (burned instead of disposed of in landfills) and on the other hand, green sources of energy are being used to produce electricity which brings in financial incentives obtained from the Portuguese Government. Here it is necessary to briefly contextualise the Portuguese policy towards the adoption of CHP and usage of biomass.

Portugal has one of the European Union's lowest electricity consumption levels per capita, but one of the highest electricity consumption growth rates in recent years. Hence, the Portuguese Government has been forcefully promoting renewable energies and energy efficiency policies in an effort to restrain the exponential growth in greenhouse emissions due to the expected increase in electricity consumption and transportation (Moreira et al., 2007). Given that the forecast for energy demand growth in Portugal predicted a 14% increase between 2002 and 2010, the Government decided to support cogeneration plants from 2001. The Portuguese Cogeneration Law was implemented within the European Cogeneration Directive as a device to promote CHP systems and face the tight emission commitments for the Kyoto Protocol (maximum growth of 27% over 1990 levels, by 2008-2012). It was recognised that CHP systems are the "most efficient way of generating electricity and heat, and therefore aimed to significantly increase its share in the electricity system" (IEA and OCDE, 2008, p.4). As a result Portugal has been highly committed to develop policy instruments to support the implementation of cogeneration systems, namely feed-in tariffs and zero CO₂ taxes.

The first instruments, feed-in tariffs (FITs), have been widely used to incentivise investments in renewable energy projects, CHP included. These tariffs usually take the form of a bonus added to the market electricity price paid to CHP implementers for each KW of electricity they export to the grid (IEA and OCDE, 2008). The Portuguese Cogeneration Law created a mechanism for determining the monthly remuneration CHP plants receive for the electricity they transfer to the grid. This calculation is based on the principle of avoided costs, which

compares the system cost of CHP to those of conventional electricity generation (IEA and OCDE, 2008). The tariffs are also indexed to the price of oil, i.e., as the price of oil increases, so do the tariffs for co-generated electricity. In Portugal, the tariffs are paid monthly and apply for a period of 10 years. During this period, the electricity producer is free to choose between supplying the entire electricity production to the grid or the surplus electricity only, beyond that which is used on-site. This can provide a secure and predictable cash-flow for cogeneration plants over a known period of time, which in turn helps investors to make a decision on whether to invest or not, with reduced risk and known returns.

Zero CO₂ taxes, in turn, benefit producers who combine CHP systems with biomass. There is a benefit retrieved from using biomass as fuel to produce clean energy which is related to environmental legislation. Companies are compelled to pay significant CO₂ tax rates proportional to their cogeneration systems inputs. For example, a company that burns 10 tons/hour of fossil fuels, 24h/day, pays around 150.000 € per year. If they use biomass instead of fossil fuels they are free of CO₂ taxes.

In sum, the decision to invest in CHP systems depends largely on three factors: technological investment (mainly, high prices of boilers and steam turbines), fuel price (fossil fuel or biomass) and electricity reward price per KW paid by the national grid. The latter is said to be the major decisive factor which will define the project profitability and dictate its success or failure. Therefore, the payback period and profitability of cogeneration systems depends largely on the difference between the biomass/fuel price and the sales price for electricity.

Although the initial investment can be relatively high, given the current governmental incentives to cogeneration systems, payback periods between 3 to 5 years may be presumed.

Theoretically one can say that cogeneration systems may be implemented whenever a simultaneous demand for power and process heat is needed. However, there are some implementation barriers that companies have to face when they start to think about this kind of project. One of the major barriers is the administrative procedures necessary to obtain permission to produce electricity. CORKCO, for example waited for almost 2 years to get permission to raise the production capacity. In Portugal, these procedures are too long and require interactions with different institutions namely the Energy General Direction, Energy Regional Directorate, Electric Utility central and regional offices.

Problems of scale are another type of barrier. Implementations may involve large or micro cogeneration systems. As each is a separate case, the accurate definition of the dimensions of the cogeneration project dictates the achievement of the desired efficiency. Especially in projects with biomass, the efficiency of the CHP system is very much dependent on the availability of biomass. For example, to produce 800 KW per day, a cork company needs around, 1500 kg/hour, 35 tons of cork powder per day, assuming that the system is working around the clock. Only companies with a high capacity to produce, or obtain externally, cork waste (or other types of biomass) can benefit from CHP systems with biomass.

CORKCO, for example, needs to buy cork waste from other firms to feed their cogeneration systems because the more biomass they collect from other firms, the more efficient will be their cogeneration system and more clean energy will be produced. Alternatively, gas could be used to feed the system, but costs would be higher and some environmental benefits would be lost. Again, to give a picture in numbers, in 2009 CORKCO studied the economic difference between using natural gas and biomass as fuel. The gas option would increase the energy bill by about 1500 thousand Euros/per year. Secondly, energy generation cycles are totally dependent on a firm's production cycle. For example, a cogeneration system is designed to generate 6 tons of steam/per hour, a number indexed to the requirements of heat in a particular production cycle. As more steam is consumed in the production process, more energy is produced. If, for some reason, the production process is forced to decelerate, the cogeneration system originally designed to generate 6 tons, loses efficiency.

Thirdly, energy production was said to be one of the key economic benefits retrieved from cogeneration systems. Those benefits are linked to the government's actions towards rewarding green energy producers. However, producing power to transfer to the grid is not a linear process. There are technical restrictions to access grid systems. It is only possible to connect to low-voltage systems with specific dimensions. CORKCO is currently evaluating a new investment to overcome this limitation and avoid electricity losses.

Given these barriers, it is understandable why only one company (CORKCO) is currently using such a system in the Portuguese cork industry. The second

biggest cork company in Portugal started a CHP implementation but stopped using this system as it *“wasn't profitable anymore.”* Production cut backs and technical problems were mentioned as barriers to continue using cogeneration.

A last barrier worth referring to is the need to involve third parties, since companies are dealing with something that is not their core business. In this sense, this type of project calls for alliances or partnerships. The implementation of CHP power plants involves at least four players: the customer, the engineering office to consider the scale of the project, the equipment supplier and the biomass supplier. What typically happens in Portugal is the creation of consortia between firms from different sectors (energy production, financial, building, engineering, etc.) to set up an energy plant.

8.2.3 THE ADOPTION OF CHP SYSTEMS

Using either fossil or biomass, CHP is defended as the single most efficient way to reduce carbon emissions and cut energy costs. The cases, however, illustrate that this is a recent argument to justify investments in CHP technologies since the companies started to engage in this type of practice more than 30 years ago. When CORKCO first started using CHP systems in the early 80s, their main concern was to reduce the dependence on the energy supplier and consequently, reduce energy costs in order to be more competitive. When asked about the main criterion to adopt co-generation technologies in CORKCO, the person responsible for the CHP system and environmental monitoring of the company said that:

"The first thing is clearly the cost line... Clearly! Energy costs! (...) If we were not using cork dust as fuel for the boilers as our source of heat, our alternative would have to be gas, which in economic terms... and from a study we did, the difference between using gas instead of cork dust would be 150 €/per day of additional energy bill that we would have to pay. Therefore, the first line is clearly an economic justification!"

(CORKCO , Person responsible for the CHP system and environmental monitoring, personal interview)

This argument was compelling and continues to be crucial nowadays, according to this manager. Even though environmental targets may be claimed as a potential benefit of such technologies, the possibility to reduce energy bills is the most desired benefit. The production of thermal energy to feed production processes combined with the production of electricity is the foremost benefit that companies aim to reap:

"We get the best of both worlds: produce heat which is used in the process, and simultaneously, part of the heat is also used to produce electricity."

(CORKCO, Person for the CHP system and environmental monitoring, personal interview)

PULPCO and WOODCO have also been active users of CHP technologies since the 80s. Both companies, working with forestry-based raw materials, started to use their waste as fuel to produce heat and power in CHP systems. Initially, and similarly to CORKCO, this was an internal operation developed to be cost-efficient and to reduce waste. In the pulp industry, in particular:

"Given that 40% of the raw material is lignin (...) the most rational way to deal with this "waste" was: on the one hand burn it and solve the problem of dealing with it, and on the other hand take advantage of the

energy potential attached to it! Not doing it would be the same thing of having a car with no wheels! (...) Any pulp factory in Portugal, built 20 or 30 years ago... one of the first pieces of equipment planned would be the biomass boiler, it's already part of the process!"

(President of the Portuguese Association for the paper and pulp industry, personal interview)

Since the introduction of benefits attached to the adoption of CHP with biomass (e.g. feed in tariffs and zero CO₂ taxes), and the liberalisation of energy production in Portugal, companies started to reevaluate their options and realised that their early investments opened the opportunity to enter the clean energy market, as a producer of green energy or as a supplier of green fuel – biomass. Companies who have access to biomass are in a good position to evaluate new businesses in the biomass market:

"I would say that we are in a waiting stage... to see how the biomass prices will be set in the market. There are rumours that biomass will be scarce. So biomass might see its price rise! If that happens, clearly, a cogeneration scenario makes no sense anymore because we have the opportunity to drain this type of biomass [cork dust] to the market, without having to engage in investments in cogeneration... and therefore we might get a fairly interesting return from selling it in the market!"

(CORKCO, Person responsible for the CHP system and environmental monitoring, personal interview)

PULPCO and WOODCO engaged in huge investments to implement new CHP systems. Nowadays both companies continue to operate with CHP internally, but they have also dedicated CHP systems to produce green energy supplied to the national grid. WOODCO's group, for example:

"... owns more than 20 cogeneration installations in its holdings! Some work with biomass, others with naphtha. (...) Nowadays we have a dedicated department, or better said, it's a new company that I'm in charge of, to promote the construction and exploitation of electric power plants. Why? Because this is a business! And if it's well managed it might bring some money! (...) WOODCO's group has already demonstrated, through several ways, its concern and commitment to the environment. (...) But clearly nothing can go against the economic rationale."

(WOODCO, Person responsible for Energy and Environment business unit, personal interview)

These operations are attractive because the environmental policy rewards companies who invest in these systems. The purpose of this reward is to incentivise the production of green MW and meet the Kyoto targets in terms of CO₂ emissions:

"If my energy is worth 10 and I can buy it for 7, obviously the good sense tells me to sell it all and buy only what I need! (...) Each MW not produced will imply more CO₂ licences that the Government will have to buy. (...) As far as we know Portugal won't be able to meet its targets so it will be forced to buy licenses... The Government strives to get green MW transferred to the grid!"

(President of the Portuguese Association for the paper and pulp industry, personal interview)

The examples above reveal why engaging in CHP activities becomes an attractive business to companies who have access to biomass, such as PULPCO, WOODCO and CORKCO. These systems are mainly implemented in two main types of industries: energy producers and companies with capacity to produce energy

above their needs. For the second type, cogeneration systems are a parallel business:

"Typically only energy companies invest exclusively in cogeneration. In normal industries this works as a complement to their business, it's not their core business. It is something that is implemented to get some revenue from our waste, in this case, biomass."

(CORKCO, Person responsible for the CHP system and environmental monitoring, personal interview)

Cement, ceramics, sugar plants, wood, paper, textile industries are common users of cogeneration systems. As explained above, opportunities to take advantage of these systems may be achieved as long as a surplus of heat is produced that can be used again to produce electricity, and decisions are taken based on the returns obtained through this surplus. Hence this study questions the use of sustainability discourse to justify this type of implementation. The cases pointed out that the decisions to invest in CHP systems are hardly linked to sustainability motivations or concerns:

"I wouldn't say that environmental concerns are at the top of the priorities. Clearly not! Because it is obvious that the economic aspect and the value generated from an implementation like this has to be... I would say, if not the first, at least at the top of priorities. Of course the environmental aspect is there, especially because markets and customers are becoming more and more sensitive to this issue. (...) But it's not at the top of our concerns when we have to decide about it. There's obviously the economic aspect behind that weighs! And it weighs a lot!"

(CORKCO, Person responsible for the CHP system and environmental monitoring, personal interview)

In sum, the main aspect behind the decision to implement cogeneration systems is the capacity to produce clean energy and the price obtained per each green MW produced. In this sense, huge investments that are justified and presented as sustainability-driven are actually driven by economic rationales.

8.3 EXPANDING AND MODERNISING A MILL

In the last 4 years PULPCO dedicated a lot of attention to publicise the adoption of clean technologies, not only in their sustainability and annual reports, but also on their website, newsletter and in the media. During 2008 and 2009, PULPCO undertook a massive construction project for the expansion and modernisation of their mill with a new CHP system included.

Following the EU document for the “best available techniques” for the pulp and paper sector, PULPCO invested in the expansion and modernisation of their mill in order to attain an “*ecologically balanced plant in conformity with national and European legislation*” (SR, 2008). Given the size of the investment, estimated at approximately M€ 350, and the expected benefits for the Portuguese industry, this venture was classified by the Portuguese Government as a Project of National Interest, thereby obtaining financial and tax benefits for a period of 5 years after the conclusion of the construction work (SR 2008).

In Portugal, a project is classified as a Project of National Interest when the necessary investments equal or surpass the amount of M€ 25 and if it is

recognised as producing a positive impact both in the social context (creation of jobs, boosting the economy in rural areas) and towards environmental protection. It was considered that the project would involve the creation of 1,500 new jobs and contribute to preserve the forestry-sector, a vital sector both to Portugal and the European Union. For this reason it was the subject of numerous references in media articles, comprehensively described in PULPCO's annual and sustainability reports and mentioned in other companies' reports that were affected by the project. For example, one of PULPCO's suppliers reported in their 2007 Annual report, that PULPCO's new mill would bring new opportunities for their business. As PULPCO's productive capacity was about to increase, their purchases would have to accompany this trend. This would positively affect their suppliers' expected performance for 2008.

The starting point of this project can be traced back to the second half of the 90s, when PULPCO initiated an engineering study on the modernisation and re-scaling of its pulp production plant. The initial goal of the project was to increase the production level to 450 thousand tons of pulp per year and optimize the quality of the final product. The start-up of the newly refurbished plants took place in 1999. However the new production capacity, which was later re-scaled to 600 thousand tons per year, became imbalanced with parts of the production line not renewed at that time. This imbalance led to a follow-up stage where all units of the production line were assessed, including the process of pulp transportation by rail, the existing infrastructure for water and effluent treatment and the environmental control methods in place. By the end of 2008

the first part of the work related to renewing the pulp production line was concluded requiring interventions in several units.

In parallel, PULPCO started a new project aimed at building a new thermoelectric biomass plant this time in a partnership with the main energy producer in Portugal (EnergyCo). This project, involving an investment of approximately M€ 75, emerged from an alliance between EnergyCo and PULPCO's Group (PORTGroup), years before PULPCO's acquisition in 2006. As described in PULPCO's characterisation in Chapter 5, PORTGroup also acquired 50% of a renewable energy company in 2006. Although this project is repeatedly mentioned as the highlight of PULPCO's sustainability strategy, its origins and goals were born before PULPCO's acquisition. According to the person responsible for the sustainability strategy in PULPCO, this was a "marriage of interests" between EnergyCo and PortGroup. PULPCO, he says, did not have any saying in the negotiation process; instead it was informed that the new thermoelectric plant would be constructed in its facilities to take advantage of the biomass resulting from the pulp production process, from the forest harvesting activities and also bought from other companies of the region.

Both projects are said to represent a huge step in improving the environmental performance of the mill. The improvements are not so much related to the production process itself but to the investments made in state-of-art technologies through which pollutant emissions and levels of energy consumption can be significantly reduced (SR, 2008). Furthermore it brought the opportunity, or was first thought to increase the amount of energy produced from renewable

resources (biomass), which is sold to the national grid. Due to its status as a co-generator, PULPCO was able to obtain a supplementary income of M€ 16.5 from selling green energy to the national grid. A huge number of internal reports documenting this project were provided by the company. However, it does not seem pertinent to include all the details here. This project was included as an example of practices that contribute to construct sustainability qualifications, because of the importance given to it by PULPCO. Technological details of the projects are beyond the scope of this study. What is interesting is the fact that PULPCO reported these two projects in public communications as the highlights of their sustainability strategy but, in fact, one was developed to increase their production capacity and the other was thought of and planned without PULPCO's collaboration.

8.4 PROTECTING A SAND DUNE

Water is a key raw material for pulp production, but also a key source of concerns regarding its management as waste, i.e., as polluted effluents. In PULPCO's plant there are three detached grids of internal effluents: one for acid effluent, one for alkaline effluent and a third one for domestic effluent (from the wood yard and rain water). All effluents undergo a primary treatment to remove residual solids in two separate sedimentation ponds. Part of the solid waste from the primary treatment containing fibres, is sold as raw material for paper and cardboard production. The effluents originating from the two sedimentation ponds are mixed and sent to a secondary effluent treatment. The final effluent is

discharged to the sea through an underwater pipeline. This case is about this particular pipeline and how it triggered PULPCO's environmental concerns on the beach where it was implemented.

The first reference to this pipeline appears in 1995 when PULPCO and one of their main competitors decided to jointly build an underwater diffuser to dispose of the effluents produced in their mills. As both companies are geographically located in the same region, they engaged in a partnership to assemble an underwater outfall pipe to discharge, after proper treatment, their industrial liquid effluents into the Atlantic Ocean, at around 1,500 m from the coast. The aim of the partnership was to solve the problem of effluents' disposal as efficiently as possible, by sharing the costs of the new pipeline structure. When the underwater outfall pipe entered into service in the middle of August, 1995, cellulose companies started a thorough monitoring program to survey the quality of beach waters from the zone of discharge, to follow up physical, chemical and microbiological parameters as well as the fish population conditions. However, the construction of the underwater pipeline brought new problems for both companies, related to the damages created by the need to install a land pipeline across the sand dune and a nearby breakwater, using hard machinery. It was necessary to start a recovery project of the dunes which had been systematically affected by problems of sea erosion.

By the end of 1999, the protection dune was almost broken and flat, and it was decided to look for technical support from specialists to repair these damages. More organisations were included in this protocol given that the problem

demanded new solutions and investigations from scientific institutions. Different interventions were required from the Portuguese Institute of Marine Research from Coimbra University (IMAR), BBF, a Portuguese supplier of environmental protection technologies, NAUE GmbH & Co. KG, a German supplier for geosynthetic applications and the Commission for the Coordination and Regional Development of Central Portugal (CCDR).

Sand accumulation and re-vegetation were the first steps to the reconstruction of the dunes in 2000. However, due to a severe winter in 2000-2001 with strong winds and unusually heavy rains, most of the previously rehabilitated sand dune system was destroyed. The industries involved in this project decided to pursue the monitoring plan in March 2001, to assess sand erosion and vegetation growth. In February 2005, after evaluating several alternatives, the sand dunes were reconstructed with layers of geo-textiles filled with sand. In February 2005, after analysing several proposals of dune rehabilitation by soft and hard engineering, a new intervention in the sand dune system was conducted. The decision was based upon the potential efficiency of the technical solution selected, but also costs involved and time required to implement it. Once the sand containers were in place, this protection barrier was covered by a one metre layer of sand which was re-vegetated, turning this area into an attractive and safe coastal dune system.

New problems arose in 2006. High tides in March and April 2006 partially damaged the geo-textile dune structure due to an inappropriate seal of the geo-textiles layers which started to show cracks. The cracked areas allowed on an

outflow of the sand fill material which further led to a partial collapse of the dune structure. In order to stabilize and reinforce the sand dune in this specific damaged area, a proposal of rehabilitation including geo-textiles tubes, considered as a more robust solution, was analysed. This solution was implemented two years later, in 2008. As in 2001 and 2006, a severe winter in 2009 led to the destruction of the sand dunes which made the geo-textile tubes and pipelines visible. In 2010, the situation worsened considerably and PULPCO reported that the sea could irreversibly damage the dune, jeopardising the entire area. New solutions were under investigation and a new deadline to conclude the project was set up for 2012.

The interest of this research in this project arises from its apparent never-ending nature. With this project, PULPCO's demonstrates that constructing a sustainability qualification is also about transparency in reporting what does not go well. For ten years the same project has been reported over and over again without a solution as nature keeps fighting back, defying the firms' objectives.

8.5 CONCLUSIONS

This chapter illustrated how companies use the argument of adopting clean technologies to justify their contribution to more sustainable businesses. The objective was not to provide a detailed explanation of the technologies' functioning or the extent to which they might be seen as clean technologies, or not. The cases showed the arguments in use to build up a sustainable image.

The reasons behind the adoption of cogeneration systems, state-of-the-art technology in a new mill or geo-textiles to protect a sand dune are barely rooted in sustainability concerns, but these projects are all used as cornerstones of the companies' sustainability strategies. Here, similar conclusions to Chapter 5 are drawn, which allows us to recognise the importance of the "framing ability" that will be discussed in Chapter 10. The four companies describe some of their practices within the all-encompassing label of sustainability strategies, i.e., as key components of these strategies. But once these practices are explored beyond the reports' scope, it becomes clear that their outcomes might be framed and described as sustainable, but their origins and goals are derived from different rationales. It seems that in some cases, practices do not emerge to build up sustainability strategies; quite the reverse happens, that is, sustainability strategies emerge from existing practices as long as their outcomes might be properly described and justified as sustainable. Thus, there is no doubt that in PULPCO, CORKCO and WOODCO, although the original line of reasoning to implement "clean technologies" was distant from concerns with sustainability, the current discourse around its adoption clearly embrace the inclusion of frames that portray a sustainability-driven rationale.

9 SETTING UP SPECIAL PROJECTS

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

9.1 INTRODUCTION

The methodology chapter proposed the “set up of special projects” as the last theme to investigate in this study. It was explained that due to their time frame and original goals there were two particular projects, one from CORKCO and one from PULPCO, which deserved the label “special projects”. This chapter describes these particular projects and explains why these were treated differently from the practices described earlier. Firstly, contrary to the cases described in the previous chapters, these projects have a limited time frame, i.e., they do not fit into daily practices. Secondly, these special projects are not so much about framing the discourse around sustainability labels as discussed in Chapters 6, 7 and 8. They were designed and put into practice with clear sustainability-related objectives and although initiated by one company, their implementation necessarily involved other companies without which the projects would have been unfeasible.

The chapter is organised as depicted in Figure 9-1. The next section describes PULPCO’s project, specifically developed to involve their main suppliers in an environmental education programme. Through the programme they would obtain capabilities to pursue certifications ISO14001 and FSC (*Forest Stewardship Council*). The following section describes CORKCO’s project, aimed at building a recycling network of used cork stoppers, that is, a network to collect used stoppers from final consumers and re-use them in their production cycles as by-products.



Figure 9-1: Outline of Chapter 9 – Setting up special projects

9.2 IMPLEMENTING A SUPPLIERS' EDUCATION PROGRAMME

PULPCO is certified by Smartwood, the founders of the FSC and the most renowned FSC-accredited certifier. To continuously renew their FSC chain of custody, PULPCO needs to control the origin of all wood coming from the domestic market. To guarantee this control, PULPCO performs random administrative and field audits of their wood suppliers. In 2008 about 20% of their suppliers were audited (SR, 2008) and in 2009 and 2010 PULPCO audited 10% of their suppliers (SR, 2009, 2010).

Although nowadays the majority of suppliers are certified by FSC, this was not always the case, which hindered PULPCO's own certification in the beginning of 2000. To guarantee success in their certification processes, PULPCO decided in 2003, to enrol some of their main suppliers in a programme of environmental training. The aim of the project was to engage their suppliers in processes of

environmental certifications regarding ISO14001 and FSC, the typical certifications for forest-based industries.

In this context, PULPCO developed a set of training sessions for wood suppliers and service contractors, regarding environmental and safety issues. In the first stage, they selected four service contractors and four wood suppliers as pilot companies to work with a consultant specialised in FSC certification. PULPCO sponsored 100% of the consultancy projects aimed at implementing Environmental Management Systems (EMS) in those companies. The goal of the initiative, developed in 2003, was to form an influential group of suppliers which could promote this type of implementation among other suppliers. This first stage allowed the selected companies to achieve appropriate environmental certifications, in particular regarding forestry exploration. The project raised other suppliers' interest and willingness to develop similar projects which led PULPCO to start a second programme of environmental training in 2004, this time, with four service suppliers from exploration and silviculture sectors and one wood supplier, where PULPCO supported 25% of the costs.

These programmes were designed to support the implementation of EMS in each of the companies, but also to identify and comply with the list of legal requirements applicable to their operations in terms of environmental impacts; this was the most difficult task given the lack of orientation and support from the responsible legal entities which was made possible through PULPCO's support. Furthermore, the programme was crucial to detect and correct the weaknesses of those companies in terms of lack of environmental awareness and training of

human resources, the need to modify and formalise some of the routine operations and make investments to improve some of their operations. The result of this project was the achievement of environmental certification for 13 suppliers.

One of PULPCO's suppliers referred to this project as problematic and demanding. He pointed out that:

"There are a lot of difficulties to overcome in this process such as well as established habits, costs associated with the involvement of all workers and other resources like technical infrastructure, etc. The costs associated with this type of certification have a certain weight in small and medium companies, which should be somehow supported by the Government, given that all this is related to the market future and sustainability. Anyway, this is an effort that has to be done with mutual help from everybody."

(PULPCO's Supplier 1, manager, media interview)

This case was included in this study as an example of practices that contribute to the construction of sustainability qualifications because of the "worth-of-mouth" effect observed among suppliers. The relationship between PULPCO and suppliers, in this specific event, is not based on the exchange of products and services. Rather, it is based on the exchange of knowledge on best environmental practices within wood-based industries. PULPCO invested resources – time and money – in sharing their knowledge on the subject. They requested the services of a third company – a specialized consultancy– to help their suppliers in the process of assessing the environmental impact of their activities, in understanding the applicable legislation related to their activities and to measure

their environmental impact. After obtaining certifications for a first group of suppliers, more suppliers got interested in following the same steps.

The programme was recognised by the suppliers involved, as a stimulating trigger to continue with the certification efforts in following years. In a case study published in the Portuguese Association for Pine Forest Valorisation newspaper, one of PULPCO's suppliers discusses the importance of certification as a key criterion to guarantee their identification as a preferred, rather than undesirable, supplier for companies and other market agents like the Government. They highlight PULPCO's role in their own certification process by stating that:

"As service providers and suppliers of PULPCO, with whom we have been working for many years and from whom we felt a huge pressure to adhere to certification ISO14001, we recognise today that we adhered to the process at the right time. Back then, we did it with a lot of reluctance and difficulty, characteristics of a small company like ours. Today, conscious of the good decision we took at that time, we decided to move forward by pursuing new certifications, not only for FSC [Chain of Custody based on Forest Stewardship Council] and PEFC [Chain of Custody of Forest Based Products] but also for FSC [Forestry Management Certification]. At the beginning, we were very much supported by the monitoring activity contracted by PULPCO. Nowadays, we use the services of a company to supervise our certification projects."

(PULPCO's Supplier 1, manager, media interview)

Another supplier involved in PULPCO's project presents their FSC certification as a highlight of that year, after 2 years of efforts to implement an EMS. They revealed how PULPCO supported the entire process of FSC implementation:

"They accelerated our capacity of reaction towards market demands and contributed to guarantee a more rapid conclusion of the certification process."

(PULPCO's Supplier 2, Annual Report, 2005)

By the end of 2006 this particular supplier was already trading wood certified by the FSC and in 2008 they were certified by an additional FSC qualification – the Forestry Management Certification. These certificates are not granted on a once and for all basis though. Every year competent authorities assess the continuity of the certification to guarantee that their activities are still performed in conformity with the appropriate environmental standards. If they wanted to maintain their certificates, suppliers had to continue with the efforts to measure their impact, implement changes where necessary and report achievements and difficulties to the authorities.

One of PULPCO's suppliers says that the effort was huge but rewarding. They decided to continue going in the direction of certification without PULPCO's help by requesting the services of a specialist company. Nowadays they work on their own, without PULPCO's help, but they say that without PULPCO's pressure they would not be where they are now. Moreover the relationship between PULPCO and supplier led to a certified company and a certified product, which in turn led the supplier to be chosen as preferred supplier for other customers who were looking for FSC certified products. Those customers, in turn, announce their choices for environmentally-sound suppliers and justify their sustainability strategies with a responsible procurement process. In this sense, an action

triggered by PULPCO within a specific project exerted effects far removed from the boundaries of their focal relationship.

These efforts from PULPCO back in 2003 and 2004 were not enough though to guarantee Smartwood certification. A summary report of a SmartWood audit of PULPCO in 2005 identified that one of the company's weaknesses was that half of their wood sources were not yet certified. This aspect, in turn, was informed by a questionnaire sent to PULPCO's stakeholders where attention was drawn to the fact that an important part of the Portuguese eucalypt plantations are not legally recognised. These independent producers are therefore seen as potential law-breakers by violating legislation applicable to species preservation, fire protection principles and soil maintenance. For this reason, links between PULPCO and these un-certified companies should be investigated, identified and monitored. Hence, the first recommendation given by this institution to maintain PULPCO's FSC certification was to stimulate the engagement of their suppliers in certification projects.

Another aspect identified was the need to strengthen the monitoring process of service suppliers, in particular in respect to their environmental and social values and training needs. As a result, this audit report states that to maintain FSC certification:

"The company ought to present a strategic plan and an activities' timetable aiming at incentivising independent forestry suppliers to certify their plantations."

(SmartWood, Audit Report, 2005)

The conclusions of this Smartwood report led to transform the programme into an annual practice. Hence, following one of the principles defined in their sustainability policy launched in 2006, PULPCO continued with these training programmes in the following years to:

"...make sure that [PULPCO]'s suppliers act in conformity with the procedures, regulations and principles adopted by [PULPCO], by developing mechanisms to encourage collaboration"

(PULPCO, SR, 2007)

In particular, following the expansion and modernisation of the mill in 2008-2009, this type of practice was expanded to include the suppliers involved in the construction work:

"A huge effort has been put into training and awareness actions directed to the contractors' workforce in what concerns their performance involving environmental and safety issues."

(PULPCO, SR, 2008)

By 2010, in the last available sustainability report, they declared that the "Bank of Qualified Suppliers" increased dramatically in the last years and that the efforts to raise the number of certified service and wood suppliers would continue in the future.

9.3 IMPLEMENTING A RECYCLING PROJECT

CORKCO was described in Chapter 4 as a fine example of the motto "nothing is wasted, everything is transformed." Inspired by this motto CORKCO developed a

peculiar, to say the least, project to recycle used cork stoppers. This practice emerged from a critical reflection of how CORKCO used to communicate the environmentally-friendly nature of their raw materials and final products.

For years they reported that cork stoppers were 100% re-usable and recyclable, but there were no actions in place to accomplish these possibilities. According to the person responsible for the project:

"(...) if you look at our sustainability reports (...) historically, we always said that cork was recyclable. We always said but nothing was ever done to recycle cork. I think that there was a gap between what we said and what we did, and when we started with this sustainability thing, we decided that we needed to do something. From that moment on we decided that we had to stop saying that cork was possible to recycle and start saying cork is being recycled. Evidently that, in terms of the group's image, is excellent."

(CORKCO, Person responsible for the project, personal interview)

Two main questions marks were addressed to design this practice. First, how would CORKCO get access to the final customers' used stoppers if there were no recycling points or institutionalized practices for cork recycling? Secondly, how could CORKCO perform a recycling activity which was unusual, unknown and unlicensed? Regarding the first challenge, a crucial step would be to evaluate wine consumers: who are they? Where do they consume wine? Where do they dispose of stoppers? More importantly, how could they get their attention to request a behavioural change? As pointed out:

"What does it take to lead a person to hold a used stopper and recycle it instead of throwing it in the bin? I mean, what motives can we give to people to change the routines they are used to their entire lives, which is

unconsciously throwing it in the bin, and instead storing it to be recycled?"

(CORKCO, Person responsible for the project, personal interview)

The starting point was to position the recycling project as an environmental protection one: for each stopper collected, CORKCO would pay a price and the money would be used in reforestation projects. To gain credibility and access to skills and knowledge required to implement a project of this nature, CORKCO engaged with a Portuguese Environmental NGO (henceforth referred to as EnvNGO) to define the principles and milestones of the project. EnvNGO was nominated as the project leader responsible for its design, communication, implementation and control. It took one year to design and launch the project in Portugal which was afterwards replicated in the USA, Canada, France and UK.

To grasp the complexity of the project, the next set of figures depicts the scheme designed to get access to used stoppers. Bold arrows represent direct relationships with the focal company, CORKCO, while dashed arrows represent indirect relationships triggered from direct ones. To simplify the analysis, numbers represent sequences of relationships, although a number of relationships overlapped in time.

The project was implemented as follows. After CORKCO and EnvNGO decided to jointly develop the project (Relationship 1 in Figure 9-2) the first step was to design a sequence of activities to collect used stoppers from consumers' rubbish bins and transport them to CORKCO's facilities. To start with, they listed all the possible points of disposal, namely restaurants, hotels, cafes and households.

Next, for each point they pondered on the easiest way to collect and transport stoppers without increasing costs and CO₂ emissions. In this sense, the collection activity would be performed by the hospitality channel, shopping malls, supermarkets and finally, consumers. Then, collection activities had to be subsequently connected to transportation, which in turn would be performed by waste collectors and transport companies. All the contacts were made by EnvNGO which from that point on would act as the face of the project. The question raised was how to bring on board new partners without incurring added costs, i.e., as a free-of-charge partnership?

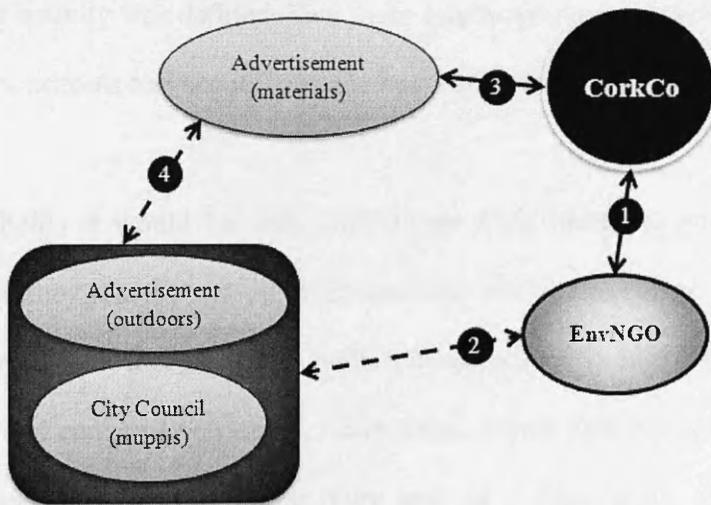


Figure 9-2: Kicking off the project

Promotion was considered as a key aspect to enrol new partners into the project. By promoting the project's goals as an environmental protection initiative, people, businesses and non-business organisations would be able to evaluate whether they would be willing to participate or not. In this sense, CORKCO decided to invest in advertising to promote the project around all points of final

consumption. EnvNGO invited city councils across the country to participate by offering outdoor advertisement places (called muppis - advertisement windows placed on bus stations and undergrounds) and companies from the national agency for advertisement who offered outdoor spaces free of charge (Relationship 2). CORKCO, in turn, contacted an advertising agency to develop brochures, leaflets, informative magazines, recycling containers and all sorts of promotion materials (Relationship 3). Matching points of promotion with materials was afterwards dealt with between the advertising agency, the city councils and national agency for advertisement (Relationship 4). The next steps were to reach the final consumers. Depending on the origins of the cork stopper, a collecting activity was defined. Two main origins were considered: households (consumers, schools and scouts) and the hospitality channel (Figure 9-3).

For households it would be unfeasible to go from house to house to collect stoppers so they transferred this responsibility to the consumer. By partnering with supermarkets and shopping malls (Relationship 5) EnvNGO managed to bring the final consumer on board. Consumers, scouts and schools were invited to participate altruistically. Their task was to collect, store and take used stoppers to a common place where they would go regularly, without forcing them to change their routines. As common places, they defined supermarkets and shopping centres where they would have a “recycling point for cork stoppers” – a bin similar to normal recycling bins, each properly identified as a “cork stoppers recycling point”, where consumers could dispose of stoppers (Relationship 6).

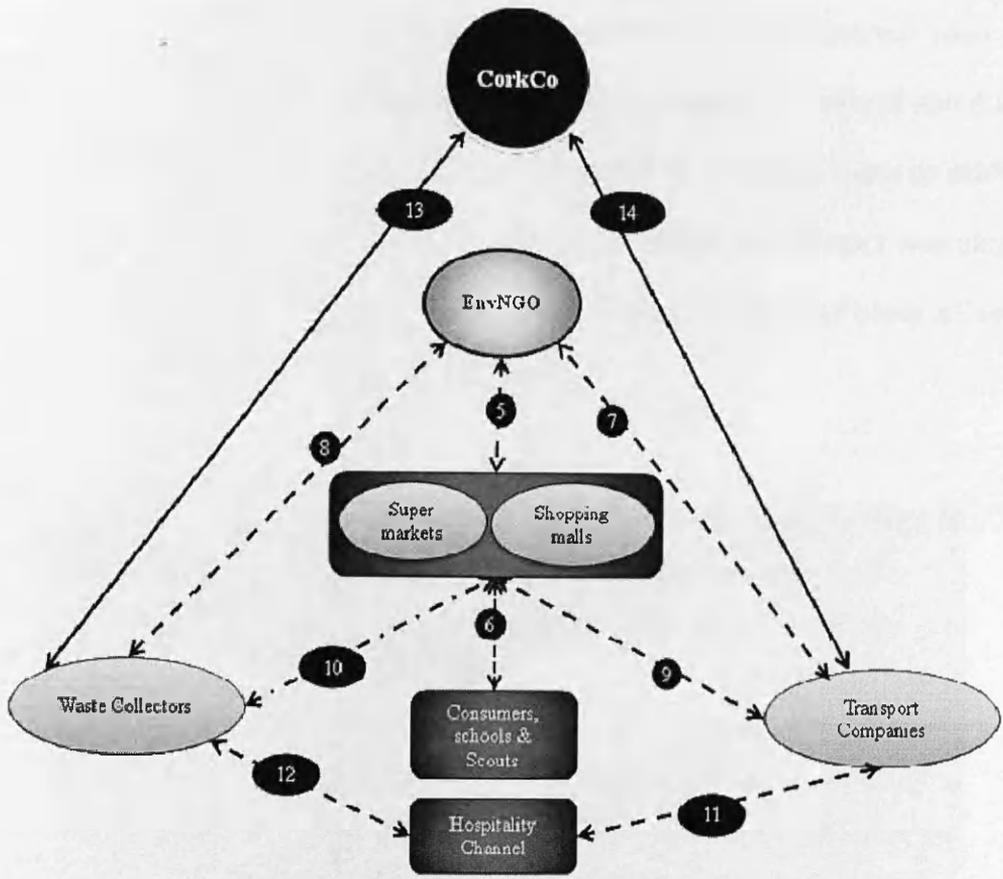


Figure 9-3: Getting access to used stoppers

Then, transport companies and waste collectors (Relationships 7 and 8), would be responsible for collecting the stoppers from supermarkets and shopping malls (Relationships 9 and 10). Although it might look like a simple structure of relationships the intricacies of this structure, in particular how these relationships were thought of and established, are worth describing.

The project was initially set up with one chain of supermarkets. At the initial stage only big supermarkets were involved in urban areas. After testing the assembled structure, the project was extended to around 130 local supermarkets

from the same chain. The participation of a second chain of commercial spaces – the shopping malls – was triggered by one of the managers. He learned about the project when EnvNGO requested shopping centres to provide a space to exhibit the activities they were currently involved in, of which this project was also a part. One manager offered to join in by providing a space to place a “cork stoppers recycling points” and commented that:

“We saw in [the cork stoppers recycling] the project a new way to embrace initiatives that are attached to the values of our company. We offer a commercial space but this is not a commercial issue, this is a space that welcomes communities, families with whom we develop a social relationship (...). We receive several invitations from different associations to participate in social responsibility projects but we refuse projects that we consider ‘motionless’ without passion. (...) [A Shopping mall]’s core business is valued with projects like [cork stoppers recycling], projects that are developed around partnerships and this is [the Shopping mall’s] mission – collaborate with [EnvNGO] in projects of this nature.”

(Shopping mall, Manager, personal interview)

Regarding the hospitality channel – hotels, cafes and restaurants – the responsibility of promoting the project and gaining public adherence was transferred to waste collectors (mainly collectors of domestic oil) and transport companies. A number of transporters and waste collectors were contacted by EnvNGO to participate and promote the project with the hospitality channel (Relationships 11 and 12). They were asked to visit every single entity of the hospitality channel they passed by, distribute leaflets explaining the aims of the project, and perform the collection. They did not have to change any routines:

waste collectors would necessarily have to stop to collect the normal waste and drivers from transport companies would necessarily stop for breaks in all sorts of hospitality channel outlets.

Domestic oil collectors are also crucial partners. One of the collectors involved uses their own infrastructure to collect used domestic oil in 11,000 collecting points, of which 9,000 are wine consumers where cork stoppers might be collected. When asked about the motivations to participate in this project, the CEO of the oil collection company says that:

“The motivations for our participation are related to our willingness to help out in [EnvNGO]’s project. As we wouldn’t get any extra costs, we merely used our good will to participate in an environmental project.”

(Oil collector company, CEO, personal interview)

The reasons why there are no extra costs come from the logic of “reverse logistics.” As explained by the CEO, the trajectories of the drivers are already structured and in place around the 9,000 spots where stoppers might be collected. Secondly, there is no need for extra space to store the stoppers in the vans since the vans’ storage cabinets are much higher than the oil containers so the empty space of the cabinets is filled with bags of cork stoppers. As the project mentor from CORKCO, enthusiastically explains, by building the operations as described, there are no extra activities or costs since:

“[...] the upper part of the van is empty... stoppers don’t weight much... bags with stoppers are stored above the containers... What is the cost? ZERO! What are the extra emissions? ZERO! The van was already circulating... [...] Therefore these companies [oil collectors] and others

also involved, do their circuits like they always did and this function doesn't change anything!"

(CORKCO, Person responsible for the project, personal interview)

Although communication on this project was very positive, the CEO of the oil collecting company expresses some of the difficulties felt to kick-off the project. First, at the initial stage the amount of stoppers to collect was not significant because waiters were not yet used to storing the stoppers instead of disposing of them; secondly, the assembled scheme had a fundamental flaw regarding the transport of the stoppers from their company to CORKCO facilities. The company provides a storage space for cork stoppers' bags while they are waiting for the transport company to collect them; it was not even clear if a transporter was responsible for the transport or if CORKCO would perform this activity. The first time they had the warehouse full they had to deliver the stoppers themselves as they needed the space to store their own containers. By the time the interview took place, the warehouse was again full of bags of stoppers that nobody collected; he was again waiting for EnvNGO or CORKCO to provide a transporter in his geographical area. The problem, as explained later by the EnvNGO, was that the transport company allocated for that area, although had formally accepted the partnership, was never available to play their part. EnvNGO ended up excluding that company from the project because they were always failing on their promises.

Regarding the last stage of the recycling project – the transport activity where transporters and waste collectors are responsible for taking the used stoppers to CORKCO facilities (Relationships 13 and 14) – some of issues were already

described. The logic is again based on reverse logistics. Transport companies deliver goods to supermarkets and shopping malls and return to their facilities with empty cabinets. Once involved in the project they collect the stoppers from the places they would normally deliver the goods and return to CORKCO facilities with the vans full of stoppers before heading to their own facilities. This is the only change that might be added to their normal activity.

Nevertheless, the choices of potential transport companies were based on the geographical location of their headquarters; only transporters situated close to CORKCO's facilities were invited, to avoid long distance travel. Waste collectors, in turn, use their normal circuits of selection and collection of paper, plastic and glass to include stoppers. When asked about why waste collectors' would be willing to participate, the shopping mall's manager said that:

"Nowadays the business paradigm is changing! Companies realised already that this type of actions is part of the value created and recognised by stakeholders (...) [Waste collectors] accepted to collaborate because they also feel responsible for this service delivered to society and the environment"

(Shopping mall, Manager, personal interview)

Although the project was designed and initially implemented with all the partners described above, the project managers from EnvNGO expressed their surprise when other people and organisations took the initiative to participate. Given the appearance of new players, which is described below, the complete set of people and organisations involved in this project can be represented as follows (Figure 9-4):

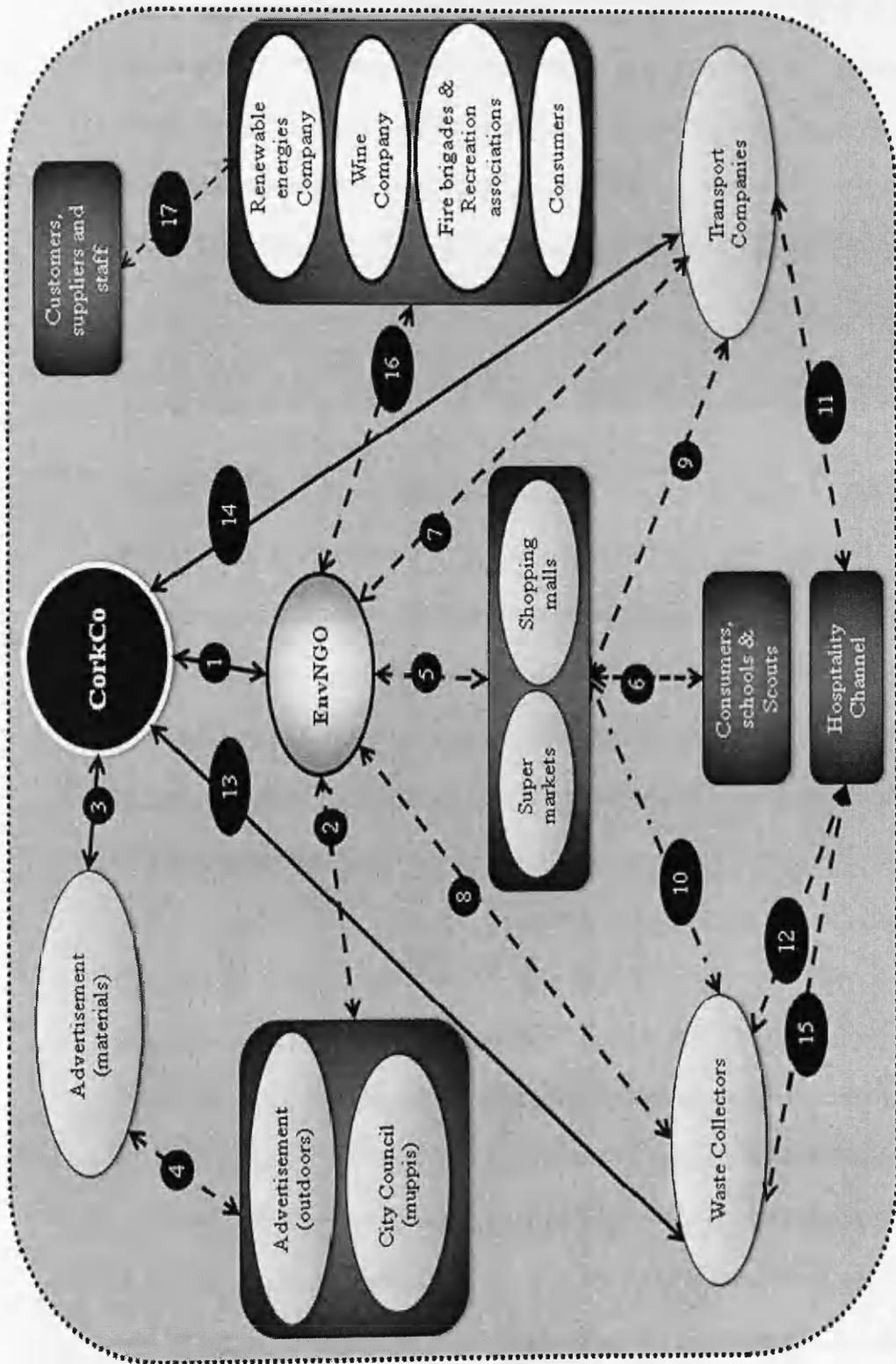


Figure 9-4: Recycling cork stoppers - the big picture

Who are these new players (Relationships 15, 16 and 17) and what were they expecting? Wine companies heard about the project through word-of-mouth and expressed their willingness to participate by giving away cork stoppers not used in their production process (faulty or discarded during the bottling process). The project manager calls it a “self-starting initiative”:

“A proactive initiative, I mean, they heard about it and it is no longer effects from our own contacts, it is indirect effects (...) Companies want to communicate being green – it’s an image building thing.”

(EnvNGO , Project Manager, personal interview)

A company from the renewable energies industry adhered to the project by placing a cork recycling bin in their facilities and inviting staff, customers, suppliers and visitors to bring used stoppers (Relationship 17). They go further than CORKCO by rewarding participants. With the slogan “There are trees that give stoppers and there are stoppers that give prizes”, they reward each carboy (a rigid container with a typical capacity of 20 to 60 L) of stoppers with energy efficient light bulbs.

Fire brigades, recreation associations and people who also learned about the project through word-of-mouth assumed that EnvNGO or CORKCO would pay for each used stopper collected. They started collecting stoppers without knowing the foundations of the project, i.e., the money paid by CORKCO is not paid to collectors, but used in replanting new cork oaks within the logic of returning to the environment what they took out to produce stoppers. There are also people who engaged in the project altruistically. They do not expect any payment, they are aware of the initiative’s goals. Instead of taking collected stoppers to one of

the common places described above, they take it directly to EnvNGO facilities. More relationships emerged from this word-of-mouth effect. The oil collector, for example, was able to add more oil supplying points because people from restaurants called them asking if they wanted to start collecting oil and stoppers from their amenities (Relationship 15).

Overall, the relationships described, whether planned or emergent, are a positive sign of the outcomes of the project. The project manager says that the project reached proportions that they were not expecting. All sorts of events happened because of the word-of-mouth promotion and also because of the reasons behind the willingness to participate. Discussing the huge effort required to put this project together with so many different players, he argued that the positive outcomes are mainly due to the dynamics generated by a single motivation: companies and people want to communicate their actions towards becoming green. In his point of view, EnvNGO is not concerned with companies' motivations as long as the goals of the project are achieved. They are not even eager for the money received for each collected stopper, since "*the main asset of the project*" as mentioned by the project manager, was the creation of dynamics which holds a much higher and more important value than the revenue obtained to plant more trees. The project succeeded, not because of the tangible value of the used cork stoppers, but because it raised public awareness of sustainability and environmental protection. He further adds that every single company which accepted this partnership did so to communicate publicly their involvement in the project. It does not mean that they are not truthfully committed to act in

sustainable ways; they might be, but ultimately they have an agenda – they want to communicate ‘green actions’ and build a green image around it:

“If companies use this [project] in their communication (...) it’s legitimate that they want to have a return in terms of image. But if it’s truly the environment that ends up winning, it’s all we want!”

(EnvNGO, Project Manager, personal interview)

Particularly in the cork industry, the project raised public awareness on the environmentally-friendly features of cork stoppers. Nevertheless, the costs of this awareness were not endorsed by the industry as a whole but by one single company – CORKCO. The person responsible for the project in CORKCO believes that other companies from the cork sector do not understand the implications of projects like this. He reasons that:

“(...) the problem of the cork industry is that besides our Group... Our competitors from the cork area, so far, do not have the sensitivity that we have about the impact of this kind of project on public opinion... they are not there yet! And besides there is another issue, isn’t there? This project... everything is very pretty and all but it costs money! All this costs money to [CORKCO] (...) we cannot build a project like this free of charge!”

(CORKCO, Person responsible for the project, personal interview)

CORKCO was truly the main, if not the only, financial supporter of the project. Companies, organisations and people involved also incurred costs. However these costs, related to slight changes in routines, are not easily assessed financially. Examples are behavioural changes from consumers and waiters, trajectory changes in transport circuits, commercial space changes to lodge new

recycling bins in supermarkets and shopping malls and time for project management.

For CORKCO, the project involved more costs than merely promotion materials, recycling bin construction, transport and value paid for each stopper collected. First, the price paid for each collected stopper is higher than the cost of the equivalent amount of cork chips that would be necessary to produce the same product. EnvNGO benefits from a green premium in this sense. Secondly, recycling activities for cork stoppers were never practiced before which demanded a formal licensing process similar to any other type of waste recycling activity. Although mentioned as a costly process, CORKCO is proud to be the first and only company in the world to obtain this license. However, licenses are attributed by business unit which implies that only the company from the North of Portugal is duly licensed. This is also the reason why all cork stoppers collected are necessarily transported to their business unit in the North. They are now in the process of obtaining recycling licences for two more units, in the centre and south of the country, to facilitate the process of transporting and recycling, and avoid unnecessary costs of transportation.

In addition to licensing costs, two others are equated: the costs of the recycling activity and the costs of the technology involved. The first refers to the process of triage. When bags arrive at CORKCO, besides cork stoppers, one can find batteries, lamps, napkins, plastic cups and *“everything you can imagine”* as pointed out. The triage process is manual since they do not have yet a volume of bags that justifies an investment in automatic triage. This implies a great deal of

time and an exhaustive scrutiny to avoid mixing other materials in the recycling activity and jeopardizing the quality of the final product.

The costs of the technology, in turn, refer to the process of stoppers' decontamination. To guarantee the quality of the final product CORKCO invested in an internal R&D project to investigate and develop a purification process; the result was a new technology, owned and patented by CORKCO:

"I'm not giving you any details about this because it is slightly confidential; it's a patented system (...) I mean there is nobody else who can do this, only us! Only us because we have the technology, it's ours, developed internally!"

(CORKCO, Person responsible for Corporate Sustainability, personal interview)

In relation to this technology, CORKCO's people stated that this is their distinctive factor that prevents competitors pursuing a recycling project and reusing stoppers in new product development.

In short, this project involved a complex set of relationships where artefacts and partners (people, business and non-business organisations) perform an active role in CORKCO's environmental project. There are no tangible benefits involved, there are no formal sequences of tasks and there are no obligations or duties. As mentioned by the project manager, companies saw the opportunity to enhance their green image and they grabbed it.

9.4 CONCLUSIONS

This chapter described two special projects: PULPCO's efforts to provide environmental training to their service/wood suppliers and CORKCO's project to implement a cork stoppers' recycling network. The description of the cases highlighted the set of relationships that emerged from their development and demonstrated that the implementation of these two special projects, i.e., not included in the companies' normal operations, involved a number of players with different roles and complementary capabilities. As the projects unfolded through the activation of various relationships, they started producing effects on the focal company and counterparts. Moreover, they also exerted effects on third parties, directly or indirectly linked to the relationships established within each project.

These two cases are crucial to support and complement the considerations made in previous chapters regarding the ability of enrolling other actors and the different processes of valuing things. The concepts of "enrolling" and "valuing" that will be discussed in depth in Chapter 10 were largely inspired by these two special projects. On one hand, it became clear that CORKCO and TECHCO support their strategic decisions regarding which initiatives to develop based on what might be valued as sustainable. The recycling project, for example, illustrated that the outcomes of the project are differently valued by various agents who could not determine a real tangible value, but a perception of a multifaceted value derived from moral, ethical and sustainable behaviour. Each relationship developed within the project became a potential nest of different value perceptions.

On the other hand, these two projects clearly identify the companies' ability to enrol third actors to support their own qualification processes. CORKCO's recycling project is one clear example. By enrolling one key actor – the environmental NGO – to act on behalf of their project, it was possible to bring together many other actors from different contexts. With the enrolment of these participants, awareness of the project increased exponentially. In a similar way, PULPCO was able to enrol two influential groups of suppliers to pursue their sustainability strategies and establish the desired qualification.

In sum, the main conclusion of this chapter is that the process of building sustainability qualifications calls for the need to develop relationships with different actors, and becomes an outcome of these relationships.

This was the last chapter reporting on the empirical part of this study. It described 23 cases of practices that companies engage in to build up their sustainability qualifications. The cases are very different in nature and time frames, but they all share a common point, which is the partial contribution they represent to constructing all-encompassing qualifications of sustainable firms. The cases were presented in a narrative fashion to avoid the influence of theory-laden ideas, interpretations or conclusions. The next chapter aims at shaping the interpretation of the cases by discussing them in the light of the theoretical frameworks reviewed in Chapter 2.

***PART III: DISCUSSION OF FINDINGS
AND CONCLUSIONS***

**10 TOWARDS A FRAMEWORK FOR ESTABLISHING
[SUSTAINABILITY] QUALIFICATIONS**

**PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL
APPROACHES**

Chapter 1: Introduction

**Chapter 2: Exploring the establishment
of qualifications as a strategic matter**

**PART II: RESEARCHING THE ESTABLISHMENT OF
SUSTAINABILITY QUALIFICATIONS**

Chapter 3: Methodological choices and research design

**Chapter 4: Presenting the
research setting**

**Chapter 5: Publishing
sustainability reports**

**Chapter 6: Evaluating uses for
waste**

**Chapter 7: Developing
'sustainable' offerings**

**Chapter 8: Adopting clean
technologies**

**Chapter 9: Setting up special
projects**

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

**Chapter 10: Towards a framework for
establishing (sustainability) qualifications**

**Chapter 11:
Conclusions**

10.1 INTRODUCTION

"REPORT STRENGTHENS [CORKCO]'S GREEN CREDENTIALS:

The world's leading producer of natural cork products, [CORKCO], has continued to build on its strong environmental credentials through a series of initiatives outlined in its fourth Sustainability Report released today (11/5/2010)."

CORKCO, Media release, 2010

This headline – succinct, straightforward and apparently unproblematic – unveils the main concern of this research: understanding how companies “*build on strong environmental credentials*” or, more broadly, understanding ***how companies construct the quality of being sustainable and get recognised accordingly***. The simple exercise of deconstructing this headline raises important questions:

- How can a report “strengthen” credentials of any kind? Does it have the power or agency to induce such an outcome?
- Why is the product referred to as “natural”? Why not simply refer to cork-based products?
- What does it mean to “build on strong environmental credentials”? First, what is it that is being built? And secondly, does the company build it unaided?
- How are credentials built “through a series of initiatives”? What kind of initiatives are these and how do they evolve? Also, why are these initiatives reported in a public document?

The questions raised are evocative of what this study seeks to understand and explain. In the context of the empirical stories described earlier, the aim is to uncover the complex process of setting up a qualification strategy through which companies strive to obtain a given stamp – the stamp of a ‘sustainable company’. The word ‘stamp’ is not used in the literal sense of an official label, but as a broad allusion to the recognition of legitimacy and credibility regarding the outcomes of sustainability strategies.

The methodology chapter justified the selection of relevant cases with the argument that all companies involved in the study were recognised and suggested by external organisations – the Portuguese Association for Industrial Innovation and the Portuguese Business Council for Sustainable Development – as good examples of companies with successful sustainability strategies. So what are these companies doing to be recognised as sustainable companies by external actors? What are they signalling to the public as cases of exemplary strategies in a sustainability context?

The reviewed literature also highlighted that management research deals with sustainability issues by using holistic corporate qualification labels. Expressions like ‘sustainable companies’, ‘eco-friendly organisations’, ‘eco-enterprises’ and so forth are examples of these labels, which are diverse and broad in meaning, but they all point to the particular qualification of ‘being sustainable’. Whether by announcing environmental awards and certifications, participating in NGO’s public projects, publishing sustainability reports or proclaiming themselves as sustainable *performants* (in the media and even in my presence), managers take

ownership of these sustainability qualifications and diffuse them, hoping to be recognised accordingly. This research does not intend to query the taxonomies in use, but to explain the processes through which these labels become attached to firms. The focus of analysis and discussion in the following sections is thus placed on processes and the strategising actions in place to bring about a quality and stabilise it to the point of becoming an established and recognised one. The chapter is structured as follows (Figure 10-1).

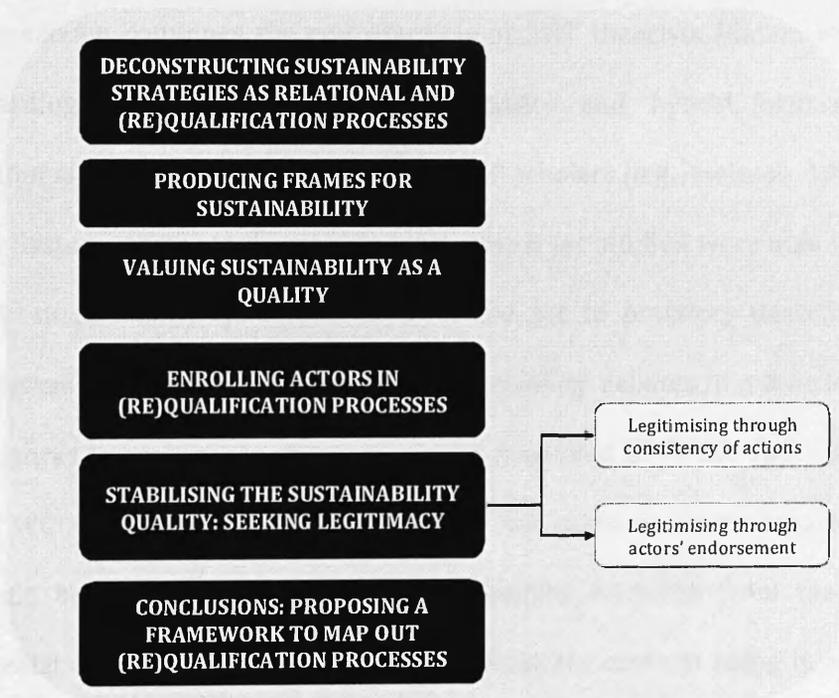


Figure 10-1: Outline of Chapter 10 – Towards a framework for establishing [sustainability] qualifications

It starts by deconstructing the journey of developing sustainability strategies as a relational process aimed at qualifying the firm as sustainable (Section 2). Within the qualifying route, four types of processes are discussed as key aspects that firms need to cope with and work on: producing frames for sustainability

(Section 3), valuing sustainability (Section 4), enrolling actors (Section 5) and stabilising the quality (Section 6). Finally, Section 7 proposes a framework to map out these processes and provides the conclusions of the chapter.

10.2 DECONSTRUCTING SUSTAINABILITY STRATEGIES AS RELATIONAL AND (RE)QUALIFICATION PROCESSES

This section combines the contributions of ANT theorists (Callon et al, 2002) regarding the concepts of 'reflexive capacity' and 'hybrid forums' and the relational view of strategy suggested by IMP scholars (e.g. Axelsson, 1992; Araujo and Easton, 1996b) to discuss how the companies studied were able to build up their sustainability qualifications from the set of practices described in the empirical chapters. It will show that sustainability debates in public forums and pressures to act in more sustainable ways propelled CORKCO, TECHCO, PULPCO and WOODCO to reflect on their practices and make decisions regarding which should be maintained or eliminated. Examples retrieved from the empirical material will be used to show that these practices come to being in a relational manner, that is, they unfolded from, and were shaped by, the set of relationships that each firm was involved in, and the set of relationships evaluated as potentially advantageous to achieve the desired qualification.

One evident outcome of this research is the recognition that the firms needed to reflect and react to challenges triggered by sustainability awareness and pressures from government and NGOs, from consumers and customers, from

suppliers and partners to act in more environmentally-friendly ways. The implementation of the so-called sustainability strategies accompanied by public reports became a popular response to these challenges from the 1990s on, turning into a quasi-obligatory aspect of the firms' corporate strategies in the last 10 years.

From my point of view, sustainability strategies can be interpreted in a twofold manner: a) strategies that serve the purpose to qualify (and requalify) and position (and reposition) firms as sustainable with regard to different audiences (e.g. markets, investors, banking, NGOs); b) strategies that emerge from (and give place to) relations in industrial networks. In this sense, the key argument of this study is that these strategies become realised from (re)qualification processes, pieced together in a relational manner.

The empirical accounts illustrated a number of processes through which the quality of being sustainable was developed and embedded as a feature of new and existing products, new brands and new business units and ultimately as a strategy to maintain and enhance the firms' presence in the marketplace. Therefore, changes in the firms' processes and offerings triggered by sustainability concerns provoked changes in the markets they operate in. Callon et al (2002) argue that markets evolve, become differentiated and diversified with no pre-established logic because they are caught up in a reflexive capacity, that is to say, the evolving actors "...explicitly question their organization, and based on an analysis of their functioning try to conceive and establish new rules for the game" (p.194). The ongoing debates on how industrial activities

negatively affect sustainability have resulted in dramatic market changes that firms need to react to and cope with.

The organisations studied in this research are no exception. CORKCO, TECHCO, PULPCO and WOODCO began questioning and assessing the impact of their activities on the environment and started to reflect on which practices should be eliminated, undertaken or revised to tackle the challenges raised by sustainability debates. Pressures to act in more sustainable ways and to report on these actions paved the way to respond to these challenges in a variety of ways, namely by conceiving new products and services (as in TECHCO's new offerings or in WOODCO's new green brand), reflecting on the gaps between a sustainability discourse and actions (as in CORKCO's recycling project of used stoppers), involving suppliers in more sustainable practices (as in PULPCO's case of suppliers' environmental education) or reconfiguring discourses on sustainability (as in the four companies studied).

The empirical cases described in Chapters 4 to 9 illustrated a varied set of examples of this reflexive capacity which produced changes in both their markets' organisation and functioning. As remarked by Callon et al (2002), this reflexivity unfolds from the proliferation of hybrid forums or public spaces of debate, discussing the functioning and organisation of particular markets. The debate around business and sustainability is one topic that has been increasingly present in these hybrid forums, and the actors involved and the questions raised are ontologically different and often seated on opposed sides, ranging from economic agents (e.g. producers, retailers, industrial associations, consumers,

consumers' associations), to Governments, national and international NGOs, protest groups, legislators and a variety of specialists and researchers from social and natural sciences such as economists, sociologists, engineers, ecologists, biologists, to name but a few. All these heterogeneous groups of actors contribute to the sustainability debate with their viewpoints and influence the organization and functioning of markets.

Given this cacophony of voices, always present in sustainability debates, this study questioned how economic agents cope with so many different challenges, protests and voices that have an impact on their own businesses. How do they translate at least some of these voices into a coherent and identifiable image of a sustainable company? Ultimately, the companies' products and services need to be conceived according to specific environmental certifications, assessed in terms of their environmental impact (or carbon footprint), and recognised by customers and consumers as sustainable and, in due course, the firm as a whole needs to be recognised as sustainable. Hence, the aim of understanding the emergence of sustainability qualities calls for a focus, not only on the qualification of products as suggested by Callon et al (2002), but more importantly on the processes through which holistic qualifications evolve relationally.

For reasons that will be further discussed in this chapter, this study suggests that focusing on qualification processes constitutes a valuable perspective to explore and explain the establishment of taken-for-granted definitions of sustainable firms. The approach adopted here is rather different from Callon et al (2002)

though. Their work is very much focused on consumer markets and on the qualification of products, which means that additional considerations need to be made on the process of attaching a company to a particular quality. Thus, this research extends their framework by focusing on business-to-business markets and looking at the qualification of firms.

One main tenet put forward by Callon et al (2002) is that market participants make products comparable with alternatives by producing lists of their qualities and ranking them according to their calculative agencies. Competition is hence structured by relations of similarity or dissimilarity between goods. This research is concerned with understanding the dynamics of introducing a particular quality – the quality of sustainability – as a variable to consider, not only when comparing competing offers in markets, but also when comparing sustainable performances within relationships with institutions of interest, such as potential investors, banks and auditors. In this sense, finding answers to the question of how to construct and stabilise the quality of sustainability in industrial settings calls for a discussion on how sustainability is framed and valued as a quality that agents strive to include, not only in the list of their products' qualities, but also as a quality embedded in the firm's processes, strategies and overall image.

The cases also demonstrated that the process of building up a qualification is a complex one. On the one hand, it depends on the company's ability to assess opportunities, strengths and weaknesses to qualify a diversity of inner categories. On the other hand it depends on how other companies develop their

similar assessment processes. The qualification process is thus developed relationally, since opportunities to enhance a given quality emerge from inside and outside the company. In Chapters 7, 8 and 9, several initiatives were described as examples of good sustainable practices, namely PULPCO's supplier education programme, TECHCO's involvement in different consortia to build up renewable energy systems and smartgrids, CORKCO's used stoppers recycling project and WOODCO's marketing efforts to create an urban-wood brand.

A common feature of all these initiatives is the organisations' continuous assessment of the available strategic options to set them up and the plethora of actors involved in putting them together. Some cases illustrate how focal companies triggered change processes and involved other actors in putting together the initiative, while others exemplify how focal companies were enrolled in other actors' projects. This implies that organisations involved or affected by others, who initiated processes of developing and appropriating a given qualification, also start their own appropriation processes given the opportunity raised by those who triggered the processes.

Thus one conclusion of this research is that possibilities to strategize towards the achievement of a sustainability qualification emerges from, and are influenced and shaped by, the set of relationships that the company is already involved in, and the set of relationships that the company evaluates as potentially advantageous to implement specific initiatives. Although each company develops its own understanding on which initiatives they should accomplish internally to render a more sustainable business, in practice, as they do not own all the

required resources to set up specific initiatives, they search for partners who might grant access to those resources. This implies that companies do not strategize autonomously as suggested by traditional strategic management approaches. It is rather the opposite, i.e., they endeavour to identify the right partners to work with and struggle to enrol these partners in their strategising processes so that their organisational interests and intentions prevail, as clearly demonstrated by PULPCO's suppliers' educational programme or CORKCO's recycling project.

These findings are consistent with the relational view of strategy discussed earlier (Håkansson and Snehota, 1989b, Axelsson, 1992, Araujo and Easton, 1996b, Mattsson, 1998, Gadde et al., 2003, Baraldi et al., 2007). A corollary of this approach may be added if the goal is to understand how the outcomes of sustainability strategies are brought about. These initiatives are supposed to produce results perceived, valued and appropriated by other organisations and easily recognised as sustainable by a multiplicity of stakeholders. If outcomes are not recognised and legitimised as such, the qualification strategy is fruitless. Other organisations and stakeholders, even if positioned remotely from the focal company, with no direct relationships, will always be affected by their strategising practices. This is because the outcomes of these strategies are 'boundary less', or they should be if the goal of the strategy is to obtain a legitimated sustainability qualification, otherwise it could not be qualified as sustainable.

In this sense, my argument is that the adoption of a relational view of strategy provides a strong basis to analyse the process of building up sustainability qualifications with a focus on the *processes* that allow its establishment. The analysis of findings led to the identification of four main processes that firms develop in their qualification and requalification strategies: framing, valuing, enrolling and stabilising the quality. These processes, evolving simultaneously within and beyond the companies' boundaries, are discussed in the following sections.

10.3 PRODUCING FRAMES FOR SUSTAINABILITY

One common feature of the sustainability strategies discussed in the empirical chapters is the companies' efforts to communicate the content and outcomes of the strategies, according to their own perspective. This section discusses the various examples given above (particularly practices from Chapters 5, 6, 7 and 8) on how companies use different frames (e.g. eco-friendly, reusable, recyclable, natural, green, carbon-neutral) to communicate their products, resources, practices and technologies as sustainable. Hence, inspired by the ANT notion of framing provided by Callon (1997), this section suggests the concept of *framing ability* to denote the capacity of using discourse to disentangle offerings, practices, resources and multiplicity of categories, from previous contexts and re-attach them to a sustainability frame.

When speaking about their position towards sustainability, managers tend to embrace an inner perspective on the companies' ability to perform, in conformity with standards and best practices around sustainability issues. Statements such as "our resources are environmentally-friendly", "we are proud of our zero-waste practice", "our products are 100% recyclable and reusable", "our services contribute to energy efficiency", "our strategy is based on innovation", "our company is an example of good sustainable practices", illustrate this tendency. Hence, the discourse used in reports, media and interviews tend to attach sustainability labels to different categories to communicate the outcomes of the firms' sustainability strategies and to signal their right to be qualified as sustainable.

The empirical chapters, particularly Chapter 5, illustrates this aspect by showing that the discourse adopted in sustainability reports hints at different arguments to justify companies' strategic options and establish their credibility as good performers. This means making decisions on what to communicate as the highlights of a sustainability strategy, that is to say, making decisions on which frames to produce that might reveal the quality of 'being sustainable'. Firms evaluate which frames may bring the best opportunities to establish their propositions of sustainability qualities and strategise around these possible configurations. From the analysis of the cases, five types of frames were identified as commonly used to portray sustainability qualities: offerings, resources, practices, strategies and firm¹².

¹² "Firm" is here adopted as a more overarching term to comprise the different labels in use, e.g. company, corporation, organisation, enterprise, business.

The frame for offerings includes all products, services and combined offerings referred to as sustainable (or eco-friendly, natural, green, carbon neutral, reusable, recyclable or any other term to qualify the offering with a sustainability label) and declared as companies' potential contributions to more sustainable markets, that is markets that increasingly offer sustainable products and/or services. Discourses around why their offerings are sustainable were discussed in Chapter 7. Statements like “[CORKCO's] *products are uniquely positioned to respond to this environmental challenge.*” or “Compared to other construction materials such as steel and concrete *wood-panels have significantly lower adverse environmental impacts*” (WOODCO)” reveal that offerings are being presented within a sustainability frame which in turn, becomes a vital ingredient of the qualification-requalification process.

The empirical materials also draw attention to alternative ways of framing offerings as sustainable, when these are not easily qualified as such. In these cases, resources (e.g. raw materials, by-products, technologies) are also described within a sustainability frame to highlight the quality of the final offering. This frame comprises physical resources qualified in the same way as offerings (sustainable, eco-friendly, natural, green, carbon neutral, reusable, recyclable or any other term to qualify resources with sustainability labels) and intangible resources (R&D, engineering, innovation, marketing skills, etc.) that allow the translation of offerings and resources as sustainable when qualifications as such are not easily observed or recognised. When PULPCO declares that “*Our starting point is quite favourable as **we use a renewable raw material – wood.***” or when TECHCO proclaims their goal of becoming “*a world-*

*wide reference in products, services and solutions for which it has **distinctive competencies** in a sustainable and responsible manner.”*, both are framing the sustainability of their resources and qualifying their offerings.

Another common frame is that around practices and strategies. This category represents all sorts of projects, initiatives, practices, campaigns, activities, operations, ways-of-doing things (new, mature, routine, sporadic) alluded to as sustainable (or eco-friendly, natural, green, fewer pollutants, clean or any other term used to qualify the practice as sustainable) and declared as companies' potential contributions to more sustainable performances. These frames are present in declarations such as “[**TECHCO's strategy**] is to design and implement environmentally-friendly solutions as internal projects and use them as a window to the market.”, or in CORKCO's statement that “At that time this was **one of the first sustainable practices** (using waste from the production of cork stoppers implemented in the cork industry”.

One conclusion derived from this section is that firms produce multiple and entangled frames for sustainability that depend on each other to evolve. Hence, a constellation of interdependent frames is used to construct an overarching quality of a sustainable firm giving place to statements like “[CORKCO] is an excellent example of **a sustainable company**” or “We want to be recognised as **sustainable world leader** in the wood-based panels industry”. The empirical material also illustrated that each firm produces the sustainability frames that better match the features of their business. CORKCO, PULPCO and WOODCO rely on the natural characteristics of their raw materials and/or offerings to support

their propositions of sustainability frames, while TECHCO rely on the contribution of their final offerings to build systemic sustainable solutions. This means that there is no single definition of a sustainable business, since each firm gives a different weight to what they perceive as their contribution to sustainability and constructs their own visions on how sustainability might be interpreted and communicated. Thus, researchers from the fields of Sustainable Strategic Management, Green Marketing or other Management fields concerned with greening business should reflect on the taken-for-granted concept of 'sustainable firms' debated in Chapter 2 and challenge its meaning, since sustainability might mean different realities for different industries and different firms.

Events linked to path dependence and mature ways of doing things are also highly influential in guiding the firms' proposal of a sustainable business. In Chapter 5 we described how companies use SRs as a tool to communicate their achievements, their future plans and also their failures. By publishing their strategies, organisations propose their own definitions of sustainability qualifications within a specific discourse frame, i.e. they formally present justifications of why they earn the right to be qualified as sustainable based on their offerings, resources, practices, strategies and firms' image. In Chapters 6, 7 and 8 several stories described practices where mature operations, resources and offerings developed decades ago became part of present-day SRs. All these examples highlight that categories labelled presently as sustainable were set up in the past with goals often dissociated from sustainability responsiveness. Although the original line of reasoning was distant from concerns with the

environment or corporate responsibility, the current discourse around those dimensions embrace a sustainability-driven rationale.

Inspired by Callon’s insights (1997), this research proposes the notion of **framing ability** to denote this capacity of adapting the organisation’s discourse according to strategic orientations in a given moment of time. By suggesting that companies strategise via the ability of framing, it is meant that *things* (waste, practices, technologies, companies) are disentangled from their original contexts and placed into new frames to match certain strategic goals. For example, as described in Chapter 6, CORKCO, WOODCO and PULPCO used to “*burn forestry-based waste in their cogeneration systems to produce heat and power, reduce their dependence from the supplier and get rid of the waste*”. Currently this practice is still at the heart of their operations but is communicated as “*using biomass as carbon-neutral fuel in their clean cogeneration systems to produce green energy and valorise the waste produced*”. Table 1 aims at highlighting that the practice, the type of waste, the technology in use, the outcomes are exactly the same, but the way to describe it changed to suit a sustainability context.

| CONTEXT 1 | FRAMED AS | CONTEXT 2 |
|------------------------|-----------|----------------------|
| Forestry-based waste | → | Biomass |
| Cogeneration | → | Clean technology |
| Produce heat and power | → | Produce green energy |
| Get rid of the waste | → | Valorise waste |

Table 10-1: Illustrating framing ability

Other cases (Chapter 7) revealed that, besides framing resources and operations, firms also reposition existing offerings with a sustainability frame. WOODCO for example developed an initiative to enclose their wood-based panels in a sustainability frame. Their core business has always been the production of particle boards and MDF panels centred on the use of pre-consumption wood materials coming from furniture production and post-consumption materials. They justified the use of wood waste with a rationale linked to high prices and scarcity of virgin wood, but now they communicate the launch of “*an environmentally-friendly brand – Urban Chic*” to reposition their offerings and overall image as sustainable. These are also examples of the firms’ framing ability, i.e., describing the exact same thing with different labels to adapt the companies’ discourse to their current strategic priorities. Although the concept of framing is used by ANT scholars to explain market transactions, here it is extended to explain the issue of strategising towards the construction of qualifications.

Callon (1997, p.189) claims that: “To construct a market transaction, that is to say to transform something into a new commodity, it is necessary to cut the ties between this thing and other objects or human beings one by one. It must be decontextualized, dissociated and detached (...) it has to be disentangled.” If framing is about things being disentangled and detached from original contexts to fit new contexts, the concept of framing ability implies the capacity of using discourse to disentangle operations, offerings, practices and other categories, from previous contexts and re-attach it to the context of sustainability. The argument put forward here is that by enhancing their framing ability, companies

expand their possibilities to build up a sustainability qualification, i.e. through framing they have more things (more practices, more offerings and more resources) to communicate with sustainability labels, which might bring further credibility to an overall qualification. Framing ability, however, is not the mere adaptation of a discourse to embrace a sustainability language. It is also an ability to negotiate meanings. The same practice may produce the exact same results if framed as sustainable or framed as cost-efficient, but it may also induce changes.

By framing things differently, organisations have to choose between competing rationales to support their propositions of sustainable offerings, resources or practices. For example, we may question whether a company that frames the use of forestry-waste as biomass and describes it as a clean source of energy to feed internal operations (like CORKCO) is more sustainable than a company that frames the use of forestry-waste as biomass, and describes it as a clean source of energy that might be sold to the grid and contribute globally to the production of greener KWs (like WOODCO or PULPCO). There are decision-making processes in place to negotiate the meaning of biomass use. Whichever way they use to frame the use of biomass they will have to enrol other actors to accept and support their decision and dissuade them from accepting other competing meanings. In this example, the alternative ways of framing biomass use may induce different outcomes. If used internally, it is just a simple framing exercise of describing the same practice with different labels. If used in the biomass market or to sell green energy it induces transformations in other actors and markets, causing new events to happen.

In sum, it was suggested that framing is a key strategising capability to build on a firms' qualities. The decisions on why and what to frame were not discussed though. What makes a supermarket decide to be part of CORKCO's project? What makes TECHCO invest heavily in R&D to participate in their supplier's project? Behind these framing processes, actors perform a series of judgment exercises to determine if it is worthwhile to strategise in a particular way. In the following section these exercises are discussed as valuing processes.

10.4 VALUING SUSTAINABILITY AS A QUALITY

This section discusses the question of valuation raised in the analysis of the practices, particularly, the ones described in chapter 6 (Evaluating uses for waste) and chapter 9 (Special projects). These examples were crucial in recognising how important it is for firms to clearly articulate and communicate the 'sustainable value' of their offerings and practices. The discussion that follows shows that 'sustainable value' is not something 'out there' to be grabbed, as proclaimed by Sustainable Strategic Management researchers (e. g. Laszlo, 2005; 2008), but something that emerges from complex qualification processes within which valuing opportunities may emerge. It is also an outcome of relationships between actors of different natures (human and artefacts as suggested by ANT) whereby some actors are able to mobilize others (e.g. CORKCO's recycling project) to participate in projects that make valuing processes easier to occur, giving place to different meanings and perceptions of value.

The management literature provides a few examples of how value perspectives are integrated with sustainability issues. Two approaches are frequently cited in this field: one that contemplates the issue of sustainable value creation (Hart and Milstein, 2003, Laszlo, 2008), and the second explores the goals and outcomes of sustainability strategies centred around the achievement of superior competitive advantage and financial performance (Porter and van der Linde, 1995, Sharma et al., 2010). This section questions the evangelical discourse of these approaches where sustainable value is addressed as something created in a taken-for-granted fashion as long as companies possess, develop or acquire resources to follow the value creation toolkits provided by this literature.

The analysis of the cases suggests that value creation and/or appropriation associated with sustainability strategies needs to be examined from a different angle. Instead of assuming that sustainable value is created and/or acquired in a self-evident and unquestioned way, the focus is placed on the processes through which things e.g. resources, offerings, practices, are valued Hence it looks at *valuing processes* as dynamic activities of identifying opportunities to attribute value to things in accordance with the firms' strategic priorities at a given time, and in comparison to alternative valuing processes (for example, the opportunity to value cork dust as biomass emerges from the regular process of burning waste; the opportunity to be part of a massive recycling project emerges from standard activities already in place; the opportunity to launch a new eco-brand emerges from the process of recycling wood).

The empirical chapters, particularly chapters 6, 7 and 9, illustrated that several initiatives implemented by the companies were described as valuing processes (e.g. waste *valuation*, *value creation*, *product/service added value*, *corporate value*, *waste valorisation processes* – see Table 10-2). The cases highlighted that these valuing processes are utterly important to justify the success of sustainability strategies. The problem is that the “object under valuation” – sustainability – and the actors who perform it are difficult to identify. This is not a case of how exchange partners value goods in conventional markets; goods are only a part of a sustainability qualification, and exchange partners are only one segment which participate in the valuation process. So the questions to ask are: what is meant by “*valuation/valorisation/ value-creation processes*”, and what is that being valued as sustainable and by whom?

| Empirical context | Valuation processes |
|---|--|
| In the used stoppers recycling project, one of CORKCO'S partners justifies its participation in the project with the argument that: | “[The Shopping mall]’s <i>core business is valued with projects like [cork stoppers recycling] (...) This type of action is part of the value created and recognised by stakeholders</i> ” |
| In TECHCO’s initiative of developing a new solution for energy consumption, one the partners argues that the project: | “ <i>Should bring significant benefits, including increased control over energy consumed, improved energy efficiency, increased flexibility of tariffs and value added services</i> ”. |
| CORKCO’s SRs continuously mention that: | “ <i>The cork waste produced during the cork stopper production process or the cork that is not of a suitable standard for their production, are incorporated into other high value applications. The part that cannot be incorporated into products is valued as an energy source (biomass)</i> ” |

| | |
|--|---|
| <p>PULPCO's SR presents the environmentally-friendly benefits of biomass adoption:</p> | <p>"[PULPCO performs an] <i>internal valorisation of the biomass produced in the mill and received from external sources. This contributes to decrease the amount of solid waste deposited in the landfill and adds value to the renewable resources and cleaning of forests to avoid forest fires.</i>"</p> |
| <p>PULPCO's project on "waste valorisations" is reported with the following goal:</p> | <p><i>"To reduce the specific amount of dry ash from the bark boiler deposited in the landfill (...) by raising its external value, namely by using it to improve the forest/agriculture soils.</i></p> |
| <p>TECHCO's Executive Chairman declares in SRs that:</p> | <p><i>"[TECHCO] is most certainly a very important organisation within the Portuguese corporate sphere which is something greatly valued by us."</i></p> |

Table 10-2: Identification of valuation processes by interviewees

The examples in Table 10-2 hint at a general assumption of sustainable value as something 'out there' to be grabbed, but each source of value emerges from complex processes of qualification – processes within which valuing opportunities occur. Consider CORKCO's cases as an example. Their corporate image is qualified and recognised as environmentally-friendly, not only because of the intrinsic natural features of cork, but also because they develop a plethora of initiatives, practices and routines perceived as sustainable, i.e., they support their strategic decisions regarding which initiatives to develop based on what might be valued, in a context of sustainability. What is perceived as value might be appropriated or communicated as offerings' value, relationship value, resources' value and so forth, but it emerges from specific processes within

initiatives that were **valued** as important contributors to build up an overall sustainability qualification.

The Recycling Project described in Chapter 9 (dedicated to special projects) is one such initiative, where the outcomes of the project are differently valued by various agents involved in different processes. Actors involved in the initiative performed a series of judgment exercises to justify their choices. Initiatives like this do not involve tangible calculations, in the sense that they do not involve an explicit assessment of tangible value, but a perception of a multifaceted value derived from moral, ethical and sustainable behaviour. Actors in the Recycling Project did not try to measure the costs and outcomes of the project. Instead they performed a very subjective judgement on how the image of their businesses could become more valuable through the initiative.

In this sense, valuing processes in a sustainability context are highly subjective, because actors engage in what Karpik (2010) calls “judgement devices”: making contacts via personal networks through which they can get credible information, enrolling *cicerones* or experts on the subject to validate the evaluation of their initiatives by others, making use of *appellations* (certifications and eco-labels) as signs of valuable qualities scrutinized by independent third parties, communicating ranking positions in Dow Jones Sustainability Indexes, and so forth. All these judgment devices help to reduce uncertainty regarding particular initiatives. What actors judge as valuable and what they believe other stakeholders might value as sustainable (e.g. offerings, resources, practices,

corporate image, partnerships with key actors) determine their decisions on whether to participate, invest or support the initiative.

In the Recycling Project business actors (industry, retailing, and consumers), non-business organisations (NGO, recreation associations, scouts, schools), public organisations (city councils, waste collectors), and also non-human actors (media posts, advertisement materials, recycling bins, etc.) are all involved in valuing processes. Each relationship developed within the project and made possible because of the organisations' processes, is a potential nest of different value perceptions; moreover actors involved in each relationship were able to assign different views on values linked to the fact of being *in* the relationship (Table 10-3).

| Actors | Value perceptions |
|---|---|
| CorkCo | <ul style="list-style-type: none"> • Value attached to corporate image: building green / socially responsible image. • Value attached to relationship portfolio: building relationships with legitimate partners whereby new value might be produced. • Value attached to offerings: eco-friendly features (derived from recycled stoppers) • Value attached to green practices: using used stoppers instead of new cork. |
| Business organisations (Waste collectors, supermarkets, malls, transporters, hospitality channel, etc) | <ul style="list-style-type: none"> • Value attached to corporate image: building green/socially responsible image. • Value attached to relationship portfolio: building relationships with legitimate partners whereby new value might be produced. |
| NGO | <ul style="list-style-type: none"> • Value attached to organisational image: building image of legitimacy and credibility as |

| | |
|---|---|
| | sustainability activist. |
| Non business associations (schools, scouts, consumers) | <ul style="list-style-type: none"> • Value attached to ethical image: building image of ethically responsible and active participant associations and consumers. |
| Environment | <ul style="list-style-type: none"> • Value attached to new reforested areas and biodiversity promotion. |

Table 10-3: Different perceptions of value within the same initiative

The decisions that preceded the emergence of the relationships – and the success of CORKCO’s project – were supported by the valuing processes performed by the interacting parts. Each actor was encouraged to participate through their judgement exercises on what might constitute value in a sustainability-driven project. These exercises, in turn, were dependent on their own interests, i.e., on whether they ascribed value (e.g. ethical, image) or importance to the experience of being part of the initiative. Given the architecture of the project, no relationship is able to produce potential value perceptions if extracted or examined out of context. In this sense, the analysis of the cases also leads to the conclusion that value creation occurs in complex constellations of actors as argued by Normann and Ramirez (1993) but it also hints at something not addressed in their research. Their claim is that value creation occurs in complex constellations of actors and value is co-produced between companies and their customers, but the issue of what is meant by value or the processes that enable valuing are not problematised.

Moreover, their focus is directed to customers’ role in creating value while here it is argued that in a context of sustainability strategies, it is not enough to mobilize

customers towards the co-production of value. Other actors, not only customers and not just human actors, are equally enrolled and mobilized, as Callon (1986b) would put it, in the co-construction of different meanings and perceptions of value, and simultaneously responsible for mobilizing other actors towards that goal. So the question is not so much about how to mobilize customers to take part in the production of value, it is more about how actors are able to mobilize a multiplicity of other actors to set up new offerings, practices and strategies (or frame existing ones as discussed in the previous section) that make valuing processes easier to occur.

Taking a closer look at CORKCO's recycling project, one may see that only one of the participants of the project is a customer (wine producer); the other partners are their customers' customers (supermarkets and shopping malls, hospitality channel) or organisations with no business relationship with CORKCO (waste collectors, transporters, schools, recreation associations). Hence, this research suggests that conceptualizing value creation processes demands a much broader analysis of how different actors might contribute to the valuing process; all sorts of actors might be willing (and/or have agency) to play an active part in these processes. As pointed out in Table 10.3 one project linked to achieve a declared sustainability value – reforestation and waste reuse – is only possible through the collaboration of many different players with different motivations and expectations on the value(s) that they could obtain from it. In this sense, it is argued that value(s) linked to sustainability are relationally constructed and continuously negotiated.

This value might be interpreted in many different ways, namely, as corporate value enhanced by a sustainable reputation, financial value retrieved from marketing environmentally-friendly offerings, or relationship value derived from the emerging relationships within the practices. This research cannot answer the question of how value is defined or conceptualised by the organisations studied, but it recognises that valuing processes are repeatedly adopted to justify their engagement in particular practices. Hence, the findings reveal that, to some extent, organisations do not know how to define or quantify the value(s) of sustainability, but they recognise that engaging in practices framed as sustainable represents the opportunity to bring value to their business. As they reflect on which practices to engage in and with whom, the value rationale is taken into consideration although apparently in a self-evident fashion. That is to say, that different notions of value associated with the quality of sustainability are constructed and negotiated as the practices unfold. The mere participation in these practices, no matter which outcome might follow, is already described as a potential source of value.

Moreover, it is also suggested that actors capable of supporting valuing processes are not only organisational and individual actors. An ANT rationale is endorsed here to advocate that artefacts such as sustainability reports, eco-labels, certifications, clean technologies, recycling bins, used stoppers, offerings, resources and other non-human actors are also intertwined in the process of valuing things by providing more palpable ways to provide evidence for value.

In sum, organisations engage in multifaceted valuing processes supported by judgement devices to justify the implementation of, and/or participation in, a given initiative. These processes are therefore representations of their proposed definition of sustainability qualifications. However, framing and valuing things according to sustainability benchmarks calls for the involvement of third parties. Firms produce different frames and perform valuing exercises to emphasize their right to be qualified as sustainable, but these processes are not supported by the firms' actions alone, they evolve within relationships with other actors in a network context. This aspect is dealt with in the following section which discusses the outcomes of a (re)qualification strategy as dependent on the ability to enrol other actors as contributors and supporters of the firm's proposed definition of a sustainable company.

10.5 ENROLLING ACTORS IN (RE-)QUALIFICATION PROCESSES

ANT scholars grant a pivotal importance to the process of translation in describing and explaining how actors – human or artefacts – are able to obtain support from other actors to establish a given consensus on a subject. This idea is particularly interesting when looking at the empirical materials, where it was remarked that companies tend to translate other actors in their propositions of a sustainable company (e.g. the classification of cork dust as biomass). Inspired by the concepts of enrolling and mobilising provided by ANT scholars (e.g. Callon, 1986; Latour, 1987a), this section will show that firms develop an 'enrolling ability' to find support to their propositions. The cases reveal that in the process

of building up sustainability qualifications, firms enrol and influence others in different ways according to their own strategies and interests (Latour, 1987a).

From the point of view of a company which strives to be recognised as a sustainable one, translating is about enrolling other actors to participate and support initiatives and projects that enhance that qualification. Those actors are active participants of the focal organisation strategy as key providers of transformation. For example, CORKCO benefits from the re-classification of forestry-waste as biomass. There are two main types of biomass though (see Chapter 6): cork particles and cork dust. Cork particles are *framed* as biomass (as discussed above), but cork dust is *translated* as biomass. This is because, although the process of burning cork dust as fuel has been unchanged for more than 20 years, its classification as biomass in 2005 by the Ministry of the Environment produced changes at different levels. Different actors were involved to formalise this classification: the Portuguese Association of Cork Industry (APCOR) triggered the problematization process and started enrolling other actors to support their proposition of valuing cork dust as biomass.

Companies from the cork industry supported the proposition to benefit from this classification. The Government was enrolled in the process to evaluate and negotiate this possibility and, once accepting the proposed definition of cork dust as biomass, activated new environmental legislation to confirm and publish the classification, and so forth. APCOR's strategy was to reinterpret the potential value of cork dust as biomass in a sustainability context and work on activating relationships with other actors to achieve that goal; the ideal actors would have

to be well resource-equipped and in a position to support, demand and exert pressure towards the establishment of the classification. In this sense, it is here suggested that cork dust was more than framed, it was translated into biomass.

Other cases described in the empirical chapters also point to several translation processes involving actors of different kinds – organisations, waste, reports, technology, certifications, missions, resources and so on. These actors were first displaced from other contexts, set up into sustainability frames and “then reassembled at a certain place at a particular time” (Callon, 1986b, p.14) to support the companies’ definition of a sustainable firm. It follows that a sustainable qualification might be interpreted as an actor-network which evolves, as more and more actors, become translated as supporters, participants, or contributors, i.e., the more successful is the companies’ ability to enrol those actors in their processes. These actors, although coming from heterogeneous groups, namely, business and non-business, research, legal, governmental, media, the natural environment itself, merge into the company’s strategy, and contribute to construct an all-encompassing qualification and build consensus around their overall performance.

CORKCO’s recycling project is one clear example of the ability to enrol a key actor – the Environmental NGO – to act on behalf of their project, bringing together so many different actors from other contexts. Given that the established legitimacy of the NGO added to the importance of CORKCO in the industrial and social setting, many other well-known actors in the public domain agreed to support and participate in the project. With the enrolment of these participants,

awareness of the project increased exponentially. Thus, to fulfil the goal of collecting used stoppers from several consumption points, an actor-network involving many different actors emerged around the project. By engaging in new relationships with heterogeneous actors – NGOs, hotels, restaurants and cafes, waste collectors, transporters, schools, shopping centres, supermarkets, consumers, customers, fire associations, but also used stoppers, vans, new recycling bins, leaflets, outdoors (see Chapter 9 for a full description) – CORKCO ensured the collection and transportation of used corks to their facilities. In this sense, this project was only possible due to CORKCO's enrolling ability. A new structure involving different actors, and the coordination of different activities and resources, was designed, tested and implemented and after the first events, the network around the project expanded beyond expectations.

TECHCO and PULPCO's cases also exemplify how enrolling ability is exercised. The difference between TECHCO and PULPCO is that the latter tends to enrol and mobilise other actors to pursue their qualification strategies (e.g. the involvement of an influential group of suppliers in an environmental management project – see Chapter 9) while the former is more often translated into other actors' strategies (e.g. the production of *smartgrids* or power plant consortia– see Chapter 7). What is remarkable in TECHCO's case is that TECHCO actively grabbed the opportunities raised by other actors' translating processes to develop their own. TECHCO decided to enter the renewable energy market because the relationships within the wind power consortium in 2002 raised the opportunity to reconfigure their resources and enhance their know-how on this kind of implementation. From that project on, TECHCO gained legitimacy to work

on renewable energy solutions and was involved in other consortia for wind power, solar power and micro-cogeneration. Finally they decided to enter the “renewables” market with a new business unit totally dedicated to renewable energy technologies and communicated this entry as a key event of their sustainability strategy. By being successfully translated in other actors’ projects, TECHCO developed their own enrolling ability.

All these examples demonstrate that enrolling ability is about finding support to the firms’ proposed frames of sustainable offerings, practices, resources and so on. Hence, enrolling is here interpreted as the ability to allocate roles to actors who might act as spokespeople and contribute to the firms’ sustainable qualification. The final remark of this section is that framing, valuing and enrolling are all necessary processes to trigger, set up and develop a sustainability quality, but not enough to make it stable and taken-for-granted. As discussed in the following section, something (e.g. a definition, a rule, a qualification) is only established after general consensus on its credibility, i.e., after gaining legitimacy.

10.6 STABILISING THE SUSTAINABILITY QUALITY: SEEKING LEGITIMACY

The previous sections discussed the qualification-requalification strategy as an array of complex and overlapping processes of producing frames for sustainability, valuing the quality of “being sustainable” and enrolling actors in practices and projects that contribute to building an overall qualification of a

sustainable firm. It was suggested that it is through these processes that qualifications evolve, becoming materialised, recognised and publicly accepted accordingly to established standards attached to them. The success of this strategy, as in any type of strategy, however, is attached to its credibility, i.e., is dependent on the company's ability to provide proof of sustainable behaviour and be recognised and legitimised accordingly. Hence the question to ask is how may an organisation demonstrate that their practices are in accordance with established standards of sustainability performance, i.e., how do they prove to be legitimately qualified as sustainable?

Inspired by Araujo and Easton (1996) on the sources of consistency of strategy, this section deals with this question and suggests that the stabilisation of a quality stems from gaining legitimacy by providing proof of long-term positive behaviour conforming to those standards and principles of reasoning. The argument put forward here is that only through providing regular evidence of sustainable performance may a firm stabilise the quality of being sustainable. This stabilisation might be achieved when firms continuously provide proof of commitment over time, such as obtaining certifications linked to sustainable performance (such as a FSC or ISO 14000) and offering environmentally-friendly products or being awarded for best sustainable practices. The argument put forward here is that only through providing regular evidence of sustainable performance may a firm stabilise the quality of being sustainable.

Although the purpose of this study is not to establish what legitimacy is and how it might be attained, the cases shed light on its importance. The issue of

legitimising a given strategy cannot be neglected if we are to understand the motivations to pursue it and its expected outcomes. It is thus surprising that the issue of legitimacy is overlooked in sustainable strategic management and the “greening the industry” literature. As companies face increasing pressures to shift towards more sustainable and green performance, and since green washing accusations are becoming increasingly popular in industrial and consumer markets, firms need to engage in initiatives that enhance and legitimise their green/sustainable/eco qualities¹³. As reported by Terrachoice, a consultancy organisation that scrutinises the legitimacy of corporate environmental claims in USA, the motives and legitimacy of corporate greening need to be questioned (Terrachoice, 2007, 2010).

The findings of this study indicate that legitimate sustainability qualities emerge from the relationship between what companies do to produce evidence of conforming behaviour and what external audiences value as good evidence. Hence, the cases somehow encapsulate a dual view on organisational legitimacy (Suchman, 1995), one that combines insights from strategy scholars – who argue that legitimacy is constructed by companies and demonstrated to the external world – and institutional theorists who look at legitimacy as an ideological compliance to norms and rules, conferred by external audiences and appropriated by organisations. What seems to be overlooked is the recognition that legitimacy is an outcome of a particular process within which firms need to produce and provide evidence of conforming behaviour.

¹³ For an interesting overview of “green-washing” cases refer to Terrachoice: <http://sinsofgreenwashing.org/>

Communicating green offerings, sustainable practices, eco-friendly certifications and all sorts of entangled categories discussed previously, simultaneously requires a consistent match between discourse and credible proof and, more importantly, strong endorsement from third-parties. Thus, this research suggests that consistency of actions and actors' endorsement are two crucial sources of legitimacy of sustainability qualities, and as such deserve further elaboration.

10.6.1 *LEGITIMISING THROUGH CONSISTENCY OF ACTIONS*

The cases under study provided many examples of how organisations prove they are deserving of sustainability qualifications. Firstly, they undertake large marketing efforts to signal their offerings and market practices as sustainable (e.g. CORKCO's recycling project, TECHCO's smartgrids, and WOODCO's urban chic brand). Secondly, they also enhance their sustainable performance in countless ways, such as communicating environmental and social responsibility awards, publishing transparent and critical sustainability reports, engaging in environmental certification schemes or promoting the sustainability of their industry as a whole in the media (e.g. CORKCO's short movie with Rob Schneider).

Given this evidence, the firms' ability to build up and stabilise an all-encompassing quality, to make it accepted by other actors and legitimised over time, depends on how they consistently engage in initiatives that conform to established standards on sustainability and demonstrate proof of that

engagement. An organisation might be engaged in sporadic practices qualified as sustainable, but if it fails to be consistent regarding these practices, the qualification does not stick. Consistency of actions is what makes the qualification legitimate. When an organisation triggers the process of establishing a sustainable corporate quality it may not be willing to take the risk of stopping it or even reducing the pace of its development. For example, once an organisation starts publishing sustainability reports it, becomes locked into the process, i.e., if it fails to publish in the following year, the fact will be noticed in the public sphere concerned with that aspect.

The same can be said regarding environmental certifications, such as FSC, ISO or EMS. Araujo and Easton (1996) refer to Scott's (1991) work to bring the legitimacy issue into the strategic action equation. They claim that to draw legitimacy, firms need to articulate and communicate regularly a set of business priorities and practices in public documents, since these constitute demonstrations of commitment towards a particular strategy. If this proof is absent, severe consequences might occur in terms of their legitimacy and institutional support. PULPCO, for instance, was recently referred by an external actor (off-the-record personal communication), as "being in trouble" because they were having difficulties in providing evidence to support the renewal of their FSC certification. As described in Chapter 9, it was precisely PULPCO that most actively promoted suppliers' education programmes to give them the opportunity to achieve FSC certification in 2003/2004. Six years later PULPCO is struggling to maintain that certification.

Based on the empirical stories, this study claims that strategising towards the establishment of sustainability qualities is also, if not primarily, about working on a company's legitimacy, which in turn demands continuous and consistent efforts to provide evidence of conformity with sustainability standards. This claim goes hand-in-hand with a relational view on strategy put forward by IMP scholars. Strategy, they say, is: "*...embodied in a set of practices and relations lasting long enough to allow us to attribute consistency and strategic intent to the behaviour of firms*" (Araujo and Easton, 1996b, p. 361)

This conceptualisation of strategy is here embraced to suggest that building and gaining legitimacy regarding [sustainability] qualities is also an outcome of consistent behaviour, i.e., legitimacy is achieved by the continuous effort of looking for opportunities to act as [sustainability]-good *performants* and to provide proof of this performance to actors who may confer it. Although the issue of legitimacy is not openly discussed in Araujo and Easton (1996), the sources of consistency suggested in their paper, may be applied here to discuss the process of building up the legitimacy of qualifications. They use an artificial division between intra and inter-organisational sources to highlight that consistency arises not only within intra-organisational processes but, mainly, from the interaction between the inside and the outside of the organisation, i.e., from inter-organisational relationships. This assumption is even more important when discussing the legitimacy of a sustainability quality. This qualification-requalification strategy is affected by a recurrent and critical external scrutiny and depends on a multiplicity of internal and external actors (artefacts and human actors) framed, enrolled and valued in networks. In this sense, as

discussed in the following section, it relies on the ability to obtain endorsements from other actors and their willingness to spread the word of legitimate qualifications along networks of relationships.

10.6.2 *LEGITIMISING THROUGH ACTORS' ENDORSEMENT*

Institutional theorists acknowledge that different stakeholders, namely NGOs and governmental organisations, have different powers to confer legitimacy, given their influence on public opinion and authoritative social position (Meyer and Scott, 1983). When an organisation is accepted by its external environment, it gains legitimacy (DiMaggio and Powell, 1983, Meyer and Scott, 1983). This research proposes an extrapolation of this view regarding the acceptance of a firm's sustainability qualities: definitions and proposals of these qualities become stable because they are accepted by stakeholders able to confer legitimacy to the definition over time. Conferring legitimacy and credibility to a given quality is therefore dependent on how actors perceive and legitimate it as such. In a sustainability context, the question of who, or what, confers legitimacy to different categories (e.g. offerings, resources, practices, strategies and firms' image,) is what companies need to ask.

Adopting an ANT conceptualization of actors, this study extends the institutional approach on who confers legitimacy and claims that human and non-human actors may contribute to strengthen (or jeopardize) the credibility of sustainability quality. This implies that not only individuals and organisations are

able to confer legitimacy to a given definition of a sustainable qualification. Artefacts, especially texts, are also important sources of legitimacy as long as the strategising actions developed to build up that qualification are aligned with the content of these texts. Here, attention is drawn to the influential power of internal organisational texts such as sustainability reports, life cycle studies, and accounting reports; but also the alignment of the organisation's strategy with public reports such as the Rio Declaration, the Kyoto Protocol and the Agenda 21 Report, or more operational guidelines such as GRI standards or FSC practices.

Written texts, such as the ones analysed in this research, result from extensive processes of negotiations; people from inside and outside the company were enrolled in the process of producing these reports and sometimes faced conflicting situations where competing negotiations on what should be included in the reports were raised. TECHCO's for example explained how they had to convince the external auditor, responsible for validating the transparency of the report, that their retrofitting operations should be reported as an example of a sustainable practice. A negotiation on what constitutes a sustainable practice took place at that time. The external auditor was enrolled in TECHCO's framing process of defining what a sustainable practice is and ended up endorsing TECHCO's view. The sustainability report authenticated by a legitimate auditor is a concrete proof that retrofitting operations are sustainable practices. In these sense different actors – TECHCO, report and external auditor – interacted to support and legitimise TECHCO's definition of a sustainable practice.

Two other cases from CORCO's strategy are also evocative of the key importance of the interaction of human and non-human actors regarding a given quality's legitimacy. By publishing the successful implementation of the recycling project in sustainability reports and media, CORKCO is not only boosting their legitimacy as a sustainable company but is also contributing to its customers' and partners' recognition as sustainable companies.

Similar conclusions may be drawn from CORKCO's initiative of publishing the results of a Life Cycle Analysis (LCA) performed by an external auditor. CORKCO publicized the differences of environmental impacts between cork stopper manufacturing and plastic and aluminium stoppers, which portrayed the latter as less sustainable products when compared with cork-based products. This study might have endangered the plastic and aluminium industries' legitimacy in terms of sustainability qualifications. Later they developed a new LCA study to compare cork products with other building construction materials. This is a clear example of what Callon meant by "*in the economy of qualities, this struggle for attachment and detachment is at the heart of competition*" (Callon et al., 2002, p. 207). CORKCO's study attempted to legitimise the environmentally-friendly features of cork products and consequently detach their customers and prospects from competing products.

This study concludes that actors directly involved in qualification-requalification processes and actors scrutinising these actions are able to confer (or endanger) the credibility of an organisation's strategy. In this sense, legitimacy is interpreted in this study as clearly dependent on two aspects: 1) the inter-

organisational relationships developed in the processes of consistently producing frames for sustainability, valuing opportunities to enhance the qualification and mobilising actors to support these frames and consequently; 2) the actors – organisational and artefacts – enrolled in those relationships that were perceived as better equipped to endorse the companies' strategy and contribute to an enlarged legitimacy (NGOs, for example).

A final remark is directed to the need to provide proof of good sustainable performance to avoid frames from competing organisations. The argument put forward is that, to stabilise their sustainability qualifications, firms need to work on their credibility in terms of the discourses used, in terms of the frames produced. These frames, however, are an outcome of path dependence and resource dependence trajectories that end up dictating what might be framed in a certain way. CORKCO, WOODCO and PULPCO cases clearly illustrate this aspect. Resources and operations developed for decades are being reframed to fit into a sustainability discourse. Hence, the proof presented is obviously dependent on the way businesses are conducted and the resources they base their operations on. Whatever is framed as sustainable and proves to be the case, depends on the companies' past trajectories and resources.

In sum, this section called attention to an aspect that is being neglected in traditional approaches looking at goals and outcomes of sustainability strategies – the issue of providing proof of credibility. It was highlighted that to establish an overall sustainable qualification it is not enough to produce frames of sustainability, engage in valuing processes and to enrol and mobilise the right

partners to work within a networks of relationships. It is also crucial to make the qualification visible and identifiable in a self-evident fashion, i.e., it is crucial to make it legitimately credible.

To conclude this chapter, the following section summarises the four processes discussed until now and proposes a framework to map out the intricacies of a qualification-requalification strategy.

10.7 PROPOSING A FRAMEWORK TO MAP THE ESTABLISHMENT OF QUALIFICATIONS

This chapter started with the recognition that some companies are perceived and recognised by external audiences as sustainable companies. This assumption did not derive from the analysis of the cases – it is a *fact*, accepted, recognised and taken-for-granted. The cases of this study were selected based on this *fact*, that is, the selection criteria was based on the suggestions of legitimated consultants on which cases could provide rich examples of sustainable companies. This recognition led to question why it is a *fact* that some companies are qualified as sustainable. What do companies do to be perceived and qualified in a given way? Or more precisely, *how do companies strategise to build up a given qualification and make it established, accepted, recognised and legitimised?*

Given this research question, I continued asking: if a company is qualified as sustainable, what is targeted by this qualification, i.e., what do companies signal

as sustainable that might lead to the establishment of an all-encompassing qualification of the firm? It was highlighted that different things are qualified as such, namely, offerings, resources, practices and operations to stick a sustainable label to the firm. Throughout this discussion, it was also remarked that one category cannot be qualified without the other categories getting similar qualifications, and moreover, categories developed by the company are influenced by other organisations and vice versa. Hence, many network connections are needed to reach an overall and entangled qualification, in a way that embraces interdependent and overlapping categories that, in turn, derive from complex structures of interdependent and overlapping organisational relationships.

The literature review hinted at a common element among management studies concerned with understanding sustainable businesses: sustainability and sustainable businesses are not defined but taken for granted. Studies from various fields, such as Sustainable Strategic Management, Industrial Ecology and Sustainable/Green Marketing discuss the issue of sustainability in terms of best practices to perform in sustainable ways, in terms of what the companies must do to develop sustainability strategies and to create sustainable value. However the definition of what is a sustainable business relies on the often quoted principle of the Brundtland Report, which discusses what companies must or should do to perform in sustainable ways without questioning what the companies mean by acting in sustainable ways.

This research shows that the definition of sustainable businesses is differently framed by different companies, that is to say there is no single definition of a sustainable business, in the sense that each company produces its own way of defining their business as sustainable and use a multiplicity of arguments to support their definition. Some companies rely on the environmentally-friendly features of their resources to support their definitions (like CORKCO, PULPCO and WOODCO), others on the physical attributes of the final product (like CORKCO and WOODCO), on the contribution of their final offerings to build systemic sustainable solutions (like TECHCO), on the clean technologies in use (like CORKCO, PULPCO and WOODCO), and so on. This means that each company constructs their own visions of a sustainable business and for each company, there is no single way of being sustainable.

Building on the empirical material (Chapters 4 to 9) it was suggested that each initiative (whether related to reporting, recycling, striving for certifications, developing new offerings, and all sorts of initiatives described throughout the empirical chapters) is put together through overlapping processes of framing, valuing, enrolling and stabilising, which are combined to produce the desired qualification of a sustainable company. Figure 10.2 represents the four processes derived from the analysis of the cases, as elements of a framework to investigate the establishment of firms' sustainability qualifications.

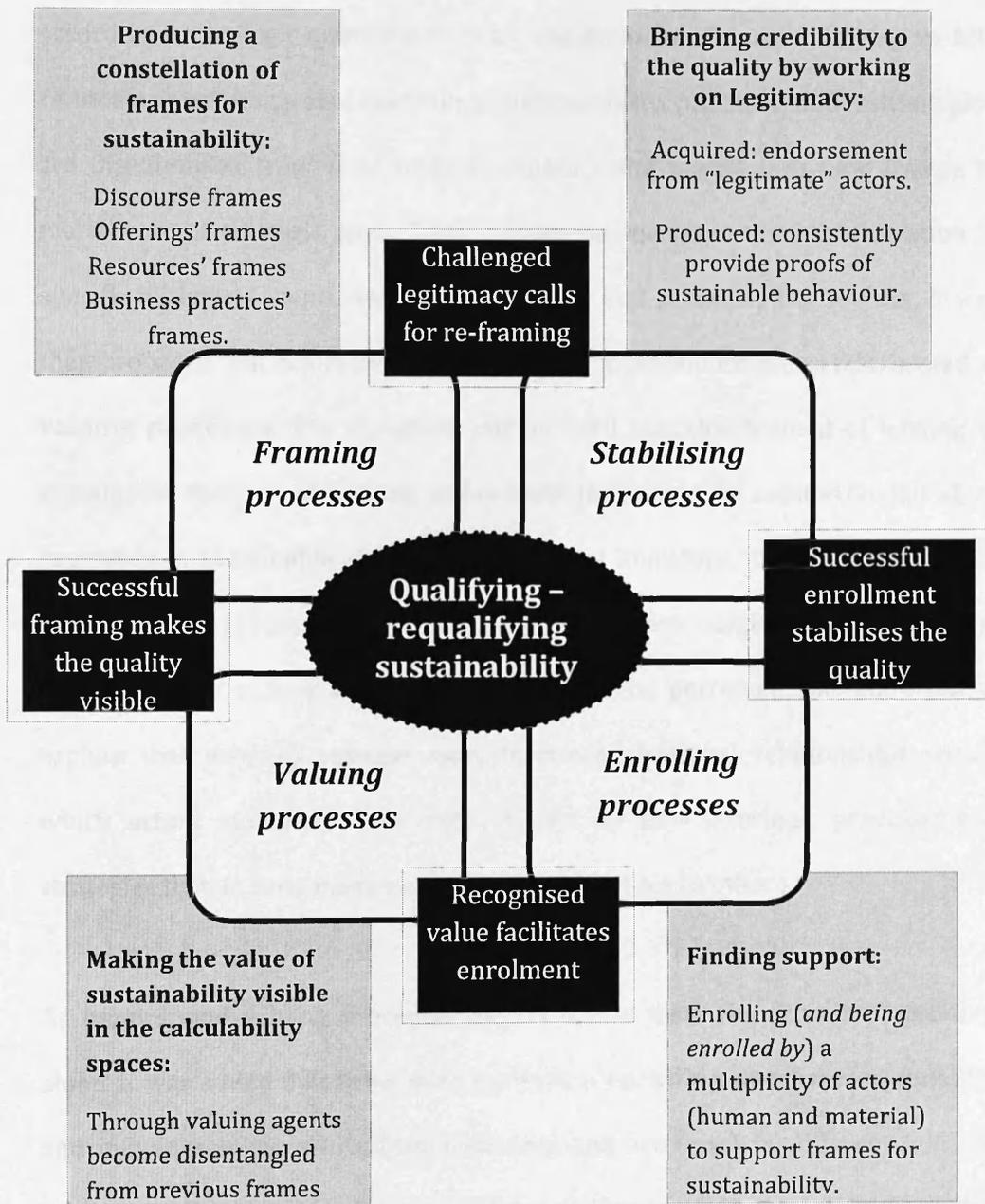


Figure 10-2: Framework to map the establishment of sustainability qualifications

Framing ability was first proposed as the firm's capacity to adapt its discourse according to strategic orientations in a given moment of time. Following an ANT rationale, it was suggested that things, such as waste, practices, and technologies, are disentangled from their original contexts and placed into new frames to match certain strategic goals. With a focus on the importance of valuation in specific initiatives mentioned by interviewees and sustainability reports, it was then proposed that actors perform a series of judgement exercises interpreted as **valuing processes**. The argument put forward was that instead of looking at sustainable value as something self-evident that might be created/acquired, as suggested in sustainable strategic management literature, it is more relevant to focus on the processes through which things are *valued*. A systemic and relational view of how value (or values) might be perceived was endorsed to explain that value(s) emerges from inter-organisational relationships within which actors mobilize other actors to set up new offerings, practices and strategies that, in turn, make that value(s) perceptible to others.

As framing and valuing processes do not unfold from the actions of the firm alone, it was added that firms need to develop **enrolling processes** to mobilize and influence other actors (organisational and artefacts) in different ways to support their definition of sustainability qualifications. Those actors are active participants of the focal organisation's strategy. In this sense, qualifications were interpreted as actor-networks which evolve, as more and more actors are translated as supporters, participants, or contributors of the companies' proposal. A final remark was made regarding the stabilization of the firms' sustainable qualification through **stabilising processes**. It was suggested that a

qualification is only established after general consensus on its credibility, i.e., after presenting proof of legitimate sustainable behaviour. This, in turn, stems from long term positive behaviour conforming to standards and principles of reasoning that determine what sustainability qualifications might be. Consistency of actions and actors' endorsement are crucial to this process: it demands continuous and consistent efforts to search for opportunities to act as [sustainability]-good *performants* and to provide proof of this performance to actors (organisational and artefacts, especially texts) which are able to confer and support legitimacy.

To conclude the discussion of the findings, it should be highlighted that firms are classified with quality labels (e.g. competitive firms, innovative firms, sustainable firms). Specifically on the subject of sustainability qualities, one might look at these labels as static representations of a quality (e.g. FSC credentials, ISO14000 certificates, eco-labels, sustainability awards) attributed or recognised in a given moment of time by legitimate agents. However, a dynamic and relational process within which firms develop different types of qualifying actions, namely towards their offerings (products and/or services), their businesses, their strategies and their networks of relationships. To qualify a firm as sustainable is, however, primarily dependent on how the strategy itself unfolds from a dynamic structure of relationships between multiple actors engaged in overlapping practices. The processes that qualify a strategy as a 'sustainability strategy' are therefore the key determinants that make all the other qualifications possible.

Understanding the qualification of firms is thus much more complex and less tangible than explaining the qualification of products. The quality of being sustainable is not constructed by firms, but within sustainability strategies that produce transformations in other firms and markets. Moreover, it is not placed on a shelf ready for comparison with alternatives as in consumer markets, but made visible through processes. These processes, in turn, unfold from many network connections between the companies which strive to obtain the quality, the resources used to develop the practices, the offerings placed in the markets and the way they are defined and communicated, the communication devices, the standardization organisations who assess the companies' practices and attribute the figurative labels, and so on. Hence, what qualifies a network of relationships as sustainable (for example, the CORKCO's Recycling project) is very much dependent on the strategy that dictated the emergence of those relationships. The network also becomes sustainable because the strategy in place with all the intricacies referred to above, activated the relationships.

In sum, this study suggests that a firm's sustainability quality is dependent on the qualification of the strategy itself, which is relationally constructed from a complex set of overlapping processes involving a multitude of actors.

11 CONCLUSIONS

PART I: BRIDGING RESEARCH GOALS WITH THEORETICAL APPROACHES

Chapter 1: Introduction

Chapter 2: Exploring the establishment of qualifications as a strategic matter

PART II: RESEARCHING THE ESTABLISHMENT OF SUSTAINABILITY QUALIFICATIONS

Chapter 3: Methodological choices and research design

Chapter 4: Presenting the research setting

Chapter 5: Publishing sustainability reports

Chapter 6: Evaluating uses for waste

Chapter 7: Developing 'sustainable' offerings

Chapter 8: Adopting clean technologies

Chapter 9: Setting up special projects

PART III: DISCUSSION OF FINDINGS AND CONCLUSIONS

Chapter 10: Towards a framework for establishing (sustainability) qualifications

Chapter 11: Conclusions

11.1 INTRODUCTION

This chapter presents the conclusions of this study and is organised as illustrated in Figure 11.1. The first section revisits the research goals and summarises the findings of the study. The next section outlines the main contributions of this research, followed by a discussion of its limitations and directions for future research.

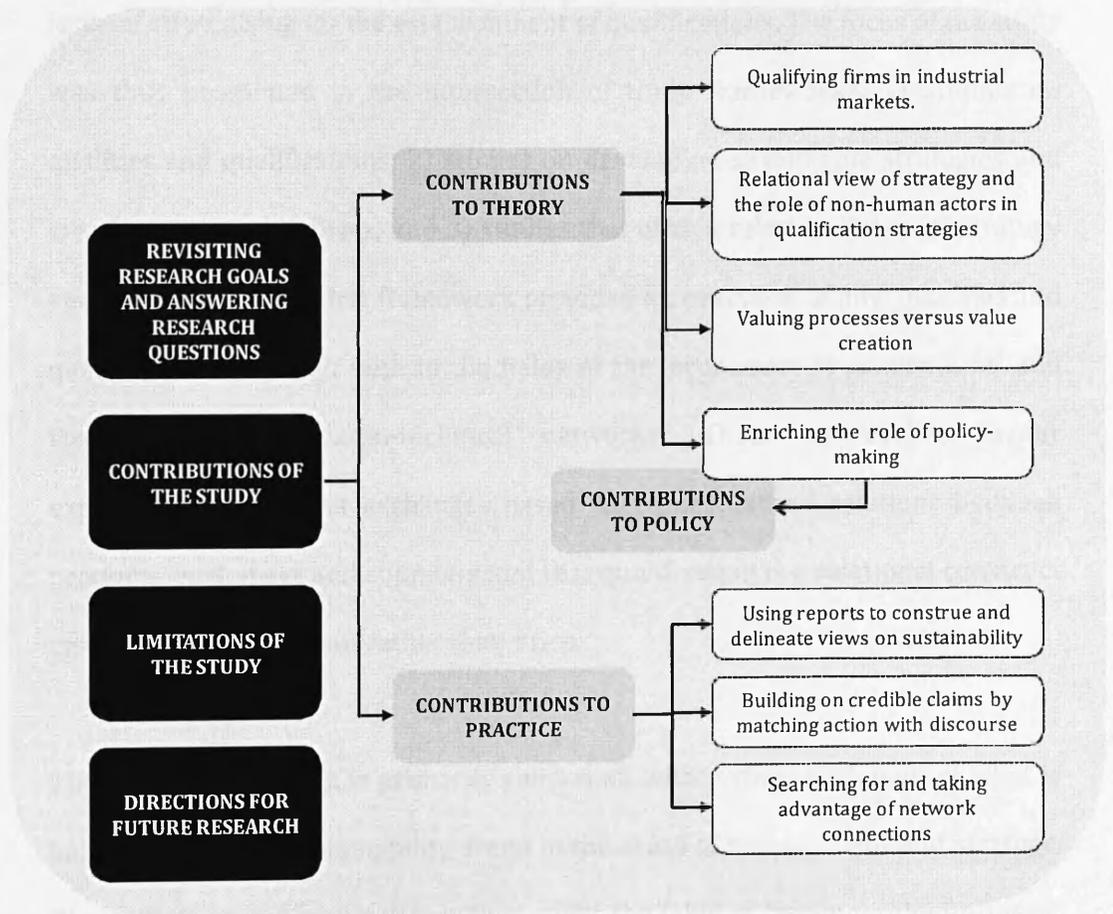


Figure 11-1: Outline of Chapter 11 – Conclusions of the study

11.2 REVISITING RESEARCH GOALS AND ANSWERING RESEARCH QUESTIONS

This study was developed to understand the processes through which firms obtain qualifications of “sustainable companies”. The point of departure were the opportunities that evolve within inter-organisational relationships and contribute to make these qualifications materialise.

Chapter 2 discussed the main theoretical orientations adopted to address the issue of strategising for the establishment of qualifications. The focus of the study was thus positioned in the intersection of three frameworks: 1) studies on qualities and qualifications; 2) studies on developing sustainable strategies and creating sustainable firms; and 3) studies that offer a relational view of strategy and strategising. The first framework provided an overview of how qualities and qualifications are dealt with in the fields of the ‘economics of conventions’ and the ‘sociology of socio-technical networks’. These approaches favour explanations of market exchanges based on contextualised relations between products, customers and suppliers and that qualification is a relational construct emerging from judgment rather than price.

The second framework is primarily concerned with giving an account of what is being done on the sustainability arena in the areas of management and strategy. These studies were grouped together under the label of “greening the business” literature where the following themes were discussed: the evolution and meaning of the concepts of sustainability and sustainable development, the key contributions of socio-technical studies to explain transitions to more sustainable

systems, the ideas around what is meant by sustainability strategies and sustainable companies and finally, the importance given to the creation of sustainable value as the ultimate goal of sustainability strategies. The key assumption of the “greening the business” literature questioned in this study was that despite the acknowledgment that companies strategise relationally within networks of multiple actors, they are sovereign in their strategic decisions, especially when dealing with sustainability issues. Hence the third framework established the need for a relational view of strategising. Drawing on research from ANT and the IMP group, this section provided a review of concepts and ideas that favour a relational, rather than autonomous, perspective of strategy and strategising issues.

The key issues that emerged from the theoretical discussion raised further inquiry on how sustainability qualifications emerge from a strategic point of view. In this sense, I questioned what companies strategically do to be qualified and recognised as sustainable. Or more precisely, *how do companies strategise to build up a given qualification and make it recognised, accepted, established and legitimised?* My first concern emerged from the considerable use of taken-for-granted ‘sustainable things’ (goods, firms, practices, strategies) in marketing and strategic management studies in the absence of a qualification approach that could explain those labels. Thus the overarching research question was narrowed to three operational questions (see Figure 11.2).

Drawing on a relational ontology, four case studies were developed within a systematic combining approach, from which the research design was gradually

constructed. After a comprehensive analysis of potential business practices that, directly or indirectly, contribute to build up sustainability qualifications within the four companies, 23 practices were selected and studied in-depth (refer to Chapter – section 3.4.5 for an overview of the five types of practices identified: reporting, evaluating uses for waste, developing offerings, adopting clean technologies and setting up special projects). Emphasis was given to the importance of each practice in the firms' sustainability strategy and the potential for identifying and analysing network interdependences given the number of participants involved in each practice.

The empirical discussion was thus organised around these five themes and each chapter offered different perspectives on qualification practices that combined provided the means to answer the research questions. Figure 11-2 summarises the findings of the study and provides succinct answers to these questions.

Regarding the first research question, the analysis of the cases revealed that as different types of sustainable practices unfold at the same time, different things (e.g. offerings, resources, practices, strategies, corporations) get equally qualified as sustainable by association with each other. For example, when cork dust was qualified as a sustainable resource, the energy produced from it was qualified as green energy, the production operations using green energy were qualified as eco-friendly and the offerings that were put together from those resources, whether as cork stoppers, building materials or memo boards, earned similar qualifications.

How do companies strategise to build up a (sustainability) qualification and make it recognised, accepted, established and legitimised?

RQ1: How do companies construct their labels of sustainability qualifications?

Categories used to signal sustainability qualifications:

- Offerings
- Resources
- Practices
- Strategies
- Corporation

Entangled categories:

- Each firm constructs its own vision of a 'sustainable firm' relying on multiple and intricate categories.
- One category is not qualified as sustainable *per se* - qualifying a category influences and is influenced by the qualifications of all other categories within the company and all categories from other companies with which the focal one relates to.

RQ3: How is a qualification strategy developed into a legitimised one?

Gaining general consensus on its credibility, i.e., **legitimising** the qualification via:

Consistency of actions:

Continuous and consistent efforts to search for opportunities inside and outside the company (initiatives) to act accordingly to sustainability rationales, i.e. to develop categories susceptible of being qualified as sustainable.

Actors' endorsement:

Continuously provide proofs of sustainable business (reports, certifications, initiatives that allow the qualification of the categories) to actors who are able to confer and support legitimacy (through direct participation or scrutiny).

RQ2: How do strategic practices unfold towards obtaining a qualification and which devices are used to support it?

Developing a series of strategising abilities based on framing, enrolling and valuing practices emerging from relationships with human and non-human actors.

Strategising as a framing ability:

The ability to adapt the company's discourse accordingly to strategic orientations in a given moment of time, i.e., categories are detached from original contexts to fit new qualifications.

Strategising as an enrolling ability:

The ability to enroll actors: from other companies in new configurations that support and enhance new qualifications; a qualification is interpreted as an actor-network which evolves as more actors are translated as supporters of that qualification.

Strategising as a valuing ability:

The ability to engage in practices that are valued as sustainable and to recognise that valuation and calculation processes unfold not only from inter-organisational relationships but also from the social-material devices set up as calculative spaces for judgement.

Figure 11-2: Revisiting research goals and answering research questions

These intertwined qualifications emerging from interdependent practices, in turn, contribute to the sticking of an all-encompassing sustainable label to the firm. However, as highlighted in the Discussion chapter, to qualify a firm, a network of relationships or a product/service as sustainable is primarily dependent on the qualification of the strategy itself, that is, how the strategy becomes qualified and recognized as sustainable while unfolding from a dynamic structure of relationships between multiple actors engaged in overlapping practices. The processes behind the qualification of a strategy as a 'sustainability strategy' are therefore the triggers of other qualifications.

I have highlighted two particular aspects in the discussion of the findings. Firstly, the choices made on which of the above things to qualify depend largely on routines, that is, mature ways of doing things and also on access to resources that better match sustainability goals. This means that, based on what they do, how they do it and with whom, each company produces its own way of defining their businesses as sustainable and uses a multiplicity of arguments to support its definition (e.g. arguments based on offerings, on resources, on practices, on partners, on technologies, etc.). Hence, given their access to resources and potential partners, each company constructs its own vision of a sustainable business relying on a multiplicity of intricate arguments. This in turns means that for each company there is no single way of becoming sustainable, as the processual journey of qualification depends on a variety of factors that change over time.

The second point is that building on these arguments, that is, making these categories (e.g. offerings, resources, practices, strategies, corporations) qualified as sustainable depends on how other organisations develop similar processes and how these processes are inter-related across firms. Hence, many network connections among different actors and between different processes are needed to reach an overall and entangled sustainable qualification. Thus, and moving to the second and third research questions, it means that understanding the qualification process as a strategic journey demands a focus on the processes and relationships that make the quality of “being sustainable” to emerge in different categories and ultimately to be recognised and established as a stable qualification. The findings led to the identification of four types of processes that firms get involved in to strategise around the construction of sustainability qualifications: framing, valuing, enrolling and stabilising.

Framing processes relate to the firm’s capacity to adapt its discourse (whether used internally or in public reporting, media, newsletters delivered to stakeholders) to a strategic orientation at a given moment. It entails a process through which “things” (e.g. waste, practices, offerings and technologies) are disentangled from their original contexts and placed into new frames to match strategic priorities. The decisions made on what to frame, and how, are then supported by **valuation processes** which, in turn, aim at making the so-called “sustainable value(s)” identifiable.

These processes emerge, not from judgements developed within the firm's boundaries, but from spaces of calculability provided by social-material devices in inter-organisational connections within which actors mobilize other actors to make that value(s) perceptible to others in offerings, practices, projects and so on. This mobilisation calls for **enrolling processes** to influence other actors (organisational and artefacts) in different ways as supporters of, participants in or contributors to the firms' definition and proposal of sustainability qualifications.

To achieve the end goal of getting the quality stabilised and being recognised accordingly, firms need also to be dedicated to **stabilising processes**, that is, to provide credible proofs of legitimate, long-term sustainable behaviour and conformance to standards and principles of reasoning that determine what sustainability qualifications might be. These processes deal primarily with efforts to continuously and consistently search for opportunities to act as [sustainability]-good *performants* and finding endorsement from key actors (human and non-human) who are able to legitimise the credibility of the qualification (e.g. NGOs, auditors, certification bodies, awards, media, sustainability reports).

Having summarised the main findings of this research, the next section elaborates on its contributions to theory, to policy and to practice.

11.3 CONTRIBUTIONS OF THE STUDY

This section reveals the contributions of the study. The first part outlines three ways in which this study contributes to the theoretical areas of greening the business, industrial networks approach and qualification studies within actor-network theory. The second strand provides recommendations to policy-makers engaged in the formulation of incentives to promote sustainable practices and to firms willing to take advantage of these incentives. Finally, the last part includes three recommendations for practitioners dealing with the development of strategies aimed at building sustainability qualifications.

11.3.1 *CONTRIBUTION TO THEORY*

This first section elaborates on how this study contributes to understand the emergence of sustainability strategies and the establishment of sustainability qualifications, in three complementary ways that will be elaborated as follows. The most important contribution of this study is the development of a framework to investigate the establishment of firms' overarching sustainability qualifications. This framework, derived from the analysis of the cases, provides relevant insights that clearly contribute to three theoretical areas.

First, my work extends the work done by ANT scholars on qualification processes, particularly that of Callon et al (2002) by opening up the discussion to

the qualification of firms in industrial settings and by taking a strategy approach to understand qualification-requalification processes.

Second, this study adds to the strategy literature in general, and the 'greening the business' area in particular, by providing an empirical study that describes the relational nature of the processes through which a qualification strategy emerges and the role of non-human actors on the processes of strategising. This aspect also adds to the Industrial Network approach in the sense that it proposes to take the materiality issue into consideration when investigating the role of actors in strategy-making. Moreover, it proposes to look at sustainable labels as an outcome of successful translations, avoiding the tendency among 'greening the business' scholars to indiscriminately use taken-for-granted concepts of sustainable firms, products, practices, resources and so on.

Last but not the least, in this study I challenge conventional views on value creation and suggests that a focus on valuing processes as a verb, rather than value creation as a noun, provides a richer understanding on how value (and sustainable value) emerge from strategising opportunities within inter-organisational business practices.

Since each contribution is common to one or more theoretical frameworks, Figure 11.1 outlines the intersection between them, followed by an explanation of the reasoning behind it.

Contributions to theory: Proposes a framework to explore the establishment of [sustainability] qualifications

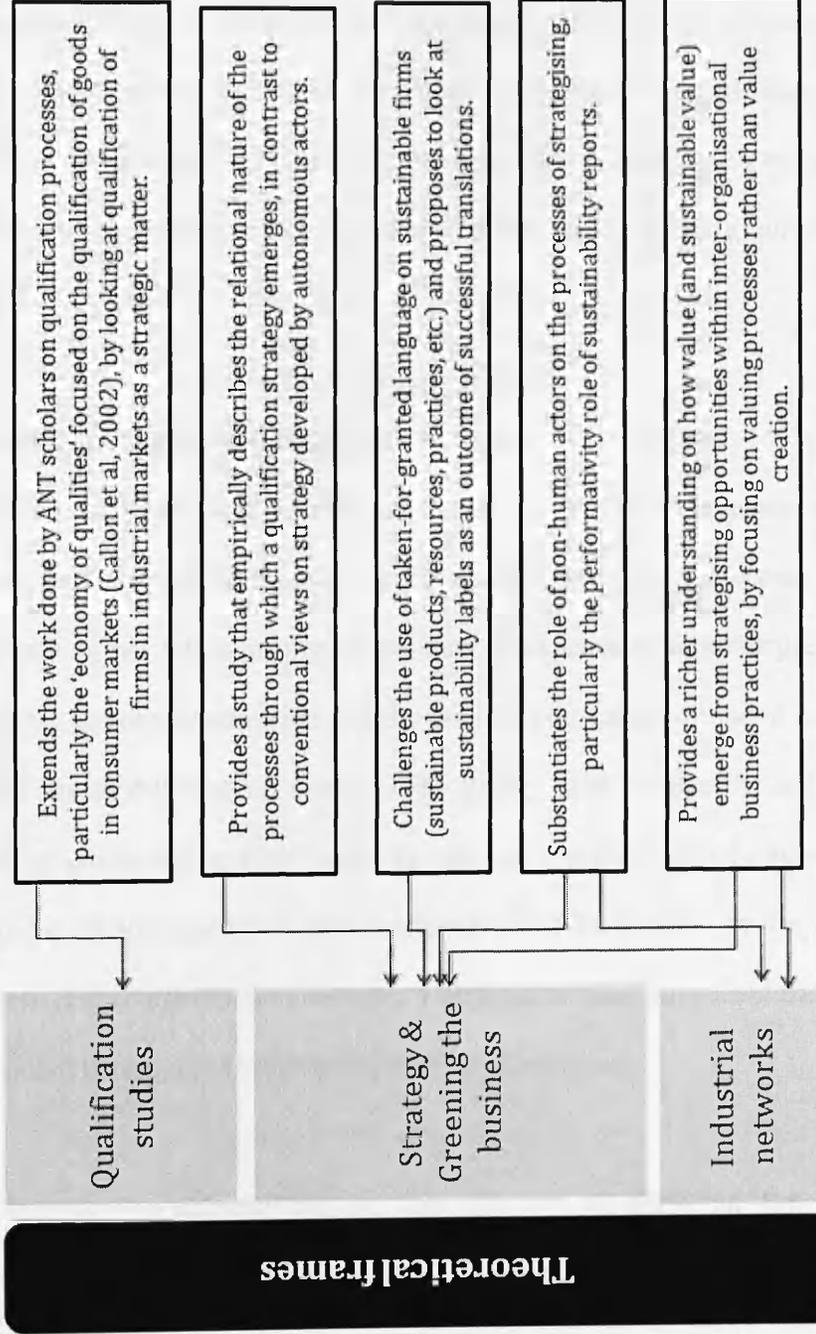


Figure 11-2: Theoretical contributions

11.3.1.1 Qualifying firms in industrial markets

In terms of the first contribution, my work extends the “economy of qualities” framework (Callon et al., 2002). ANT has been used as a way of understanding the qualification-requalification processes in business-to-consumer markets, mainly in services and retailing settings, while I am focusing on the processes that lead to products’ qualifications, and ultimately to firms qualifications, in industrial markets.

The “economy of qualities” framework hints to a sequential order of production, circulation and consumption in the sense that it describes the journey of a single product and its transformation into a good. The empirical cases described previously do not follow a singular product in its various metamorphoses, from conception to consumption. Instead the practices described intended to illustrate the journey of building up one specific quality used to classify and compare several products within each company. So it is a matter of understanding how the quality of “being sustainable” is revealed and recognised in the list of the products’ characteristics, and becomes a variable to take into consideration when the product is compared and ranked with its competitors.

In a business-to-business context this process of revealing the products’ characteristics is not as easy to achieve as in consumer markets where products are displayed in stores, supermarkets, retailers, side by side, allowing for immediate comparison. In industrial settings, other socio-technical arrangements

need to be set up. Through the empirical cases I illustrated that the companies under study got engaged in different types of practices, all contributing to the rise of the sustainability quality of the companies' offers and eventually of the companies' themselves.

The point to be made here is that, as argued by Callon et al (2002), it is the relational combination of the products' characteristics that establishes its singularity. At the same time, is also that relational combination that positions the product in a space of comparable goods, with similar or different characteristics. If the producer is concerned in adding the characteristic of "being sustainable" into that combination, the question that needs to be answered is how do they establish this particular characteristic and make their goods comparable according to it. The "economy of qualities" focuses on the qualification of products and goods in consumer markets and discusses the establishment of its characteristics (in the plural) as a relational matter, while my study focuses on the establishment of a singular quality attached to an industrial organization – that of being sustainable – and discusses how it is relationally constructed from plural and overlapping practices, namely from processes of "*sustainably*" qualifying several products/goods, practices and technologies, from setting up special projects or from using discourses as a frame of reference to support the establishment of the qualification.

To qualify a product/good or a practice or a technology or whichever dimension one might want to characterise as sustainable, it is necessary to define what the

quality represents, that is to say, it is necessary to objectify the quality. To do so, investments on metrological work and calculations are needed to reach to an agreement (among economic and non-economic agents) on what constitutes the quality of being sustainable, on which value might be derived from this particular quality and on which extent the product, good, practice, technology or company itself might be qualified accordingly. Once the quality of being sustainable is objectified, it becomes part of the list of relevant characteristics that define a product (or practice, technology, company). This definition, however, is not static. It might be statically represented by an environmental certification, an award, an eco-label, a favourable reference in the media in a given moment of time, but it continuously changes as the “thing” being qualified evolves, i.e., as the actor-network of the “thing” changes.

Using examples retrieved from the cases, I have pointed out that the sustainability quality of products changes as competitors present more advanced life cycle analyses (cork stoppers versus aluminium and plastic) or as new solutions are developed and get tested (smartgrids tested in “smart” towns). The sustainability quality of the companies’ practices also changes when new environmental laws emerge (waste classified as biomass), when the environment itself is against the qualification (bad weather constantly destroying geo-textiles’ implementation), as new demanding reporting procedures emerge (from environmental reports to sustainability reports), as suppliers obtain new certifications (supplier development promoted by the customer) and so on. And all these changes influence the company’s corporate qualification as a sustainable

company. That is why it is more useful to discuss qualities instead of characteristics, and to understand its establishment as a continuous process of qualification-requalification. In this study, qualifying a company as sustainable depends on building up similar qualifications for their offerings, production practices, communication practices, technologies adopted, in a never-ending (re)qualification process. For example, failing in qualifying practices as sustainable jeopardizes the products qualification; failing in communicating the company (and their offers, practices, technologies) as sustainable delays the customers' attachment and speeds up their attachment towards competitors; failing to educate suppliers on how to build sustainability qualities impedes the certification of the companies' own products. All these examples illustrate that sustainability qualifications are relationally constructed from a constellation of many different practices who coherently contribute to the company's corporate qualification.

Another important conclusion of this study is that the firms' efforts to add the quality of being sustainable to the list of their products' qualities are essentially reconfiguration efforts. CORKCO and WOODCO's cases, particularly, revealed that the good offered (cork stoppers and wood-based panels) has been essentially the same for decades. However as sustainability gradually became an important issue for economic agents to deal with, firms were incentivised to reconfigure the qualities of their offers. To some extent, although the physical good is the same, the stabilized good is not, as its list of qualities expanded in the process of qualification – requalification, to encompass the new quality of being sustainable.

On the other hand, these cases also point out that the products are not only (re)qualified when passing to another stage (from conception to production, for example) as argued by Callon et al (2002). These stages, within its boundaries, are also subject to metamorphoses when an abstract quality becomes part of its characterization. So they do not precede the stabilization of the products' qualities, they contribute to it. For example, the production operations based on the use of forestry-waste to produce energy have been developed in the same way for decades. But these operations were also recently re-qualified as sustainable practices with the argument that forestry-waste is biomass, a clean source of energy.

Hence, an important conclusion drawn from my study is that the list of qualities of the product modifies by revealing a new quality, that was always there, but not recognized as a quality before. Hence the quality was strategically constructed and added to respond to the emergent call for greening businesses. Both goods (as stabilized products) and products (as process) were objectified accordingly to an abstract quality that is not visible or easily identifiable. For this reason, the frames used to make this new quality (that was always there but not recognised as a quality) revealed, identifiable and available for rankings both on goods and production processes are vital to the stabilization of becoming sustainable.

What if the technologies are the same but the discourse used to describe its outcomes is different (as in the case of the cogeneration systems)? What if the raw materials are the same but the way they are described changes (as in the

case of cork dust and forestry waste as biomass)? What if modifying the quality of the product (and the quality of the firm itself) is, not only about new ways of doing business, but also about a new way of communicating business? This is another important conclusion of this study: products and practices are strategic variables that economic agents manipulate to suit their strategic goals. However, as the strategic challenges evolve, it might not be necessary to radically reconfigure the list of products' qualities, it might be a question of manipulating and reconfiguring the discourse used to communicate these qualities, that is to say, it might be a matter of changing the frames of action through discourse.

This framing ability is vital to support customers' judgments on the quality of products and firms. If customers are active participants of the qualification – requalification process, the quality of being sustainable, whether attached to products, services, practices or the collective organisation itself, must be clearly articulated to be apprehended by their customers.

Callon et al (2002) reminds the reader that the mechanisms of singularization of goods offered to consumers and the latter's attachment and detachment to/from the product depends on the "very close relationship between what the consumer wants and expects, on the one hand, and what is offered, on the other" (p. 202). This argument can be enriched by reflecting on the core issue of this study, that is, the construction of sustainability qualities. I mentioned before that the rising debates on "industrial business versus sustainability" brought the need for firms to react and respond to this challenge and (re)qualify their products and

practices. But these pressures are not coming from changes in the demand side only, but mostly from many other non-economic agents, such as environmental protection organisations, pressure groups, policymakers, international organizations, and the media to name a few. Consumers and firms are being simultaneously pressured by other agents to adopt sustainable behaviours and both are learning to qualify offers as sustainable which imply judging its value. Hence qualification and requalification processes are dependent on many other agents, who have a voice in public 'hybrid forums' and are able to simultaneously influence the definition of each quality and contest alternative definitions of its attributes.

11.3.1.2 A relational view of strategy and the role of non-human actors in qualification strategies

The second contribution brings to the forefront the relational nature of the strategies put together to build up a qualification. Adopting ANT and IMP ideas, I suggest that the two theoretical frameworks taken together constitute a rich base to empirically explore processes of strategising from a dynamic and relational point of view, contributing to enrich the overall strategy literature dealing with greening the business strategies, particularly the sustainable strategic management literature reviewed in Chapter 2.

Given the limited number of empirical research cases that draw on a relational view of strategy, this study provided useful examples for understanding that strategising is about embracing a networked view on the opportunities to achieve particular goals within inter-organisational relationships. As such, I interpreted a strategy towards a desired qualification, and even the qualification itself, as actor-networks that are constructed, defined and spread out as business and non-business organisations, managers, scientists interact with each other and with available artefacts in dynamic and indeterminate ways. It is important to highlight that interpreting a quality as an outcome of successful translations by the proponents of the quality is not enough to understand the relational aspect of the strategising practises that led to its establishment. Here ANT studies concerned with investigating strategising as translation processes (as suggested by Denis et al., 2007) could be enriched with insights from the Industrial Network approach. This is because, a firm aiming at developing a given qualification, is necessarily dependent on many network connections to other organisations (and non-human actors as will be discussed below). These connections are vital to engage in practices that contribute to build up the qualification and make it visible and identifiable; hence they dictate the success of the translation of a diversity of actors towards a given proposition of a sustainable firm.

The examples also revealed that these relationships unfold from interaction between human and non-human actors, hence the role played by non-human artefacts in the processes of strategising cannot be ignored by scholars from

strategy, greening the business and industrial networks areas. In this study, I provide distinctive insights on how organisational actors and artefacts, whether textual or physical (e.g. sustainability reports, life-cycle analysis studies, bins, stoppers), mutually construct the links between the rationale behind qualification strategies and its actual emergence. At the same time, these non-human actors are also outcomes of the very networks (qualifications) they helped to create. Thus it highlights the materiality of the strategising process also recognised by strategy scholars (e.g. Whittington, 2004) but along with ANT ideas, provides a view of non-human actors as active participants in the production of desired outcomes.

Hence, by introducing ANT's conceptualisation of actors, my study contributes to extend both sustainable strategic management and industrial networks approaches to strategy, in the sense that it shows that no entity, human or non-human, lies outside the network where the strategy emerges and qualifications come to being. Studies aiming at explaining goals and outcomes of sustainability strategies could benefit from the recognition that these strategies emerge from inter-organisational relationships as suggested by proponents of the relational view of strategy as discussed above (Araujo and Easton, 1996b, Gadde et al., 2003, Baraldi, 2008) but also from the interference and support of artefacts as suggested by ANT scholars. For this reason, this study contributes to support ANT's conceptualisation of actors in strategy studies and industrial network studies by showing that the "wider network of actors" is comprised of individuals and organisations, but also of non-human actors, thus explicitly recognising the

role of artefacts (recycling bins, texts, certifications stamps, technologies and so forth), in the construction of sustainability strategies.

A clear example of this view was provided by 'following' a particular non-human actor – the sustainability report (see Chapter 5 – Publishing sustainability reports). The production of these reports was interpreted as a key practice of sustainability strategies in the sense that it exerts a strong influence on how the strategy is defined. However, it was also shown that the simple fact of reporting, and more importantly, the need to produce the report, also brought the need to reflect on what does it mean to engage in sustainability strategies. The findings illustrated that the production of these reports forces lengthy processes of data collection, data tracking from different sources and departments, conformity with GRI standards, it allocates people to carry out all these activities and, most importantly, brings the necessity to make the firm ready for audits. All these requirements produce changes in the firms' practices and cascades a number of different activities beyond the publication of the report. Hence, in a material sense, as a tangible picture of firms' sustainability strategies, targeted to a multitude of audiences, the report condenses all the processes discussed above into one figurative device that encapsulates a model of sustainability strategies. This is because, as shown by the findings, companies that have recently started to think about embracing this type of strategy referred to other firm's reports, as well as the GRI guidelines, as templates to produce their own.

For this reason, and in line with the “performative programme” developed within the social studies of markets (see for example, MacKenzie and Millo, 2003, Kjellberg and Helgesson, 2006, Araujo, 2007, Callon, 2007, Sjögren and Helgesson, 2007), I suggest that sustainability reports are performative in the sense that the models of sustainability they describe implicate changes in ways of doing things and require a reorganisation of strategic priorities. The very production of the reports is as important as the trajectory of the strategy that their content describes, i.e., the report is not just a static description of the strategy, it acts upon it, reflecting a constant concern with matching the strategy with the model that it intends to follow.

11.3.1.3 Valuing processes versus value creation

The third contribution of this study relates to how existing research tend to interpret the outcomes of sustainability strategies in a value-oriented perspective (Epstein, 2008, Laszlo, 2008, Stead and Stead, 2009). The literature discusses “sustainable value” as equal to stakeholder value to highlight that the goals of sustainability strategies should be aimed at creating value perceived by stakeholders, and as a result to create better opportunities for competitive advantages.

In this study I provide a critique to this view, particularly, on how “sustainable value” is discussed and prescribed as the goal of sustainability strategies, without

explaining the processes that led to its perception and recognition. Thus it contributes to ongoing debates among industrial network and greening the business scholars on what constitutes value in general, and sustainable value in particular, by suggesting that a redirection of focus to analyse processes of valuing things in particular ways, rather than assuming a linear relationship between strategies and value creation. In the empirical chapters it was recognised that valuing processes linked to sustainability strategies are repeatedly used to justify the implementation of special projects or the partnerships with particular actors. Hence, the findings showed that there is a clear perception of value that might emerge from the development of sustainability strategies. However, the term is used in a self-evident manner both by practitioners and the existing literature as if the meanings attached to “sustainable value”, and the different ways these meanings are constructed and taken for granted. Hence, I suggest that “sustainable value” (or any other value) deserves to be discussed and investigated as something that is not self-evidently added or subtracted to/from stakeholders, but as something that emerges from opportunities to engage in valuing processes.

First, I argue that “sustainable value” does not fall into a stable definition linked to sustainability, i.e. value cannot be defined in a linear way but interpreted in a variety of ways; it is not “out there” to be grabbed, but emerges from complex qualification processes within which valuing opportunities occur within many different practices and relationships with different actors. Hence, this relational view of value is not concerned with its co-creation with customers as in Normann

and Ramirez (1993), where the emphasis is on co-creation of value, as a static noun, rather than on valuing, as a dynamic verb. The argument developed in this study sustains that the meanings of (sustainability) value are co-constructed relationally as different players (e.g. customers, suppliers, partners, NGOs, regulatory entities) with different motivations and expectations continuously negotiate their own understanding of the value(s) they might obtain from engaging in relationships and joint practices.

And secondly, I suggest that valuation processes are not purely cognitive; they evolve in parallel with the development of standards and ranking lists, external benchmarks of quality against which firms decide if something is valuable or not. This aspect hints at another key conclusion of this study: there is a clear link between identification of qualities and perceptions of value. Firms might be thorough in building up sustainability qualifications of their products, practices or their holistic images as sustainable firms, but as the process also depends on the audiences' (to encompass all the agents in the hybrid forums) responses to the firms' definitions, there must be a common measure of calculation to support the firms' definitions and the audiences' responses. Callon et al (2002) discussing the mechanism of singularization of goods, rephrased the question "How do consumers evaluate products?" into "How do they qualify products and classify them by giving them an order of preference?", so they allude to this close relationship between the ability to qualify products and the ability to evaluate products. If evaluating products is about examining something in order to judge

its value, qualifying is about making a new value visible, a value that might be recognised and desired by customers.

One last comment regarding the issue of valuing things instead of creating value relates to ANT's conceptualization of non-human actors. It became clear that there are textual actors who play an active role as providers of judgment devices (Karpik, 2010) serving as tools to valuing things as sustainable, such as sustainability reports, benchmarking lists, and environmental awards. Similarly artefacts, as for example recycling bins, technologies in-use, and environmentally-friendly stamps contribute to support judgment exercises and reinforce the attribution of (sustainability) value to the offerings, practices and resources of a firm.

Considering that policy making constitutes a key influence to the way valuing processes unfold, as illustrated by the case of the classification of cork dust as biomass, my study is also contributing to policy making. This aspect is discussed in the following section.

11.3.1.4 Enriching the role of policy-making

The findings of this study shed light on how environmental regulations influence, and more importantly get influenced by, the way firms reflect on their resources and the way they perform a series of valuations to make these resources valuable

in sustainable terms. This is an important conclusion of my work, in the sense that it brings a complementary view on how regulations emerge in the context of sustainability.

Conventional policy research concerned with sustainability issues, such as the socio-technical transitions reviewed in chapter 2, is concerned with the impact of policy in business practices. The cases analysed here revealed that the issue might be investigated the other way around, that is, the way business practices are put together and valued in particular ways might also exert powerful influence in policy-making. As an illustration, take CORKCO's case on the valuation cork dust as fuel for internal use and then their struggle to classify cork dust as biomass to produce green energy (see chapter 6).

The cases described how existing legislation favouring the use of biomass, promoting incentives to implement cogeneration systems and practising higher prices for green KWs induced firms to reflect on the resources (e.g. technology, by-products, waste) they own or have access to and search for new ways to make it valuable at the eyes of the law. CORKCO attempted and succeeded in obtaining a formal classification of cork dust as biomass and PULPCO invested in new cogeneration systems to start a new business unit dedicated to the production of green energy). Hence there are implications not only for firms who try to tackle these regulations, but also for policy makers and regulatory entities that are faced with value propositions put forward by the companies.

These findings differ from studies researching transitions to more sustainable systems (such as socio-technical systems reviewed in Chapter 2) in the sense that they do not concern a macro level analysis of an industry.

Instead, this study shows the active role of business as proactive stimulators of policy changing when valuing opportunities arise. Policy-oriented frameworks establish a passive role for firms as environmental regulations are merely accepted and complied with. The role of policy-making to encourage the adoption of sustainable practices is obvious but it can be enriched by looking at the different valuations schemes undertaken by firms in their daily activities. The case of classifying cork waste as biomass illustrates that opportunities to perform and enhance resource valuations, emerge from relationships established between firms, industrial associations, available resources and different ways to value it, technologies in use, that is, from the connections between all these elements in smaller networks rather than at a macro-level point of view. In this sense, public policy may have a new role in fostering a fertile ground for valuating things in sustainable terms through the creation of “hybrid forums”, for example, (Callon et al., 2009). As discussed above these forums are critical to foster interactions and dialogues between actors, artefacts and other resources so that new ideas might emerge on the valuing processes that lead to the interpretation of resources, products, practises, strategies and firms as sustainable.

11.3.2 *CONTRIBUTION TO PRACTICE*

The second type of contributions that my study offers relates to three recommendations to practitioners engaged in building sustainability qualities. A particular type of practitioner is addressed here: managers who are responsible for formulating and conducting sustainability strategies and CEOs who have the final word in decision making processes concerning which practices to adopt and/or abandon. The three suggestions that I provide in this study are: 1) the use of sustainability reports is an opportunity to construe and delineate the firms' view on the meaning of a sustainable business; 2) the need to build on credible claims by matching sustainable behaviour with public discourse; and finally 3) the efforts to search for, and take advantage of, particular network connections.

11.3.2.1 *Using reports to delineate views on sustainability*

One practical contribution derived from this study is to highlight that, regardless of the existence of sustainability guidelines and standards to follow, managers have some control over the establishment of their own view of what it means to be sustainable in the context of their industry. The need to produce sustainability reports, year after year, gives them the opportunity to reflect on what might be reported as sustainable (e.g. which practices, which offerings, which technologies) based on their past trajectories and access to resources.

By developing an internal assessment on the opportunities they have to produce their own sustainability frames, and based on their ability to enrol other actors in the establishment of their proposed definition, they are able to gain some control to delineate what can be labelled as “best sustainable practices” and be considered as “sustainable companies” in their sectors. Nowadays, and given that benchmarking lists have widespread visibility, the qualification-requalification processes proposed here (framing, valuing, enrolling and stabilising) might be of help to practitioners who aim to build and/or enhance the sustainability qualities of their companies. The exercise of producing and publishing sustainability reports can be a powerful trigger to analyse which practices, resources, offerings and even partnerships might be framed as sustainable and valued (although not in a self-evident fashion), contribute to an all-encompassing image of a sustainable firm.

11.3.2.2 Building on credible claims by matching action with discourse

Another issue that deserves further attention is credibility. Sticking sustainability labels to companies is, as illustrated throughout this study, an outcome of a variety of intertwined practices that need to be recognised as environmentally friendly. Hence, working on the credibility of a qualification strategy calls for special attention to match the discourse in use with the practices undertaken (including, the resources used, the actors involved and the generated outcomes) to avoid potential accusations of failing to match words with action, and thus

jeopardising the credibility of claims. For instance, CORKCO felt the urgent need to start recycling used stoppers to avoid being accused of a deceptive discourse in their sustainability reports.

Hence companies who are active producers of sustainability reports are exposed to all sorts of audits from the outside. Accusations of lack of transparency, green washing or deceptive discourse might emerge from different participants such as competitors, external auditors, NGOs, and the media. Thus the discourse used in the reports, especially the formulations of mission and values, should closely mirror the companies' activities.

11.3.2.3 Searching for and taking advantage of network connections

A final comment on the practical implications of this research relates to the idea that small and medium sized companies (SMEs) may not be able to pursue sustainability qualifications, given their size and limited access to resources, unless they engage into efforts to participate in other firms' projects. An issue that, at first sight, could have been looked at as a limitation of this study, turned out to shed light on this claim.

I focused on four big, well-known companies from the Portuguese industrial setting publicly recognised as "sustainable companies". Although they were chosen precisely because of this status, my conclusions cannot be applied to

SMEs. First, they might have different priorities regarding the qualifications they need to achieve and might want to focus primarily on the development of qualities required by legal standards. Secondly, and given their different access to resources, the ability to develop sustainability qualification processes involving, in particular, the production of sustainability frames and the translation of other actors in their processes are, in this sense, limited when compared with bigger companies. However, this ability might emerge in companies not traditionally associated with good sustainability performance, if they manage to take advantage of the network connections that emerge within specific projects. For example, CORKCO's recycling project illustrated how small companies (waste collectors, restaurants and so forth) tried to grab opportunities to get visibility by proactively engaging in CORKCO's project.

I suggest two ways through which SMEs might be able to engage in advantageous network connections to build on their sustainability qualifications. First, it would be beneficial to consult sustainability reports from big companies published in the websites of the Business Council for Sustainable Development of each country, and search for opportunities to offer their availability to participate in their projects and be associated with them in public communications. Another way could be to assess the waste they produce and look for alternatives to make it valuable as by-products of other industries. In this sense, although they do not own the time and resources to produce their own sustainability reports they end up being mentioned in other firms' reports as partners or participants of their projects.

11.4 LIMITATIONS OF THE RESEARCH

Despite the contributions I have made through this study, some limitations linked to various aspects of the research need to be discussed. First, an issue that might be subject to criticisms is the taxonomy provided to distinguish sustainable practices according to five types – reporting, waste evaluation, developing offerings, adopting clean technology and setting up special projects. The fact that three of the companies were based on forestry-based resources led to the production of similar findings regarding the types and outcomes of sustainability practices. Although this was not an expected outcome when the companies were first selected, it became clear that the similarity of practices was in part based on the common factors of forestry-waste valuation and adoption of cogeneration technologies. Moreover, the practice of reporting was the starting point to select companies; thus it was not a type of practice that emerged from the data analysis but the one that was used to select company cases in the first place. Nevertheless, it is here argued that although the publication of sustainability reports was considered as a good source of information to build up the cases, its interpretation as key processes developed within sustainability strategies, derived from the analysis of the cases. Hence, during data analysis, these reports evolved from being mere sources of information to construct each firm's qualification strategy, to become interpreted as crucial building blocks of the strategies developed and crucial triggers of change and transformation.

A second limitation has to do with the selection of the cases and embedded cases. The study focused on four cases with 23 embedded cases unequally distributed.

Decisions on case selection were made to privilege a richer variety of findings in different industrial settings, but were also influenced by time constraints. Although it would be difficult, if not impossible, to identify and describe all the processes that contribute to one sustainability qualification, other types of practices could have been identified and included in the study, if the number of cases in each firm had been broadened.

A final limitation concerns the fact that a considerable amount of secondary data were collected from sustainability reports. Even though 21 interviews were carried to understand each firm's positions towards sustainability and the main practices around their sustainability strategies, the main sources of data are textual and public (e.g. media, sustainability reports, newsletters, websites). Thus, the cases were, in great deal, constructed from information that was publicly communicated, which means that the information provided was carefully selected, manipulated and displayed in sustainability frames as discussed in chapter 10. Nevertheless, the data collected from interviews to triangulate the information provided by public reports, revealed this very fact. In some cases the information published in these reports derived from manipulation of concepts and from adapting new labels to old practices and this observation was an important outcome of this research.

11.5 DIRECTIONS FOR FUTURE RESEARCH

Based on the findings of this study, I suggest some areas for further research. First, future research should aim to acquire a more detailed understanding of the processes underlying the development of a qualification strategy in a real-time longitudinal single case study. This study looked at the most important projects and practices identified as the building-blocks of the firms' sustainability strategies, but the number of cases was narrowed down due to time and research constraints. Increasing the number of embedded cases in one firm and researching in-depth the various processes that, directly or indirectly, lead to an overall qualification could bring new insights on the relational nature of the qualification process and shed light on the type of network ramifications that emerge from it. By investigating in more detail what goes on in one company it may be possible to uncover for example new typologies of practices that contribute to build up the quality of "being sustainable" besides the five types identified here (reporting, evaluating waste use, developing offerings, adopting clean technologies and setting up special projects). It could also reveal how each type of practice relates to other actors' similar practices and explore the connections that emerge from enrolling processes, as discussed here.

This study could also be of use to instigate research on the issue of legitimacy, a subject close to the heart of institutional theorists. Little attention has been given to the relational character of the processes that lead to legitimacy. Legitimacy is not looked at as a dynamic, processual journey built up from establishing relationships with different sets of actors. One way in which this study could be

of help is to use the arguments made on who, or what, confers legitimacy and develop empirical investigations on the use of artefacts (texts, labels, technologies in-use, certification stamps) as powerful sources of legitimacy, i.e., proofs of credible sustainable behaviour. This aspect could also be explored in processes aiming at legitimising labels of corporate social responsibility (CRS) or social responsible supply chains, but also other empirical settings not necessarily related to sustainability or CSR, given the proliferation of benchmarking lists produced in industrial contexts aiming at rewarding specific qualities of the firm such as products/services quality, financial performance, productivity benchmarks.

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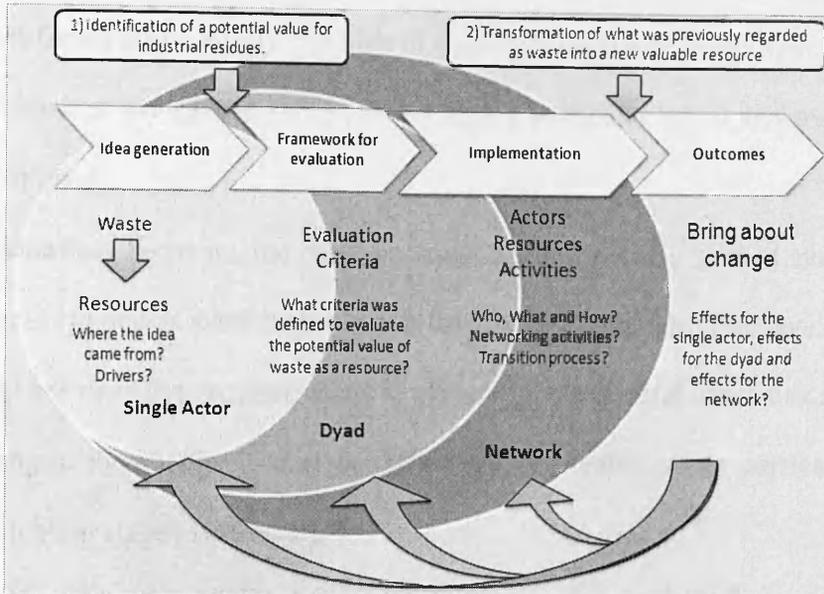
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APPENDICES

APPENDIX 1: ANALYTICAL FRAMEWORK POST-PILOT STUDY



The framework intends to represent the role played by single actors, dyadic inter-organisational relationships and industrial networks, as potential drivers to foster the ecological dimension of SD by reducing the environmental damage caused by their activities. It is assumed that companies may implement changes (e.g. new technologies, new processes) towards a better sustainable performance, by identifying a potential value for the waste they produce. In this sense, what was considered waste in the past may constitute a valuable resource in the future. However, to achieve this goal companies have to experience different stages until the implementation of those changes start to reveal the expected outcomes. The work of Andersson and Sweet (2002) where it is suggested that a change process evolves in three major phases (Start-up, Implementation and Diffusion) inspired this view of change as a stage-by-stage process. The framework pictures a process of change evolving in a four main

phases within which several episodes occur: Idea Generation, Evaluation, Implementation and Outcomes:

- **Idea Generation.** Firstly, the idea of transforming waste into a specific type of resource emerges in some context with a particular set of drivers (single actor level).
- **Evaluation.** Secondly, the company must engage in some kind of evaluation process to decide whether the idea is feasible or not (single actor level). Yet, it may not have the required skills to evaluate the potential outcomes of those changes. Eventually, it may be necessary to involve other parties in the evaluation stage (dyad level).
- **Implementation.** Thirdly, if the evaluation, based on a specific set of criteria, was positive, the company will commence an implementation stage where the conditions (other actors, resources or activities) to achieve those changes (e.g. new technology, new process) are set up. This implementation may be carried out within a dyadic relationship or may demand the involvement of third parties (dyad/network levels).
- **Outcomes.** Finally, the implementation will bring about outcomes, not only for the single actor, but also to third parties, directly or indirectly linked to the focal one, that affect and are affected by it (single actor, dyad and network levels).

I. INTRODUCTORY INFORMATION: Explore the company perspective on environmental practices

SINGLE ACTOR

1. How are issues in your company's environmental strategy, if any, defined? From the top board of managers, from a department allocated to it, from a person (e.g. environmental manager)?
2. Is your company's supply chain affected by any specific EU Directive?
 - a. If yes, can you give examples and explain in what extent it affected your actions?
 - b. What have been the main investments made, if any, to comply with environmental legislation?
3. What kind of criteria is used to define your company's environmental strategy? (E.g. supplier selection, emissions measurement, waste management?).
4. Do you think that environmental awareness or proactiveness is a source of competitive differentiation for your company? If yes, how does your environmental strategy differs from your main competitors? Can you give some examples?
5. How does your company deal specifically with waste management?
 - a. How many people are involved? Is there a specific department to deal with it? Which other departments are involved?
 - b. How does your company explore the opportunities for waste management? Recycling, reuse, reinvention of uses, disposal?

II. IDEA GENERATION: identify the origins of ideas for environmental-friendly change X , which enables to transform waste into a resource

6. Where the idea to implement change X came from (e.g. the idea of starting to use cogeneration systems to transform biomass into energy)?
7. What was the main purpose of change X's implementation? What drivers pushed that change to be thought about (legislation compliance, costs, environmental awareness)?
8. Who, when, where this initiative started in your industrial sector?

III. FRAMEWORK FOR EVALUATION

Explore the evaluation criteria to transform waste into a resource

9. How does/did your company evaluate the potential of transforming a source of waste into a valuable resource? What criteria were taken into consideration?
10. How does/did your company measure the impact of an environmental-friendly change (new technology/new process, e.g. cogeneration)?
11. What kind of costs and benefits were identified and considered relevant to make the decision to implement change X (e.g. cogeneration)?
12. Did your company defined any targets to be accomplished (e.g., in the case of cogeneration a reduction of landfill use in X%, a production of renewable energy in Y%)

| | |
|---------------------------|---|
| DYAD | <p>Identify what parties, if any, were involved at the evaluation stage</p> |
| | <p>13. The criteria for evaluating the feasibility of change X involved other organisations? What for (skills, resources of other organisations)?</p> <p>14. Can you describe what kinds of relationships with third parties, if any, were developed to evaluate the implementation of change X? Partnerships, buyer-supplier, outsourcing.</p> <p>15. Based on what criteria those parties were selected?</p> <p>16. The evaluation stage led to new relationships in the implementation stage?</p> |
| | <p>IV. IMPLEMENTATION</p> |
| | <p>Explore the implementation of Change X in the company</p> |
| SINGLE ACTOR | <p>17. What changes did your company undertook to implement change X?</p> <p>18. What barriers, if any, did your company encountered in implementing change X?</p> <p>19. How was the transition process to a new technology/or new process (e.g cogeneration)? How it was processed, organised?</p> |
| DYAD & NETWORK | <p>Explore how inter-organisational relationships provided the means to implement change X?</p> <p>20. What kinds of inter-organisational relationships, if any, were developed to implement change X?</p> <p>21. Based on what criteria those parties were selected?</p> <p>22. Can you describe the nature of the relationship? What type of exchanges occurred? What kind of activities the implementation involved?</p> <p>23. During the implementation did your company experienced external influences (e.g. customers, competitors, government)?</p> |

V. OUTCOMES

Explore the results of the implementation of Change X in the company

SINGLE ACTOR

24. Does/did your company evaluate the results of change X's implementation? If yes, in what terms? Financial measures, environmental measures?
25. Does/did your company make any comparison between the expected and real outcomes?
26. Would you say the implementation of change X was a success? Why?
27. What were the real outcomes of change X's implementation for the company? What does your company consider to be the tangible and intangible benefits and shortcomings of change X?
28. What are the major challenges posed by change X? How is your company planning to overcome them?

Explore the results of the implementation of Change X for dyads

DYAD

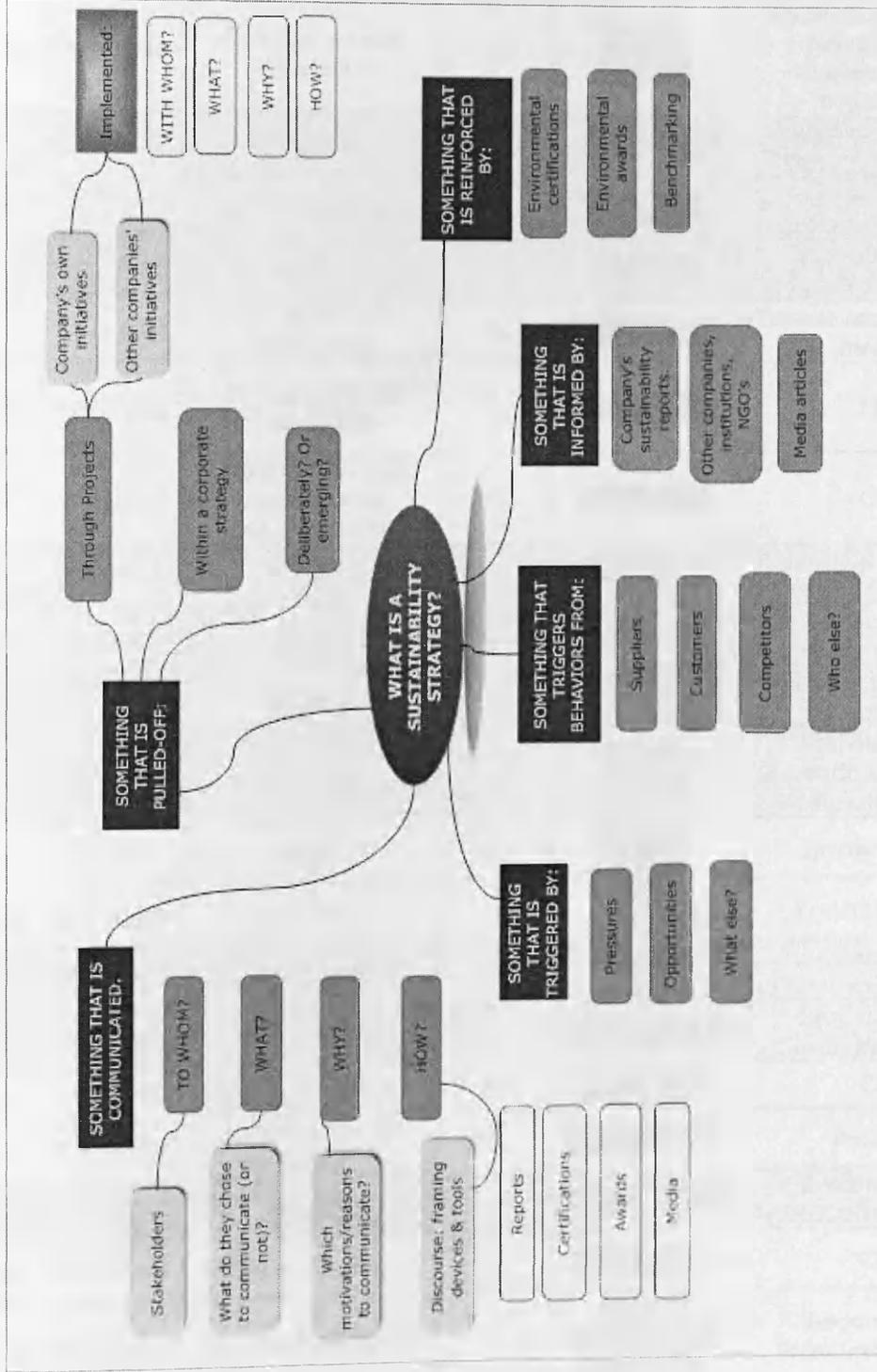
29. Do you think the implementation of change X was beneficial/detrimental to the parties with whom your company worked?
30. What kind of influences, if any, occurred to the other parties?

Explore the results of the implementation of Change X in a network context. How the network affected and was affected by that change?

NETWORK

31. Did your company perceived any impact of the implementation in your industrial sector? In your clients? Suppliers?
32. Other competitors followed the implementation?

APPENDIX 3: SECOND STAGE OF DATA ANALYSIS



APPENDIX 4: INTERVIEWS DATABASE

| # | DAY | ORGANISATIONS | FOCAL? | WHO | ROLE |
|----|----------|---|--------|------------|---|
| 1 | 30/09/08 | Portuguese Cork Association | No | [REDACTED] | Responsible for the "RECYCLING PROJECT" |
| 2 | 30/09/08 | Portuguese Cork Association | No | [REDACTED] | Responsible for Public Relations and Communication Department |
| 3 | 01/10/08 | CORKCO | Yes | [REDACTED] | Responsible for Sustainability Area |
| 4 | 15/12/08 | CORKCO | Yes | [REDACTED] | Responsible for Sustainability Area |
| 5 | 15/12/08 | CORKCO | Yes | [REDACTED] | Responsible for Cogeneration System |
| 6 | 16/12/08 | Portuguese Cork Association | No | [REDACTED] | Finance and Accounting Director |
| 7 | 16/12/08 | Portuguese Cork Association | No | [REDACTED] | CEO |
| 8 | 17/12/08 | CORKCO SUPPLIER (Cogeneration systems provider) | No | [REDACTED] | CEO |
| 9 | 23/09/09 | PULPCO | Yes | [REDACTED] | Responsible for Quality, Safety and Sustainability |
| 10 | 07/10/09 | CORKCO | Yes | [REDACTED] | Responsible for Sustainability Area |
| 11 | 07/10/09 | CORKCO | Yes | [REDACTED] | Director of Business Unit (Raw materials) |
| 12 | 08/10/09 | TECHCO | Yes | [REDACTED] | Responsible for Innovation, Quality and Sustainability |
| 13 | 19/10/09 | COTEC | No | [REDACTED] | Special Projects |
| 14 | 20/10/09 | ENV NGO | No | [REDACTED] | Project Manager |
| 15 | 22/10/09 | WOODCO | Yes | [REDACTED] | Responsible for Cogeneration System |
| 16 | 23/10/09 | TECHCO | Yes | [REDACTED] | Responsible for Sustainability Area |
| 17 | 26/10/09 | CORKCO's Partner 1 | No | [REDACTED] | CEO |
| 18 | 26/10/09 | Portuguese Pulp Association | No | [REDACTED] | President |
| 19 | 27/10/09 | WOODCO | Yes | [REDACTED] | Responsible for Sustainability Area |
| 20 | 30/10/09 | CORKCO's Partner 2 | No | [REDACTED] | CEO |
| 21 | 02/11/09 | TECHCO CUSTOMER | No | [REDACTED] | Responsible for Sustainability Area |

APPENDIX 5: "ENQUIRING CODING" created in ATLAS.TI

| WHAT DO I WANT TO KNOW? | | ENQUIRING CODES |
|---|---|----------------------------|
| FAMILIES / SUB-FAMILIES | | |
| 1. Sustainability Strategies are pulled-off through what? | Projects, practices | SS_PROJ_[ProjName]_WHAT |
| | What type of project? With whom? | SS_PROJ_[ProjName]_WHOM |
| | Why this project? | SS_PROJ_[ProjName]_WHY |
| | How was it "implemented"? | SS_PROJ_[ProjName]_HOW |
| | When and for how long? | SS_PROJ_[ProjName]_WHEN |
| 2. Sustainability Strategies are framed as what? | Part of the corporate strategy? | SS_CS_Mission |
| | Part of the values? | SS_CS_Values |
| | Part of the commitments? | SS_CS_Commitments |
| | What else? | New code? |
| 3. Sustainability Strategies are communicated? | To Whom? | SS_COMMUNICATION_Stake |
| | Customers? | SS_COMMUNICATION_Customers |
| | Suppliers? | SS_COMMUNICATION_Suppliers |
| | Who else? | SS_COMMUNICATION_Others |
| | Sustainability Reports? | SS_COMMUNICATION_SR |
| | Annual reports | SS_COMMUNICATION_AR |
| | Media? | SS_COMMUNICATION_MEDIA |
| | Companies' websites? | SS_COMMUNICATION_WEB |
| | How? Which tools are used to communicate? | |
| | | |

| | Why? | What else? | New code? |
|--|--|---|--|
| | What? What is selected to be communicated? | Motivations to communicate? Project results? Awards? Certifications? Environmental performance per areas? What else? | SS_COMMUNICATION_MOTIVATIONS SS_COMMUNICATION_ProjRESULTS SS_COMMUNICATION_AWARDS SS_COMMUNICATION_CERTIF SS_COMMUNICATION_EnvPERFORM New code? |
| 4. Sustainability Strategies are informed by what? | Companies' internal info? | Sustainability reports? Annual reports? Companies' websites? What else? | SS_INFORMED_INT_SR SS_INFORMED_INT_AR SS_INFORMED_INT_WEB New code? |
| | External info? | Media? Other companies' reports? Other organisations? What else? | SS_INFORMED_EXT_MEDIA SS_INFORMED_EXT_OtherCOMP SS_INFORMED_EXT_OtherORG New code? |
| | Proactive? | Grab opportunities? Image management? Benchmarking? What else? | SS_TRIGGERED_Proact OPPORT SS_TRIGGERED_Proact_IMAGE SS_TRIGGERED_Proact_BENCHM New code? |
| | Reactive? | Pushed by others? Compliance to legislation? Grab opportunities? What else? | SS_TRIGGERED_Reactive_OTHERS SS_TRIGGERED_Reactive_LEGISLAT SS_TRIGGERED_Reactive OPPORT New code? |
| | To Whom? | Stakeholders in general? Society? | SS_TRIGGERERS_EFFECTS_Stake |
| | | | |
| 5. Sustainability Strategies are triggered by what? | | | |
| | | | |
| 6. Sustainability | | | |
| | | | |

| | | |
|--|---------------------------------------|---------------------------------------|
| Strategies triggers effects to others? | Customers? | SS_TRIGGERS_EFFECTS_Customers |
| | Suppliers? | SS_TRIGGERS_EFFECTS_Suppliers |
| | Who else? | SS_TRIGGERS_EFFECTS_Others |
| | The communication tools and contents? | SS_TRIGGERS_EFFECTS_HOW_Communication |
| | The relationship with others? | SS_TRIGGERS_EFFECTS_HOW_Others |
| | What else? | New code? |
| | What type of effects? | SS_TRIGGERS_EFFECTS_TYPE |
| | What else? | New code? |
| | What industry? | SS_CONTEXT_IND |
| | Which markets? | SS_CONTEXT_IND_MARKET |
| What else? | New code? | |
| Differently framed as time goes by? | SS_CONTEXT_TIME | |
| What else? | New code? | |
| 7. Sustainability Strategies are context dependent? | Depend on industry? | SS_CONTEXT_IND |
| | Depend on time frame? | SS_CONTEXT_TIME |
| | What else? | New code? |
| | What else? | New code? |

