

THE UNIVERSITY OF NOTTINGHAM

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“FIRMS LEVERAGING SUSTAINABILITY-DRIVEN CHANGE:  
EVIDENCE FROM A SECOND-TIER REGION IN MEXICO.”

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## Abstract

This thesis explores and investigates how companies located in a second-tier region of an emerging economy have benefited from the adoption of corporate sustainability (CS) programmes. Considering that these companies are immersed in tougher day-to-day problems and struggles than those located in developed countries, it would not be surprising that sustainability compliance is seen as another issue to deal with. Hence the importance of better understanding and providing them with tools that would enable a sounder contribution to sustainable development.

The literature indicates a misalignment between sustainability and strategic management at corporate level, resulting in failed efforts or outcomes far from intended (Amini & Bienstock, 2014; Chowdhury et al., 2015; Engert et al., 2016). Adding to this, when the context where CS is adopted presents less favourable and more challenging conditions, such as emerging economies, the endeavour becomes more daunting for companies. Despite this, the study of sustainability from a business standpoint has so far received little attention from this context (Bezerra et al., 2020; Dobers & Halme, 2009; Silvestre, 2015). Even scarcer is the literature from the perspective of second-tier regions, fraught with harsher circumstances.

Scholars also recognise a dearth of empirical research focused on elements that would help to conduct CS from its design to its implementation (Galpin & Whittington, 2012). This thesis takes up this opportunity to explore and identify the Dynamic Capabilities (DCs) (Teece et al., 1997) that have supported this implementation process, focusing on the benefits they have brought to organisations. Furthermore, this research recognises the uncertain environment and paradoxical demands that companies face when implementing CS (T. B. Porter, 2008; Vildåsen et al., 2017; Wu et al., 2013), which can aggravate and make this task more arduous, but can also favour the companies' development and boost their abilities to cope with these challenging conditions. Therefore, it also incorporates the perspective of Complex Adaptive Systems (CAS) (Amui et al., 2017; Lozano et al., 2015; Williams et al., 2017). Based on these elements, this thesis is guided by the question: *How do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?*

To answer this question, a multiple and holistic case study design was selected, where five large companies located in the Yucatan peninsula (a second-tier region) in Mexico either accredited as socially responsible or following sustainability as one of their business guidelines, were sampled. At each case, semi-structured interviews with staff involved in the design of the strategy for sustainability, responsible for implementing the strategy or staff whose activities have been affected by the strategy, were conducted at their workplace. The transcribed interviews were analysed using a descriptive case approach paired up with thematic analysis.

The thesis poses that the environment of changing demands and uncertainty that companies face when implementing sustainability programmes leads them to a series of changes that enhance their adaptive capacity as a system through the DCs utilised, and thus benefits are gained not just for the sustainability programme, but for the overall firm function. It is assumed that the adaptive changes in the system are the vehicle through which the benefits of DCs are realized by the firm. The findings show that companies are enabled to capitalize on the implementation of their programmes for sustainability in three different, but interrelated, ways: by leveraging their DCs in support of the system's adaptability mechanism, by achieving DCs' benefits supporting the sustainability programme, and by achieving DCs' benefits supporting the overall firm.

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## Table of contents

Abstract .....	II
Acknowledgements .....	III
Table of contents .....	V
List of figures .....	XI
List of tables .....	XII
List of abbreviations .....	XIII
Chapter 1: Introduction .....	14
1.1.    Background to the study .....	14
1.2.    Thesis structure .....	16
Chapter 2: Research Background .....	18
2.1.    Introduction .....	18
2.2.    Sustainable Development outlook and Corporate Sustainability .....	19
2.2.1.    Sustainable Development and the Triple-Bottom Line of sustainability. ....	19
2.2.2.    Corporate Sustainability .....	21
2.3.    Corporate Sustainability in emerging economies .....	24
2.4.    Strategies for Corporate Sustainability .....	26
2.5.    Theoretical lens introduction .....	29
2.6.    Dynamic Capabilities .....	30
2.6.1.    Dynamic Capabilities in Corporate Sustainability research .....	33
2.6.2.    List of Dynamic Capabilities for Corporate Sustainability .....	35
2.6.3.    Organisational benefits of deploying Dynamic Capabilities for Corporate Sustainability. ....	46
2.6.4.    Evaluation of current frameworks of Dynamic Capabilities for Corporate Sustainability .....	47
2.7.    Systems thinking .....	54
2.7.1.    Complex systems and CAS theories .....	55
2.7.2.    CAS in Corporate Sustainability research .....	57
2.7.3.    General Systems Theory (GST) .....	58
2.7.4.    Chaos Theory .....	60
2.7.5.    Cybernetics .....	60
2.7.6.    Soft Systems thinking .....	61
2.7.7.    CAS as the most suitable theoretical lens for this project .....	62

2.8.	An improved holistic approach: Dynamic Capabilities + Complex Adaptive Systems ....	63
2.9.	Research question, objectives and contributions .....	65
	Chapter 3: Research approach and design .....	68
3.1.	Introduction .....	68
3.2.	Research paradigms in business and management research .....	68
3.3.	Philosophical assumptions in strategic management, systems thinking and corporate sustainability literatures.....	70
3.3.1.	Strategic Management.....	70
3.3.2.	Systems thinking .....	70
3.3.3.	Corporate Sustainability.....	71
3.4.	Philosophical stance: foundations of this research.....	72
3.4.1.	Ontology .....	72
3.4.2.	Epistemology .....	73
3.4.3.	Abductive research.....	75
3.4.4.	Our view of the world .....	75
3.5.	Evaluating quality in qualitative research .....	77
3.5.1.	Dependability .....	77
3.5.2.	Credibility .....	78
3.5.3.	Transferability .....	78
3.5.4.	Confirmability.....	79
3.5.5.	Final remarks for quality in qualitative research.....	79
3.6.	Design and methodology .....	82
3.6.1.	Research design: Case study .....	82
3.6.2.	Definition of population .....	87
3.6.3.	Method for data collection .....	88
3.6.4.	Developing the interview guide .....	91
3.6.5.	Interviewees selection .....	94
3.6.6.	Conducting a pilot-interview and learning from it.....	95
3.7.	Analysing the data .....	96
3.7.1.	Data Analysis strategy and method: case description + thematic analysis .....	96
3.7.2.	Data Analysis process and framework composition .....	99
3.8.	Chapter conclusion.....	102
	Chapter 4: Cases context.....	104
4.1.	Introduction .....	104
4.2.	Mexico .....	104
4.3.	The Yucatan Peninsula .....	107

4.4.	Chapter conclusion.....	109
	Chapter 5: Within case analysis .....	110
5.1.	Introduction .....	110
5.2.	Company A .....	112
5.2.1.	Company Context.....	112
5.2.2.	Preamble to interviews .....	113
5.2.3.	The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages.....	114
5.2.4.	Implementing sustainable practices and issues faced during the process .....	116
5.2.5.	Strategies for implementing Corporate Sustainability.....	119
5.2.6.	Company's A sustainability programme through the CAS lens.....	120
5.2.7.	Adaptability and Dynamic Capabilities for sustainability.....	122
5.2.8.	Conclusion .....	125
5.3.	Company B .....	126
5.3.1.	Company Context.....	126
5.3.2.	Preamble to interviews .....	128
5.3.3.	The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages.....	129
5.3.4.	Implementing sustainable practices and issues faced during the process .....	130
5.3.5.	Strategies for implementing Corporate Sustainability.....	135
5.3.6.	Company's B sustainability programme through the CAS lens.....	136
5.3.7.	Adaptability and Dynamic Capabilities for sustainability.....	139
5.3.8.	Conclusion .....	143
5.4.	Company C .....	144
5.4.1.	Company Context.....	144
5.4.2.	Preamble to interviews .....	145
5.4.3.	The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages.....	145
5.4.4.	Implementing sustainable practices and issues faced during the process .....	147
5.4.5.	Strategies for implementing Corporate Sustainability.....	152
5.4.6.	Company's C sustainability programme through the CAS lens.....	154
5.4.7.	Adaptability and Dynamic Capabilities for sustainability.....	157
5.4.8.	Conclusion .....	158
5.5.	Company D .....	159
5.5.1.	Company Context.....	159
5.5.2.	Preamble to interviews .....	161

5.5.3.	The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages.....	161
5.5.4.	Implementing sustainable practices and issues faced during the process .....	163
5.5.5.	Strategies for implementing Corporate Sustainability.....	166
5.5.6.	Company's D sustainability programme through the CAS lens .....	168
5.5.7.	Adaptability and Dynamic Capabilities for sustainability.....	170
5.5.8.	Conclusion .....	173
5.6.	Company E.....	173
5.6.1.	Company Context.....	173
5.6.2.	Preamble to interviews .....	175
5.6.3.	The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages.....	176
5.6.4.	Implementing sustainable practices and issues faced during the process .....	178
5.6.5.	Strategies for implementing Corporate Sustainability.....	183
5.6.6.	Company's E sustainability programme through the CAS lens .....	184
5.6.7.	Adaptability and Dynamic Capabilities for sustainability.....	188
5.6.8.	Conclusion .....	191
Chapter 6:	Cross-case analysis .....	192
6.1.	Cross-case analysis overview .....	192
6.2.	Cases' main characteristics .....	192
6.3.	Strategies for sustainability.....	194
6.3.1.	Corporate Level Strategies .....	194
6.3.2.	Competitive Level Strategies.....	195
6.3.3.	Functional Level Strategies .....	195
6.3.4.	Summary of the cross-case analysis for sustainability strategies .....	196
6.4.	Two approaches to sustainability: a means vs an end.....	199
6.5.	Dynamic Capabilities .....	201
6.5.1.	Collaboration.....	202
6.5.2.	Knowledge related and absorptive capacity.....	205
6.5.3.	R&D and Innovation .....	206
6.5.4.	Social Network Relationships.....	207
6.5.5.	Internal reconstruction .....	208
6.5.6.	Market oriented perception .....	209
6.5.7.	Cross-functional integration.....	210
6.5.8.	Summary of the cross-case analysis for Dynamic Capabilities.....	211
6.6.	Dynamic Capabilities contributing to the evolution of Complex Adaptive Systems.....	215



6.6.1. Environments of case companies.....	215
6.6.2. Collaboration.....	216
6.6.3. Knowledge related and absorptive capacity.....	216
6.6.4. R&D and Innovation.....	216
6.6.5. Social Network Relationships.....	217
6.6.6. Internal reconstruction.....	217
6.6.7. Market oriented perception.....	218
6.6.7. Cross-functional integration.....	218
6.6.8. Summary of the cross-case analysis for Dynamic Capabilities' contribution to CAS ..	218
Chapter 7: Discussion.....	222
7.1. Introduction.....	222
7.2. Firms' motivation for implementing programmes for sustainability.....	223
7.3. Contribution of Dynamic Capabilities to the organisational system and the programme for sustainability.....	225
7.3.1. Increased inner and outer flows of information.....	225
7.3.2. Expansion of knowledge base.....	226
7.3.3. Fine-tuning of strategies.....	227
7.3.4. Higher alignment of agents to system's schema.....	227
7.3.5. Improved relations with other systems.....	228
7.3.6. Increased system transparency.....	229
7.3.7. Spanning of boundaries and inclusion of new agents.....	229
7.3.8. System's schemas adaptation.....	230
7.3.9. Enhanced response capacity to threats, requirements and challenges.....	231
7.3.10. Summary of contribution of Dynamic Capabilities to the organisational system	232
7.4. Benefits of Dynamic Capabilities for companies implementing a programme for sustainability.....	233
7.4.1. Supporting actions towards obtaining/maintaining certifications/memberships	234
7.4.2. Facilitating access to information from local industry.....	235
7.4.3. Adding to image of social and environmental responsibility.....	235
7.4.4. Addressing issues developed by adopting sustainability strategies.....	236
7.4.5. Endorse sustainability best-practice approach and increased worker commitment	238
7.4.6. Expansion of labour opportunities.....	238
7.4.7. Improvement of relationships with stakeholders.....	239
7.4.8. Increase/stabilise supply of raw material and services.....	239
7.4.9. Maintenance of current and readiness for new commercial relationships.....	240
7.4.10. Stronger market position.....	240

7.4.11. Maintain production stability.....	241
7.4.12. Maintain competitive advantage .....	241
7.4.13. Summary of benefits of Dynamic Capabilities .....	243
7.5. Capitalizing from the implementation of sustainability programmes .....	243
Chapter 8: Conclusion .....	248
8.1. Thesis overview .....	248
8.2. Conclusions regarding research questions.....	251
8.3. Contributions to new knowledge.....	253
8.4. Managerial implications.....	254
8.5. Limitations and future research .....	255
References.....	258
APPENDIX 1: Illustration of data structure from thematic analysis.....	274
APPENDIX 2: Representative quotes supporting 2 <sup>nd</sup> order themes.....	283
APPENDIX 3: Data collection schedule.....	315
APPENDIX 4: Interview guide .....	317

## List of figures

Figure 1. Underpinning literature strands for the research.....	19
Figure 2. Opposing views on Sustainable development and the 3BL .....	20
Figure 3. Viable systems features to dynamic capabilities.....	50
Figure 4. Key organizational functions and processes underlying the dynamic capabilities for corporate sustainability .....	51
Figure 5. A conceptual model CSR: corporate social responsibility .....	51
Figure 6. Conceptual integrative framework relating OCS and expected corporate sustainability benefits.....	52
Figure 7. Research model – Dynamic capabilities and organisational routines for managing innovation towards sustainability.....	52
Figure 8. A framework of Dynamic Capabilities in Sustainable Supply Chain Management (SSCM) .....	53
Figure 9. Conceptual framework - Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance .....	53
Figure 10. Conceptual framework - Sustainable supply chain management practices, supply chain dynamic capabilities, and enterprise performance.....	54
Figure 11. Commonalities between CAS and DC theories .....	64
Figure 12. Proposed theoretical approach combining CAS and DC .....	65
Figure 13. The Yucatan Peninsula.....	108
Figure 14. Sustainability as a means – end spectrum .....	200
Figure 15. Systems’ evolution and strength of Dynamic Capabilities .....	219
Figure 16. Specific contributions of DCs to the organisational system and its CS strategy.....	225
Figure 17. Specific benefits of DCs for companies implementing programmes for sustainability .....	234
Figure 18. Theoretical framework informed by findings – Companies capitalizing from DCs when implementing programmes for sustainability.....	244
Figure 19. Theoretical framework informed by findings (detailed) – Companies capitalizing from DCs when implementing programmes for sustainability.....	247

## List of tables

Table 1. Research background chapter structure .....	18
Table 2. Comparison of prominent views on DCs .....	32
Table 3. Current and relevant lists of DCs for sustainability reviewed from the literature.....	37
Table 4. List of Dynamic capabilities for Corporate Sustainability .....	44
Table 5. Reviewed relevant frameworks of DCs for CS, SSCM, and environmental management .....	48
Table 6. Calls for research/ gaps addressed by doctoral research project .....	66
Table 7. Major Paradigms in Business and Management research .....	69
Table 8. Operationalisation of quality criteria in the research .....	80
Table 9. Major strategies for qualitative data analysis .....	97
Table 10. Structure of the Data Analysis process.....	100
Table 11. Cases' overview.....	111
Table 12. Cases' characteristics .....	193
Table 13. Summary of cross case analysis- Strategies for Sustainability.....	197
Table 14. Summary of cross case analysis - Ranking of Dynamic Capabilities and their strength .....	201
Table 15. Summary of cross case analysis - Dynamic Capabilities occurrence in organisations	203
Table 16. Summary of cross case analysis- Dynamic Capabilities and their support to the programme for sustainability and the overall company .....	212
Table 17. Summary of cross case analysis - Dynamic Capabilities and their contribution to the organisational system and its strategies for sustainability .....	220

## List of abbreviations

3BL	Triple Bottom Line of sustainability
CAS	Complex Adaptive Systems
CDP	Carbon Disclosure Project
CEMEFI	Mexican Centre for Philanthropy
CEO	Chief Executive Officer
COO	Chief Operating Officer
CoP	Global Compact's Communication on Progress
CS	Corporate Sustainability
CSR	Corporate Social Responsibility
DC	Dynamic Capability
EMS	Environmental Management System
FEYAC	Yucatecan Businesses Foundation
GST	General Systems Theory
OYUCAAC	Yucatan Environmental Certified Organisations
PROFEPA	National agency in charge of environmental care and protection (in Mexico)
RBV	Resource based view
RSPO	Roundtable for Sustainable Palm Oil
SBU	Strategic Business Unit
SD	Sustainable Development
SDGs	Sustainable Development Goals
SEDEX	Supplier Ethical Data Exchange
SRC	Socially Responsible Company badge
SSCM	Sustainable Supply Chain Management
SSM	Soft Systems Methodology
UN	United Nations

# Chapter 1: Introduction

This thesis is focused on the implementation of programmes for Corporate Sustainability (CS) in a second-tier region in Mexico, an emerging economy, looking at the capabilities that companies have been relying on to navigate the challenges posed by their sustainability journey. Through the lenses of Complex Adaptive Systems (CAS) and Dynamic Capabilities (DC) theories, this research explores the adaptation process that companies have undergone and the benefits that have been grasped by relying on DCs during the implementation of their programmes for CS. For the purposes of this thesis, the set of strategies for sustainability in a company will be referred to as the sustainability programme.

Thus, the work of this thesis is positioned within three academic areas. First, it adds to the multidisciplinary field of CS by merging two theoretical lenses not previously combined but that answer different calls for research, while also strengthening each other through their similarities and differences. Second, it contributes to the literature in strategic management through DCs theory, which receives new insights from the thesis unique context. Finally, and as suggested by several academics, the thesis incorporates systems thinking into CS research through CAS theory. This thesis demonstrates that CAS and DCs are a good fit when trying to understand complex phenomena in changing and highly challenging scenarios for companies, such as that posed by sustainability.

## 1.1. Background to the study

Companies' key role in improving the conditions of the different stakeholders they are linked to and of the environment in which they are embedded is indisputable. Without the cooperation and decisive efforts from large companies, there can be no sustainable development (SD) for humanity or the planet (Baumgartner & Rauter, 2017; Hörisch et al., 2015). Recognising this important role, this thesis looks at the implementation of strategies for CS, which have been claimed to be often misaligned with the core strategy of organisations, rendering them ineffective or not achieving the expected results (Amini & Bienstock, 2014; Chowdhury et al., 2015; Engert et al., 2016).

Added to this are the contrasts between developed countries and emerging economies when going down the path of sustainability. While companies located in the former typically face pressures from different fronts including society, customers and NGOs, this is not the usual scenario for companies in emerging economies, which, despite facing regulatory pressures, still deal with corruption (Blasco & Zølner, 2010), lower public awareness (Weyzig, 2014) and lax demands from local customers (Lloret, 2016). Issues such as lack of infrastructure (Arevalo & Aravind, 2011; Hart, 1997; Silvestre, 2015), pressing social problems, social exclusion and wealth concentration (Silvestre, 2015) can exacerbate the sustainability challenge for these countries (Pacheco-Vega et al., 2001). Yet, literature acknowledges a paucity of research from the emerging economies perspective. Thus, academics have urged for more studies from a business standpoint (Bezerra et al., 2020; Dobers & Halme, 2009; Silvestre, 2015). Moreover, extant literature provides an even narrower account from the perspective from second-tier regions, which although possessing good potential for contributing towards the advancement of

sustainability (Agnoletti et al., 2015; van der Gaast et al., 2020), might face even starker challenges. Aiming to address these issues, this thesis looks at a second-tier region in Mexico.

Scholars have also recognised scarcity of research addressing the key elements to conduct CS from its design to its implementation (Galpin & Whittington, 2012). In this light, and following suggestions from several academics (Cezarino et al., 2019; Engert & Baumgartner, 2016; Hofmann et al., 2012; Pinelli & Maiolini, 2017; T. B. Porter, 2008), there is an opportunity for this thesis to empirically examine the capabilities that have been identified as tools with the potential to support companies to overcome the challenges posed by sustainability and, to achieve results closer to the desirable ones, namely DCs (Amui et al., 2017). This thesis also proposes that second-tier regions in emerging economies are an ideal setting for exploring the relevance of DCs given the less favourable and arguably more challenging conditions in the quest for implementing sustainability at the corporate level.

Companies are naturally immersed in a series of complexities to which, additional tensions and paradoxes inherent to sustainability, such as the incorporation of conflicting values and demands, are added (T. B. Porter, 2008; Vildåsen et al., 2017; Wu et al., 2013). Hence, systems thinking can provide valuable insights to the study of CS in the business context (Amui et al., 2017; Lozano et al., 2015; Morioka et al., 2017; Van der Byl & Slawinski, 2015; Vildåsen et al., 2017; Williams et al., 2017) but research is very limited in this respect. Moreover, scholars have urged to develop research that combines both DCs and systems thinking (Cezarino et al., 2019; Teece, 2018). This thesis posits the CAS theoretical lens as a complement to the DCs view, resulting in a synergy that would allow a better understanding of the implementation process of programmes for sustainability.

Despite the assumption that DCs support the implementation of sustainability programmes, there is a lack of theoretical frameworks incorporating the tangible gains or specific improvements for organisations relying on these capabilities. Furthermore, research looking into this phenomena from the perspective of second-tier regions in emerging economies is almost null. Therefore, this thesis contribution arises from the aforementioned research gaps, placed in the context of the Yucatan peninsula, a second-tier region in Mexico, and seeks to answer the following research question:

*How do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?*

In order to answer the previous question, this project has the following objectives:

- To understand how are DCs contributing to the adaptability of firms and that of their programme for sustainability.
- To identify the benefits realised by companies when seizing the DCs related to the implementation of their programme for sustainability.

In addition, the following underlying aspects ought to be explored:

- Understand the motivation behind firms implementing a programme for CS and their implications for the firm behaviour.
- Identification of the DC supporting the implementation of a programme for sustainability.

The contribution of this research is twofold. First, it sheds new insights to the literature on DCs and CAS by bringing attention to an approach in which both theories theoretically frame the understanding of how organisations and their embedded systems, capitalize on their capabilities when implementing strategies for sustainability, considering the organisation's environment, its competitive advantages, as well as the complexities associated to sustainability issues. Secondly, with a focus in the context of an emerging economy as suggested by recent research (Amui et al., 2017; Bezerra et al., 2020), and attending to the limited research on second-tier regions, this investigation contributes to the conversation of DCs by composing an empirically tested list with the DCs that better serve the successful implementation of a program for sustainability.

## 1.2. Thesis structure

The content of the thesis is structured in 8 chapters, as summarised below:

**Chapter 1: Introduction.** This chapter presents the thesis overview and the rationale for the study, for later introduction of the research question and objectives. It ends by outlining the thesis structure.

**Chapter 2: Research background.** The chapter identifies and reviews the strands of literature underpinning the project, highlighting calls for research and gaps for each body of literature. With its narrative, it aims to provide a comprehensive understanding of the field and set the basis for the rationale behind the study. It also presents the case for the proposed theoretical lens framing the research, to finally address once again the research question, objectives and contributions derived from the identified gaps.

**Chapter 3: Research approach and design.** The chapter presents and explains the design, approach and methodologies for this investigation. It begins by reviewing the traditional philosophical assumptions in business and management research, to later address the philosophical grounds on which the literature strands of strategic management, systems thinking and CS are settled. The chapter also discuss the philosophical assumptions upon which this research has been constructed and the parameters to assess quality in qualitative research. The last sections of the chapter address the research design and methodology for data collection, including the design of the instrument for data collection and its pilot test, as well as the strategy and method for data analysis.

**Chapter 4: Case context.** Having Mexico as the context for this investigation, the chapter introduces the historical development of the sustainability scenario for Mexican companies, as well as the factors and idiosyncrasies that shape the national agenda for sustainability. It also highlights the two main national accreditations that companies rely on to demonstrate their commitment to sustainability. Likewise, the chapter presents the relevance of the Yucatan Peninsula, the second-tier region in Mexico where case companies are located, as well as its specific characteristics and their implications to the sustainability scenario.

**Chapter 5: Data Analysis - Within case analysis.** This chapter presents the findings that emerged from the individual analysis of the cases. In doing so, background information for each company



is provided, their prime motives and objectives for the adoption of sustainability, their strategies and the implementation process, the CAS elements identified and the features of their adaptation process, as well as the DCs harnessed during the process.

**Chapter 6: Data Analysis - Cross case analysis.** This chapter extracts the similarities and differences between cases to maximise their value. Thus, it combines and merges their findings. The strategies for sustainability adopted by case companies and their approach for engaging with a sustainability agenda are compared at the beginning of the chapter. It then focuses on the similarities and differences between the DCs exhibited by each case, as well as the benefits grasped by companies. The chapter closes by analysing the contributions of DCs to the organisational system represented by case companies from the CAS perspective, and also presents a comparison of case companies' degree of adaptability.

**Chapter 7: Discussion.** The chapter discuss the findings in relation to the extant literature to confirm, refute, or extend available knowledge, as well as highlight their relevance. It begins by addressing the firms' motivations for engaging in programmes for CS. Afterwards, the chapter concentrates on the research objectives to lay the ground for answering the main research question. At the end, the research question that motivates this study is answered while introducing the theoretical framework that combines both DCs and CAS theories and that represents the main contribution from this investigation.

**Chapter 8: Conclusion.** The last chapter presents the overall conclusions of the investigation and their implications for the bodies of knowledge where it is positioned, namely CS, CAS and DCs theories. It begins by providing an overview of the thesis. Subsequently, the conclusions in relation to the research question and objectives are outlined to later discuss the contributions of the investigation to knowledge and practice, as well as implications for managers. At the end, the limitations of the investigation and avenues for future research are pointed out.

# Chapter 2: Research Background

## 2.1. Introduction

This chapter aims to clarify the current literature in relation to this research, providing a comprehensive understanding of the field and setting the basis for the rationale behind the study. Sections 2 to 7 in the chapter will review the strands of literature underpinning the project, highlighting calls for research and gaps for each body of literature. Subsequently, section 8 will present the case for the proposed theoretical lens that will frame the research. At the end, section 9 will introduce the research question, objectives and contributions derived from the identified gaps.

Four strands of literature have been identified as relevant to this research, which are presented by figure 1. The chapter structure is presented by table 1.

TABLE 1. RESEARCH BACKGROUND CHAPTER STRUCTURE

2.1.	Introduction
2.2.	Sustainable Development outlook and Corporate Sustainability
	2.2.1. Sustainable Development and the Triple-Bottom Line of sustainability
	2.2.2. Corporate Sustainability
2.3.	Corporate Sustainability in emerging economies
2.4.	Strategies for Corporate Sustainability
2.5.	Theoretical lens introduction
2.6.	Dynamic Capabilities
	2.6.1. Dynamic Capabilities in Corporate Sustainability research
	2.6.2. List of Dynamic Capabilities for Corporate Sustainability
	2.6.3. Organisational benefits of deploying Dynamic Capabilities for Corporate Sustainability
	2.6.4. Evaluation of current frameworks of Dynamic Capabilities for Corporate Sustainability
2.7.	Systems thinking
	2.7.1 Complex systems and CAS theories
	2.7.2. CAS in Corporate Sustainability research
	2.7.3. General Systems Theory (GST)
	2.7.4. Chaos Theory
	2.7.5. Cybernetics
	2.7.6. Soft Systems thinking
	2.7.7. CAS as the most suitable theoretical lens for this project
2.8.	An improved holistic approach: Dynamic Capabilities + Complex Adaptive Systems
2.9	Research question, objectives and contributions

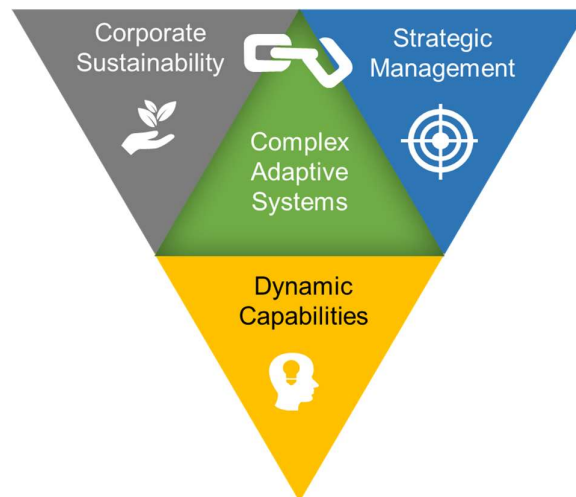


FIGURE 1. UNDERPINNING LITERATURE STRANDS FOR THE RESEARCH

It is worth reminding the reader that this thesis assumes that a programme for CS is composed by a set of strategies for sustainability.

## 2.2. Sustainable Development outlook and Corporate Sustainability

### 2.2.1. Sustainable Development and the Triple-Bottom Line of sustainability.

This section of the literature review will begin by looking at the concept of Sustainable Development (SD) and its controversies. Perhaps the most famous definition of this term is that provided by the Brundtland report "*development that meets the needs of the present, without compromising the ability of future generations to meet their own needs*" (Brundtland, 1987). In principle, this concept sought to promote harmony amongst living beings, and between living beings and the environment (Waas et al., 2011). However, some scholars have found this definition highly abstract, vague, ambiguous, bland and lacking in rigour (Giddings et al., 2002; Milne & Gray, 2013; Rambaud & Richard, 2015; Waas et al., 2011). For some, the concept of SD is rather difficult to define (Rambaud & Richard, 2015). Deep ecologists have also rejected this concept. They argue that SD puts the needs of humans above other life forms, as well as looking at the environment from a human perspective (Giddings et al., 2002). The simultaneous focus on nature protection, economic well-being and social inclusion, it is argued, threatens the limits of the Earth system (Hummels & Argyrou, 2021). This could be worsened by the concept's tepidness in suggesting limits to human activity (Milne & Gray, 2013). All of these, coupled with a lack of awareness of the origins and debates from which the concept emerged, has allowed the neglect of its fundamental principles, as well as governments and companies claiming contributions to SD without respecting planetary boundaries (Bebbington, 2001; Hummels & Argyrou, 2021; Milne & Gray, 2013; Waas et al., 2011). As a consequence of these critical issues, a diversity of interpretations of SD have emerged (Rambaud & Richard, 2015; Waas et al., 2011), fuelled by the range of views and ideologies (traditional economics vs. ecological economics for instance) that sometimes seek mutually exclusive outcomes (Bebbington, 2001; Giddings et al., 2002; Isil & Hernke, 2017; Milne & Gray, 2013). Furthermore, some argue the concept has been misused (Bebbington, 2001; Waas et al., 2011).

In response to the above, Hummels & Argyrou (2021) echoed scholars like Giddings et al. (2002) and Griggs et al. (2013) in highlighting the need for a redefinition of the concept of SD. This new definition could allow the pursuit of economic growth as long as planetary boundaries are respected. Griggs et al. (2013) in particular has proposed the following definition: *"development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends"* (p.306). This research project recognises the relevance of planetary boundaries and has therefore decided to adopt the latter definition.

Another controversial concept is the triple-bottom line (3BL) of sustainability attributed to Elkington (Elkington, 1997). This model presents each of the pillars of sustainability, environment, economy, and society, as circles of equal size and places SD at the intersection of the three. Criticism to this model has been numerous. Rambaud & Richard (2015) argue that it does not seek to conserve human and natural capital, but rather to reduce its degradation. For his part, Giddings et al. (2002) argue that the three pillars are presented in a fractured manner, which allows the assumption that they can exist autonomously and suggest the possibility of trade-offs in line with a weak view of sustainability. This line of thought is supported by Isil & Hernke (2017) and Milne & Gray (2013), arguing that the 3BL has become a metaphor for sustainability as it is being used as the basis for accounting/reporting tools through which companies report non-financial information, selected by themselves, of their operations. These 3BL-derived tools, such as the Global Reporting Initiative (GRI), are insufficient for organisations to contribute substantively to the preservation of the Earth's environmental system. They do, however, contribute to increasing the legitimacy of business, disguising their objectives to the public, and perpetuating business as usual (Isil & Hernke, 2017; Milne & Gray, 2013; Rambaud & Richard, 2015). In response to the series of criticisms from scholars, Elkington (2018) has recalled the 3BL model, pointing out that it was not conceived to be used as an accounting tool or to balance trade-offs, but to provoke reflection and questioning of the capitalist system and its future, as well as to encourage real change.

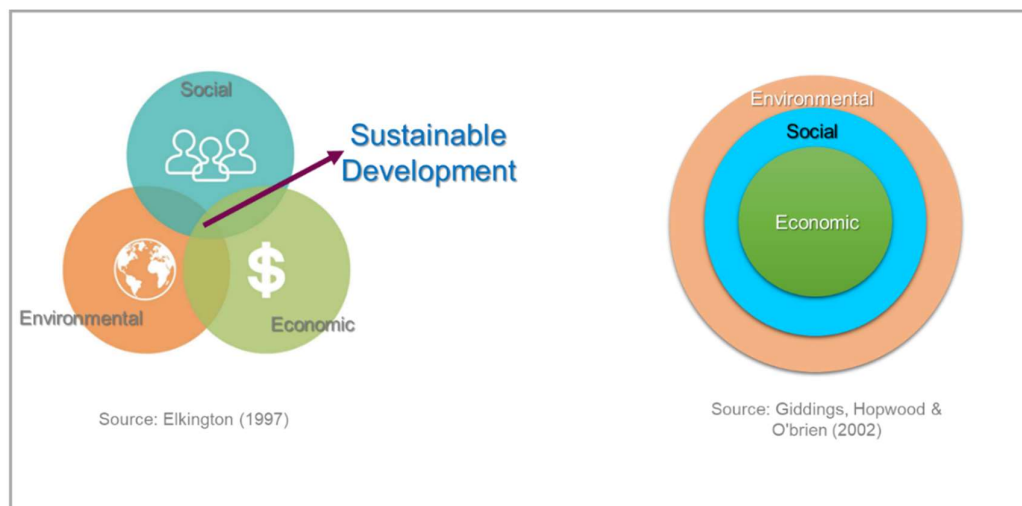


FIGURE 2. OPPOSING VIEWS ON SUSTAINABLE DEVELOPMENT AND THE 3BL

Striving for an approach that would represent SD and 3BL more adequately and comprehensively, Giddings et al. (2002) proposed a nested model. In this model, the economy is the smaller circle embedded in a larger circle representing society, which is simultaneously embedded in an even larger circle representing the environment. This model exhibits the

dependence of the economy on society, and of society on the environment, since society can exist without the economy, and the environment exist without the society, but not the opposite. Such an approach has been supported by scholars like Griggs et al. (2013). Admittedly, this approach assigns a more appropriate weight to each pillar, but above all it recognises the vital importance of the Earth's life support system and its limits. Figure 2 presents Elkington (1997) and Giddings et al. (2002) opposing views to SD and the 3BL.

Despite strong criticisms to the concepts of SD and the 3BL, it is a matter of debate to what extent it is possible for decision-makers in organisations born within the constraints of a capitalist setting, to subordinate economic criteria to criteria with social and ecological values (Milne & Gray, 2013). While much of today's business actions towards CS are based on what is termed weak sustainability (Bebbington, 2001), they still represent a step forward in the process of learning and progressing towards stronger sustainability. Unfortunately, and despite being against the clock and close to planetary boundaries, not all changes can be as abrupt or as rapid as required. As long as there are companies across the globe with a weak approach to sustainability, there will be a need for studies to look at them from this perspective. Acknowledging the importance to understand the meaning of sustainability to the heterogenous people in different regions of the world outside the global north (Marques et al., 2021), and the pivotal role that the business sector plays in bringing us closer to the desired SD, this project henceforth joins the body of research focused on CS.

### 2.2.2. Corporate Sustainability

Today, businesses increasingly recognise the importance of engaging in SD. However, in many cases the integration of SD into their policies and operations has been rather challenging or ends up being neglected (Nawaz & Koç, 2018; Witjes et al., 2017). Businesses have been acknowledged as key players in the quest to achieve SD (Baumgartner & Rauter, 2017; Hörisch et al., 2015), as they are the productive entities that drive the global economy and without them, access to goods and services as we know them today would be impossible (Benn et al., 2014; Hahn et al., 2018). Nevertheless, they are also largely responsible for many of the issues faced today by the modern world, so they must be part of the solution (Benn et al., 2014; Sharma, 2002). Furthermore, one should not lose sight that businesses have access to many of the resources and skills needed to achieve the longed-for stage of SD (Hart, 1997; T. B. Porter, 2008; Scheyvens et al., 2016). Beyond this, they are also expected to contribute to the improvement of societies welfare and the world we live in (Hahn et al., 2018; Sharma, 2002).

It is due to this key role that companies must play in the pursuit of SD that the study of CS becomes paramount, so that successful actions can be undertaken for the benefit of both direct and indirect stakeholders, without neglecting those who will come in the future (Dyllick & Hockerts, 2002). In this quest, companies have to reconcile pressures from diverse stakeholder groups, sometimes at odds with each other (Bansal & Roth, 2000; Chowdhury et al., 2015). Global SD depends on the decisions, actions and commitments of businesses and corporations around the world, in conjunction with efforts from other social actors (Morioka et al., 2017). To the extent that businesses and corporations are better prepared to assume their role and the challenge of sustainability, the private sector may realise a sounder contribution.

CS has been defined in a variety of ways, in most cases incorporating the 3BL concept from Elkington (Baumgartner & Ebner, 2010; Chakrabarty & Wang, 2012; Hahn et al., 2018; Lozano, 2015; Morioka et al., 2017; T. B. Porter, 2008; Savitz, 2013), and considering both short- and long-term effects (Cesarino et al., 2019; Chakrabarty & Wang, 2012; Lozano, 2015; Morioka et al., 2017). Dyllick & Hockerts (2002) adopted a stakeholder perspective, where the needs of

both current and future direct and indirect stakeholders to the organisation, have to be met. Meanwhile, other studies have highlighted the business case for sustainability in their definitions by giving attention to the development of opportunities and risk management (Chakrabarty & Wang, 2012; M.E. Porter & Kramer, 2006) that would allow the company to continue generating profits (T. B. Porter, 2008; Salzmänn et al., 2005; Székely & Knirsch, 2005). However, the business case for CS has been challenged from the perspective of critical management studies, as it attempts to use social welfare as a means to reach higher profitability and better business outcomes. Arguably, hindering positive outcomes for SD where there is no net harm for society nor the environment (Gold & Schleper, 2017).

Based on the extant body of knowledge, this research understands CS as companies working to meet the needs of present and future direct and indirect stakeholders (Dyllick & Hockerts, 2002), being mindful of resource constraints and their responsibility for potential externalities linked to their operation (Pinelli & Maiolini, 2017). To this end, companies have to embrace a holistic perspective (Engert et al., 2016; Lozano, 2015) where modifications to their internal functions and systems (operations, production, human resources, strategies, etc.) (Lozano, 2015) must consider the three pillars on which sustainability is built (Elkington, 1997).

From the standpoint that SD, and thus CS, simultaneously pursue economic development, environmental protection and social responsibility (Engert et al., 2016), both SD and CS understandably riddled with tensions and trade-offs (Henry et al., 2019; Sajjad et al., 2020; Wannags & Gold, 2020), compounded by the potentially conflicting interests from different stakeholder groups. Lozano (2013) argued that the integration of environmental and economic tensions has received most of the attention in the literature, while the work of Van der Byl & Slawinski (2015) pointed out how the tensions between the three pillars of sustainability have been studied from different lenses, identifying four approaches: win-win, trade-offs, integrative, and paradox.

Two of the perspectives mentioned by Van der Byl & Slawinski (2015) and frequently discussed in research are the win-win and the paradox approaches. The win-win approach is also known as instrumental or the business case for CS (Hahn et al., 2018; M.E. Porter & Kramer, 2006; Salzmänn et al., 2005). It sees environmental and social practices as means to the ultimate end of economic profit (Wannags & Gold, 2020). In other words, the incorporation of sustainable practices is driven by short-term (Hahn et al., 2018) and long-term (Chowdhury et al., 2015) profit motives. Tensions between the three pillars are then understood to be reconciled or eliminated (Hahn et al., 2018). Additional benefits that end up being reflected in economic gains for companies are the reduction of negative publicity risks and the contribution to competitive advantages (Chowdhury et al., 2015; Reuter et al., 2010). The paradoxical approach, on the other hand, recognises and embraces the tensions between the three pillars, and therefore does not prioritise any one of them but seeks to navigate across them (Hahn et al., 2018). This does not mean that the economic pillar is left aside, but rather that the company is not only nor primarily interested in immediate economic benefits (Van der Byl & Slawinski, 2015), so there is a balance (Henry et al., 2019) between instrumental and, socially responsible or environmental initiatives. This perspective expects a wider range of problems to be addressed, so the contribution to SD is anticipated to be greater (Hahn et al., 2018).

The win-win approach for CS has been questioned by scholars claiming it represents a major obstacle for achieving sustainability, while also calling for radical changes that would put planet boundaries, stakeholders without economic stake, and society, at their core (Gold & Schleper, 2017; Matthews et al., 2016; Montabon et al., 2016). Nevertheless, this is not the only issue besetting CS. There is a large list of other problems and barriers hindering companies from having a sound contribution to SD. Lack of organizational culture and education for

sustainability (Chowdhury et al., 2015; Engert & Baumgartner, 2016), employee behaviours and attitudes (Engert & Baumgartner, 2016), lack of leadership and support from senior management (Chowdhury et al., 2015; Engert & Baumgartner, 2016; Giunipero et al., 2012), lack of regulations (Chowdhury et al., 2015; Giunipero et al., 2012; Sajjad et al., 2020; Walker et al., 2008), lack of written policies and standards (Chowdhury et al., 2015; Giunipero et al., 2012), financial barriers (Chowdhury et al., 2015; Giunipero et al., 2012; Walker et al., 2008), lack of legitimacy (Walker et al., 2008), additional burden on and/or lack of commitment from suppliers (Giunipero et al., 2012; Walker et al., 2008), industry-specific barriers (Walker et al., 2008), conflict between short-term financial and long-term social and environmental objectives (Giunipero et al., 2012; Scheyvens et al., 2016), low awareness of external agents and consumers used to unsustainable consumption levels (Giunipero et al., 2012; Sajjad et al., 2020; Shrivastava, 1995), vested interests (Shrivastava, 1995), "higher" prices for sustainable products as their alternatives do not incorporate ecological or social costs (Brockhaus et al., 2017; Shrivastava, 1995), tax system that does not encourage sustainability practices nor penalize harmful ones (Stubbs & Cocklin, 2008), difficulty in maintaining sustainable objectives during business growth (Brockhaus et al., 2017), and social and environmental factors contextual to business (Chowdhury et al., 2015), are amongst the most mentioned by this body of research. Additionally, it has been said that there is no proper method or way to implement sustainability in companies, so they will try to cover isolated aspects with techniques and tools adapted to their context (Nawaz & Koç, 2018).

An additional problem widely reported in the literature, and one of the motivations for this research, is the misalignment between CS and business strategy, which results in failed efforts or does not fully achieve the expected benefits (Amini & Bienstock, 2014; Chowdhury et al., 2015; Engert et al., 2016). Moreover, it has also been pointed out that there is a dearth of empirical studies addressing the integration of CS into strategic management (Engert et al., 2016; Morioka et al., 2017). Section 2.4. of this chapter will address these issues more in depth.

Scholars have also emphasised the importance of business contexts for those that have opted for CS (Bansal & Roth, 2000; Chowdhury et al., 2015; Zimek & Baumgartner, 2017). They have paid attention to factors such as political, economic environment, culture, social composition and country of origin (Sobhani et al., 2011). Wang, Tong, Takeuchi, & George (2016) posed that sustainability-oriented practices are a social phenomenon that is not independent from business context. At this juncture one should also question the expected balance between the three pillars of sustainability. While it is true that the spirit of CS seeks to move business activities and operations away from being solely driven by economic rationale, it must be acknowledged that the industry of the business, its location, and its context, may lead companies to have different priorities in terms of the social responsibility activities they embark on. Furthermore, whether the company is located in a developed, emerging or poor economy will also have a bearing on the sustainability pillar that will be favoured the most.

Wang et al. (2016) have also brought attention to the potential differences between the adoption of sustainability and social responsibility between companies located in developed and emerging economies, calling to further study the latter as they have received less academic attention than the former. Pressures from different stakeholder groups and expectations on sustainability matters are likely to be stiffer in developed countries than in emerging economies businesses. The same could be said about the tools and methods for engaging with societies and the environment. Therefore, the next section will address another cornerstone of this research: the adoption of CS in emerging economies.

## 2.3. Corporate Sustainability in emerging economies

Research on CS in its different domains has largely been conducted from the perspective of developed countries, and much less attention has been devoted to poor countries or emerging economies. This has led to most of the assumptions and knowledge generated around this phenomenon to have a perspective from the Global North, which raises questions about its applicability in the context of emerging economies (Dobers & Halme, 2009). Additionally, amongst developed countries there are differences in contexts, in the levels of engagement and in the demands from various stakeholder groups (Tschopp, 2005). Hence, it is reasonable to say that disparities between these countries and emerging economies will be starker.

Scholars have highlighted potential disadvantages for emerging economies compared to the developed ones. For instance, Hart (1997) suggests that the "greening" of developed countries has been at the expense of emerging economies. While people in the first group of countries have a larger ecological footprint than people in the second group as a result of their greater resource consumption, developed countries have stricter environmental regulations than emerging economies. This has led to companies relocating their most polluting operations to developing countries, where they could also find a conducive environment for exploiting workforce, resulting in aggravated environmental and social conditions (Gold et al., 2018). On the idea of setting international standards or norms applicable to developed, emerging and poor countries alike, Tschopp (2005) said that these would be detrimental for countries outside the Global North circle, for example by reducing investment flows and cutting job opportunities for their populations. The gap between these groups of countries would once again widen.

Academics argue that for emerging economies, the task of achieving SD is even greater (Pacheco-Vega et al., 2001). Challenges in emerging economies start from people's access to basic human rights such as clean water (Arevalo & Aravind, 2011; Hart, 1997), food and health (Arevalo & Aravind, 2011). On the socio-economic front (Hossain et al., 2010), these economies face unemployment (Arevalo & Aravind, 2011), income inequality (Arevalo & Aravind, 2011; Hart, 1997), poverty (Pacheco-Vega et al., 2001), social exclusion, accumulation of wealth, informal economy (Silvestre, 2015), and unequal access to education (Arevalo & Aravind, 2011; Pacheco-Vega et al., 2001), that results in a lack of skilled labour (Hart, 1997). Under these conditions and with basic needs unsatisfied, it is unlikely that the population will have SD as a priority in their minds (Pacheco-Vega et al., 2001).

Moreover, governments also pose additional problems such as lack of environmental regulation (Chowdhury et al., 2015; Hossain et al., 2010), failure to enforce laws or their arbitrary application (Dobers & Halme, 2009; Hossain et al., 2010; Montiel & Husted, 2009), bureaucracy, corruption and lack of transparency. These circumstances thus cause mistrust in the government by the population (Dobers & Halme, 2009; Silvestre, 2015), scenario that can be exacerbated by high rates of violence (Silvestre, 2015).

On their side, many businesses in emerging economies embarking on sustainability programmes have also encountered issues such as lack of financial resources (Arevalo & Aravind, 2011) and poor infrastructure in the country (Arevalo & Aravind, 2011; Hart, 1997; Silvestre, 2015), while some large corporations are also guilty of overexploitation of resources (Hart, 1997). Concerns about keeping the business running, profits maximization or growth could take over sustainability programmes. While these concerns are not exclusive of businesses in emerging economies, local markets (Chowdhury et al., 2015; Hossain et al., 2010) and governments (Dobers & Halme, 2009; Hossain et al., 2010) are likely to be far from



pressuring and coercing companies as much as they would in a developed country. Hence, CS could be treated by companies as another issue to deal with, casting doubts on their commitment to SD.

The previous scenario sharply contrast with the study from Bonn & Fisher (2011), who found that their subject organisation, a retailer located in Switzerland, was willing to make short-term losses to meet its sustainability goals. It would be rather ambitious to expect the same response from companies located in emerging economies that do not possess adequate infrastructure, support and motivations.

And yet, it is fair to recognise that just as there are differences amongst developed countries in the Global North, there are also differences amongst emerging economies. From local environmental and social responsibility regulations (Wang et al., 2016), major trading partners and their local regulations, coupled with the size of their economies and the political orientation of their governments, all these factors influence the sustainability programmes adopted by organisations and their level of commitment. Furthermore, available resources and infrastructure might vary amongst different regions within the same country. Areas close to primate cities (van der Gaast et al., 2020) such as capital cities or industrial hubs might encounter more favourable conditions for engaging with social or environmental initiatives than second-tier regions. Interestingly enough, despite the latter being acknowledged by scholars from other fields of knowledge as potential contributors towards sustainable economic and social development (Agnoletti et al., 2015; van der Gaast et al., 2020), research looking into second-tier regions from the perspective of CS is very scarce.

Highly turbulent and uncertain contexts represent a fruitful ground for theory expansion, as they are capable of providing valuable insights that bring the researcher closer to acknowledge the different scenarios affecting the understanding of the phenomena. Therefore, the business environment in second-tier regions of emerging economies seems an adequate scenario for expanding our knowledge on complex phenomena such as the adoption of CS. In this light, recent research has stressed the importance of conducting more studies addressing sustainability in the business context from the perspective of emerging economies (Amui et al., 2017; Bezerra et al., 2020; Dobers & Halme, 2009; Silvestre, 2015). Furthermore, since this research project will be framed by theories assigning great weight to changing environments, the context of a second-tier region in an emerging economy becomes adequate to challenge our current assumptions and enrich our understanding for both DC and CAS theories. This condition should be able to feed into our view on how companies evolve and adapt when facing the challenge of CS implementation. These arguments aligned with those of Touboullic & Ejodame (2017), who claimed that existing conceptual frameworks are built on the perceptions from the developed countries, failing to capture the realities of the complex and inherent dynamics of sustainability issues in the context of emerging economies.

This project has decided to focus on the Latin American region answering the call from Amui et al. (2017), specifically concentrating in the region of the Yucatan peninsula in Mexico. Chapter 4 is devoted to providing a more detailed account of both the Mexican and Yucatan peninsula contexts and their specifications. Taking a step further, this project also responds to the call of Silvestre (2015) who urges to conduct more empirical research in the emerging economies context. Chapter 3 will provide more details of the research design and approach.

Next, section 4 will introduce the literature on Strategic Management and its link with CS.

## 2.4. Strategies for Corporate Sustainability

As outlined above, the adoption of CS is fraught with trade-offs and tensions to which the potential challenges intrinsic to the context of emerging economies can be added up. Thus, companies and their managers are faced with a complicated situation in which they must navigate these issues while at the same time generate value for their shareholders and satisfy the requirements from different stakeholder groups. This is no easy task, yet scholars suggest that organisational strategy is a means to achieve the different objectives pursued by organisations (Ansoff et al., 2018).

The literature has widely reported the misalignment between CS-oriented activities and organisational strategy, often proving to be ineffective or not fully achieving the expected benefits neither for the company nor in terms of substantial social impact (Amini & Bienstock, 2014; Calabrese, Costa, Levaldi, & Menichini, 2019; Cezarino et al., 2019; Chowdhury et al., 2015; Galpin & Whittington, 2012; Lozano, 2013; Pinelli & Maiolini, 2017; T.B. Porter, 2008). Consequently, there is an ongoing call to incorporate CS into strategic management (Baumgartner & Rauter, 2017; Cezarino et al., 2019; Engert et al., 2016; Michelon et al., 2013). The branch of strategic management literature focused on CS has also urged to conduct more empirical studies (Engert et al., 2016; Engert & Baumgartner, 2016), favouring case study as a method to achieve useful insights into this context (Engert & Baumgartner, 2016).

Pinelli & Maiolini (2017) have argued that before talking about the effectiveness of a strategy for sustainability, it is essential to understand what are the pursued goals, since companies adopt different actions and are willing to compromise at different levels based on their motivations and goals. The views towards CS vary from company to company (T. B. Porter, 2008; Wu et al., 2013), and consequently the socio-environmental issues to be addressed, the way they are tackled and the level of commitment may also vary. It is therefore important to understand the company's context (Engert & Baumgartner, 2016), the external pressures it faces and the internal drivers that shape the strategy for sustainability (Pinelli & Maiolini, 2017). Only then can it be assessed to what extent the strategy is being effective according to the company's goals.

In line with Pinelli & Maiolini (2017), this research project will concentrate on understanding the main motivation of studied companies to engage with sustainability issues. In other words, to understand whether companies approach sustainability as a means or as an end and how is this affecting their behaviour and outcomes.

Moreover, Engert & Baumgartner (2016) stated that if the formulation of a strategy is already complicated, its implementation is even more so. This situation is also expected to be the case with sustainability-oriented strategies so the authors prompt to further explore the translation of strategies for sustainability into practice. According to T.B. Porter (2008), companies implementing CS require management tools to realise their intentions. For their part, Pinelli & Maiolini (2017) posed that companies need to be skilful in using their competences to achieve a beneficial impact on society, while Cezarino et al. (2019) raised the need to examine the capabilities that would enable companies to take a more dynamic approach to sustainability while incorporating it into their strategies. Therefore, there seems to be a consensus regarding the need to further explore and understand the means and capabilities that would allow companies to better implement their CS programmes and strategies.

The literature also informs on the benefits of successfully integrating both CS and core business strategy, ranging from representing a source of opportunity and innovation (Engert et al., 2016; Michelon et al., 2013), contributing to the creation and maintenance of competitive advantage (Amui et al., 2017; Cavaleri & Shabana, 2018; Engert et al., 2016; Lloret, 2016; M. E. Porter & Kramer, 2006) and long-term competitiveness (Calabrese et al., 2019), guiding competence development (Hart, 1997), assisting the creation of value for business and enhancing financial performance (Baumgartner & Rauter, 2017; Cavaleri & Shabana, 2018; Engert et al., 2016; Lloret, 2016; Michelon et al., 2013; Quazi, 2001), to reducing costs and even improving reputation (Engert et al., 2016; Paulraj et al., 2017; Quazi, 2001). Moreover, it could enable companies to better cope with social and environmental challenges (Engert & Baumgartner, 2016) and to have a greater social impact (M.E. Porter & Kramer, 2006). Thus, it can be argued that companies have much to gain by thoroughly analysing and selecting the sustainability-oriented initiatives that would best align with their core business strategy and by making sure both are appropriately integrated.

To date, quite a few studies have devoted their efforts to comprehend the various sustainability strategies selected and deployed by companies. For instance, extant research has drawn attention to the different factors that could shape CS strategies, including:

- *Stakeholder, or primary recipient, of the strategy's benefits*: shareholder vs stakeholder (T. B. Porter, 2008); society in general vs the customer (Baumgartner & Ebner, 2010).
- *Motivations*: normative, ethical and economic considerations (Baumgartner & Rauter, 2017), sustainability approached as a means or motivated by competitiveness vs sustainability approached as an end or driven by ethical motivation (Paulraj, 2009; Pinelli & Maiolini, 2017); image enhancement, efficiency maximisation, resource acquirer and true believer (Brockhaus et al., 2017).
- *Linkages of the company*: inside-out (its impact on society) and outside-in (socio-environmental influences affecting the company's ability to increase its productivity and execute its strategy) (Harmon et al., 2008).

According to Ramachandran (2011), the strategic management literature focusing on corporate responsibility and sustainability has mostly adopted two perspectives from which the word strategic has been understood. On the one hand, strategic means that CS must be integrated into the company's activities, i.e. economic activities must also have a beneficial environmental and social impact. This tripartite positive impact is in the long-term interest of companies and is therefore considered strategic. On the other hand, there is the perspective of profit maximisation, seeking alignment with the competitive strategies defined by M. E. Porter (1998): cost leadership (leveraging distinctive resources and competencies) and product differentiation (positioning the company with respect to its competitors, appealing to and increasing sales to sustainability-minded consumers).

Both Bonn & Fisher (2011) and J. G. Stead & Stead (2013) classified organisational strategies for sustainability into three hierarchical levels: corporate level strategies, business and competitive level strategies, and functional level strategies. Corporate level strategies set the tone for the overall scope of the organisation as well as integrate, manage and set the path that each strategic business unit (SBU) in the portfolio will take, which are simultaneously implementing strategies at the competitive level, with respect to their products and the market they will target. This type of strategy focuses on organisational learning, dialogue and change. The second type of strategies, business or competitive, determine the means by which each individual business or SBU will compete effectively in the industry. That is, identifying customer groups, their needs and determining which products to modify or develop. J. G. Stead & Stead (2013) identified three specific types of strategies within this group that are mainly aligned to

M. E. Porter's (1998) market-based view: cost leadership, differentiation and community-based Corporate Social Responsibility (CSR).

- Cost leadership strategies revolve around eco-efficiency and employ techniques to improve economic and environmental performance through cost reduction. These techniques include redesigning pollution and waste control systems, redesigning production processes, and using renewable sources of energy and recycled materials.
- Differentiation strategies allow the company on the economic perspective, to differentiate itself ecologically from its competitors and potentially gain a competitive advantage. On the ecological perspective, the company would seek to reduce the life-cycle cost and environmental risks of its products and services. Examples of this type of differentiation are eco-labelling and product stewardship.
- Community-based CSR strategies are premised on the alignment between CSR investment and the core business strategy, expecting benefits such as greater credibility, improved public image and social legitimisation.

Lastly, at the lowest hierarchical level there are functional level strategies, which serve as a guide for managers in the various functional areas of the organisation to achieve short-term objectives while simultaneously contributing to organisational aims. Strategies at this level are mostly focused on reducing environmental impacts, e.g. life cycle analysis, environmental certifications, Environmental Management Information Systems, environmental audits and environmental reporting.

Focusing on strategies centred around the environmental pillar of sustainability, and also similar to M. E. Porter's (1998) market-based view, Shrivastava (1995) lists three strategies that would allow companies to generate competitive advantages: ecologically sustainable least-cost strategy, ecologically sustainable differentiation strategy and ecologically sustainable niche strategy. The first two strategies can be understood in a similar way to those of J. G. Stead & Stead (2013). The ecologically sustainable niche strategy is concerned with finding markets for environmentally friendly products.

Baumgartner & Ebner (2010) also discussed the fit between sustainability and corporate competitive strategies (M. E. Porter, 1998), including the possibility of hybrid strategies that combine both cost leadership and product differentiation. They argue that in order to analyse the relationship between both groups of strategies (sustainability and corporate competitiveness) attention should be paid to the cost caused by the sustainability strategy (lower, equal, or higher) and the recipient of its benefits (society in general or the customer). On this basis, they classify sustainability strategies into four groups: force, pressure, optional and forbidden. Moreover, these authors propose four types of sustainable strategies:

1. Introverted - risk mitigation strategy,
2. Extrovert - legitimisation strategy,
3. Conservative - efficiency strategy,
4. Visionary - holistic strategy, which at the same time can occur in two forms: a) conventional, concerned with seizing market opportunities to only include in the corporate strategy those sustainability issues that bring advantages to compete in the market; and b) systemic, with an inside-out perspective that places sustainability at the normative level and supplements the market view with the resource-based view (Wernerfelt, 1984).

The authors complement their analysis of strategies by identifying profiles classified into four maturity levels (rudimentary, compliance, satisfying and sophisticated).

T. B. Porter (2008) developed a typology with 4 different standpoints (compliant, good citizen, instrumental, intrinsic) at the organisational level towards social responsibility, based on the priority that the company assigns to CSR (low - high) and the main addressee in the creation of value (shareholder - stakeholder). The typology aimed to provide managers with knowledge that would enable the creation of CSR solutions applicable to their own context and companies.

To summarise this section of the literature review, it can be said that there is no one-size-fits-all approach or solution to understand, design or implement sustainability strategies, but that companies will draw on different resources and will have different strategies depending on their motivations, the company's relationship with society, and the different environmental, social and economic opportunities that derive from this relationship (Harmon et al., 2008).

The following section will present the theoretical lens from which the phenomenon that concerns this research will be studied.

## 2.5. Theoretical lens introduction

Up to this point, 2 of the research streams that feed this project have been presented. From this section onwards, the theories that will frame the analysis of the phenomenon that motivates this research, i.e. the implementation of strategies for CS, will be presented and justified.

As it has been previously acknowledged in this chapter, the context where companies adopt sustainability plays a crucial role, as well as recognizing that uncertainty and constant change are present in the environment that shapes the company as a whole. Companies' external environment is mostly influenced by the interests of direct stakeholders such as shareholders and customers, but when companies engage in CS, they must also consider the interests of indirect stakeholders such as neighbouring communities, civil associations, NGO's, amongst others (Wu et al., 2013). This scenario can lead to potential conflicts of interests. Moreover, it has been pointed out that companies encounter many problems, and even failures, in the process of implementing their programs for CS (Amini & Bienstock, 2014; Chowdhury et al., 2015; Engert et al., 2016). As a result, scholars urge to contribute with more research that explores the factors, means and capabilities that would support a better realisation of the strategies for sustainability (Cezarino et al., 2019; Pinelli & Maiolini, 2017; T. B. Porter, 2008).

Therefore, the theoretical lens for this research is twofold. A first theory will be used to comprehend how companies adapt in response to changing environments originated from diverse sustainability requirements and interest, which also brings additional complexities for organisations. The second theoretical cornerstone lies in understanding the capabilities that companies can rely on to better implement their strategies for CS, as well as how do they actually seize these capabilities.

In order to study the adaptation process undergone by companies, Complex Adaptive Systems theory (CAS) has been selected as the first theoretical lens. This theory acknowledges the importance of the context and the environment in which a system is embedded, as well as stresses its adaptive nature that shapes the system through interactions with both the system and the agents part of it. Recognising the instability of organisations' environment, the unpredictable sustainability tensions and its paradoxes, Amui et al. (2017) and Williams,

Kennedy, Philipp, & Whiteman (2017) have highlighted the importance of incorporating systems thinking in the attempt to comprehend the sustainability paradigm, and thus, this theory selection follows their advice.

The rationale for selecting CAS theory amongst other systems' theories was its viability to help solve empirical problems; its applicability to the organisational/business context and its suitability for understanding the unit of analysis; its focus on the system and its adaptive process, the dynamics within it and its relationship with the environment; and finally, its relevance to answer the research question that motivates this study (Burton-Jones et al., 2015). Section 2.7.7. of this chapter will elaborate more on the rationale and justification for selecting CAS theory amongst other systems theories.

The second theoretical lens will be Dynamic Capabilities theory (DC), that will serve as the approach for understanding how organisations implementing sustainability practices employ and leverage capabilities that enable them not only to address sustainability challenges, but to maintain their competitive advantage and their relevance in the market. This theory also admits that companies are faced with rapidly changing environments (Teece et al., 1997), and therefore aims at identifying the routines that enable a timely response to market threats, as well as to understand how organisational resources are adjusted accordingly. The selection of this theory follows the call from academics such as Cezarino et al., (2019); Pinelli & Maiolini, (2017); and T. B. Porter, (2008). Moreover, DC have been considered as one of the factors helping companies to adapt to the constantly changing sustainability requirements (Longoni et al., 2014), hence, potentially contributing to a successful implementation of CS. In this vein, research on the DC that would better assist to overthrow the challenges posed by sustainability has been previously encouraged (Amui et al., 2017).

DC and CAS theories share characteristics, and this has been another reason for merging them as an enhanced theoretical lens that turns stronger when compared to those already available. Section 2.8 of this chapter will delve into these commonalities. Moreover, Teece (2018) himself has acknowledged that systems theory was an antecedent for the development of DC theory. Therefore, the selection of theories represents an overlooked, yet sensible and solid approach that contributes to both bodies of knowledge.

The next section of this chapter will delve into the DC theory, its characteristics and different views, as well as elaborate on the list of DC applicable to CS. Afterwards, a revision of some of the most notable frameworks of DC for CS will be conducted, highlighting their opportunity areas. Subsequently, section 2.7 will look into systems thinking and review some of the most prominent systems theories, justifying the selection of CAS theory and its relevance for companies facing a context of CS adoption. Section 2.8 will bring the two theories together, highlight their commonalities and making the case for using both to study the adoption and implementation of CS strategies.

## 2.6. Dynamic Capabilities

The Dynamic Capabilities (DC) theory originated from evolutionary economics (Amui et al., 2017) and as an alternative perspective to the Resource Based View (RBV) (Amui et al., 2017; Beske, 2012; Hong et al., 2018; Teece & Pisano, 1994). According to the RBV, the source of competitive advantage for organisations is their set of valuable, rare and difficult-to-imitate assets. This assumes that such assets will always be relevant in the market, that their distribution is heterogeneous and that it will be maintained over time, thus implying a largely

static environment (Beske, 2012). In response to this, the DC theory proposes that firms that are successful in highly dynamic markets are those that have demonstrated timely responsiveness to market requirements and flexibility to adjust their resources and competencies accordingly (Teece & Pisano, 1994). For DC theory, the competitive advantage of an organisation lies not in the possession of resources, but in its ability to reconfigure them (create, develop, combine, renew) in congruence with the changing requirements of the environment in which it is immersed (Beske, 2012; Cezarino et al., 2019; Helfat et al., 2007; Hong et al., 2018; Teece et al., 1997). Therefore, DCs can be understood as responses to the need for change and to emerging opportunities, where such response can be seen in a variety of ways such as the transformation of organisational processes and resources, as well as operations (Easterby-Smith et al., 2009). It is to be noted that when Teece et al. (1997) referred to resources they also include the organisations' own capacities, thus, DCs also encompass the abilities to renew its own competences.

DCs is a theory that has attracted considerable attention from academics working in different areas of knowledge, which has resulted in different streams of thought trying to mould its theoretical foundations. Thus, key debates have emerged around aspects such as the DCs nature, the locus of change (internal component of the firm that changes), the conditions of the environment where DCs are applicable and thrive, their heterogeneity across firms, their outcomes, and their purpose (Barreto, 2010; Easterby-Smith et al., 2009; Winter, 2003). Amongst the most influential academics for these debates, which have been followed by other scholars, are Eisenhardt & Martin (2000), Teece et al. (1997) and Zollo & Winter (2002). Table 2 presents an overview and comparison of the different proposals and views for DCs put forward by these three groups of academics.

In response to these debates and different definitions, a group of academics that included some of the most influential scholars in the theory such as David Teece and Sydney Winter, led by Constance Helfat, worked together to provide a more precise definition of DCs: *“the capacity of an organization to purposefully create, extend, or modify its resource base”* (Helfat et al., 2007). In subsequent work, Helfat & Winter (2011) pointed out that DCs also endow firms with the ability to influence their environment. This definition seeks to avoid tautological situations such as defining a capability as an ability (Zollo & Winter, 2002), as well as to emphasise the primary effects of DCs on both the firm's resources and/or its environment.

From a path-dependency perspective, it is argued that DCs are context-specific and their development over time allows their embedment in the firm (Helfat & Martin, 2015; Schilke et al., 2018). For this reason, it is claimed that DCs are difficult to buy or sell. Moreover, academics have also suggested to study DCs within more traditional industries (than the “obviously dynamic”), and to focus on countries where different constraints and conditions prevail (Easterby-Smith et al., 2009). Following these arguments, this research aims to identify what are the DCs developed by participant companies within their specific context: the adoption of programmes for sustainability in a second-tier region in an emerging economy. Additionally, it seeks to explore how each DC has been built within each individual firm.

TABLE 2. COMPARISON OF PROMINENT VIEWS ON DCs

	Eisenhardt and Martin (2000)	Teece, Pisano & Shuen (1997)	Zollo & Winter (2002)
Definition	"we define dynamic capabilities as the firm's processes that use resources - specifically the processes to integrate, reconfigure, gain and release resources- to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die".	"...the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments. Dynamic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions".	"A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness".
Nature	<b>Specific and identifiable processes</b> whose nature varies with the degree of market dynamism. Hence, detailed, analytical routines are deployed when the firm relies on existing knowledge in moderately dynamic markets, switching to simple, experiential routines when relying on new knowledge generated by specific situations in high velocity markets.	<b>Ability or capacity</b> (stressing the key role of strategic management)	<b>Routines:</b> learned and stable patterns of collective activity inside the firm.
Locus of change	Resources and capabilities	Resources and capabilities (competences)	Operating routines
Environment	<b>Moderately dynamic:</b> Environments where change is frequent, yet following predictable and linear paths. Different DCs applicable to firms depending on whether the market they belong to is of high-velocity or moderately dynamic.	<b>Highly dynamic environments</b> For instance, markets open to international trade, where technical change is systemic, and facing regulatory or institutional shocks.	<b>Environments with lower rates of change.</b> However, DCs may be of more value in rapidly changing environments
Heterogeneity across firms	<b>Commonalities</b> in key features, <b>idiosyncrasy</b> in details. DCs exhibit commonalities across firms, which can also be called best practices. Moreover, equifinality (multiple paths to the same DC), as well as homogeneity and substitutability (key features in common in DCs to be effective, yet different in details) are present to some extent in firms.	<b>Idiosyncratic.</b> DCs are firm specific and unique, given their idiosyncratic path- dependent histories to develop their DCs.	-
Outcomes	DCs are necessary, but no sufficient conditions for sustained competitive advantage. Competitive advantage is not the direct result of DCs but of the resource configuration derived from DCs, plus a sooner and better usage than rivals in the market.	Direct relationship between firms' DCs and, their performance and competitive advantage.	Direct relationship between firms' DCs and, their performance, competitive advantage and survival.
Purpose	Addressing rapidly changing environments plus creating market change.	Addressing rapidly changing environments	Pursue of improved effectiveness.



Interestingly, research on DCs theory has reported common features with CAS theory, from systems thinking. In addition to features such as path-dependency, DCs can improve or decline over time, as well as remain unchanged and yet continue to be a source of change for the firm (Easterby-Smith et al., 2009). This echoes the non-linearity characteristic of a CAS. Furthermore, research has also pointed out that both DCs and the firms that exhibit them co-evolve with the environment in which they are immersed (T. Choi et al., 2001; Easterby-Smith et al., 2009; Metcalf & Benn, 2013). These and other common features will be explored in later sections of this chapter to justify the selection of CAS theory, as well as to make the case for merging CAS and DCs as an improved theoretical lens.

Scholars have also devoted efforts to investigating the micro-foundations of DCs which on the one hand have been credited as enablers of strategic change (Helfat & Peteraf, 2015), while on the other have represented a source of criticism to the theory given their dearth of explanations (Eisenhardt et al., 2010; Fallon-Byrne & Harney, 2017). These micro-foundations are composed of distinct skills, processes, organisational structures and decision rules, and are claimed to account for the origin and development of the DCs suggested by Teece and colleagues: sensing, seizing and reconfiguring (Fallon-Byrne & Harney, 2017; Teece, 2007). In the understanding that the nature of DCs indicate they reside at the top management level (Teece, 2007), the same has been said of their micro-foundations that have also been linked to individuals. Nevertheless, this perspective has been criticised for its limited focus that neglects equally important factors for the theory such as group behaviour and employee motivation (Barreto, 2010; Fallon-Byrne & Harney, 2017; Gruchmann et al., 2021). Therefore, calls for research have focused on incorporating the role of employees in the DCs framework, acknowledging their contribution towards capability building (Fallon-Byrne & Harney, 2017).

DCs theory has attracted further criticisms. For some researchers they are considered vague, complex, or hard to understand, making them difficult to observe (Beske et al., 2014; Kraatz & Zajac, 2001). Furthermore, the theory has also been accused of excessive linkage to universal formulas that promise success (Barreto, 2010; Winter, 2003). In response to these criticisms, this research project aims to be more specific and provide further detail on the different DCs that could be relevant within the context of the study, as well as to inform the extent to which they actually contribute to develop and/or maintain competitive advantages.

### 2.6.1. Dynamic Capabilities in Corporate Sustainability research

Sustainability in business and DCs theory are not strangers to each other, as in recent years several pieces of research have brought together both elements in view of the potential contributions of DCs to the successful implementation of programmes and interventions for CS (Amui et al., 2017; Beske, 2012; Buzzao & Rizzi, 2021; Eikelenboom & de Jong, 2019; Gruchmann et al., 2021; Hofmann et al., 2012; Hong et al., 2018; Iles & Martin, 2013; Lin & Wu, 2014; Longoni et al., 2014; Wu et al., 2013). As mentioned earlier in this chapter, sustainability represents a challenge for organisations due to the constantly changing demands and different interests from various stakeholder groups. Moreover, the importance that strategic management research has given to the implementation, or translation into practice, of sustainability strategies was also acknowledged as still remains a challenge (Engert & Baumgartner, 2016). Longoni et al. (2014) have pointed out that sustainability is a challenge that demands constant transformation from companies, including their methods to cope with changing requirements. In line with these scholars, Eikelenboom & de Jong (2019) recognise that DCs can support companies in this quest where they must adapt and satisfy various requirements to meet their sustainability goals, without neglecting the interests of their shareholders. Wu et al. (2013) found that DCs facilitate companies to monitor the emergence of

requirements from different stakeholders, harness the SD opportunities derived from such requirements, and reconfigure the resources and skills needed to address them. For their part, Cezarino et al. (2019) have called for studies to identify the capabilities that would enable companies to take a more dynamic approach to sustainability by incorporating it into organisational strategy. Hence, the key role of DCs when implementing CS strategies is acknowledged in the literature and further research has been encouraged.

If traditional DCs serve the interests of the organisation and its shareholders and seek to maintain competitive advantages, the DCs for sustainability incorporate the interests of various stakeholder groups (Wu et al., 2013) and beyond seeking the creation or maintenance of competitive advantage, they also strive to satisfy requirements aligned with the 3BL of sustainability. Hence, this would be their end goal when deliberately reconfiguring the organisation's resources. Moreover, DCs for CS can also exhibit similarities between different companies, identified as best practices (Eisenhardt & Martin, 2000). In other words, a DC for CS can be developed by more than one company. However, the way how they are deployed, how are they relied upon, and the objectives pursued are idiosyncratic to the organisation and will therefore differ from company to company (Wu et al., 2013; Zheng et al., 2011).

Initially, DCs were classified by Teece (2007) as the abilities to sense opportunities and threats, to seize opportunities and to reconfigure tangible and intangible assets. However, subsequent research in the area of sustainability within the business setting has identified different DCs, sometimes aligned to those originally typified by Teece (2007). For example, Wu et al. (2013) identified capabilities for monitoring emerging needs of various stakeholders, for seizing opportunities for SD emanating from stakeholder expectations, and for reconfiguring functional capabilities for CS. Ramachandran (2011) reported capacities to sense and respond, as well as capacities for execution. In the context of environmental-friendly production, Dangelico, Pujari, & Pontrandolfo (2017) found three DCs: external resource integration, internal resource integration, and resource building and reconfiguration, while Iles & Martin (2013) observed capabilities for sensing opportunities and threats, for seizing opportunities and for maintaining competitiveness by reconfiguring resources.

Other scholars have provided more detail or specificity regarding the DCs observed in their studies. In the context of supply chains, a notable example is Beske et al. (2014), who identified five categories of DCs: supply chain re-conceptualisation, partner development, knowledge management, co-evolving and reflexive control, while Hong et al. (2018) studied knowledge acquisition and absorptive capacity, market-oriented perception ability, innovation ability, internal reconstruction ability, and social network relationship ability. In the area of small and medium-sized enterprises, Hofmann et al. (2012) claimed that the abilities to adopt advanced technology, to collaborate with customers and suppliers and, the ability to innovate, facilitate addressing sustainability and environmental management challenges.

Bezerra et al. (2020) presented a broader list of capabilities based on their literature review, including capabilities related to collaborative relationships for sustainability, to the absorption of knowledge/learning about sustainability, to innovation/technology for sustainability, to alignment/motivation for sustainability, to marketing/external communication for sustainability, to flexibility/adaptation on sustainable issues, and to the management of sustainable operations. However, these capacities are not specifically dynamic but rather identified as organisational, although the authors do include DCs amongst these.

Research around CS and DCs has identified certain gaps and areas that require further input. First, Amui et al. (2017) and Hofmann et al. (2012) reported a paucity of investigations identifying the capabilities that would enable companies to overthrow the challenges posed by

SD. Amui et al. (2017) called for more studies aimed at identifying the specific DCs that would assist companies to effectively implement CS initiatives. Second, there have also been calls regarding the context in which DCs for CS research is conducted. Amui et al. (2017) encourages more attention to emerging economies, as DCs studies remain largely concentrated in the Global North. Beske (2012) and Easterby-Smith et al. (2009) have suggested studying industries other than the typical high-tech or intensively entrepreneurial, as several DCs studies have focused on these even though DC are not exclusive to these industries. Bezerra et al. (2020) pointed out that more qualitative research needs to be undertaken, including designs such as multiple case studies. Furthermore, a scarcity of research looking into firms' benefits when relying on DCs during the implementation of CS programmes was identified during the revision of the literature. Consequently, this research project aims to address the previous calls for research, gaps and criticisms to DCs theory. It will start by elaborating a more comprehensive list exclusively comprised of the DCs identified in the literature as supportive for CS organisational goals.

### 2.6.2. List of Dynamic Capabilities for Corporate Sustainability

This section of the literature review will compile an exhaustive list of the DC for CS that will set the basis for the analysis. Current lists found in the extant body of literature have shortcomings that do not allow to fully adopt one of them. For instance, different studies around sustainability (Dangelico et al., 2017; Essid & Berland, 2018; Iles & Martin, 2013; Khan et al., 2020; Mousavi et al., 2018; Wu et al., 2013) have adopted the initial DCs proposed by Teece (2007), namely sensing/monitoring, seizing and resource reconfiguration/transformation, but when talking about the routines or micro-foundations encompassed by each of these DCs, they differ from each other. Furthermore, some routines or micro-foundations that seem to refer to the same issue are placed in distinct DCs by different authors. Moreover, some pieces of research indicate in their title their orientation towards sustainability, but are mostly focused on the environmental pillar. On the other hand, those studies that have not adopted the DCs classification proposed by Teece (2007), suggest either vague, context-specific, or look at isolated DCs, to which the realisation of the maximum benefits of DCs cannot be attributed (Sunder M & Ganesh, 2020). It is the combined operation of DCs, and not isolated, that leads companies to sustain their competitive advantages and achieve further benefits.

Notwithstanding, there have also been attempts to present a more comprehensive list of DCs applicable to CS (Beske et al., 2014; Chen & Chang, 2013; S. B. Choi et al., 2019). The list presented by Bezerra et al. (2020) resulting from their literature review stands out in particular, however it was not adopted either as it is focused on organisational capabilities rather than DCs.

Table 3 presents recent and/or highly relevant lists of DCs for sustainability that were reviewed, including their shortcomings and main reasons for not adopting them.

Therefore, this research will compose its own list of DCs applicable in the context of CS adoption, in order to provide a more comprehensive, unified and detailed list that facilitates the analysis and enhances the credibility of the findings.

Table 4 presents the set of DCs identified from the extant literature, as well as their comprising routines, that will guide this research. This list is not limitative, it rather aims to provide a clearer picture and more guidance on the routines that each DC could entail. Moreover, this investigation proposes that DC are linked together, and that one could lead to

another since boundaries between DCs are blurry and thus, they can affect each other (Beske, 2012).

TABLE 3. CURRENT AND RELEVANT LISTS OF DCs FOR SUSTAINABILITY REVIEWED FROM THE LITERATURE

Source	Citations	Dynamic Capabilities	Disadvantages
Iles & Martin, 2013	233	<b>1. Sensing opportunities and threats</b> <b>2. Seizing opportunities</b> <b>3. Maintaining competitiveness by reconfiguring a company's assets</b>	<ul style="list-style-type: none"> <li>●Adoption of initial classification proposed by Teece (2007), presenting inconsistencies with other studies adopting the same classification.</li> <li>●Mostly environmentally focused.</li> </ul>
Wu et al., 2013	1	<b>1. Monitoring capacity (to scan emerging sustainability requirements)</b> <ul style="list-style-type: none"> <li>● Communication channels with direct stakeholders</li> <li>● Communication channels within direct stakeholders</li> <li>● Updated organisational sustainable knowledge base</li> <li>● Sustainability requirements comparison and prioritizing</li> </ul> <b>2. Seizing capacity (to recognize and catch-up SD opportunities)</b> <ul style="list-style-type: none"> <li>● Sustainable strategic plans and milestones</li> <li>● Governance structure</li> <li>● Cross-functional knowledge sharing</li> <li>● New technologies experiment</li> </ul> <b>3. Reconfiguring capacity (to modify existing process and practices)</b> <ul style="list-style-type: none"> <li>● Standard environmental management systems</li> <li>● Collaboration with supply chain partners</li> <li>● Sustainable performance measurement</li> <li>● Organizational learning and training</li> </ul>	<ul style="list-style-type: none"> <li>●Adoption of initial classification proposed by Teece (2007), presenting inconsistencies with other studies adopting the same classification.</li> </ul>
Mousavi et al., 2018	39	<b>1. Sensing</b> <ul style="list-style-type: none"> <li>● Internal resources</li> <li>● Market resources</li> <li>● Institutional resources</li> <li>● Public sources</li> </ul> <b>2. Seizing</b> <ul style="list-style-type: none"> <li>● Internal capabilities</li> <li>● Adoption of the best practices</li> <li>● Market introduction of innovations</li> <li>● Cooperation with market partners</li> <li>● Cooperation with knowledge partners</li> </ul>	<ul style="list-style-type: none"> <li>●Adoption of initial classification proposed by Teece (2007), presenting inconsistencies with other studies adopting the same classification.</li> </ul>

		<b>3. Reconfiguring</b> <ul style="list-style-type: none"> <li>• New marketing methods and strategies</li> <li>• New management practices</li> <li>• New manufacturing-related processes</li> </ul>	
Essid & Berland, 2018	16	<b>1. Sensing</b> <ul style="list-style-type: none"> <li>• Strategic monitoring of regulatory changes and stakeholder demands.</li> <li>• Replication and use of old processes.</li> </ul> <b>2. Seizing</b> <ul style="list-style-type: none"> <li>• New decision-making protocols</li> <li>• Strategic renewal</li> </ul> <b>3. Reconfiguring</b> <ul style="list-style-type: none"> <li>• Capabilities for absorption and development of new knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>• Adoption of initial classification proposed by Teece (2007), presenting inconsistencies with other studies adopting the same classification.</li> </ul>
Khan et al., 2020	33	<b>1. Sensing</b> <ul style="list-style-type: none"> <li>• Market monitoring and technology scanning</li> <li>• Idea generation</li> <li>• Knowledge creation</li> <li>• Experiential learning</li> </ul> <b>2. Seizing</b> <ul style="list-style-type: none"> <li>• Strategic planning</li> <li>• Business model and governance</li> <li>• Collaboration</li> </ul> <b>3. Reconfiguring</b> <ul style="list-style-type: none"> <li>• Organizational restructuring</li> <li>• Technological upgradation</li> <li>• Knowledge integration</li> <li>• Best practices adaptation</li> </ul>	<ul style="list-style-type: none"> <li>• Adoption of initial classification proposed by Teece (2007), presenting inconsistencies with other studies adopting the same classification.</li> </ul>
Dangelico et al., 2017.	230	<b>1. External resource integration</b> <b>2. Internal resource integration</b> <b>3. Resource building and reconfiguration</b>	<ul style="list-style-type: none"> <li>• Adoption of initial classification proposed by Teece (2007), presenting inconsistencies with other studies adopting the same classification.</li> </ul>
Ramachandran, 2011	112	<b>1. Sense and respond capability</b> <ul style="list-style-type: none"> <li>• Knowledge generation</li> <li>• Social issue identification and solution development</li> </ul>	<ul style="list-style-type: none"> <li>• General/vague routines for each capability</li> </ul>

		<ul style="list-style-type: none"> <li>• Impact assessment</li> </ul> <b>2. Execution capability</b> <ul style="list-style-type: none"> <li>• Detailing and production</li> <li>• Delivery infrastructure building</li> </ul>	<ul style="list-style-type: none"> <li>• Lacks wide scope of current DCs conversation</li> </ul>
Zhou, Hong, Zhu, Yang, & Zhao, 2018	28	<b>1. Integrating capability</b> <ul style="list-style-type: none"> <li>• Customer information collection and potential market exploration</li> <li>• Specialized organization to collect industry information for managerial decision</li> <li>• Integrating industry related technologies to develop new products</li> <li>• Recording and integrating historical methods and experiences in handling firm issues</li> </ul> <b>2. Learning capability</b> <ul style="list-style-type: none"> <li>• Frequent anticipating industrial knowledge learning program</li> <li>• Frequent internal educational training</li> <li>• Knowledge sharing and learning groups establishment</li> <li>• Frequent internal cross department learning program</li> </ul> <b>3. Reconfiguring capability</b> <ul style="list-style-type: none"> <li>• Clear human resource re-allocation procedure</li> <li>• Rapid organizational response to market changes</li> <li>• Rapid organizational response to competitor's actions</li> <li>• Efficient and effective communication with cooperative organization</li> </ul>	<ul style="list-style-type: none"> <li>• Short on collaboration and social network DCs.</li> <li>• Environmental focus.</li> </ul>
Cezarino et al., 2019	19	<b>1. Sustainable culture</b> <ul style="list-style-type: none"> <li>• Sustainability mindset</li> <li>• Learning orientation</li> <li>• Environmental awareness</li> <li>• Decision-making</li> </ul> <b>2. Routines for innovation</b> <ul style="list-style-type: none"> <li>• Knowledge assessment to a new way of doing things</li> <li>• Partnerships and alliances</li> <li>• New green processes</li> <li>• New green products</li> </ul>	<ul style="list-style-type: none"> <li>• General/vague routines for each capability</li> <li>• Lacks wide scope of current DCs conversation</li> <li>• Mostly environmentally focused.</li> </ul>
Chakrabarty & Wang, 2012	150	<b>1. Technology and Process Innovation Capabilities from R&amp;D</b> <b>2. Market-Orientation Capabilities from Internationalization</b>	<ul style="list-style-type: none"> <li>• Lacks detail for each capability.</li> <li>• Lacks wide scope of current DCs conversation.</li> </ul>

Hong et al., 2018	211	<b>1. Knowledge acquisition and absorptive capacity</b> <b>2. Market oriented perception ability</b> <b>3. Innovation ability</b> <b>4. Internal reconstruction ability</b> <b>5. Social network relationship ability</b>	<ul style="list-style-type: none"> <li>●Short on collaboration DC.</li> <li>●Supply chain focused.</li> </ul>
Leonidou, Leonidou, Fotiadis, & Aykol, 2015	107	<b>1. Organizational learning</b> Acquire, process, and make use of information to better sense environmentally related issues Adoption of new approaches in decision-making, executing specialized tasks, and deploying resources that support the organization's ecological initiatives. <b>2. Shared vision</b> Capability that helps the firm to better gather, organize, and use organizational resources to develop sustainable business practices. Through shared diagnoses and discussions of various ecological trade-offs, employees can develop collective thinking and commitment to these matters more effectively and efficiently than competitors. Radical changes in new technologies, equipment, and procedures, with full understanding of and support from everybody in the organization. <b>3. Cross-functional integration</b> Intensive interactions amongst employees from different functional areas. Such an interaction facilitates the ongoing exchange of ideas/knowledge, the prompt sharing of information, and the joint collaboration in activities that can help exploit opportunities and avoid threats related to ecological matters.	<ul style="list-style-type: none"> <li>●Environmental focus.</li> <li>●Short on collaboration DC.</li> </ul>
Glavas & Mish, 2015	199	<b>1. TBL Market Intelligence</b> <b>2. Transparency and Education</b> <b>3. Cultural construction</b>	<ul style="list-style-type: none"> <li>●Short on R&amp;D and innovation DC.</li> <li>●General/vague categories covering several routines, potentially difficult to identify.</li> </ul>
Hofmann et al., 2012	229	<b>1. Adoption of advanced technology</b> <b>2. Experiences with interfirm relations (collaborating with customers and suppliers)</b> <b>3. Capacity for product innovation</b>	<ul style="list-style-type: none"> <li>●Short on Knowledge related DC.</li> <li>●Short on Internal reconstruction and cross-functional integration DCs.</li> <li>●Environmental focus.</li> </ul>
Wong, 2013	113	<b>1. Corporate environmental innovativeness</b> <b>2. Corporate environmental adaptability</b>	<ul style="list-style-type: none"> <li>●Environmental focus.</li> <li>● General/vague categories covering several routines, potentially difficult to identify.</li> </ul>



Ko & Liu, 2017	48	<b>1. Marketing competence</b> <b>2. R&amp;D competence</b>	<ul style="list-style-type: none"> <li>●Short on knowledge related, collaboration, internal reconstruction and cross-functional integration DCs.</li> <li>●Environmental focus.</li> </ul>
Chen & Chang, 2013	285	<b>1. The company has the ability that can fast monitor the environment to identify new green opportunities;</b> <b>2. The company has effective routines to identify and develop new green knowledge;</b> <b>3. The company has the ability to develop green technology;</b> <b>4. The company has the ability to assimilate, learn, generate, combine, share, transform, and apply new green knowledge;</b> <b>5. The company has the ability to successfully integrate and manage specialized green knowledge within the company;</b> <b>6. The company has the ability to successfully coordinate employees to develop green technology;</b> <b>7. The company has the ability to successfully allocate resources to develop green innovation.</b>	<ul style="list-style-type: none"> <li>●Short on collaboration.</li> <li>●Environment focused.</li> </ul>
Beske et al., 2014	711	<b>1. Knowledge management</b> <ul style="list-style-type: none"> <li>• Knowledge assessment</li> <li>• Knowledge acquisition</li> </ul> <b>2. Partner development</b> <ul style="list-style-type: none"> <li>• Ability development</li> </ul> <b>3. SC Reconceptualization</b> <ul style="list-style-type: none"> <li>• Search, selection, integration</li> <li>• SC link foundation</li> </ul> <b>4. Co-evolving</b> <ul style="list-style-type: none"> <li>• Product, process development</li> <li>• Relationship management</li> </ul> <b>5. Reflexive SC control</b> <ul style="list-style-type: none"> <li>• Transparency</li> <li>• Control and monitoring</li> </ul>	<ul style="list-style-type: none"> <li>●Missing R&amp;D, market-oriented perception, internal reconstruction and cross-functional integration DCs.</li> <li>●Supply chain focused.</li> </ul>
Bezerra et al., 2020	19	<b>1. Collaborative relationships for sustainability</b> <i>Ability to cooperate with other companies/stakeholders to jointly address sustainability challenges. Inter-firm relations, relational capability, relationship building, capability for collective action, integration with stakeholders (customers, suppliers), ability to integrate with external resources, cultural context, Supply chain integration.</i>	<ul style="list-style-type: none"> <li>●Focused on organisational capabilities rather than DC.</li> </ul>

		<p><b>2. Absorption of knowledge/learning about sustainability</b> Ability to acquire knowledge (from internal and external sources) related to processes and practices that may improve sustainable results. <i>Absorption capability, external knowledge links, acquisition of knowledge and skills, acquisition of technical know-how, learning capability, knowledge assessment.</i></p> <p><b>3. Innovation/technology for sustainability</b> Ability to develop technologies, products and processes aiming sustainability goals. <i>Sustainable innovations, continuous innovations, predisposition to innovate, R&amp;D capability, technological adoption capability, technological detection/response capability.</i></p> <p><b>4. Alignment/motivation for sustainability</b> In-house capabilities that create an internal enabling environment to meet the challenges of sustainability within the organisation. <i>Shared vision capability, understanding of environmental issues, employee support, multifunctional integration, support from senior management, capability for training, qualification and motivation, environmental management capability of the organisation, space commitment and open mind to learn about environmental issues, internal communication capability, entrepreneurship, ability to acquire enough capital to invest in environmental management, environmental orientation.</i></p> <p><b>5. Marketing/external communication for sustainability</b> Ability to explore and meet market needs on sustainable issues. <i>Marketing capability, ability to communicate and share sustainability information with stakeholders.</i></p> <p><b>6. Flexibility/adaptation on sustainable issues</b> Ability to respond adequately and quickly to sustainability challenges. <i>Environmental adaptability capability, flexibility capability, resilience capability, organizational capability for change, construction and reconfiguration of resources.</i></p> <p><b>7. Management of sustainable operations</b> Ability to tailor the efficiency of operations process to sustainable issues. <i>Environmental product and process management capability, eco design capabilities, capability of operations, process improvement, ability to integrate with internal resources, execution capability, sustainable purchasing capability.</i></p>	
S. B. Choi et al., 2019	24	<p><b>1. Knowledge accessing</b> A capability held by two or more parties that fosters an understanding of the current knowledge resources possessed by each party.</p> <p><b>2. Codevelopment</b></p>	<p>●Missing internal reconstruction and cross-functional integration DCs.</p>

		<p>It involves the routines by which managers reconnect webs of collaborations among various parts of the firm to generate new and synergistic resource combinations among businesses.</p> <p><b>3. Supply chain partner development</b> In a supply chain, not only the development of a single firm holds the key to competitive advantage, but the development of all partners in the chain is a necessity, because the strength is somewhat determined by the strength of its weakest member.</p> <p><b>4. Supply chain rebuilding</b> In a dynamic environment, new actors may become of importance. Especially communities and nongovernmental organizations are gaining influence and should play an important role in a sustainable supply chain.</p> <p><b>5. Flexibility</b> Management control is the process by which managers influence other members of the organization to implement the organization's strategies.</p>	
Fang, Huang, Wei, & Huang, 2010	62	<p><b>1. Flexible organisational architecture.</b></p> <p><b>2. The accumulation and expansion of trust social capital.</b></p> <p><b>3. The ability to scan and predict the environment.</b></p> <p><b>4. Influence on social culture.</b></p>	<ul style="list-style-type: none"> <li>●Missing collaboration and cross-functional integration DCs.</li> <li>●Weak R&amp;D attention.</li> <li>●Categories covering several routines, blended with their attached benefits, potentially difficult to identify.</li> </ul>

*N.B.: Citations were obtained from Google Scholar in June 2021.*

TABLE 4. LIST OF DYNAMIC CAPABILITIES FOR CORPORATE SUSTAINABILITY

Dynamic Capability	Sources
<b>Knowledge related and absorptive capacity:</b> activities related to the generation, management and exploitation of knowledge to support the implementation of CS in the company, as well as that of direct partners such as supply chain members	
<ul style="list-style-type: none"> <li>Knowledge generation</li> </ul>	(Baumgartner & Rauter, 2017; Bezerra et al., 2020; Chen & Chang, 2013; Gruchmann et al., 2021; Konlechner et al., 2018; Wong, 2013; Zheng et al., 2011).
<ul style="list-style-type: none"> <li>Knowledge acquisition and feedback</li> </ul>	(Baumgartner & Rauter, 2017; Beske, 2012; Beske et al., 2014; Bezerra et al., 2020; Engert et al., 2016; Fang et al., 2010; Gruchmann et al., 2021; Leonidou et al., 2015; Wong, 2013; Wu et al., 2013; Zheng et al., 2011).
<ul style="list-style-type: none"> <li>Knowledge management</li> </ul>	(Baumgartner & Rauter, 2017; Beske, 2012; Bezerra et al., 2020; Chen & Chang, 2013; Engert et al., 2016; Lin & Wu, 2014; Wu et al., 2013; Zheng et al., 2011).
<ul style="list-style-type: none"> <li>Knowledge sharing</li> </ul>	(Baumgartner & Rauter, 2017; Beske et al., 2014; Bezerra et al., 2020; Chen & Chang, 2013; Dangelico et al., 2017; Glavas & Mish, 2015; Gruchmann et al., 2021; Leonidou et al., 2015; Lin & Wu, 2014; Meinschmidt et al., 2016; Wu et al., 2013).
<ul style="list-style-type: none"> <li>Knowledge application to products, services, and processes related to sustainability</li> </ul>	(Baumgartner & Rauter, 2017; Beske, 2012; Beske et al., 2014; Bezerra et al., 2020; Chen & Chang, 2013; Dangelico et al., 2017; Engert et al., 2016; Gruchmann et al., 2021; Hong et al., 2018; Konlechner et al., 2018; Leonidou et al., 2015; Wong, 2013; Zheng et al., 2011).
<b>R&amp;D and Innovation:</b> This DC highlights the vocation and abilities of companies for constantly researching and/or developing products, technologies or processes that facilitate organisational goals in terms of sustainability. While it focuses primarily on innovation, it can also encompass processes and/or products that are not necessarily new to the market, but new to the organisation itself.	
<ul style="list-style-type: none"> <li>Working with new stakeholders or existing stakeholders in creatively different ways</li> </ul>	(Klassen & Vereecke, 2012).
<ul style="list-style-type: none"> <li>Development of new products</li> </ul>	(Bezerra et al., 2020; Cezarino et al., 2019; Dangelico et al., 2017; Helfat & Winter, 2011; Lin & Wu, 2014; Wong, 2013).
<ul style="list-style-type: none"> <li>Innovation capabilities to make pro-sustainability improvements in products/services and processes</li> </ul>	(Baumgartner & Rauter, 2017; Bezerra et al., 2020; Cezarino et al., 2019; Chakrabarty & Wang, 2012; Chen & Chang, 2013; Dangelico et al., 2017; Helfat & Winter, 2011; Hofmann et al., 2012; Hong et al., 2018; Ko & Liu, 2017; Paulraj et al., 2017; Wu et al., 2013).
<ul style="list-style-type: none"> <li>R&amp;D partnerships orientated towards sustainability</li> </ul>	(Baumgartner & Rauter, 2017; Bezerra et al., 2020; Cezarino et al., 2019; Iles & Martin, 2013).
<b>Collaboration:</b> refers to the joint effort with different stakeholders in the market to improve the 3BL conditions for the organisation, for different stakeholder groups, in the market, and for the communities where companies have a direct impact.	
<ul style="list-style-type: none"> <li>Partner development</li> </ul>	(Beske, 2012; Beske et al., 2014; Glavas & Mish, 2015; Klassen & Vereecke, 2012; Meinschmidt et al., 2016).
<ul style="list-style-type: none"> <li>Partner-based synergies</li> </ul>	(Baumgartner & Rauter, 2017; Beske et al., 2014; Bezerra et al., 2020; Dangelico et al., 2017; Hofmann et al., 2012; Iles & Martin, 2013; Klassen & Vereecke,

<ul style="list-style-type: none"> <li>Joint development of products and processes</li> <li>Sponsorship of sustainability related projects</li> <li>Collaboration with government and industry (to set market-shaping standards)</li> <li>Assessment of SC partners' performance and/or sponsored projects. Taking corresponding actions if needed</li> </ul>	<p>2012; Paulraj et al., 2017; Van Hoof &amp; Thiel, 2014; Wu et al., 2013).</p> <p>(Baumgartner &amp; Rauter, 2017; Beske et al., 2014; Bezerra et al., 2020; Dangelico et al., 2017; Hofmann et al., 2012; Van Hoof &amp; Thiel, 2014; Wu et al., 2013). (Iles &amp; Martin, 2013).</p> <p>(Amini &amp; Bienstock, 2014; Baumgartner &amp; Rauter, 2017; Iles &amp; Martin, 2013; Klassen &amp; Vereecke, 2012; Wu et al., 2013).</p> <p>(Baumgartner &amp; Rauter, 2017; Beske, 2012; Bezerra et al., 2020; Dangelico et al., 2017; Iles &amp; Martin, 2013; Klassen &amp; Vereecke, 2012).</p>
<b>Social Network relationships:</b> Focused on the company's social relations with different external stakeholder groups and how it manages them to achieve positive contributions towards its sustainability goals.	
<ul style="list-style-type: none"> <li>SC Re-conceptualization: inclusion of NGOs, communities, policy makers</li> <li>Adjustment of the relationships with SC partners</li> <li>Properly handle relationships with customers and other stakeholders in the market</li> </ul>	<p>(Beske, 2012; Beske et al., 2014; Dangelico et al., 2017).</p> <p>(Baumgartner &amp; Rauter, 2017; Bezerra et al., 2020; Dangelico et al., 2017; Fang et al., 2010; Hong et al., 2018; Klassen &amp; Vereecke, 2012; Paulraj et al., 2017).</p> <p>(Bezerra et al., 2020; Fang et al., 2010; Hong et al., 2018; Ramachandran, 2011).</p>
<b>Market oriented perception:</b> capacity to pay attention to sustainability signals and changes in the market, from competitors (their products and technologies) to new requirements from (potential) customers and various stakeholders, as well as sending signals aligned to these changes/requirements back to the market. Ideally, the company will act in a timely manner to address such signals and seize opportunities as they arise.	
<ul style="list-style-type: none"> <li>Keeping abreast of changes in technology and products of competitors, as well as changes in customer demand</li> <li>Prioritizing in portfolio products and services elaborated through sustainability practices</li> <li>Information sharing with customers</li> </ul>	<p>(Chen &amp; Chang, 2013; Dangelico et al., 2017; Fang et al., 2010; Glavas &amp; Mish, 2015; Hong et al., 2018; Iles &amp; Martin, 2013; Ko &amp; Liu, 2017; Lin &amp; Wu, 2014; Ramachandran, 2011; Wu et al., 2013).</p> <p>(Iles &amp; Martin, 2013).</p> <p>(Bezerra et al., 2020; Dangelico et al., 2017; Fang et al., 2010; Glavas &amp; Mish, 2015; Iles &amp; Martin, 2013; Wong, 2013).</p>
<b>Internal reconstruction:</b> company's ability to tailor, in a timely manner, its structure, resources or operation as a consequence of requirements or opportunities detected from the market, while also taking into account organisational objectives.	
<ul style="list-style-type: none"> <li>Quickly integrate/reconfigure resources (including technology) to respond to changes in the environment/ market. Changes could be brought about as a result of evaluation of current resources</li> <li>Process modifications to incorporate pro-sustainability changes</li> <li>Timely response to achieve company's objectives</li> </ul>	<p>(Bezerra et al., 2020; Chen &amp; Chang, 2013; Dangelico et al., 2017; Fang et al., 2010; Glavas &amp; Mish, 2015; Hong et al., 2018; Iles &amp; Martin, 2013; Lin &amp; Wu, 2014).</p> <p>(Baumgartner &amp; Rauter, 2017; Bezerra et al., 2020; Chen &amp; Chang, 2013; Fang et al., 2010; Glavas &amp; Mish, 2015; Iles &amp; Martin, 2013; Wu et al., 2013).</p> <p>(Hong et al., 2018).</p>
<b>Vertical integration and extending the business:</b> modifications to organisational structure to enhance sustainability performance, either through acquisition (absorption) of members up or	

down the supply chain, or through the development of new business units or brands with a core sustainability focus or value.	
<ul style="list-style-type: none"> <li>Development of new business units and/or brands</li> </ul>	(Iles & Martin, 2013).
<b>Cross-functional integration:</b> Capacity of the company to encourage intensive interactions between staff from different functional areas, facilitating the exchange of knowledge and competences of a sustainable nature. While the most common exhibition is between staff of specialised sustainability units with the other units/functional areas, it can also occur between areas whose main focus is not the internal promotion or implementation of sustainability practices and ideas. Ideally, this DC facilitates learning processes between different departments and management levels to address challenges around SD.	
<ul style="list-style-type: none"> <li>Intensive interactions amongst employees from different functional areas</li> </ul>	(Baumgartner & Rauter, 2017; Bezerra et al., 2020; Dangelico et al., 2017; Gruchmann et al., 2021; Leonidou et al., 2015).

### 2.6.3. Organisational benefits of deploying Dynamic Capabilities for Corporate Sustainability.

Although increasing efforts are being devoted to research on the DCs applicable in the sustainability realm, few studies inform about the specific benefits that can be tapped into by companies. Little is reported on what are the tangible gains, or what are the specific improvements in organisations after relying on DCs when implementing their CS strategies.

Some pieces of research report contributions to the environmental (Beske et al., 2014; Cezarino et al., 2019; Hofmann et al., 2012; Hong et al., 2018; Wong, 2013), economic or financial (Cezarino et al., 2019; Essid & Berland, 2018; Hofmann et al., 2012; Hong et al., 2018; Ko & Liu, 2017; Wong, 2013), and/or the social performance of companies (Cezarino et al., 2019; Hong et al., 2018). While improvement in at least two of these axes is expected for a company to claim improvement in terms of sustainability, these outcomes are generic and do not provide detail on what exactly has been improved or what has evolved for the betterment of the organisation.

Other studies are tautological with the benefits claimed as the result of harnessing DCs, since the phenomena or context in which the adoption of DCs is being studied is also reported as the outcome. Some examples are Chen & Chang (2013) and Dangelico et al. (2017) with green DCs and eco-design capability supporting green product development respectively; and Dangelico et al. (2017) and Mousavi et al. (2018) reporting support for innovation focused on sustainability. Dangelico et al. (2017) also claims improved market performance as a consequence of deploying DCs in the context of innovation for green product development.

Scholars have also associated DCs with attaining or sustaining competitive advantages (Beske, 2012; Essid & Berland, 2018; Hofmann et al., 2012; Ko & Liu, 2017; Reuter et al., 2010; Wu et al., 2013). For instance, Beske (2012) only shows in his framework temporary and long-term competitive advantages as the main benefit of DCs within the context of sustainable supply chain management, while Essid & Berland (2018) go further and delve into the outcomes for the organisation after adopting environmental management tools. These benefits are divided into evolutionary fitness and technical fitness, with the former supporting competitive advantage, financial performance, organisational growth and changes in operational capabilities, while the latter generates improved technical efficiency in processes.

Fang et al. (2010) study is one of the few explaining the influence of the DCs studied on the effectiveness of CSR strategies, accounting for what could be potential benefits. Although some of these benefits are striking for being different from those reported in other studies (rapid and low-cost reconfiguration of internal processes; defence of current market position; advance prediction of changes in target stakeholder demands), others benefits seem to be repetitive of the DC they are linked to (investment in training, resource and skill innovations; continuous investment in environmental scanning; hiring professionals and accumulating knowledge; influence on social culture by actively creating, sharing and spreading organisation's norms and rules), and hence appear to be tautological.

Only the review conducted by Bezerra et al. (2020) was found providing a richer account of the potential benefits of embracing organisational capabilities within the CS setting. Notwithstanding, this paper has two main downsides. First, it concentrates on organisational capabilities rather than DCs exclusively, although it does include them amongst the reviewed capabilities. Secondly, it also falls into the trap of naming benefits tautologically based on the phenomenon studied or the capacity that generated them. However, as this is not an empirical study but an account of what has been reported by other researchers, these scholars cannot be expected to detail the specific outcomes observed in the organisations. Rather than being taken as a list of the potential benefits expected from organisational capabilities in the context of CS, they could be understood as a mere compilation from this conversation that needs to be empirically tested.

Whilst the growing body of research on DCs leaves no doubt about their contribution to SD, some pieces of research are narrow in scope (not covering the 3 pillars of sustainability), tautological in the benefits reported, or do not provide enough detail of the gains for companies. This research argues that by providing a greater account of the potential benefits to organisations beyond the creation or preservation of competitive advantages, stronger evidence of their relevance and their role as a robust tool to address the challenge of CS is presented.

Empirically supported, this research project aims to deliver a detailed account of the organisational benefits observed in the companies taking part in the study. Moreover, by combining DC and CAS theories, a better understanding of the benefits for the firm and also for the system represented by the firm and its adaptive process is intended.

Consequently, the following section will evaluate the most representative frameworks of DCs for CS in the literature, paying attention, amongst others, to the inclusion of potential benefits for companies deploying such DCs.

#### 2.6.4. Evaluation of current frameworks of Dynamic Capabilities for Corporate Sustainability

The body of knowledge combining both DC and CS is fairly young, and thus most of the current frameworks and models are quite recent. These frameworks focus on different perspectives of SD within companies, and therefore present different components, relationships, organisational routines, and outcomes. Hence, this section of the literature review will examine the most notable and recent frameworks and models of DC for CS, identifying their weaknesses in relation to this research and providing the basis for a new and enhanced framework. In addition to studies focused on CS, four more frameworks from research conducted within the sustainable supply chain management, innovation towards

sustainability and environmental management contexts were also included for looking at more than one single DC and for being highly cited amongst scholars.

Table 5 presents an overview of the examined frameworks and models, while figures 3 to 10 depict such frameworks.

TABLE 5. REVIEWED RELEVANT FRAMEWORKS OF DCs FOR CS, SSCM, AND ENVIRONMENTAL MANAGEMENT

Source	Citations	Framework description	Disadvantages
Cezarino et al. (2019)	19	Only research combining both DC and systems thinking (through SSM).  Integrating sustainability into factors such as environmental culture and routines for innovation, considered DCs, as well as an integrative strategy, lead companies to change an adapt in disturbing environments.	<ul style="list-style-type: none"> <li>●The framework does not incorporate the systems approach. SSM used mainly for analysis.</li> <li>●No detail of the benefits of DC for the organisation beyond social, environmental and economic performance.</li> </ul>
Wu et al. (2013)	1	Conceptual framework with key organisational functions and processes underlying the DCs for CS.	<ul style="list-style-type: none"> <li>●Not focused on the benefits of DC for the organisation.</li> <li>●Organisational routines clashing with other frameworks also relying on Teece's classification of DCs.</li> </ul>
S. B. Choi et al. (2019)	24	Conceptual model poses that DCs have a moderating role in the relationship between customer pressure and CSR practices amongst small and medium sized suppliers. Detail on the DCs moderating this relationship provided.	<ul style="list-style-type: none"> <li>●Not focused on the benefits of DC for the organisation.</li> </ul>
Bezerra et al. (2020)	19	Conceptual framework relating organisational capabilities for sustainability and their expected corporate sustainability benefits.	<ul style="list-style-type: none"> <li>●Focus on organisational capabilities rather than DCs.</li> <li>●Does not acknowledge interrelations between capabilities and the effect of their combination for the organisation. Benefits linked to individual organisational capabilities.</li> <li>●Tautological benefits.</li> </ul>
Mousavi et al. (2018)	39	Theoretical framework showing the effect of DCs and their underlying organisational routines on innovation towards a greater degree of sustainability. The study also illustrates the relationship amongst DCs.	<ul style="list-style-type: none"> <li>●Innovation towards sustainability as the only benefit addressed.</li> <li>●Organisational routines clashing with other frameworks also relying on Teece's classification of DCs.</li> </ul>
Beske (2012)	361	Theoretical framework depicting the effect of SSCM practices on sustainability performance, while also embedding specific DCs into SSCM practices.	<ul style="list-style-type: none"> <li>●Developed for the context of SSCM.</li> <li>●No detail of the benefits of DC for the supply chain beyond sustainable competitive advantage.</li> </ul>
Hong et al. (2018)	211	Conceptual framework illustrating the effect of SSCM practices on supply chain DCs and on the 3 dimensions of	<ul style="list-style-type: none"> <li>●Developed for the context of SSCM.</li> <li>●No detail of the benefits of DC for the supply chain beyond economic,</li> </ul>



		performance (economic, environmental and social). Supply chain DCs are only attributed effects on environmental performance, while they also partially mediate the relationship between SSCM and enterprise performance.	environmental and social performance.
Hofmann et al. (2012)	229	The conceptual framework represents the connection between capabilities, environmental management and environmental and economic performance measures.	<ul style="list-style-type: none"> <li>● Developed for the context of environmental management only.</li> <li>● No detail of the benefits of DC for the organisation beyond economic and environmental performance.</li> </ul>

*N.B.: Citations were obtained from Google Scholar in June 2021.*

Cezarino et al. (2019) provides the only research in the field of CS that merges DCs theory with systems thinking by using Soft Systems Methodology (SSM). They claim that by integrating sustainability into factors such as an integrative strategy, a sustainable culture and organisational routines for innovation, the organisation develops new ways of changing and adapting to disruptive environments. However, what seems to be the resulting framework does not evidence elements of systems thinking. In addition, it only addresses social, environmental and economic performance as potential benefits of DCs.

Through content analysis of CSR reports of leading UK companies, Wu et al. (2013) developed a conceptual framework with the key functions and processes underlying DCs in the context of CS. The first disadvantage of this framework is that it follows the original classification of DCs proposed by Teece (2007), and therefore clashes with other frameworks that also rely on this classification but that provide a different detail of underlying organisational routines. Additionally, it does not include the potential benefits that could be achieved by the company deploying these DCs altogether.

In their quantitative study, S. B. Choi et al. (2019) developed a conceptual model to show that DCs moderate the relationship between customer pressure and CSR practices amongst small and medium size suppliers. While a positive of this model is that it provides a detailed list of the DCs moderating the relationship, it does not cover the benefits of DCs for the organisation.

As previously acknowledged, the literature review conducted by Bezerra et al. (2020) is the piece of research that provides the framework with the greatest detail on the benefits that organisations could see as a result of adopting organisational capabilities in the context of CS. Yet, a first drawback for this framework is that the study is not solely focused on DCs, but on organisational capabilities amongst which, DCs are included. Furthermore, it does not acknowledge the interrelations between capabilities and their combined effect on the organisation. Instead, it links specific benefits to individual organisational capabilities. Lastly, it presents tautological benefits as these, and their categories, tend to be described in terms of the capability that originated them.

Looking at innovation towards sustainability and how can this be affected by DCs, Mousavi et al. (2018) developed a theoretical framework providing detail on the underlying organisational routines integrating the traditional DCs suggested by Teece (2007), sensing seizing and reconfiguring. The study also shows the relationship amongst DCs. The pitfalls of this framework, apart from focusing on a narrower phenomenon than CS, is that it also clashes with other frameworks relying on Teece's classification of DCs that contribute with a different detail

to the underlying organisational routines. Moreover, the only benefit mentioned is precisely, innovation towards sustainability.

Posing that DCs and sustainable supply chain management (SSCM) are linked through similar environmental and organisational conditions, Beske (2012) provides a theoretical framework on SSCM practices and identifies specific DCs in this context, while also establishing a potential effect on sustainability performance. The disadvantage of this framework, in addition of being developed for the context of SSCM, is that it only includes sustainable competitive advantage as the benefit of deploying DCs.

In a similar fashion to Beske (2012), Hong et al. (2018) also studied DCs in the context of SSCM. They developed a conceptual framework illustrating the effect of SSCM practices on supply chain DCs and on the 3 dimensions of 3BL performance (economic, environmental and social). The framework also indicated that supply chain DCs only affect environmental performance, while supply chain DCs partially mediate the relationship between SSCM and enterprise performance. Apart from being applicable to the context of SSCM, the drawback for this framework is that it does not elaborate on the benefits of DCs for the organisation beyond social, environmental and economic performance.

The last revised framework was from Hofmann et al. (2012) within the context of environmental management practices. Their conceptual framework portrays the connection between capabilities such as technology adoption, collaboration and innovativeness, with environmental management and, environmental and economic performance. Due to the nature of the phenomenon being studied, the two main disadvantages from this framework are its focus on the environmental and economic pillars of sustainability leaving the social component out, and that it does not account for more benefits of DCs other than economic and environmental performance without further detail.

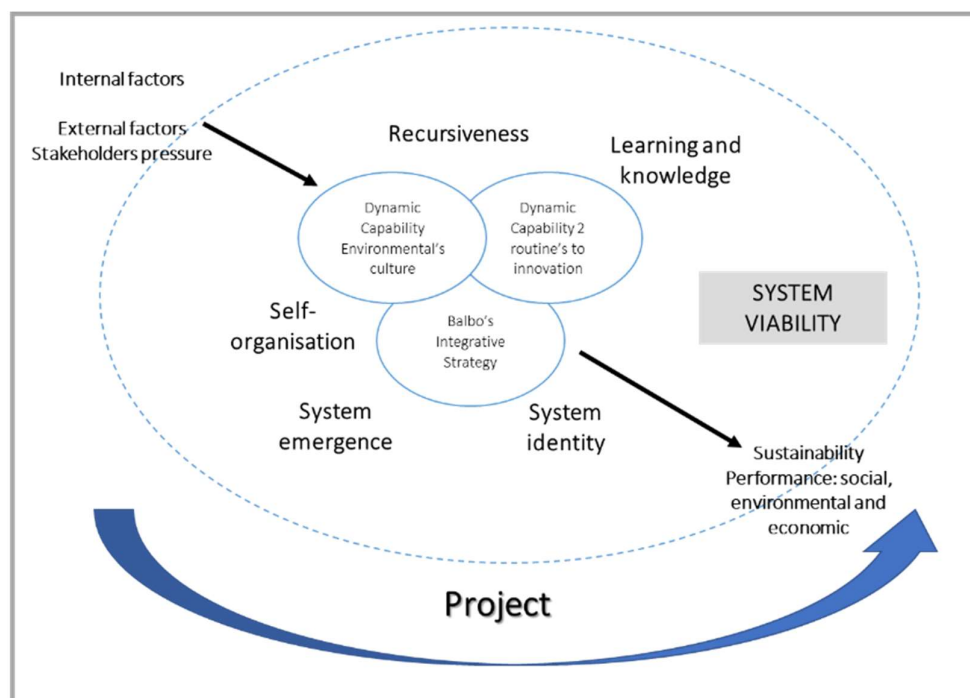


FIGURE 3. VIABLE SYSTEMS FEATURES TO DYNAMIC CAPABILITIES  
Source: Cezarino et al. (2019)

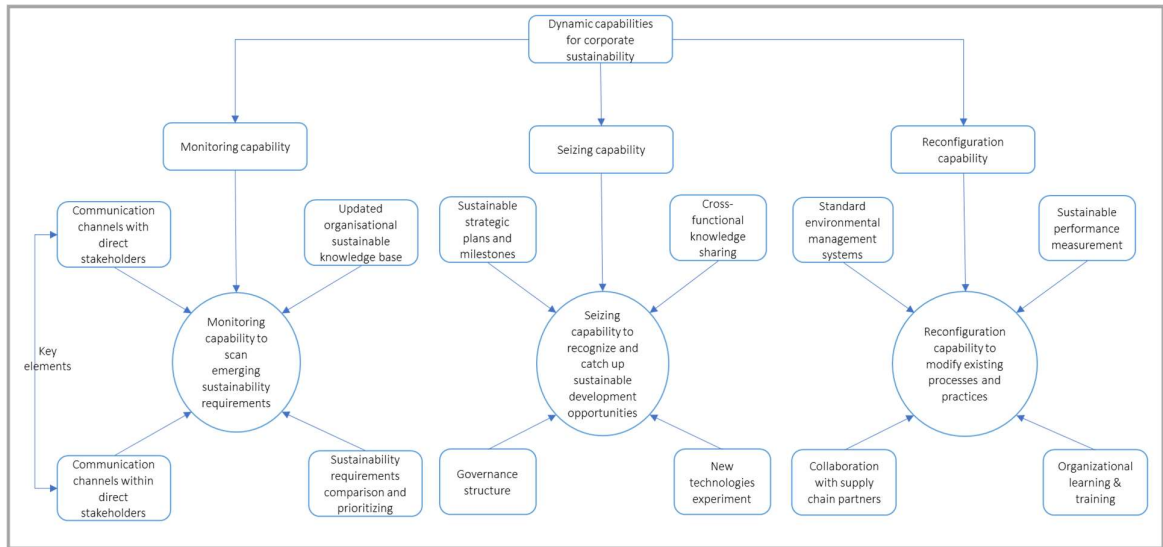


FIGURE 4. KEY ORGANIZATIONAL FUNCTIONS AND PROCESSES UNDERLYING THE DYNAMIC CAPABILITIES FOR CORPORATE SUSTAINABILITY  
Source: Wu et al. (2013)

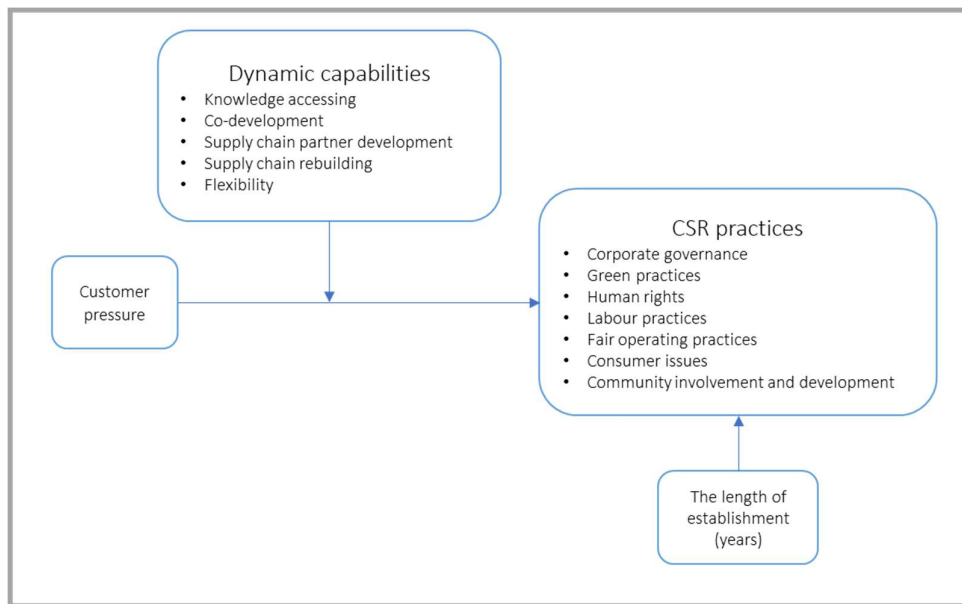


FIGURE 5. A CONCEPTUAL MODEL CSR: CORPORATE SOCIAL RESPONSIBILITY  
Source: S. B. Choi et al. (2019)

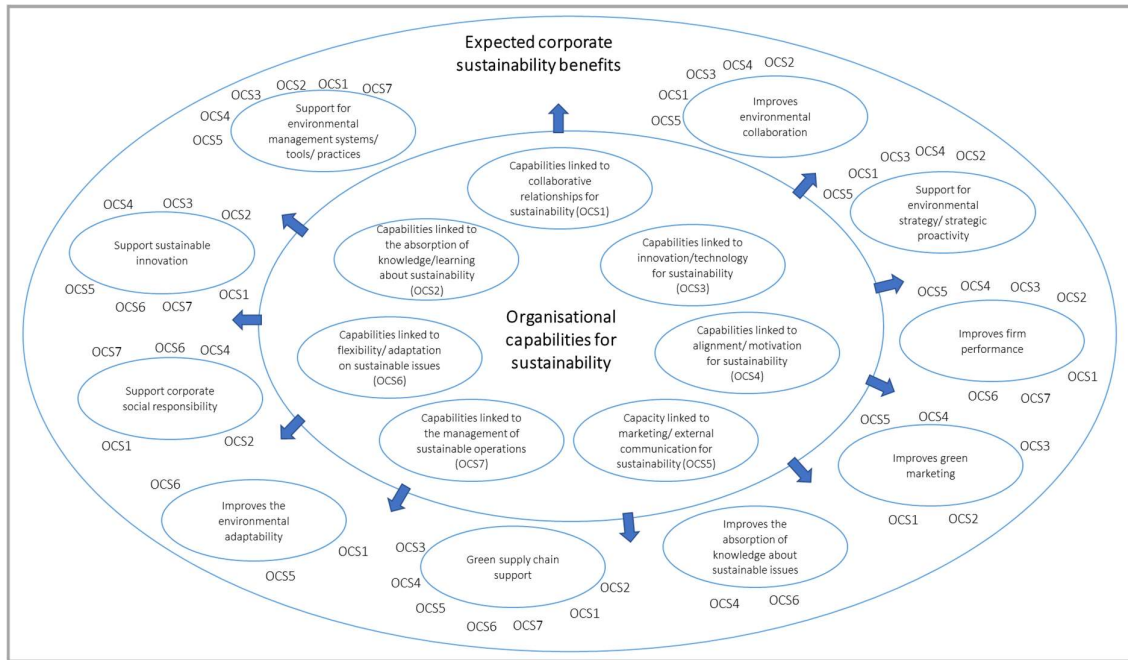


FIGURE 6. CONCEPTUAL INTEGRATIVE FRAMEWORK RELATING OCS AND EXPECTED CORPORATE SUSTAINABILITY BENEFITS

Source: Bezerra et al., (2020)

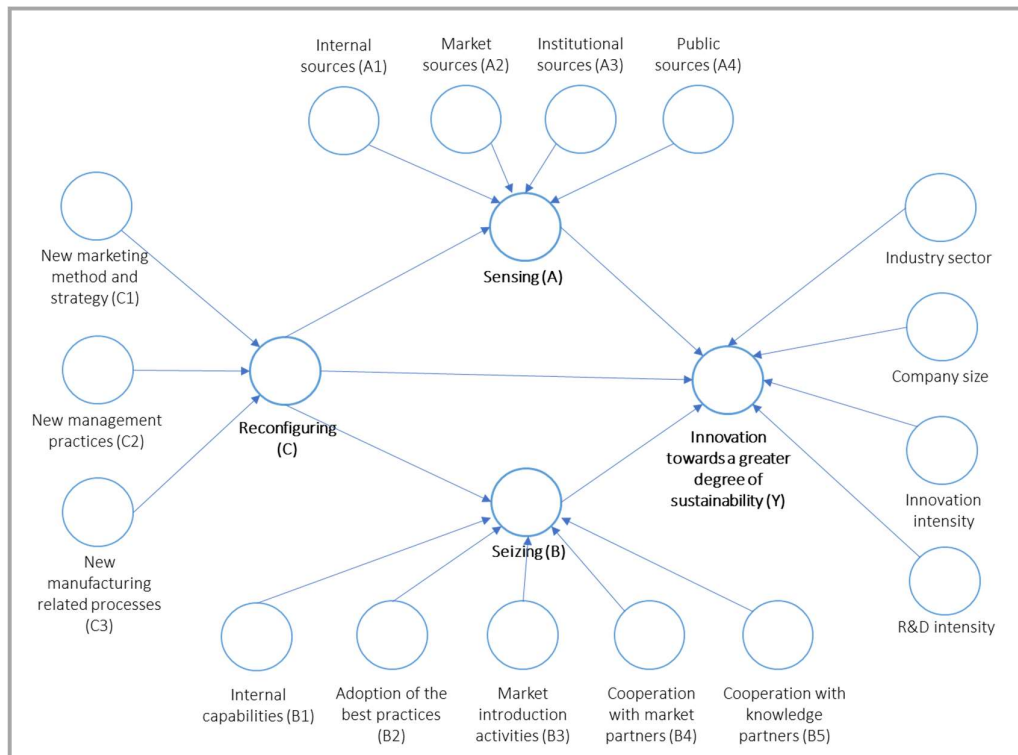


FIGURE 7. RESEARCH MODEL – DYNAMIC CAPABILITIES AND ORGANISATIONAL ROUTINES FOR MANAGING INNOVATION TOWARDS SUSTAINABILITY

Source: Mousavi et al. (2018)

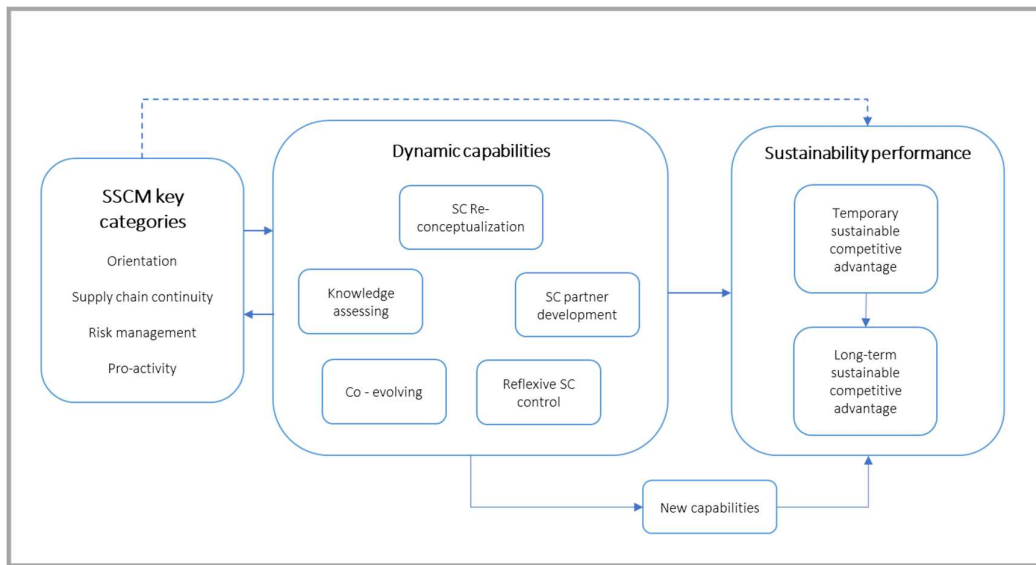


FIGURE 8. A FRAMEWORK OF DYNAMIC CAPABILITIES IN SUSTAINABLE SUPPLY CHAIN MANAGEMENT (SSCM)  
Source: Beske (2012)

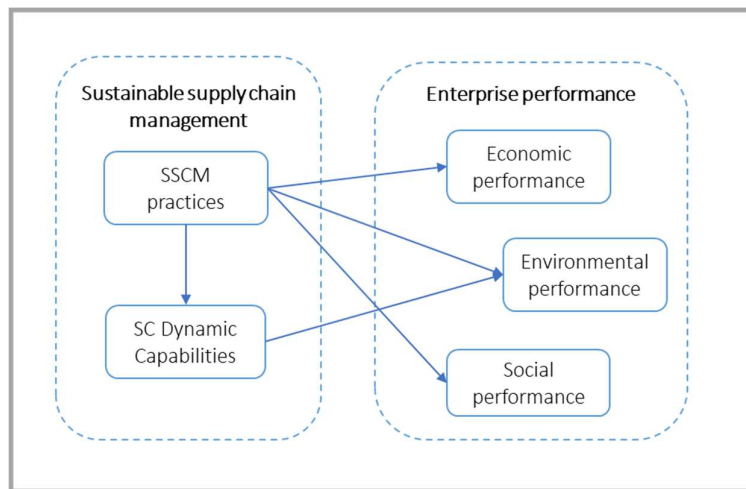


FIGURE 9. CONCEPTUAL FRAMEWORK - SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES, SUPPLY CHAIN DYNAMIC CAPABILITIES, AND ENTERPRISE PERFORMANCE  
Source: Hong et al. (2018)

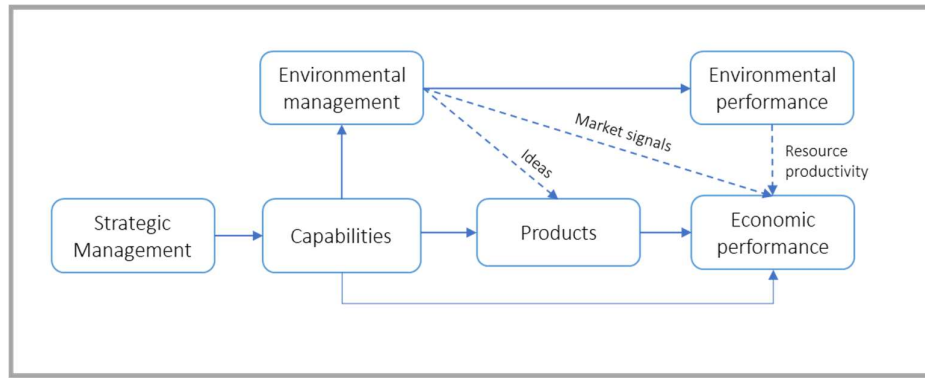


FIGURE 10. CONCEPTUAL FRAMEWORK - SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES, SUPPLY CHAIN DYNAMIC CAPABILITIES, AND ENTERPRISE PERFORMANCE

Source: Hofmann et al. (2012)

Overall, it can be observed that the frameworks developed within the DCs body of literature in the context of CS, fail to link the DCs at stake with the potential benefits that can be obtained. Moreover, it is rare that studies provide further detail on these benefits and are mostly limited to claim contributions to competitive advantages or 3BL performance. To this one can add that the majority of reviewed frameworks were developed from the context of developed economies, with only the studies of Cezarino et al. (2019) and S. B. Choi et al. (2019) being developed in Brazil and China respectively. Questionably considering China an emerging economy today, only one of the studies provided insights from an economy that can still be deemed emerging. Therefore, this research posits that by drawing on systems thinking to broaden the analysis of CS strategy implementation and its corresponding adaptive changes, a more comprehensive framework of DCs and their potential organisational benefits can be developed. Such a framework should be informed with insights from companies located in an emerging economy, which would make it more suitable for understanding the realities faced in this context.

## 2.7. Systems thinking

From the point of view that real world phenomena is complex, the systems approach has allowed to organise one's thinking to understand these phenomena better and more coherently. This systems approach is divided into Systems Thinking and Information Technology ("Stell" Kefalas, 2011). The world view through systems thinking proposes a shift of focus from the individual parts to the whole, where a phenomenon (understood as a system) cannot be comprehended by only dividing it into parts, but requires a holistic view to capture its functioning. In other words, a holistic perspective (Cordon, 2013; Mele et al., 2010; "Stell" Kefalas, 2011). In addition, the systems thinking approach also pays attention to the interactions and relationships between the parts of the system in order to understand its functioning and outcomes. According to scholars who follow this school of thought, systems are present in virtually all areas of life, including nature, society, the economic context and information systems (Mele et al., 2010). Moreover, these systems exhibit common features such as parts, wholes, sub-systems, system boundaries, environment, structure or process, emergent properties, hierarchy of systems, positive and negative feedback, information and holism (Mingers & White, 2010). Systems thinking has been acknowledged as interdisciplinary, as it has been influenced by various disciplines such as mathematics, biology, psychology and economics, which simultaneously developed such concepts and knowledge. In response to this, Von Bertalanffy's effort to develop the theory of General Systems (GST) was born midway through

the 20<sup>th</sup> century, seeking to find general principles valid for all systems. Other theories also grounded in systems thinking are cybernetics and chaos theory (Mele et al., 2010; “Stell” Kefalas, 2011). For its part, the Information Technology branch of systems approach provides the tools necessary to test and improve the systems thinking theories. A system, regardless of its nature, can be understood as an organism that needs to be fed. For instance, in an organisational context such system feeds on information. To do so, the system requires an information system that scans and collects data both internally and from the external environment, which is then processed and converted into useful information for the system (“Stell” Kefalas, 2011).

As it happens with different theories, systems thinking has also received some criticism from academics. Some consider it to be an overly simplistic theory applied to all sorts of phenomena despite being poorly defined and lacking systematic rigour (Lansing, 2003; T. B. Porter, 2008). Nonetheless, the benefits of applying the systems view to the understanding of sustainability far outweigh the potential disadvantages, hence, academics from different management streams are increasingly incorporating systems thinking to frame their research on CS (Espinosa & Porter, 2011; Lozano, 2015; Morioka et al., 2017; Williams et al., 2017; Zimek & Baumgartner, 2017).

The systems literature have used different theories, some of them originated in the same field derived from systems thinking and GST, while others have been borrowed from different disciplines (“Stell” Kefalas, 2011). Not all theories used in the systems field study a system by itself. Some of them are interested in different phenomena, for example the Technology Acceptance Model that looks into usefulness and ease of use of technology (Davis, 1989), Social Network Theory that focuses in the relationships (ties) within a network and the relevance of its structure (Liu et al., 2017), or Actor-Network Theory that seeks to understand inanimate objects and material systems as actors or co-agents of human intentional actors (Gregor, 2006). The following sections of this chapter will discuss some of the most representative systems theories, in order to compare them with complex systems and/or CAS theory and support the viability of the latter as the best option for the study of the phenomenon that interests this research. Given the vast availability of theories in systems research, the rationale for selecting the theories that were analysed and compared against CAS is as follows:

- a) theories originated as a consequence of systems thinking or GST, as this answers the different calls for research.
- b) They must look at systems from a high-level (high-order) perspective, i.e., a holistic view of the system,
- c) they should also focus on the dynamics within the system and the study of the relationship and influence with their environment,
- d) their viability to help solve empirical problems,
- e) their applicability to organisational/business context,
- f) their relevance to answer the research question that motivates this study (Burton-Jones et al., 2015) and their suitability for understanding the unit of analysis.

Based on the previous criteria, selected theories were Complex systems and CAS theories, GST, chaos theory, cybernetics and soft systems thinking.

### 2.7.1. Complex systems and CAS theories

The second theory framing this investigation is a branch from complex systems, namely CAS. This theory was originated in the ecological sciences and further developed at the Santa Fe

Institute (Gell-Mann, 1994; Holland, 1992). A CAS is a self-organised system composed from a group of agents where none of them is in control but the aggregation of all their behaviours results in the emergence of global patterns of behaviour. Interactions between agents and with the system's environment lead to change in the agents themselves and in the system, resulting in co-evolution with its environment and adaptation that increases the system's fitness to survive (T. Choi et al., 2001; Espinosa & Porter, 2011; Pathak et al., 2007; T. B. Porter & Córdoba, 2009).

Literature identifies a number of characteristics that must be observed in a system to be considered complex, which are all shared with CAS except for adaptability, the feature that makes a complex system become a CAS. These characteristics will be listed next.

- Agents. These entities have the ability to learn from their experiences, make decisions and change as a consequence of their interaction with the environment and other agents within the system. Therefore, they are said to have the capacity to intervene significantly in the course of the system. (T. Choi et al., 2001; Levin et al., 2013; Pathak et al., 2007).
- Feedback loops. The constant flow of information between agents within the system, and between agents and their environment, allows for an exchange that serves as a learning mechanism for both agents and the system (Espinosa & Porter, 2011).
- Schema. These are the norms, decision-making rules, values and beliefs that govern the behaviour of the agents. They are commonly shared amongst groups of agents within the system. (T. Choi et al., 2001; Pathak et al., 2007)
- Self-organisation and emergence. These two characteristics are linked to each other, since self-organisation can be understood as the process and emergence as the result of that process (Karolidis et al., 2020). Self-organisation refers to local-level interactions and spontaneous organisation of agents at lower levels of the system, with little control or design from higher levels (T. Choi et al., 2001; Espinosa & Porter, 2011; Levin, 1998; Pathak et al., 2007; T. B. Porter, 2008). This leads to the local evolution of agents and their behaviours, which aggregate and emerge as unexpected changes in structures, patterns and behaviours at the higher levels of the system and that turn out to be more complex and dissimilar to those originally exhibited at the local level (T. Choi et al., 2001; Espinosa & Porter, 2011; Innes & Booher, 1999; Lansing, 2003; Levin, 1998; T. B. Porter, 2008).
- Patterns of behaviour. Despite the constant changes within the system at different levels, and the unpredictability of the future and the system's reactions to it, it is possible to notice some regularity or common patterns in the collective system performance (Lansing, 2003; Pathak et al., 2007).
- Non-linearity. This characteristic implies that multiple and different outcomes can be obtained from the same input to the system, but it can also mean that a change may cause effects of a larger or smaller magnitude, than the magnitude of the change itself (T. Choi et al., 2001; Levin, 1998).
- Dimensionality. Related to the degrees of freedom that the agents within the system have to behave autonomously. It is reduced by system controls and schemas (T. Choi et al., 2001).



- Edge of chaos. Phase in which the system is pushed to the boundary between order and chaos, where it can still maintain some order and yet, it is enabled to react and innovate in the face of changing and unexpected conditions in its environment (T. Choi et al., 2001; Espinosa & Porter, 2011).
- (Co)evolution. A prime characteristic of a complex system is the evolution of its components, or internal agents, through an interplay of interactions. But the agents are not the only ones evolving, the system as a whole is also in a process of co-evolution with its environment, as the latter forces changes in the systems that inhabit it, while systems induce changes in their environment. All of this occurs at the edge of chaos, for it is the condition that forces the system to change in order to survive (T. Choi et al., 2001; Dhanorkar et al., 2019; Espinosa & Porter, 2011; Innes & Booher, 1999; Pathak et al., 2007; Touboul et al., 2018).
- Adaptation. This specific characteristic distinguishes a CAS from a complex system, as both are sources of variation, change, and continuous evolution. However, through learning, only a CAS achieves a new order where it accomplishes enhanced functioning. Thereby contributing to the improvement of its generativity and resilience, while also retaining its basic identity and integrity. In other words, the system strengthens itself by increasing its fitness to survive while maintaining its fundamental nature (Espinosa & Porter, 2011; Innes & Booher, 1999; T. B. Porter & Derry, 2012).

A company can be seen as a complex system composed of agents with their own schemas, while also adhering to some extent to the broader system's schemas through emerging patterns of behaviour, yet its interaction and co-evolution with the environment pose a scenario that becomes even more complex. Thus, complex systems can provide valuable insights to the study of CS in the business context, considering that companies are naturally immersed in a series of complexities to which the additional complexities inherent to sustainability are added. In the first instance, complex systems allows understanding the interdependencies and interactions within the company, as well as beyond its borders with other companies (Lozano, 2015) and with other systems where it is embedded and from which it obtains resources, namely society and the environment (Cavaleri & Shabana, 2018; Van der Byl & Slawinski, 2015). The integration of CS in a company entails the relaxation of its boundaries to incorporate requirements from the external environment, encompassing changes to the organisational system and ultimately becoming a source of greater complexities (Engert et al., 2016; Morioka et al., 2017). Furthermore, the incorporation of potentially conflicting values and demands (T. B. Porter, 2008; Vildåsen et al., 2017; Wu et al., 2013) associated with the 3BL brings more complexities that largely contribute to the co-evolution of organisational strategies and the business environment in general (Amui et al., 2017). In light of these complexities, an increasing number of scholars are using the complex systems perspective to study companies aiming at CS (Vildåsen et al., 2017), while others continue to call for more research to understand the complexities of sustainability in the business context through systems thinking (Williams et al., 2017).

### 2.7.2. CAS in Corporate Sustainability research

The previous paragraphs make the case for studying CS from the systems view, however, amongst systems theories CAS is considered by this research to be the best fit for

framing the study of CS, along with the design and implementation of the corresponding strategies. In the business context, but emphasised even more by sustainability, companies, their competitors, demands from consumers and various stakeholder groups, as well as the environment, are constantly evolving (Lozano et al., 2015). Consequently, companies that develop the ability to adapt their resources to cope with requirements and demands (Murray & Donegan, 2003) will be the most likely to remain successful in their quest for sustainability (Cezarino et al., 2019).

CAS theory understands that practices towards sustainability have to undergo changes and adaptations as they are deployed, and these will be later internalised as dynamically readapting routines (Amui et al., 2017; Cezarino et al., 2019). Moreover, the environment of a CAS is shaped by other CAS, each changing and evolving, pushing others to co-evolve and consequently generating changes in the environment (T. Choi et al., 2001; Metcalf & Benn, 2013). In the case of CS, government institutions, communities, NGOs, academic institutions, etc., can be seen as CAS with changing and unpredictable demands for companies (Beske, 2012), which must be met or else face penalties. Therefore, change is driven within the company's system while also likely to be spread to other companies, causing larger scale change in the industry. The potential outcome will be companies with an enhanced capacity to address and respond to sustainability requirements, boosting their resilience and permanence in the market (Espinosa & Porter, 2011).

In a CAS, simultaneous changes occur on several fronts. While CAS theory lends itself to the study of CS, one must pay careful attention to changes in the system's environment, as both the system and its agents will respond to such changes and consequently affect self-organisation and emergence in the CAS (Touboul et al., 2018). Equally important will be to examine the consistency of the adaptations made by the system to adjust to these sudden, ambiguous and/or discontinuous changes (Amui et al., 2017). Analysis through the CAS lens must therefore assign equal relevance and attention to the changes occurring both within and outside the system, and how these are interconnected.

So far, the main characteristics of complex systems and CAS theories have been presented, as well as the justification as to why CAS is a suitable option for studying CS. Next, additional theories belonging to systems thinking will be presented as well as a discussion of how complex systems, particularly CAS, represent a better option for this project.

### 2.7.3. General Systems Theory (GST)

Developed by Ludwig von Bertalanffy, GST aimed to embrace every open system across different sciences (biology, mathematics, physiology, and economics) by unifying their principles and seeking to understand its intrinsic laws and order ("Stell" Kefalas, 2011; Von Bertalanffy, 1973). GST views organisations as social systems comprised of units that must interrelate harmoniously for the organisation to be effective. Hence, it focuses on the complementarities amongst elements, their integration, and the outcomes resulting from their interactions. Additionally, GST regards dynamical systems as deterministic, meaning that it can be determined how a system moves through its state space from time to time (Anderson, 1999). GST distinguishes between two types of systems: closed systems and open systems. Closed systems are isolated from their environment, while open systems interact with their environment (including other systems) where feedback loops enable adaptation to environmental changes (Cordon, 2013; Gregor, 2006; Teece, 2018). Under GST, open systems are attributed characteristics such as cyclicity, steady-state, dynamic homeostasis, integration, and coordination (Schneider & Somers, 2006). Additional concepts are inputs, outputs,

feedback, boundary, wholeness, purposefulness, organisation, hierarchical order, interconnectedness, equifinality and entropy (Gregor, 2006; Gregor & Hart, 2007; Mora et al., 2007; Schneider & Somers, 2006; “Stell” Kefalas, 2011).

In a way, it can be said that systems theories developed around the time of GST are somehow connected. For instance, GST has commonalities with theories such as cybernetics, complex systems and SSM (Gregor, 2006). Moreover, as one of the first systems thinking theories, the ideas of GST have stimulated the development of subsequent approaches such as open system theory, viable system model and viable system approach (Mele et al., 2010).

While GST and CAS share commonalities given that both derive from systems thinking, there are also differences that make the later a more suitable option for this research project:

- System behaviour. GST considers that systems’ events are cyclical, whereas CAS operate at the edge of chaos where they boost their adaptive capacity. From this perspective, the CAS scope allows a better understanding of dynamic environments since it considers adaptability as a prime characteristic of the system when facing an environment with unforeseen changes and unpredictability (Schneider & Somers, 2006). In the case of this research project, case companies are embedded in a constantly changing environment that strives for sustainability, but that also poses additional challenges such as those inherent to emerging economies.
- Aligned with the previous idea, CAS emphasizes the adaptation and evolution of the systems, while the basic principle of GST is the preservation and dynamic homeostasis of the system (Schneider & Somers, 2006). Companies seeking to implement programmes for sustainability will certainly have to evolve and adapt to the requirements of different stakeholders, both internal and external. This can also occur in a context of conflicting interests, sudden changes and limited resources. Given all these conditions, it would seem rather unlikely to find homeostasis in this context.
- With regard to the final state of the system, GST proposes equifinality. This is, different conditions and paths can lead to the same result (“Stell” Kefalas, 2011). Moreover, systems are considered deterministic. Conversely, CAS theory believes in path dependence, where a unique final state is reached due to the sensitivity of the system to initial conditions (Schneider & Somers, 2006). Building on this, non-linearity allows to reach outcomes of different magnitude to the input that originated them. This could even mean no changes despite inputs (T. Choi et al., 2001; Levin, 1998). Each firm has a unique history and context through which organisational routines have been developed, but that would have been difficult to determine in advance. Such routines are those that lead to the emergence of DCs when they contribute to the development and / or maintenance of a competitive advantage (Vergne & Durand, 2011). Therefore, equifinality would be a dangerous assumption for the study of strategies, and even more so in the context of CS in emerging economies.

To summarize, GST does not seem appropriate for the purpose of this research since it supposes the presence of cycles and deterministic behaviour instead of acknowledging the phenomena as chaotic and unpredictable, while also not giving due importance to features such as evolution. Additionally, its focus on equifinality seems to contradict the nature of firms and the scenario brought about by their context.

#### 2.7.4. Chaos Theory

Stemming from the work of Edward Lorenz in the early 1960's and based on a new understanding of equilibrium, chaos theory studies the behaviour of dynamic systems that do not follow clearly predictable or repeatable pathways. Hence, they are considered unstable. What might resemble a pattern of behaviour can disappear unexpectedly, as well as new patterns can emerge. Chaotic systems are considered dynamical as they respond to the environment. Furthermore, chaotic systems are highly sensitive to initial conditions, which lead to Lorenz coining the term "butterfly effect". The non-linearity present in chaotic systems can lead to behaviours that are not proportional to the environmental stimuli that prompted such behaviour in the first place. However, although these systems appear to display random and unstable behaviour given their diminished predictability, they are in fact deterministic, implying that the trajectory of the system is constrained (Anderson, 1999; Benbya et al., 2020; Benbya & McKelvey, 2006; McBride, 2005).

It is precisely this deterministic nature one of the attributes that differentiates chaotic systems from complex systems, since the latter are neither deterministic nor random. On the one hand, chaotic systems, despite uncertainty, have bounded trajectories that can be predicted if the initial conditions and the context of action are known (Anderson, 1999; Benbya et al., 2020; Benbya & McKelvey, 2006; Vessey & Ward, 2013). Complex systems, on the other hand, are in a state of quasi-equilibrium, i.e. on the edge of chaos and far from equilibrium. They are able to maintain order and react to changes in the environment (Vessey & Ward, 2013). Furthermore, there are additional characteristics that differentiate chaotic systems from complex systems. While chaotic systems deal with uncertainty and unpredictability to some extent, complex systems deal with order and how this (emergent) order originates (Benbya & McKelvey, 2006).

Given the nature of DCs, their development process and how this can be influenced by the environment and the by staff at different hierarchical levels in the organisation, one could think of DCs as emergent routines or abilities that the company intentionally or unintentionally sees emerging from within. There is however, little room for predictability given all the factors and conditions that affect the way how these are deployed by firms. Hence, complex systems seem to be better aligned with the other theory framing this project – DCs- than chaos theory.

#### 2.7.5. Cybernetics

In the wake of its development by scientists (Heinz von Forster, Warren Sturgis McCulloch, Norbert Wiener, W. Ross Ashby, John von Neumann) from diverse fields of study such as physics, philosophy, neurophysiology, mathematics, psychiatry and computer science, cybernetics is another systems theory that has received input from a variety of disciplines, while having applications in equally diverse fields such as psychology, biology, philosophy, engineering, artificial intelligence, robotics and socio-economic systems (Marinescu, 2017; Mingers & White, 2010). Thus, several traditions, and with them definitions, have coexisted in cybernetics since its early days (American Society for Cybernetics, 2000; Marinescu, 2017). One of these traditions deals with circular causality, in which cybernetics is seen as the scientific study and mathematical modelling to understand regulation and control in any system. That is, the study of information flows through a system and how these are used to control itself (Anderson, 1999; Mingers & White, 2010). This tradition is reflected in theories such as computation, regulation and control. Specifically applied to the field of management, cybernetics has contributed to theories such as Viable Systems Modelling, which seeks to identify minimum criteria for an organisation to be able to exist autonomously while

maintaining its identity in a changing environment (Mingers & White, 2010). Viable Systems Modelling applies the concept of autopoiesis, developed by Maturana in 1972. In cybernetics, an autopoietic system is able to maintain itself by creating its own parts, i.e. the system's own organisation is considered a constant variable (Gregor & Hart, 2007). Another tradition, focused on human and social concerns, concentrates on epistemology, i.e. how we acquire knowledge. This tradition is concerned with understanding phenomena such as autonomy, identity and purpose (American Society for Cybernetics, 2000).

Although cybernetics shares concepts and ideas with complex systems and CAS theories -feedback loops and adaptation for instance- (Anderson, 1999), it has been discarded as a theory to study the phenomenon that interests this research due to its strong focus on "auto-control", which is outside the scope of this project. This research seeks to explore how companies, in a context that seeks to implement sustainable practices, have adapted to the requirements of diverse stakeholders and the environment. In order to achieve this understanding, the chosen approach has to look from an unconstrained view at the evolutionary process and concepts such as auto-control might limit this understanding. In addition, cybernetics is also considered a theory that explores deterministic systems (Anderson, 1999). As discussed in previous sections for GST and chaos theory, this thesis is not interested in approaches that consider systems as deterministic.

#### 2.7.6. Soft Systems thinking

Attributed to Checkland, soft systems thinking was developed at Lancaster University in 1981 in response to failure of engineering systems to address managerial problems (Mingers & White, 2010; Wheeler, 2000). In contrast to hard systems, such as those studied in fields like engineering, soft systems are characterised by having human beings as their main component. In the case of organisations composed of several individuals, it is usual to find different objectives operating simultaneously and in conflict (Laszlo & Krippner, 1998). Hence, soft systems thinking focuses on how to deal with arising problems that are ill-defined. These problems are explored by acknowledging and examining the implications of the diversity of perspectives from the various stakeholders involved. Amongst the most representative methods is Soft Systems Methodology (SSM), which rather than a methodology is identified as a set of principles of method and a learning system (Gregor & Hart, 2007; Mingers & White, 2010). It seeks to institutionalise learning through the incorporation of the diverse perspectives from the stakeholders involved (Gregory, 2007; Mingers & White, 2010). SSM was originally formulated as a seven-principles methodology occupied with finding out about a problematical situation; developing models relevant to explore it based on the different perceptions; questioning the situation using the models to find desirable and feasible change; defining and taking action to improve the situation; and critically reflecting on the whole process (Checkland & Poulter, 2020).

Despite its evolution from a seven-principles methodology to a less rigid more adaptable method (Wheeler, 2000), soft systems and specially SSM, seem a relatively limited scope for this research as they do not concentrate around issues of evolution and adaptability required to understand the phenomena of interest for this project. Rather than a collection of (methodological) principles to look at managerial issues, and propose a potential solution, this research requires a theoretical lens that allows to understand how are organisational systems changing internally and as a whole in response to internal and external stimuli, and how are they arriving to a version that is better prepared to survive. Therefore, soft systems and SSM are not an adequate fit for this project.

### 2.7.7. CAS as the most suitable theoretical lens for this project

Having explored some of the most representative theories for systems thinking and compared them individually with CAS theory, this section will briefly recap why CAS is a more suitable theoretical lens for this project.

Research has been applying complexity-theory logic and some associated concepts to managerial studies. Attention has been drawn to the importance of non-linear interactions, change, transformation, adaptation and exchange with dynamic environments (Merali et al., 2012; Mingers & White, 2010; Pina e Cunha & Vieira da Cunha, 2006). Moreover, previous research has made the case for explaining strategic management through the lens of CAS theory, a branch of complex systems (Onik et al., 2017; Pina e Cunha & Vieira da Cunha, 2006). This is explained by the need for organisational strategy to evolve due to unpredictability of the future, emerging problems and interactions with diverse stakeholders and factors (Mingers & White, 2010). This approach is strengthened by CAS theory highlighting the mutually-defining relationship between the system and its environment, leading to co-adaptation and co-evolution (Merali et al., 2012). Moreover, there are expectations of agents within the system learning from their experiences, boosting competitiveness, resilience and survival (Williams et al., 2017).

In line with Zollo & Winter (2002) definition of DCs: “learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness”, it is through the collective interaction of CAS agents that new patterns of behaviour emerge from the bottom (Teece, 2018), leading to changes at system level that build an improved version of the system. Having a CAS directing its activity towards own optimization means that the system arrives to a fitter and more resilient version that is better prepared to survive challenges posed by the environment, just as DCs theory poses (Teece, 2018). While DCs might look into similar elements that other systems theories, it is with CAS theory that finds its best fit as both emphasize the adaptive capacity of the system (supported by learning) (Benbya & McKelvey, 2006). Furthermore, previous management research looking at sustainability at corporate level has adopted the CAS perspective given its emphasis on this adaptive capacity, which enables the system to maintain its basic structure and manage resilience.

This research focuses on companies implementing sustainability programmes in the Yucatan peninsula, a second-tier region in the emerging economy of Mexico, which as discussed earlier pose additional challenges to those that could be encountered by firms in the global north. This research then proposes that such a process of change represents an opportunity to evolve towards a version of the firm that is better prepared to meet the challenges and requirements of the environment, and the various internal and external stakeholders. Considering that companies are in an "ecosystem" in which they coexist with other companies, government, non-governmental organisations and civil society groups, it is possible to argue that at some point, a process of co-evolution and co-adaptation with other systems in the environment might be observed. Therefore, this research requires a theoretical foundation that accommodates attention to evolutionary and adaptive processes in response to the environment. Additionally, due attention must be devoted to the internal dynamics of the firm and the understanding of how through changes at the local level, new routines can emerge. Such routines are expected to lay the foundation for the development of DCs that will enable the firm (the whole system) to initiate this evolutionary process.

Therefore, despite common characteristics amongst systems theories given their origins in systems thinking, most of the theories explored so far (GST, chaos theory, cybernetics, SSM) have assumptions and/or focus on characteristics that do not accommodate the view that this research has adopted. This is why complex systems, and in particular its CAS branch, represents the theoretical framework that best suits the vision taken by this project.

The next section of this chapter will bring both CAS and DC theories together to highlight how do they complement each other and to develop a more holistic approach for understanding CS.

## 2.8. An improved holistic approach: Dynamic Capabilities + Complex Adaptive Systems

Teece (2018), the proponent of DC theory, has acknowledged that systems thinking was one of the influences for developing the DC framework. However, a limited number of studies have involved both theoretical approaches, despite being consistent with each other. Thus, there have been calls to conduct research that combines both perspectives (Cezarino et al., 2019; Teece, 2018). Furthermore, using a well established theory to investigate another body of knowledge exhibiting similarities, as in the case of CAS and DC, has been accepted as a science-endorsed process for theory development (Sunder M & Ganesh, 2020).

Teece (2018) also points out that DC provide a perspective that goes one step beyond systems thinking. He claims that from the view of systems thinking firms adapt to their environment but that DC also sees the firm as contributing to shaping its environment. Contradicting this, complex systems, and more so CAS, recognise that systems co-evolve with other systems they co-exist with through their interactions, thereby creating changes in their environment (T. Choi et al., 2001; Metcalf & Benn, 2013). Hence, here lies the basis and justification for splicing the two theories and applying them as a lens for studying complex phenomena.

CAS and DC share some commonalities that allow their combination to be a more suitable option as a lens for studying the implementation of CS strategies. Both adopt a holistic view of the organisation (Teece, 2018) and recognise the changing and unpredictable nature of dynamic environments, such as that posed by sustainability. On the DC side, this leads to the reconfiguration and adaptation of organisational resources, skills and competencies to maintain competitive advantages (Eikelenboom & de Jong, 2019). Likewise, on the CAS side contributes to the evolutionary and adaptive process of the system (Beske, 2012; Teece & Pisano, 1994). Both theories state that the result of these changes and the evolutionary process are the shaping of the environment and the improved fitness to survive (Espinosa & Porter, 2011; T. B. Porter & Córdoba, 2009; Teece, 2007).

Furthermore, both theories point to the importance of learning mechanisms for better adaptation and survival (Eikelenboom & de Jong, 2019). The DC for knowledge generation, acquisition and harnessing is similar to the feedback loops in a CAS, as both take information flows from the outside, and even information generated within the system, and incorporate it as part of the continuous evolutionary process towards an improved version of the firm with greater chances of success (Teece, 2018).

At the intersection of the characteristics from the two theories are also the patterns of behaviour in a CAS (Lansing, 2003; Pathak et al., 2007) and the understanding of DC as best



practices (Eisenhardt & Martin, 2000) that may exhibit similarities across companies. While individual companies have a specific and unique way of relying on their DCs, it is possible to discern these capabilities throughout companies. Additionally, a specific company will deploy its DCs consistently until modifications are required to further leverage them. At this point, the utilisation pattern will begin to evolve.

Figure 11 presents the intersecting elements for both DCs and CAS theories.

CAS and DC theories not only share similarities but also complement and reinforce each other based on their differences. While both theories recognise that the firm/system adapts to and shapes its environment, CAS theory acknowledges that agents/employees may have schemas that are not aligned with those of the firm at large, and even considers the dimensionality or degrees of freedom they exhibit in their behaviours. Weak schemas facilitate greater dimensionality, which may hinder the deployment of some DC. However, such schemas could evolve to a more optimal version for the system through the appropriate DC.

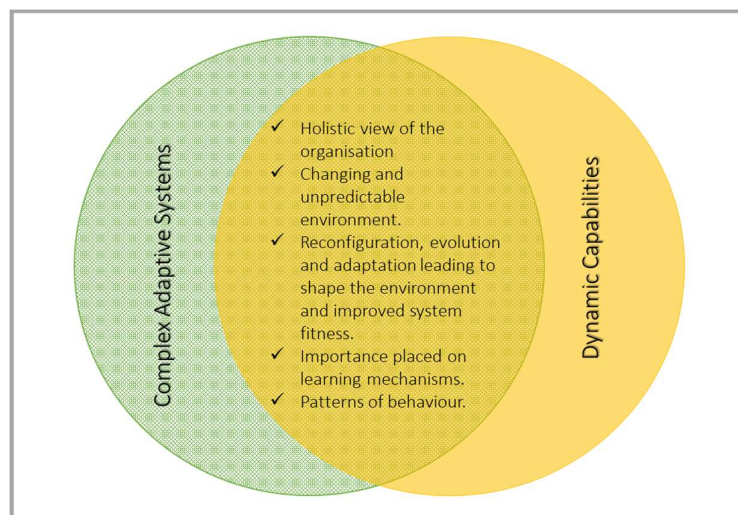


FIGURE 11. COMMONALITIES BETWEEN CAS AND DC THEORIES

CAS theory also places attention to non-linearity, recognising that an action carried out by the company may lead to different outcomes, or these could be of a different magnitude than expected. This supports the idea that a DC will not always work in the same way, or will not necessarily have the same results for both the company and the stakeholders involved, and therefore, would need to be reconfigured and adapted. While a program for sustainability hardly skips problems or challenges when implemented, to achieve their main goal it is likely that companies will have to look for solutions or alternatives that were not originally contemplated. As a result, the implementation of CS becomes a non-linear evolutionary process.

Nonetheless, DC theory also strengthens CAS. Even though both theories appreciate that the company/system is in constant interaction with other systems/stakeholder groups, DC theory is the one concerned with giving adequate and prompt attention to the 3BL requirements from other systems it interacts with, as part of its commitment to ensure the company maintains or develops, competitive advantages.

Figure 12 presents how both theories complement and strength each other, and how merging the two is an enhanced approach for understanding the implementation of strategies for CS.



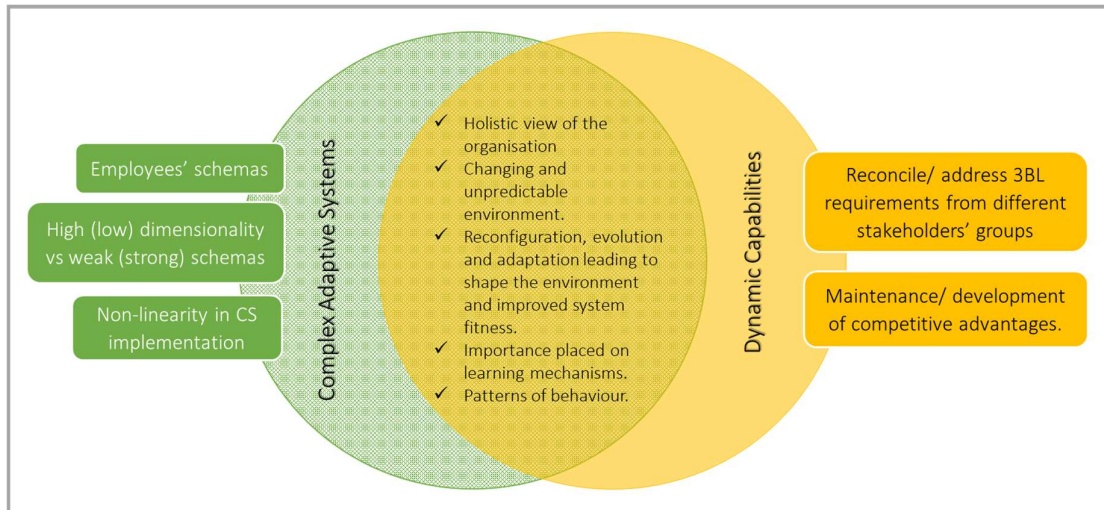


FIGURE 12. PROPOSED THEORETICAL APPROACH COMBINING CAS AND DC

In addition to the arguments previously exposed to justify why CAS and DC should be combined as theoretical lens, it has to be reminded that both theories are focused on studying phenomena occurring in environments with a high degree of change and aim to understand how such changes are reflected within the entities studied. Hence, this type of theories should be enriched by applying them to contexts with a higher level of uncertainty and with additional challenges to those present in the contexts in which they were originally developed. This is what the business environment in emerging economies, and more so in second-tier regions, offers to this synergy of theories and thus, aims to maximize the benefits that can be reaped from their consolidation.

To the best knowledge of the researcher, to date there is only one empirical study (Cezarino et al., 2019) and two review articles (Kay et al., 2018; Sunder M & Ganesh, 2020) combining both DC theory and systems thinking, where only the first study concentrates on sustainability. However, no study was found combining both DC and CAS theory in an empirical setting. This research project aims to address this gap.

## 2.9. Research question, objectives and contributions

Through the literature review, several calls for research and gaps in the different bodies of knowledge that set the grounds for this research project have been pointed out. Table 6 presents a summary of these.

TABLE 6. CALLS FOR RESEARCH/ GAPS ADDRESSED BY DOCTORAL RESEARCH PROJECT

Area of research	Research Gap	Source
Corporate Sustainability + Strategic Management	Dearth of empirical studies addressing the integration of corporate sustainability into strategic management	(Baumgartner & Rauter, 2017; Cezarino et al., 2019; Engert et al., 2016; Michelon et al., 2013; Morioka et al., 2017)
Motivations for adoption of Corporate Sustainability	Understand the main motivation of companies to engage with sustainability issues.	(Pinelli & Maiolini, 2017)
Context	Study sustainability in the business context from the perspective of emerging economies.  More attention to DC for CS in the context of emerging economies, as studies remain largely concentrated in the Global North. Focus on the Latin American region.  Study DC in industries other than the typical high-tech or intensively entrepreneurial, as several studies have focused on these even though DC are not exclusive to them.	(Bezerra et al., 2020; Dobers & Halme, 2009; Silvestre, 2015)  (Amui et al., 2017)  (Beske, 2012)
Methodology	Conduct more <b>empirical</b> research on the adoption of sustainability in companies located in emerging economies.  Favour <b>case study</b> when studying integration of CS and strategic management.  More <b>qualitative</b> research needs to be undertaken in studies of organisational capabilities for CS, including designs such as <b>multiple case studies</b> .	(Engert et al., 2016; Engert & Baumgartner, 2016; Silvestre, 2015)  (Engert & Baumgartner, 2016)  (Bezerra et al., 2020)
Dynamic Capabilities	Paucity of investigations/ further explore and understand the means and capabilities that would allow companies to better implement their CS programmes and strategies / overthrow the challenges posed by SD.  Conduct more studies aimed at identifying the specific DCs that would assist companies to effectively implement CS initiatives	(Amui et al., 2017; Cezarino et al., 2019; Engert & Baumgartner, 2016; Hofmann et al., 2012; Pinelli & Maiolini, 2017; T. B. Porter, 2008)  (Amui et al., 2017)
Systems thinking	Understand the complexities of sustainability in the business context through systems thinking.	(Williams et al., 2017)
Systems thinking + Dynamic Capabilities	Conduct research that combines both systems thinking and DC.	(Cezarino et al., 2019; Teece, 2018)

Building on the previous gaps and placing due weight on the potential benefits that DCs could bring to firms, the system it represents and its adaptive process, this doctoral research has been developed within the context of the Yucatan peninsula, a second-tier region in Mexico -an emerging economy- and aims to investigate:

*how do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?*

Consequently, the project has the following objectives:

- To understand how are DC contributing to the adaptability of firms and that of their programme for sustainability.
- To identify the benefits realised by companies when seizing the DCs related to the implementation of their programme for sustainability.

Additionally, the following underlying aspects need to be explored:

- Understand the motivation behind firms implementing a programme for CS and their implications for the firm behaviour.
- Identification of the DC supporting the implementation of a programme for sustainability.

For the purpose of this research each company will be considered a CAS, as literature has previously acknowledged organisational systems as CAS (Dhanorkar et al., 2019; Metcalf & Benn, 2013).

The intended contribution of this research is twofold. First, it contributes to the literature on DCs and CAS by bringing attention to an approach in which both theories theoretically frame the understanding of how organisations and their embedded systems, capitalize on their capabilities when implementing strategies for sustainability, considering the organisation's environment, its competitive advantages, as well as the complexities associated to sustainability issues. This approach applies the suggestions of several papers to incorporate systems thinking into corporate sustainability research (Lozano et al., 2015; Morioka et al., 2017; Van der Byl & Slawinski, 2015; Vildåsen et al., 2017; Williams et al., 2017). Secondly, with a focus in the context of an emerging economy as suggested by recent research (Amui et al., 2017; Bezerra et al., 2020), and addressing the gaps in the literature for second-tier regions, this investigation contributes to the conversation of DCs by composing an empirically tested list with the DCs that better serve the successful implementation of a program for sustainability.

# Chapter 3: Research approach and design

## 3.1. Introduction

Throughout our lives and experiences, humans develop a series of beliefs and assumptions that shape what we perceive and accept as reality. And so it happens in science. In the search for knowledge, researchers take a philosophical stance that comprises a series of beliefs and assumptions that delineate what is accepted as true knowledge (Collis & Hussey, 2009; Saunders et al., 2016). From how the phenomenon to be studied is defined, to how it is decided to obtain information about it and analyse it, researchers always commit to a philosophical paradigm that gives meaning and guidance to their research (Collis & Hussey, 2009). Herein lies the importance of being clear and specific about the philosophical approach framing the research to be carried out, so that it is developed in a consistent and credible manner.

This chapter presents and justifies the philosophical stance, the design, approach and methodologies for this investigation. It will begin by reviewing the traditional philosophical assumptions in business and management research. The next section will cover the philosophical grounds on which the literature streams of strategic management, systems thinking and CS are settled. Section 4 will debate the philosophical assumptions upon which this research has been constructed. The parameters by which the quality of qualitative research is evaluated will be addressed in section 5. Section 6 will discuss the research design and methodology for data collection, including the design of the instrument for data collection and pilot testing. The strategy and method for data analysis will be addressed in section 7. Lastly, the chapter will end with final thoughts and conclusions in section 8.

## 3.2. Research paradigms in business and management research

Concerned with what is considered as reality from the researcher position, ontology ranges from one absolute and unique truth to multiple realities where each person possesses their own sense of reality. On the other hand, epistemology deals with the ways in which we acquire valid, acceptable and legitimate knowledge about the phenomenon/object of study. It is about the relationship between the researcher and what is being investigated (Collis & Hussey, 2009; Easterby-Smith et al., 2015; Saunders et al., 2016). While there has been a debate on the adequate ontological and epistemological paradigms that should shape and guide research in business and management (Saunders et al., 2016), it could be said that there is no right or wrong answer, as the selected approach depends more on the phenomenon to be studied.

Different academics acknowledge that the different philosophical paradigms used in business and management research are part of a continuum. For some authors, this continuum ranges from objectivism to subjectivism (Saunders et al., 2016), from intersubjectivism to objectivism (Cunliffe, 2011), from positivism to interpretivism (Collis & Hussey, 2009), and so on. Therefore, although philosophical paradigms such as critical realism, postmodernism and pragmatism are admitted and used in this type of research (Saunders et al., 2016), it is still considered that the main paradigms are positivism (belonging to objectivism) and interpretivism (in the realm of subjectivism) (Bryman & Bell, 2015; Collis & Hussey, 2009).

Table 7 presents the main characteristics that make up these two leading paradigms.

TABLE 7. MAJOR PARADIGMS IN BUSINESS AND MANAGEMENT RESEARCH

	POSITIVISM	INTERPRETIVISM
<b>Ontology:</b> <i>nature of reality</i>	Real, external, independent, objective. One true reality.	Complex, rich. Socially constructed. Subjective: Multiple meanings, interpretations, realities.
<b>Epistemology:</b> <i>ways of acquiring knowledge, what constitutes acceptable/valid knowledge</i>	Scientific method Observable and measurable facts Law-like generalisations Causal explanation	Theories and concepts might be considered too simplistic. Scientist to grasp the subjective meaning of social action. Focus on narratives, stories, perceptions and interpretations.
<b>Axiology:</b> <i>Role of researcher and research participant values</i>	Value free research	Value-bond research Researcher interpretations key to contribution
<b>Research strategy</b>	Quantitative	Qualitative
<b>Role of theory</b>	Deductive: Hypotheses and theory testing.	Inductive: rich data gathering for theory generation.
<b>Explanations</b>	Demonstrate causality	Increase general understanding of the situation
<b>Unit of analysis</b>	Reduced to simplest terms	May include complexity of “whole” situations.
<b>Sampling</b>	Large samples with subjects randomly selected	Small samples with a reason for chosen subjects.

*Adapted from Bryman & Bell (2015); Collis & Hussey (2009); Easterby-Smith et al. (2015); Saunders et al. (2016)*

The following section of this chapter will delve into the philosophical traditions for each literature stream setting the grounds for this investigation: 1) strategic management where DCs theory was originated, 2) systems thinking where CAS theory is nested, and 3) CS.

### 3.3. Philosophical assumptions in strategic management, systems thinking and corporate sustainability literatures.

#### 3.3.1. Strategic Management

Strategic Management is a relatively young area within the academic field of Management that finds itself in the process of maturation (Guerras-Martín et al., 2014; Ketchen et al., 2008; Nag et al., 2007). Despite its roots and a dominant positivistic research (Mir & Watson, 2000), Strategic Management has been labelled as an intellectual broker as it is considered inclusive and receptive of different theories and paradigms. This situation is caused by scholars from different areas of knowledge -such as social, administrative and economic sciences- and philosophical approaches contributing to the progress of this field (Makadok et al., 2018; Nag et al., 2007; Sharma, 2002). As a consequence, the phenomena that interest this discipline have been studied from different philosophical stances. Strategic Management is enriched and adds value to the development and application of theories, since it brings together diverse insights, methodologies, and backgrounds that allows us to understand the realm of the phenomena in different, and possibly complementary, ways.

Over the last twenty years, opposing outlooks have been presented about the predominant philosophical paradigm in the Strategic Management field. For instance, the work of Hafsi & Thomas (2005) has reported that literature within this discipline broadly supports the view that strategy in an organisation is the expression of beliefs and values from its leaders. In other words, values of studied subjects are acknowledged as a key element in the phenomenon to be understood. This corresponds to the vision of axiology from the interpretivist paradigm. On the other hand, Mir & Watson (2000) have argued that the field is predominantly approached from a realistic (positivistic) view. Guerras-Martín et al. (2014) support the latest view by asserting that in-depth case studies have been replaced by quantitative-oriented methods, implying that research is going back to its positivist roots.

Concluding, it does not seem to be an agreement on whether there is a predominant philosophical approach for research recently conducted in Strategic Management. However, what seems to be certain is that this discipline has been enriched by scientific and philosophical assumptions from different fields of study, possibly allowing a broader scope and understanding of the phenomena studied.

#### 3.3.2. Systems thinking

Considered an interdisciplinary field, systems thinking has been developed in modern times in a wide range of disciplines such as biology, economics, mathematics, ecology and psychology to name a few (Mele et al., 2010; Mingers & White, 2010; "Stell" Kefalas, 2011). Most of these disciplines belong, with some exceptions, to a positivist philosophical tradition. For instance, within Management research the application of the "systems" concept was taken from the field of engineering (Purao, 2002; "Stell" Kefalas, 2011). Yet, researchers from different philosophical paradigms have moulded the systems approach. This is why systems research has been developed under different paradigms such as positivist, interpretive and critical realist (Mingers, 2014; Mora et al., 2007).

Just as it happens with systems thinking, complexity theory finds its core roots in natural/hard sciences (Mingers, 2014), from which it takes its philosophical tradition.

An interesting position was raised by Mele et al. (2010), who called for subjectivity during the study and analysis of systems, considering the different factors that can influence actors within the system and their potential different perspectives. In addition, they emphasized the importance of an analysis that takes into account the context in which the system develops.

Summarizing, although it is a branch of knowledge developed from the assumptions of positivist disciplines, systems thinking has applied philosophical paradigms that differ from the positivism, which have been gaining support amongst academics in past years.

### 3.3.3. Corporate Sustainability

The study of issues related to sustainability was originated in the concern for the environment, its rapid deterioration and the intention of preservation for future generations. Different areas of knowledge, but especially those that fall within the realm of natural sciences with positivist tradition, began to address this topic. This is how researchers from diverse disciplines also began to pay attention to CS. Research within this field has been considered more pluralistic than Strategic Management, since CS brings together disciplines from various areas of the social and management sciences, but also from the natural sciences (Sharma, 2002; Vildåsen et al., 2017). Academics such as Sharma (2002) have argued that CS has the potential to generate cross-disciplinary knowledge, which should be better identified as interdisciplinary, as the barriers between the various disciplines it involves are broken down with the possibility of cooperation and enrichment. This line of thought is followed by Stead, Stead, & Starik (2004), who stated that sustainability is a transdisciplinary, multi-dimensional and complex concept that requires not only different actions, but different ways of thinking if favourable results are pursued.

Nevertheless, Sharma (2002) has also raised the question of whether unique theories should be developed for CS, or if SD provides sufficient context for new understandings, or questionings, to existing theoretical frameworks. Undoubtedly, the philosophical eclecticism present in the field of CS can be considered a goodness and even an advantage, but it also entails important risks. It has been reported that studies are often unclear in their epistemological orientation, sometimes even getting into conflicts when the same construct mixes criteria from opposite ontological natures (Vildåsen et al., 2017). Furthermore, the importance of understanding theories and research in their original discipline before trying to apply them in another discipline has been stressed (Sharma, 2002). Otherwise, this omission could lead to poor application and theoretical clashes, whereas the pursued outcome is to generate new insights and empirical evidence that disciplines involved in CS will find interesting.

Despite welcoming disciplines from diverse philosophical streams, some studies have made the case for CS to be treated from the ontological perspective of social constructivism (Lozano et al., 2015; W. E. Stead et al., 2004; Vildåsen et al., 2017). The question raised here is how can humanity perpetuate its existence in conditions of well-being from a position of objective observers, believing that phenomena pertained to sustainable existence and development are independent from our way of thinking, beliefs and actions (W. E. Stead et al.,

2004). It is precisely in the value of care, which is individually and subjectively experienced at different intensities and scopes, that people and researchers pay attention and create the link with the well-being of future generations (Vildåsen et al., 2017).

Following on the previous idea, one can say that knowledge generation in the field of CS is contextual, so that time and space are important conditions for analysing the phenomena (Vildåsen et al., 2017). A simple and clear example would be the differences within the environmental, social and even economic standards that are required from companies in developed countries, compared to companies in emerging economies. This supports the case for the interpretivist paradigm.

Complementing what has been mentioned up to this point, it is important to acknowledge the conceptual contributions of systems theory to the field of CS, as stressed by Vildåsen et al. (2017). Both sustainability and CS seek the effective coexistence of environmental, economic and social systems, adding complexity to the phenomena and realities studied. Henceforth, a holistic vision is required with the aim of contributing to SD from the trench that appertains each area. Thus, it can be argued that systems thinking provides a relevant approach in the study of CS.

### 3.4. Philosophical stance: foundations of this research

#### 3.4.1. Ontology

Ontology refers to the nature of reality. How researchers perceive, understand and study research objects (Collis & Hussey, 2009; Saunders et al., 2016). In the business and management field, these objects may include organisations, organisational artefacts, behaviours, and more. This research, that aims to understand how are firms enabled to capitalize on the implementation of their programme (set of strategies) for sustainability based on the complexities of their environment, has been built on the ontological bases of social constructivism.

“The world does not exist independently of our knowledge of it” (Grix, 2010, p. 84). There might not be better words to define the axis of social constructivism as an ontological approach. If the researcher is not interested, if he is not going after a specific phenomenon, that knowledge will not be discovered or accumulated in the stock of humanity. Reality is then constructed as the result of the interactions of men with their world; and with the aid of traditions and practices, also socially created, this knowledge is disseminated.

Organisations, strategies, processes, capabilities, all of these are products of social agreements (Ruggie, 1998). They do not exist by themselves, but the actors involved give them meaning, define them and also classify them. We, the actors, built all these concepts in our minds and in order to understand them, they must be scrutinised (Berger & Luckmann, 1991; Young & Collin, 2004).



When studied from the perspective of social constructivism, the way in which actors give meaning to phenomena and objects is one of the focal points of attention for social sciences. Hence, we assume the existence of multiple realities since each actor, in a subjective way, perceives and gives meaning to the phenomenology surrounding them (Tsang, 2017; Vildåsen et al., 2017).

The emphasis placed on the context in which phenomena are studied can be claimed as a strength of, and one of the main reasons for selecting, social constructivism. It is assumed, then, that reality is dependent on this context and taking this as a premise, the researcher makes sense of the phenomenon (Cunliffe, 2011; Vildåsen et al., 2017). As a straightforward example, the motivations for the design of a strategy for sustainability can vary between companies located in the same geographical region, affected by the same regulations, and with a similar business line. Here, managers must take into account the interests and guidelines defined by shareholders, the organisational culture and might as well consider employees' idiosyncrasy.

The previous idea was supported by Mir & Watson (2000), who also highlighted two elements within strategy research that could be benefited from social constructivism, and that justify its choice as ontological approach for this research:

- Managers are actors actively contributing in the construction of their environment. Regardless of their range of freedom for decision making, the strategy for sustainability is largely defined by managers. This means that the objectives and guidelines, the activities to be carried out and the way of executing them are established, and probably supervised, by a manager.
- Multiple realities are faced by organisations as a result of social exchange between actors. The fact that the manager defines the strategy and activities to follow does not mean that all employees from the organisation understand them, and execute them, in the same way. And this can go beyond a simple communication problem. While managers could ensure that the strategy is being monitored and improved based on feedback, there is a possibility that employees in charge of activities have no idea of the scope and importance of their function.

Adopting a positivist stance would represent some limitations for this research and its objectives. First, it would not be possible to give proper weight to the context, as it is required. Secondly, the different realities perceived by all actors involved in the system to be studied cannot be accepted. And lastly, from the positivist scope the researcher would not be allowed to make use of previous knowledge acquired through work experience to explore and better understand the research findings.

### 3.4.2. Epistemology

As an epistemological approach, interpretivism is based on the idea that researchers rely on their human nature -composed by motives, values, meanings, self-concepts- in the quest for studying and understanding social phenomena. This is, understanding the social world from within. In addition, researchers also count on knowledge previously acquired to make sense of

these phenomena and consequently, frame their research (Hollis, 1994; Humphrey, 2013; Tsang, 2017; Vildåsen et al., 2017).

Following the previous idea, Vildåsen et al. (2017) have affirmed that both the values of the researchers, as well as the participants, are an essential part of knowledge development.

Academics like Johnson & Duberley (2000) and Scotland (2012), have highlighted the search for hidden forces, motives and even structures as a strength of interpretivism. Detecting, identifying and giving proper weight to what is non-evident, unsaid, overlooked or unacknowledged, is even more feasible thanks to the level of involvement from researchers. Therefore, it is required a researcher embedded in the context of the phenomenon studied, giving meaning to findings and plotting the history that the investigation has to tell, so that it is possible to identify these non-explicit forces.

Precisely herein lies a core argument of interpretivism, which is, the level of involvement from researchers in the investigation and the role they play in the construction of the outcomes. In this case, it is not sought to erase the evidence of their participation to argue objectivity and validity, since they are a key element in the research conclusions (Johnson & Duberley, 2000). Furthermore, objectivity is not claimed as it is rather difficult to achieve it when the object of study can be as unstable and unpredictable as human nature itself.

Likewise, reflexivity can be seen as an asset for interpretivism since researchers acknowledge the socially constructed nature of the objects they study and that they are part of that same nature. This allows the researcher to openly and confidently engage in the investigation (Humphrey, 2013).

Going back to the idea of Hollis (1994) who asserts that social world must be understood from within, and building on the importance of researchers being embedded in the context of the phenomenon, interpretivism recognizes the existence of shared patterns and discourses (Bryman & Bell, 2015; Johnson & Duberley, 2000). Obtained through social interaction and language, these shared mechanisms represent a valuable tool for researchers to understand the phenomenon and to produce new knowledge.

As previously mentioned, this research is interested in underlying aspects such as the identification of the specific DCs supporting the implementation of programmes for sustainability and the main motivation driving firms to implement sustainability. It also seeks to understand: 1) how are DCs contributing to the adaptability of firms and that of their programme for sustainability and 2) the benefits realised by firms when seizing these DCs. Hence, this research could only be carried out under the interpretivist approach since it is required from the researcher to capture the non-explicit information about the strategies, their implementation process and their motives. To do so, the researcher can rely on previous knowledge, experiences, and "common" understandings with the subjects of study, which have been developed throughout her professional career. Therefore, involvement from the researcher in the investigation goes beyond applying a rigorous scientific method or the measurement of causality between variables, as positivism would suggest. In this investigation the researcher does not try to reach generalizations, as it is assumed that the context where the phenomenon is studied influences to a large extent the results of the investigation.

### 3.4.3. Abductive research

When it comes to the relationship between theory and research, academics are faced with the duality of deductive versus inductive design. The deductive approach, associated with positivism and quantitative research, is concerned with testing theories and concepts through empirical observations (Bryman & Bell, 2015; Collis & Hussey, 2009; Saunders et al., 2016). On the other hand, the inductive approach, associated with interpretivism and qualitative research, is concerned with the generation of theory through empirical observations (Bryman & Bell, 2015; Collis & Hussey, 2009; Saunders et al., 2016). Even though the deductive and inductive approaches seem to be completely opposite, some scholars have made the case for combining both in the same study, claiming that this could turn out to be an advantage for a piece of research (Saunders et al., 2016).

In recent times, a third approach called abductive has increased its popularity between business and management scholars (Bryman & Bell, 2015). Abductive research seeks to address the limitations of deductive and inductive research, such as being constrained or blinded by a theory, or ending up with data overload as a result of loose structures, respectively. Abductive research, somewhat closer to the inductive than to the deductive approach, focuses on developing theories rather than generating new ones as in the inductive approach (Dubois & Gadde, 2002). The researcher starts with a set of theoretical concepts that inform and guide their engagement with the empirical world. Subsequently, by moving back and forth between empirical observations and theory, the researcher is enabled to expand their understanding of both. Through the changes inspired by the empirical work, the theory or framework that originally supplied the theoretical ideas evolves (Bryman & Bell, 2015; Dubois & Gadde, 2002; Saunders et al., 2016).

This research departed by engaging with DCs and CAS theories. The researcher had to familiarise herself with key concepts, debates and ideas for these theories that shed light in her preliminary understanding of the phenomena that interest this project, as well as informed the instrument for data collection. However, ambitions for this investigation went beyond testing theories. Through empirical data, the researcher sought to understand the change mechanisms faced by firms implementing a programme for sustainability, as well as the benefits derived from this. With this information, a theoretical framework explaining this process and bringing together DCs and CAS theories was developed. In line with an abductive approach, the researcher had to move back and forth between findings and theory to develop such framework. The case for an abductive approach was also strengthened by the need to bring in new insights to CAS and DCs theories from the context of sustainability in a second-tier region of an emerging economy, given that most of the research has been conducted withing the global north setting.

### 3.4.4. Our view of the world

In order to talk about and study CS, one must consider as premise the different forces that impinge organisations. And this assertion goes beyond the three components of the bottom line (Elkington, 1997) that could interest and take part in the strategy of an organisation. Attention should be paid to factors such as the geographical location, industry, idiosyncrasy in the company, laws and regulations, the role assumed by shareholders and

managers, just to mention a few. To study entities that have been the result of social agreement and construction, and that are composed of unpredictable factors, it is required an interpretivist approach. This will allow the researcher to recognize the different perceptions of reality that come into play and that shape the spirit of sustainability lived within organisations. It can be said then, that being subjective is in fact convenient when studying this type of phenomena.

It is believed by the researcher carrying out this investigation that both managers and additional stakeholders contribute to the construction of the reality and the sustainability system lived in organisations. It is also acknowledged that this reality and system could vary between companies for multiple causes. Additionally, the context in which a company is located and operates is emphasized as an influential factor that must be comprehended by the researcher and therefore, it can be said that their level of involvement is of utmost importance. Supporting the case for researcher's involvement, she must make use of prior knowledge, shared understandings and her values so that the results of the research are crafted in an understandable and reasonable way, and transmitted in the same fashion.

Building on the previous idea, it can be said that researcher's values will be involved in the design, data collection, and analysis and interpretation of results. Thus, in terms of axiology the research will be value-laden.

Aiming to understand how are firms enabled to capitalize on their programmes for sustainability and identifying the capabilities required for the strategy execution, this research will rely on a qualitative approach. Some researchers refer to quantitative and qualitative approaches as research strategies (Bryman & Bell, 2015), while others prefer to be more specific and use both terms when referring to the nature of data collected (Collis & Hussey, 2009). Although both approaches seem to be easily distinguishable and mutually exclusive, many studies use them in a mixed manner (Bryman & Bell, 2015), so that qualitative methods have been used in positivistic research and, on the contrary, quantitative methods have been used in studies that accept reality as socially constructed (Collis & Hussey, 2009; Saunders et al., 2016).

According to table 6 quantitative methods are related to the philosophical positivist tradition, to the test of hypothesis and theories (deductive), the study of the relationship between variables, large size samples, numerical measurements, analysis with statistical and graphical techniques and, an objective vision of the reality in which the researcher is external to the studied phenomenon (Bryman & Bell, 2015; Easterby-Smith et al., 2015; Saunders et al., 2016). Coupled with this, rigour is sought in order to ensure accuracy of measurements (Collis & Hussey, 2009). All of these result in what is consider a disadvantage for phenomena that is entangled with social and environmental values, since having artificial and inflexible methods turns out ineffective to understand the meanings that people ascribe to actions (Easterby-Smith et al., 2015).

On the other hand, qualitative methods focus on words rather than on the quantification of data and assign relevance to the depth, detail and nuances obtained from data collected (Bryman & Bell, 2015; Collis & Hussey, 2009). Predominantly, these methods are used with interpretivist philosophical orientations, so that subjectivity is considered necessary. Additionally, qualitative methods are associated with inductive research, yet not exclusive to it, that is being developed within a context in which the researcher establishes relationships of

trust, access to meanings and deep understandings (Bryman & Bell, 2015; Saunders et al., 2016). Qualitative methods use sampling techniques that are not usually related to probability and rely on small sizes with specific criteria for selection (Saunders et al., 2016).

Notwithstanding, the time and resources devoted to data collection, the potential complications for analysing and interpreting the results, and the difficulty in controlling the pace and progress of collection and analysis, have been considered disadvantages of qualitative methods (Easterby-Smith et al., 2015). Yet, these have been selected to carry out this research as they represent the most suitable option based on the nature of the phenomenon that interests the researcher.

The next section of this chapter will elaborate on the criteria used to appraise quality in qualitative research.

### 3.5. Evaluating quality in qualitative research

Reliability, which refers to the replication of studies obtaining consistent results (Collis & Hussey, 2009; Saunders et al., 2016), and validity which is related to the level of precision and accuracy in which the results reflect the studied phenomenon (considering causality and generalization) (Collis & Hussey, 2009; Saunders et al., 2016), have been used as the main criteria for evaluating the quality of a piece of research, especially of a quantitative nature. However, academics are divided on whether these criteria should be applied to research of a qualitative nature, as they have been considered by some as inappropriate and inapplicable (Bryman, 2012; Saunders et al., 2016).

On the one hand, researchers such as Mason (2002) and LeCompte & Goetz (1982) have applied reliability and validity to qualitative research. Particularly LeCompte & Goetz (1982) argue that researchers still need to report their results, and that studies can include the collection and analysis of objective and subjective data, so an overall criteria for quality assessment would be more appropriate. On the other hand, academics such as Lincoln & Guba (1985) have proposed adapting quantitative research criteria to the forms and nature of qualitative research. Beyond this, some other scholars have developed either complementary or different criteria to assess quality of qualitative research (Bryman, 2012; Collis & Hussey, 2009; Easterby-Smith et al., 2015; Saunders et al., 2016).

The criteria for evaluating qualitative research developed by Lincoln & Guba (1985), parallel to the quantitative criteria, is widely recognized amongst scholars who focus on research design and methodology. Hence, these will be next explained and adopted by this investigation.

#### 3.5.1. Dependability

Dependability is the parallel version of reliability in the qualitative arena. It is about maintaining an accessible, systematic and rigorous record of all stages in the research, following

what Bryman (2012) considers an audit approach. In this way, the chances for the research to be understood and evaluated by other researchers are augmented, which increases confidence in it (Bryman, 2012; Collis & Hussey, 2009; Saunders et al., 2016).

While it is understood and accepted that qualitative research cannot be replicated *per se*, nor have full consistency of results as demanded by reliability, it is expected a rigorous description of the design and methods followed, so that observations and interpretations made by the researchers can be understood and explained by their peers in different occasions (Collis & Hussey, 2009; Riege, 2003; Saunders et al., 2016).

### 3.5.2. Credibility

Credibility is the qualitative counterpart of internal validity (quantitative). It is focused on the coincidence of the interpretations made by the researcher about the realities studied with the accounts of reality that subjects of study wanted to transmit. To the extent that these interpretations and explanations are feasible and credible, the acceptance from the research community will increase (Bryman, 2012).

Some of the techniques suggested by academics to improve the credibility of an investigation are:

- Building trust and rapport through long periods of involvement of the researcher with subjects of study. This also contributes to a deeper knowledge (Collis & Hussey, 2009; Saunders et al., 2016).
- Use of reflection (Saunders et al., 2016).
- Respondent validation: checking data, analysis and interpretations with participants (Bryman, 2012; Riege, 2003; Saunders et al., 2016).
- Data triangulation (Bryman, 2012; Collis & Hussey, 2009; Easterby-Smith et al., 2015; Riege, 2003; Stake, 1995).

In general, it is considered that qualitative research has no problems in dealing with internal validity, since the type of data obtained is rich and allows detailed explanations (Collis & Hussey, 2009; Saunders et al., 2016).

### 3.5.3. Transferability

Transferability refers to the possibility of generalizing the findings from the investigation, that is, to determine whether they are applicable to a different context. Hence, transferability is the corresponding part to external validity in quantitative studies (Bryman, 2012; Collis & Hussey, 2009; Saunders et al., 2016).

The difficulty to generalize the findings of qualitative research has been put on the table, since samples are usually small and with individuals of common characteristics, unlike quantitative studies with large and diversified samples. Depth receives a greater weight than breadth (Bryman, 2012).

Despite this issue, it is presumed that research of qualitative nature can potentially be applied to other research settings/contexts, as long as the reader is provided with detailed

information about the design and research questions, the context and the findings. Only in this way will the audience have the necessary information to judge if the study can be transferred to another research setting/context (Bryman, 2012; Riege, 2003; Saunders et al., 2016).

#### 3.5.4. Confirmability

The final criterion is confirmability, which corresponds to objectivity in quantitative research. Although there is no objective qualitative research, confirmability is to determine whether the researcher allowed his/her theoretical inclinations and values to lead the findings in a certain direction (Bryman, 2012; Riege, 2003). In other words, making sure the researcher remains neutral and that inter-subjectivity is present to a good extent (Korstjens & Moser, 2018). Once again, the importance of fully and thoroughly describing the research process is emphasized, so that it can be assessed if findings flow from the data (Collis & Hussey, 2009). Given that both confirmability and dependability benefit from the systematic record of the research stages, in a sort of audit approach, audit trail has been used by academics as a strategy to ensure both criteria (Korstjens & Moser, 2018).

#### 3.5.5. Final remarks for quality in qualitative research

To conclude this section, one can say that any piece of qualitative research must meet certain minimum requirements to assess whether there is a proper level of quality:

- Transparency (Gibbert & Ruigrok, 2010): a complete description of the methods followed in each stage of the investigation, a rich explanation of the context in which the study took place and thorough detail of the research findings. This should contribute a better dependability and transferability.
- Coherence: a well-articulated and convincing argument about how the researcher arrived at the findings through collected data. In this way, the researcher will be able to defend the confirmability of his/her study as well as improving dependability and credibility.

It should be noted that reflexivity is expected from the researcher, and thus, this must be seized. The function of the qualitative researcher is to extract knowledge from empirically gathered data in a certain context, and then transmit it to an audience. Therefore, the researcher is involved in the construction of knowledge through the posture s/he adopts regarding his/her observations, and through the written propagation of that particular account of reality.

Since it is difficult to assess qualitative research based on quantitative criteria, the previous requirements are the few available tools for academics to judge if a study was undertaken with proper quality standards.

Table 8 offers a detailed account of how quality criteria were operationalised and pursued in the research.

TABLE 8. OPERATIONALISATION OF QUALITY CRITERIA IN THE RESEARCH

CRITERION	STEPS COVERED IN THIS RESEARCH PROJECT
<b>Dependability and confirmability</b>	<p>This research has followed audit trail as the strategy to pursue dependability and confirmability of the findings. Therefore, comprehensive description of research design and adopted methods for data collection and data analysis were provided in sections 3.6 and 3.7 (in chapter 3 - Research approach and design). These sections sought to provide a detailed account of the steps followed during the data collection and data analysis stages. Furthermore, it was intended to clearly articulate how data collected was interpreted during the analysis.</p> <p>This audit trail of the research process is supported by the following items:</p> <ul style="list-style-type: none"> <li>• Interview script (appendix 4) and analysis of its composition in chapter 3, section 3.6.4.</li> <li>• Table 10. Structure of the Data Analysis process.</li> <li>• Appendix 1- Illustration of data structure from thematic analysis</li> <li>• Appendix 2- Representative quotes supporting 2nd order themes.</li> <li>• Rich explanation of the context where the study took place in Chapter 4.</li> <li>• All five individual case analyses included a section supplying the specific context to the firm. They also included the section Preamble to Interviews, where contact with gatekeepers before the interviews, and the interactions of the researcher with participants during the interviews, were described.</li> <li>• Tables in chapters 6 and 7, aiming to demonstrate how findings from individual cases were brought together for cross-case analysis and how they evolved towards the composition of the theoretical framework: <ul style="list-style-type: none"> <li>▫ Table 13. Summary of cross case analysis- Strategies for Sustainability</li> <li>▫ Table 14. Summary of cross case analysis - Ranking of Dynamic Capabilities and their strength</li> <li>▫ Table 15. Summary of cross case analysis - Dynamic Capabilities occurrence in organisations.</li> <li>▫ Table 16. Summary of cross case analysis- Dynamic Capabilities and their support to the programme for sustainability and the overall company.</li> <li>▫ Table 17. Summary of cross case analysis - Dynamic Capabilities and their contribution to the organisational system and its strategies for sustainability.</li> </ul> </li> </ul>
<b>Credibility</b>	<p>The following steps were undertaken in order to increase the credibility of the study:</p> <ul style="list-style-type: none"> <li>• Familiarization with companies operation. For this purpose, information about the companies operation was requested to gatekeepers prior to interviews. Moreover, websites of companies and online news about them were also looked at. The main objective, apart from getting a clearer picture of the operation and make more sense of participants' answers, was to get a better idea of what could be the problematic areas for each company in terms of sustainability. It has to be noted though, that neither the documents provided nor the information found online were used for data triangulation with participants' responses. This limitation of the methodology will be further addressed in section 3.8. of this chapter.</li> <li>• The interview script started with the introductory and ice-breaker sections in order to build and boost trust in the participant and the study. These two sections helped the participant to get used to the way in which questions would be asked, and the researcher to identify the manner in which answers would be provided by the specific participant. Moreover, this gave the researcher hints on how shy was the interviewee, or how terse their answers would be, which could lead to rely more on probing questions in order to obtain richer information.</li> <li>• To strengthen trust and further develop rapport with participants/gatekeepers, whenever the researcher received invitations for joining companies' activities or for exploring the facilities, she always accepted. This</li> </ul>



	<p>would not only increase contact time with participants, but would also demonstrate interest on what they do. Furthermore, this additional contact would enhance the researcher's understanding when participants referred to specifics of the operation.</p> <ul style="list-style-type: none"> <li>• Respondent validation. During the interviews efforts were made to clarify answers that were not straightforward. Where necessary, the researcher paraphrased the participant's response to confirm her understanding. Examples were also requested when the participant was hesitant to respond, or when their response did not seem connected/supported by information previously provided. Additionally, probing questions were added to the interview script to remind the researcher to elaborate/reach greater understanding on certain points when possible.</li> <li>• Although data triangulation was not conducted between different sources of information, answers from participants of the same case company were compared during the analysis and any differences/discrepancies were highlighted in the within case analysis.</li> <li>• Unforeseen events while conducting the interviews and the way they were dealt with were addressed in the Preamble to interviews section in the within case analyses. The objective was to evidence the non-perfect circumstances for the research, and the effort to make the most out of them.</li> </ul> <p>Additionally, the researcher comes from the same city in Mexico where case companies are located. Having worked as a business consultant there for 8 years of her professional life, she is aware to a good extent of the business context and the relevant institutions that these companies deal with on a regular basis. Hence, the researcher has more tools to understand local issues and the meanings, sometimes implicit, in participants communication.</p>
<b>Transferability</b>	<p>While this research was conducted in a specific context, a detailed account of the research design, methods and the context itself has been provided (as illustrated for dependability and confirmability) in order to facilitate a transferability judgement. Description of the context for the five case companies was offered in chapter 4, while a description of the specific context applicable to each company was also provided in the within-case analyses.</p> <p>Furthermore, research findings were also addressed in detail and summarised in tables in chapters 5- Within case analysis and 6-Cross case analysis, as well as appendix 1. Although identical findings cannot be expected in a different context due to the qualitative nature of the study and the role researchers play in projects of such nature, it is feasible to say that some of the problems and concerns of companies in second-tier regions of emerging economies may resemble those reported by participants in their specific context. Hence, similarities might be found in the way DCs are leveraged and their effects in the organisational system.</p>

Now that it has been settle what is required for a decent level of quality, the following section will discuss the research design and methodology to be adopted by this study.

## 3.6. Design and methodology

### 3.6.1. Research design: Case study

Case study is an empirical research strategy that allows to study in depth and in its natural setting the phenomenon of interest and the dynamics associated to it. To satisfy these requirements, the number of cases or sample size must be small (Easterby-Smith et al., 2015). Commonly, the researcher will find blurred boundaries between the phenomenon and its environment (Collis & Hussey, 2009; Easterby-Smith et al., 2015; Eisenhardt, 1989; Gibbert & Ruigrok, 2010; Yin, 2018).

According to Yin (2018), this strategy is able to cope with scenarios in which the variables of interest are more than the data points, and it can benefit from theories previously developed to guide the case study design, data collection and analysis.

Academics advice to use case study when:

- The research question tries to explain a contemporary circumstance or phenomenon (Yin, 2018),
- An extensive and deeper understanding of a social phenomenon in its natural context is required, so there is no intention to control it (Engert & Baumgartner, 2016; Gibbert & Ruigrok, 2010),
- To expand knowledge about a topic or phenomenon that has been little investigated or that requires closer attention (Stubbs & Cocklin, 2008; Tchokogu   et al., 2018; Yin, 2018),
- To develop new acumen or understandings about complex phenomena (Klassen & Vereecke, 2012),
- Producing or building of theories from practice, as well as addressing problems of why and how (Engert & Baumgartner, 2016).

Case studies have been typified in different ways following different criteria. For instance, according to their design, they can be holistic vs embedded, single vs multiple (Scholz & Tietje, 2002; Yin, 2018). Looking at their epistemological status, they are divided into exploratory, descriptive or explanatory (Scholz & Tietje, 2002; Yin, 2018). Regarding the type of data collected, they are classified as qualitative, quantitative or mixed (Scholz & Tietje, 2002; Yin, 2018). Depending on the motivation of the researcher to take up the case, case studies can be intrinsic or instrumental (Stake, 1995; Yin, 2018). The design of this research has the following characteristics: holistic, multiple, descriptive, qualitative, applying an instrumental selection of cases.

It has been argued that descriptive case studies guide the reader to understand the case through the theoretical lens applied by the researcher. This type of case studies involves the identification of patterns and connections to theoretical constructs, so that the researcher contributes to the development of existing theories. Additionally, it is presumed that descriptive case studies assist in delimiting case's boundaries (Tobin, 2012; Yin, 2018). This research looks at the adaptability of firms and that of their programmes for sustainability as well as the benefits realised through the lens of DCs and CAS theories. The study does not aim to generate new theories, but to contribute to the development of those already mentioned in the context

of sustainability adoption in a second-tier region of an emerging economy. Therefore, a thorough study and detailed description of the cases is required, since both theories frame the patterns that the researcher expects to find and either corroborate or discard.

Several strengths have been reported in the literature on case studies, such as:

- Richness in the detail, description, understanding in the context, analysis and their effects on the research outcome (Gibbert & Ruigrok, 2010).
- The previous point is reinforced with the possibility of probing/corroborating the information obtained from studied subjects through different techniques (for example, follow-up questions) that allow to clarify or confirm gathered data (Decoene & Bruggeman, 2006).
- As in several occasions case studies focus on organisational settings and are carried out closely to practitioners who deal with managerial situations, it is claimed that they embody an adequate strategy to generate relevant managerial knowledge. That is, reaching beyond the academic arena and having an impact on real-life practice (Gibbert et al., 2008; Tchokogu  et al., 2018).

On the other hand, case studies have also received criticisms, mainly from researchers with a positivist background and similar to those addressed to qualitative methods:

- Absence of a systematic methodological procedure (Engert & Baumgartner, 2016) and as a result of this lack of rigour, relevance in managerial research cannot be easily claimed (Easterby-Smith et al., 2015; Gibbert & Ruigrok, 2010). However, researchers like Bryman (2012) counterpoint this argument by emphasizing attention to dependability and applying an audit approach that provides in detail the steps followed as part of the methodology.
- Impossibility to generalize from specific cases to general populations (Easterby-Smith et al., 2015; Engert & Baumgartner, 2016). Nevertheless, case studies do not seek to achieve generalizations to populations or universes, they rather focus on theoretical generalizations which aim to expand and generalize theories (Silverman, 2017). Hence, the attention is on how well the researcher generates theory from the findings (Bryman, 2012).
- Production of large amounts of data, permitting researchers to articulate the meanings they want. In other words, subjectivism (Easterby-Smith et al., 2015; Engert & Baumgartner, 2016). To the extent that researchers are concerned with ensuring credibility and confirmability of their studies, the greater the chances of mitigating this risk.

And just as it happens with qualitative research, in order to ensure a higher degree of “rigour” or quality in case studies, scholars like Gibbert & Ruigrok (2010) suggest to provide the reader with detailed information about the steps followed as part of the methodology, so that the logic and purpose of each action is appreciated. Moreover, they also recommend to inform the reader about the difficulties and setbacks faced while the research was being carried out and how they were dealt with. It is not about presenting an immaculate methodology, but about showing how unforeseen circumstances were seized. Researchers can always rely on several techniques, some of them previously discussed, to improve credibility.

### ***How to select cases***

A case refers to the unit or setting that will be intensively examined (Bryman, 2012). According to Eisenhardt (1989), a case can be chosen to replicate previous studies, to extend theories, or to provide examples of opposite cases. On the other hand, Yin (2018) proposes that cases can be selected following different rationales: critical cases (allow a greater understanding and exemplify the circumstances in which a hypothesis could be confirmed); extreme or unique cases; representative or typical cases (represents the characteristics of a category to which it belongs allowing to capture circumstances of a common situation); the revelation case; and longitudinal cases.

Regarding the number of cases to be included in the research, the design can be single or multiple (Yin, 2018). Multiple case studies are usually recognized as more beneficial than single ones, especially in analytical terms. Additionally, Yin emphasizes that multiple cases offer richer data, supporting theoretical replication. Therefore, when possible multiple cases should be included. Yin also pointed out that case studies can follow a holistic or an embedded design. Embedded case studies involve cases composed of more than one level of analysis, so attention is paid to both the case itself (first level of analysis) and the subunits within it (second level of analysis).

This research will follow Yin's suggestion and will apply a multiple and holistic case study design. Furthermore, cases will be chosen instrumentally (Stake, 1995), also called representative.

The specific criteria for the selection of cases in this research will be discussed later on in the Unit of analysis and Definition of population sections.

### ***Case study in corporate sustainability research***

Several pieces of research in the field of CS have relied on case study as their research strategy as this allows the deep and detailed analysis required to continue expanding the knowledge on this subject, which has been considered highly relevant in recent years. For instance, Van der Byl & Slawinski (2015) conducted a review of the literature addressing the tensions faced by companies wanting to improve and balance the three axes (economic, social and environmental) of sustainability, and found out that at least three quarters of the empirical studies used case study as their research strategy.

Engert & Baumgartner (2016) argue that a good amount of CS research is focused on conceptual analysis rather than its implementation and encourage academics to fill this gap through empirical research, being case study one of the strongest options, which would enlighten on how to successfully implement strategies for CS.

In the realm of sustainable supply chains, Pagell & Wu (2009) carried out ten case studies where they explored the practices undertaken by companies acknowledged by their excellence in the implementation of sustainable supply chains. For its part, Tchokogué et al. (2018) worked on two case studies through which they assessed the level of maturity of sustainable supply practices in two firms.

Also with the aid of a case study, Stubbs & Cocklin (2008) examined how a company implemented specific changes towards an ecological modernization from a sustainability perspective, aiming to identify if the business capabilities were sufficient to implement these modifications or if the company depended on changes in the socio-economic system.

As illustrated with the previous examples, case study has proven to be a useful research strategy when trying to reach a deeper understanding of the scenario and the situations arising in organisations that have decided to adopt a sustainable strategy. And that is precisely the objective of this research within the context of a second-tier region in an emerging economy. As the research question suggests, the aim is to understand how are firms capitalizing from the implementation of their programmes for sustainability, while exploring underlying aspects such as the specific DCs supporting this implementation and the main motivation driving the adoption of such programmes. Therefore, case study is considered the best alternative to obtain detailed knowledge and understanding of all the issues that interest this researcher.

### ***Unit of analysis***

Companies have been chosen as the unit of analysis in this study. A substantial amount of management research focused on issues of sustainability and CS has taken companies as their unit of analysis (Carter & Easton, 2011; Lozano et al., 2015; Nakamba et al., 2017).

A core part of this research is the theory of DCs and how are they supporting the implementation of programmes for sustainability. In this study, this process is studied within the context of a second-tier region in an emerging economy. Companies are recognized as an essential part of a nation's economic engine, and therefore the interest of the researcher in identifying what are those capabilities that in an environment of constant evolution would allow companies not only to stay afloat, but to remain profitable while they contribute to the SD of the communities in which they are located.

### ***Sample size/ number of case studies***

As previously mentioned, this research will follow an approach of multiple case studies with individual companies being the unit of analysis, while they are also considered individual case studies. Multiple case studies are involved in the research design since more than one company will be examined by the researcher in order to obtain richer data and enhance theoretical replication. Having more than one company involves more than one reality to be analysed.

Silverman (2017) points out two approaches to sample the cases that will be studied. Purposive sampling is applied when the researcher is interested in a particular case because it exemplifies a specific characteristic or dynamic. On the other hand, with theoretical sampling the sample is constructed with cases that are relevant for answering the research question and representative of the researcher's theoretical position (Bansal & Roth, 2000; Silverman, 2017). In this investigation, theoretical sampling will be applied to find case companies implementing sustainability strategies in southeast Mexico. Additionally, and as it will be discussed in section 3.6.5. Interviewees selection, theoretical sampling will also be applied when selecting the employees that will be interviewed in each company.

In relation to the number of cases that the sample should comprise, one of the most applied approaches, also attributed to contributing to the internal validity of the study (Meinlschmidt et al., 2016), is to include as many cases as necessary to reach theoretical saturation (Hennink et al., 2017). This concept has not faced issues to be theoretically defined, but in practice it has represented a challenge for qualitative researchers to determine the adequate size of the sample in their studies. Overall, theoretical saturation is the point at which data collection and its respective analysis cease to reveal new information or, its contribution to the findings is minimal (Eisenhardt, 1989; Guest et al., 2006). In other words, no new codes or constructs are found and additional collection of data becomes redundant (Hennink et al., 2017; LeCompte & Goetz, 1982). However, in pragmatic terms carrying out this process until researchers are satisfied with the level of saturation may not be feasible. For this reason, many research projects must be designed with a stimulated sample size before collecting data (Eisenhardt, 1989).

While it is true that the research questions and the objectives should provide the guidelines on whether theoretical saturation is required and the estimated sample size (Klassen & Vereecke, 2012), additional constraints such as time, resources, money (Eisenhardt, 1989), and even the homogeneity or heterogeneity of the population (Saunders et al., 2016), have to be considered.

When a research has been designed based on case studies, and using interviews as data collection method, then the researcher faces a double decision on the number of cases and the number of people to be interviewed within each case. This is the scenario for this research, and therefore in order to determine the most appropriate number of cases and interviewees, the approach to be followed is that of other academics, this is, relying on peers' work that is focused on methodology and theoretical saturation, or research of similar characteristics. In the first case, an example is the work from Ramanathan, He, Black, Ghobadian, & Galleary (2017) that adopted ideas from Eisenhardt (1989) on the number of case studies, whereas for the second case, Klassen & Vereecke (2012) followed the criteria applied by de Vries (2009) research.

Regarding the number of cases, Eisenhardt (1989) suggests to include between 4 and 10 so the volume of data generated and the complexity thereof are manageable. Creswell (2007) recommends to look at 4 or 5 cases in the same study, which should be enough to identify themes and even conduct a cross-case analysis. Klassen & Vereecke (2012) suggest to work with a number between 4 and 6 cases. This research will target five cases for data collection and analysis due to time constraints, and also due to a single novice researcher carrying out the entire research.

The number of interviews to be conducted within each case will be discussed in section 3.6.5. Interviewees selection.

The following section will address the definition of the population before proceeding to the method selected for data collection.

### 3.6.2. Definition of population

As mentioned earlier, theoretical sampling and representative cases were adopted in this research. Therefore, in order to deem a case relevant to the research question, the following criteria has to be met:

- Private-owned companies located in a second-tier region in Mexico, an emerging economy (Amui et al., 2017). Ownership must be 100% Mexican. The reason being is that differences could arise in the way locally and foreign owned businesses see and operate sustainability. The aim is to grasp the reality of companies 100% owned by people raised in an emerging economy, and with the corresponding mind-set.
- For practical reasons (limitations in time and budget for data collection, safety, familiarity of the researcher with the context), the selected second-tier region is the Yucatan peninsula. Therefore, the companies' headquarters have to be located in this region. Given that the researcher has a professional network in this area of the country, access to companies would be easier.
- Companies must be either accredited as Socially Responsible Companies by the CEMEFI (Mexican Center for Philanthropy), or should have openly manifested to follow sustainability as one of their business guidelines. The reason for including Socially Responsible Companies is that companies in Mexico tend to mix sustainable and socially responsible activities altogether. In any case, CSR involves business concerns on environmental and social issues (Asif et al., 2013).
- Companies must belong to the industrial sector since an important weight falls on them in terms of SD. The industrial sector in general is perceived as a major polluter, which also employs large numbers of personnel and can contribute to the development or detriment of the populations in which it sits. However, the companies within the population may serve different industrial divisions.
- Companies must operate under a Business to Business model (B2B). Since companies belong to the industrial sector, it is likely that their business transactions will mainly be with other businesses and not with the final consumer. The type of relationship and the pressures faced against these two types of clients can be very different, especially due to the bargaining power of businesses in their role as customers. However, if companies also trade with the final consumer it is not a restriction for including them within the population.
- Company size should be either medium or large. Based on the *2015 National Survey on Productivity and Competitiveness of Micro, Small and Medium Enterprises (ENAPROCE)*, carried out by the Mexican National Institute of Statistic and Geography, companies within the industrial sector are classified as medium when they employ between 51 and 250 people, and as large when they have more than 250 employees (Instituto Nacional de Estadística y Geografía, 2015). Due to their impact on the economy and since their size requires them to have a better organisation than micro and small companies,

medium and large companies have been selected. It is also assumed that these companies are more likely to have programmes for sustainability in place.

With this criteria in mind, a group of potential case companies were identified. Through her professional and academic network, the researcher managed to get contact details from most of the companies. In the end, five companies agreed to take part in the research.

### 3.6.3. Method for data collection

Semi-structured interviews have been chosen as the tool for data collection in the present research. Interviews are one of the most used methods for data collection, and within qualitative research, the semi-structured design is the one that researchers tend to mostly rely on (Kallio et al., 2016). It is relevant to recall that this study will be carried out under the philosophical premises of social constructivism and interpretivism, therefore semi-structured interviews have been chosen to obtain accounts of the reality socially constructed and agreed by the actors subject of this study. In any given investigation, the chosen methods for data collection become part of the described reality and the results. It is then assumed that the methods imply a commitment of a specific nature to the world (Atkinson et al., 2003).

In the field of management research focused on sustainability issues, semi-structured interviews are a widely used method, as in the studies of Brockhaus, Fawcett, Knemeyer, & Fawcett (2017), and Engert & Baumgartner (2016). Moreover, within this area of management research, semi-structured interviews are commonly combined with case study design, as performed in the academic works of Stubbs & Cocklin (2008) and Tchokogué et al. (2018).

The following sections will discuss the role of interviews in qualitative research, the justification of semi-structured interviews as data collection method, the development of the interview guide, the selection of interviewees and the process of pilot testing the interview guide.

#### ***Interviews in qualitative research***

Much has been discussed whether interviews are able to obtain information about "what people do", or about "what people say they do". However, it should not be forgotten that from the interpretivism perspective the accounts of reality that individuals convey are also composed of speech (Atkinson et al., 2003). Warren (2001) elaborates it clearly when she states that the aim of qualitative interview is to acquire interpretations (assuming that the subjects of study are meaning makers) of reality, and not to obtain facts or laws (seeing the subjects of study as passive entities that provide responses from a pile of pre-elaborated answers) as it would be the case of interviews of a quantitative nature. For this reason, scholars such as Atkinson et al. (2003) and Denzin & Lincoln (2000) argue that qualitative interviews are not neutral tools for data collection but an event in which the interaction between two or more people yields an agreed result with contextual validity; assuming also that data collected through interviews have intrinsic properties that should not receive a "truth" treatment.

Some of the advantages reported in the literature (Bryman, 2012; Doody, 2013) of carrying out interviews in qualitative research are:



- Flexibility that grants the interviewer the freedom to maneuver in response to the interviewee's answers, and to delve into the answers when necessary.
- Collected information is rich in detail.
- Development of rapport with the interviewee, and the benefits that this entails in terms of openness.
- The interviewer can listen while observing body language of the interviewee.
- Interviews allow complex questions.
- It is possible to explain the motives behind the research and to clarify interviewee's doubts.
- Probing of answers and clarification when necessary.

On the other hand, Doody (2013) points out two of the most acknowledged downsides of interviews. Firstly, interviews are time consuming. It is not only about arranging interviews, traveling to the venue where they will be held, and carrying them out (while some unexpected events might occur), there is also transcription time and analysis time. Secondly, interviews are subject to different sources of bias, for instance: the respondent's desire to please the interviewer or to make a good impression on him, the interviewee saying what he believes is expected to be heard instead of providing his personal point of view, the interviewee's tendency to respond even though there might be nothing to comment on, influence of the interviewer in the interviewee's responses when showing reactions such as surprise or disapproval.

According to the rigidity of the procedure, interviews can be classified as structured (Saunders et al., 2016), semi-structured and unstructured (Bryman, 2012; Saunders et al., 2016). Interviews can also be classified in one-to-one and group interviews based on the number of participants interviewed (Saunders et al., 2016).

Structured interviews, sometimes labelled as quantitative interviews, are based on questionnaires and standardized questions that must be asked to the interviewee in the same way trying to avoid bias. They regularly include precoded answers (Saunders et al., 2016).

On the other hand, semi-structured interviews are considered an applicable method in qualitative research. The researcher has a list of themes on which s/he builds the questions to be asked, being able to alter the order, omit any questions or add additional ones as required by the interview, always keeping in mind to accomplish the research objectives and to answer the main research questions (Bryman, 2012; Saunders et al., 2016).

Likewise, unstructured interviews are considered a method for qualitative research. The researcher has no questions or predefined themes, however there is a specific aspect part of the research objective, which must be explored. It is possible to ask a single question to the interviewee and from there s/he will be able to respond with total freedom and without any guidance (Bryman, 2012; Saunders et al., 2016).

#### ***Data collection method: Semi-structured interviews***

According to Saunders et al. (2016), it is advisable to use semi-structured interviews when the following situations are relevant:

- The purpose of the research is to understand the reasons behind the participants' decisions. This investigation seeks to understand, through the perspectives of employees, the motivation for companies to engage in sustainability and whether this affects the implementation process or its outcomes. Hence, it is considered that semi-structured interviews are the right tool for collecting data in a more efficient and organized manner.
- A significant weight is given to the possibility of probing the answers from interviewees. People use words in different ways, sometimes with different meanings than their strict definition. And this variety in the use of words is complemented with a diversity of expressions. For this reason, it is important for the researcher to have the possibility of clarify responses, and capture their interpretations as clearly as possible.
- There is a possibility of interviewees mentioning new areas or topics that were not previously considered by the researcher, which can provide relevant information for the research objectives and questions. For this research, interviewees could potentially provide data that will lead to the identification of DCs not contemplated by the researcher as key for the implementation process of strategies for sustainability.
- When questions are complex. Semi-structured interviews provide the researcher with the opportunity to explain, and even exemplify, so that the interviewee obtains a more accurate interpretation of the question, which in turn contributes to a closer answer to the type of information the question is addressing.

Furthermore, it can be said that having the researcher in direct contact with the interviewee might imply a greater commitment from the latter to answer the questions more in detail and closer to reality.

As in all research methods, there are advantages and limitations for semi-structured interviews. Amongst the advantages, depth, vitality, versatility and flexibility are mentioned (Doody, 2013; Kallio et al., 2016). This is due to the possibility of varying the rigidity of their structure depending on the study and the research questions. Reciprocity is also acknowledged between the interviewer and the interviewee, which allows improvisation of additional questions in response to interviewee's answers and potentially, the emergence of new concepts. Moreover, this method of data collection allows triangulation of information, as performed by Stubbs & Cocklin (2008) in their study.

On the limitations side, it has been said that novice researchers lack of the ability to know when to ask additional questions that will delve more into the information provided by the interviewee, as well as probing the answers (Doody, 2013). Also, it is criticized that semi-structured interviews are not friendly with the researcher because of their complexity and excessive detail. Lastly, some statements point to the need for prior knowledge in the area/topics on which the interview was built (Kallio et al., 2016). Yet, it is questionable whether these "disadvantages" really represent issues for semi-structured interviews, or if they are part of the very nature of qualitative research and therefore they are implicit, accepted and seized by researchers.

This research has been built on a conceptual framework in which the systematic view of the organisation and its evolution, as well as the DCs leveraged to implement its strategies are brought together. From this basis, it is considered that semi-structured interviews are the most convenient option for data collection since it is expected that this tool will allow the interviewee to express themselves freely and in detail, while following the line of the key themes. Furthermore, based on the literature review the researcher has developed a list of DCs potentially leveraged while implementing strategies for sustainability. As part of this investigation, it is desired to corroborate this list in the context of companies operating in a second-tier region of an emerging economy, so it can be determined which ones are applicable or, possibly identify new DCs from the conversation with the interviewee.

Based on the arguments exposed in the previous paragraph, it would not be appropriate to apply unstructured interviews as they would not allow questions related to the themes and DCs previously identified. On the other hand, structured interviews would not allow the interviewees, to express their perceptions nor favour the emergence of additional information that the literature review has not yielded.

As previously pointed out, semi-structured interviews and case studies complement each other and both together are claimed to be effective for capturing manager's perceptions (Decoene & Bruggeman, 2006). Since one of the themes being researched about is the adoption of strategies for sustainability, which tends to be decided at a managerial level, this type of interviews are suitable for this investigation.

The use of semi-structured interviews makes possible to compare the data obtained from the different participants of a single company. This data collection method favours capturing in detail the reality lived by each interviewee, and then contrast it against the realities of other employees from the same company. This allows not only to assemble a more complete picture of the socially constructed reality in each organisation, but also facilitates to cross over the answers in favour of the study's credibility.

Finally, it should be mentioned that interviews were audio-recorded with the consent of the interviewee and subsequently, transcribed by the researcher herself. Transcription was used as a mean for reviewing the data, getting familiar with it and start with its analysis.

#### 3.6.4. Developing the interview guide

The interview guide (Appendix 4) is composed by a set of questions that should direct the dialogue between interviewer and interviewee(s) towards the topics of interest for the research, at the same time that consistency between interviews is increased (Brockhaus et al., 2017; Kallio et al., 2016). Due to the nature of semi-structured interviews, the guide must be flexible in terms of order and/or adjustment of the questions as required. Also and as previously discussed in this document, it is essential that questions listed in the guide allow to delve into the information provided by the interviewee, so that it is possible to clarify and probe consistency amongst answers. The process for developing the interview guide for this research is described below.

The interview guide comprised of three general sections. In the first one, the interviewer presented herself as well as the research topic and general objectives, followed by

the estimated duration of the interview and the information about confidentiality of the data shared by the interviewee. For the second section, the interviewer asked questions to familiarize herself with the job position of the interviewee, for how long the employee has been working in the company and for how long s/he has been working with activities related to sustainability or CSR. This section intended to "break the ice" with the interviewee and to create a link between both parties, developing a dynamic where one gets used to the way in which questions are asked, and the other perceives the manner in which answers were provided. This also gave the interviewer hints on how shy was the interviewee, or how terse his/her answers would be, which could lead to a higher number of additional questions in order to obtain detailed and rich information. The third section was constituted by the main body of questions, focused on the topics that interest this research. This section is divided into four subsections, where the first three targeted the themes that underpinned the research, while the fourth, focused on corroborating the DCs identified from the literature as key elements for the implementation of strategies for sustainability.

The first subsection looked at the process for designing the strategies for sustainability, the motivations behind it and the approach to select the activities that are carried out. Additionally, it sought to identify if the interviewee was aware of the strategy's objectives. It is worth to remind the reader that in this investigation, the set of strategies is considered a programme.

Engert, Rauter, & Baumgartner (2016) have pointed out that few empirical studies address the integration of CS into strategic management, and they call for more research on this topic. From the perspective of Pinelli & Maiolini (2017), sustainable practices undertaken by organisations often lack a strategic planning, turning out to be ineffective and failures. These researchers also claim that before talking about the effectiveness of a strategy for sustainability it is essential to understand what are the objectives pursued by the organisation, since companies adopt different actions and are willing to compromise at different levels based on the motivations and the goals derived from their prime objectives.

Some researchers have argued that the process followed by a company when selecting the practices that will conform its strategy for sustainability must include an assessment of the social impact of the project, the motivations driving them (Brockhaus et al., 2017), as well as the potential benefits for the organisation. If companies rely on this method that integrates different interests, the chances of effectiveness increase (Ramachandran, 2011). With this idea in mind, the questions asked to the interviewee will try to address the criterion applied by the organisation when selecting the activities that will be part of the strategy.

The second subsection of the guide focused on the implementation of the strategy, the divulgation of the objectives amongst the personnel, the identification of the employee(s) on which the leadership of the implementation falls, as well as the skills, abilities or knowledge exhibited by these leaders that have proven to be useful.

Galpin & Whittington (2012) affirmed that organisational efforts towards sustainability have not been as effective as they could due to failure from the teams in charge of the implementation when trying to link the practices undertaken and the organisational strategy. These researchers also recognize a gap in the literature that addresses the key elements to conduct CS from its design to its implementation.

Maon, Lindgreen, & Swaen (2008) have drawn attention to managers' perceptions and interpretations that have a great influence in the design of the strategy for sustainability. However, it is interesting to find out to what extent senior managers are also involved in the implementation, since they might be the architects of the strategy. At this moment it is pertinent to recall that some DCs are fostered from senior hierarchies and that these go beyond mere activities to solve problems, but also include the identification and interpretation of challenges in the external environment (Amui et al., 2017; Haney, 2017).

Following the arguments in the two previous paragraphs, this subsection had an emphasis on the skills and competences perceived by the interviewee as essential for the implementation of the strategy. This approach has also been applied in other studies, such as that of Osagie, Wesselink, Blok, Lans, & Mulder (2016).

The first subsection addressed the design of the strategies, the second one looked at its implementation and the skills, knowledge and capabilities needed to do so, so the third subsection dealt with the process of monitoring and evaluating the results of the strategy, the development of organisational competitive advantages related to the strategy or to the competences and skills exhibited by the leader(s) of the implementation, as well as the benefits that have been perceived as a result. It also covered potential damages or negative effects resulting from the strategy implementation.

The studies from Hervani, Helms, & Sarkis (2005); Joung, Carrell, Sarkar, & Feng (2013) and Warhurst (2002), argued that sustainable performance indicators or, measuring the results of the strategy for sustainability, provide information for both the company and its stakeholders regarding the level of contribution to SD and future decision making, as well as assisting to identify potential areas for improvement. All of these should play a part in maintaining company's competitiveness and its strategy for sustainability in the long-term. Taking both sides into consideration, it could be said that companies that are not preoccupied in following up the strategy nor making sure of the alignment with the objectives, would be losing the positives associated with these practices. Monitoring strategies' outcomes help companies appreciate how close they are to their objectives. Thus, the interest in exploring this area through the interview.

Additionally, much has been said of the benefits and advantages of implementing a sustainable strategy in organisations, but to what extent is everything positive? What are the associated costs of which little is said? (Engert et al., 2016). As mentioned earlier, literature informs about gaps and issues related with the implementation of sustainable practices that in some cases, have worked in detriment of CS leading companies to detract from it. Scholars have also claimed that managers see sustainability as something sustainable only to the extent that it is profitable (Lozano, 2015), so it would grow in tandem with consumer demand (Brockhaus et al., 2017).

Hong, Zhang, & Ding (2018), reported issues faced by manufacturers implementing sustainable supply chain initiatives in emerging economies, as these represent an increase in costs. This situation is likely to drive them away from, or invest minimum efforts when implementing CS. One must not lose sight that the vast majority of these businesses arose to generate profits, and that although the deterioration caused in the planet and the concern for the welfare of future generations are issues heard on a daily basis, if there are no strong

pressures obliging companies to take certain measures, it cannot be taken for granted they will assume them at the expense of their profits. For these reasons, this section of the interview also deals with finding possible negative effects and issues on the organisation as a result of the implementation of sustainability.

Finally, the fourth subsection reviewed the list of DCs found in the literature. These capabilities could have been observed at the organisational level, at the managerial level or specifically, in the team responsible for implementing the strategy. Additionally, the interviewee was given the opportunity to mention additional skills or competences that might have lead to the identification of DCs not previously considered by the researcher. Following Amui et al. (2017) advise, there is room for new studies trying to identify what DCs better assist to overthrow the challenges posed by sustainability.

### 3.6.5. Interviewees selection

In order to select the interviewees from each company, and based on the studies from Brockhaus et al. (2017) and Tchokogu   et al., (2018), the following criteria was applied:

- Employees who had been or were involved in the design of the strategy for sustainability or corporate social responsibility. This group was expected to be composed mostly by managers or directors, since strategic planning usually falls in these positions.
- Employees responsible for implementing the strategy or carrying out the practices associated with it.
- Employees in charge of following up on the results of the strategy.
- Employees whose activities have been modified as a consequence of implementing the programme for sustainability.

For some companies there was no specific people for each function but the same job position concentrated more than one activity.

As noted earlier, theoretical sampling was applied in the selection of interviewees since participants were chosen based on their potential contribution to answer the research questions and objectives. It was assumed that employees under the previous criteria were the most likely to provide relevant information for the theoretical position of the researcher (Bansal & Roth, 2000; Silverman, 2017).

In terms of the total number of interviews to be conducted, Guest et al. (2006) argued that 12 interviews are an adequate number to reach theoretical saturation if there is homogeneity amongst participants. While interviewees were chosen between five different companies that belong to different industries, these companies share common characteristics that allowed to consider them part of the population, thus homogeneity could be assumed to some extent. Moreover, the work of Hennink et al. (2017) reported that 9 interviews are enough to reach code saturation, the point where the variety of thematic issues has been identified, while a number between 16 and 24 will be sufficient to reach meaning saturation, where a rich understanding is achieved. For their side, Saunders et al. (2016) claimed that 5 to 25 interviews are required when either semi-structured or in-depth interviews are carried out, 4

to 12 interviews when the population is homogeneous or 12 to 30 interviews if it is heterogeneous. Also, the number of interviews to be conducted within each single case must be considered. Klassen & Vereecke (2012) reported from their experience that theoretical saturation is reached from the third or fourth interview in the same case.

Considering all the information previously provided, this research looked at a number between 3 and 5 interviews per company. Ideally, the researcher aimed for 16 to 20 interviews in order to increase the chances of meaning saturation. In total, 22 interviews were conducted. Details for the data collection schedule can be found in Appendix 3.

### 3.6.6. Conducting a pilot-interview and learning from it

The purpose of pilot interviewing is to confirm the relevance and coverage of the questions included in the guide, and based on the experience of the researcher and the feedback obtained from the participants, make appropriate adjustments and even develop additional lines of inquiry (Creswell, 2007; Gillham, 2000; Kallio et al., 2016; Yin, 2018). As a result, it is expected to improve the quality of the information that will be collected.

Kallio et al. (2016) enlist three techniques for testing the guide:

- Internal testing: the guide is evaluated by collaborators of the same research team.
- Expert evaluation: the guide is put through to the opinion of specialists external to the research team.
- Field testing: the situation of the real interview is simulated with potential participants.

Building on the third technique, the participants of pilot interviews should be representative of the investigated group, but not part of it (Gillham, 2000).

Gillham (2000) suggests carrying out one or two pre-pilots and once the adjustments have been applied, to carry out another two pilot tests. On the other hand, Yin (2018) recommends to select participants based on convenience, access and geographical proximity.

For this research, a field pilot test of the interview script was conducted with a participant that fits the population criterion but does not belong to the companies that will be interviewed during the data collection stage. The interview took place at the office of the interviewee, who holds the position of Director of Human Capital, and is responsible for the CSR programme. The interview was audio-recorded, transcribed and analysed as a trial.

Through this test, it was detected that a question had to be reformulated to be transmitted with greater clarity. Additionally, it was detected that in the fourth subsection of the interview script which addressed the list of DCs identified from the literature, those that did not have a description were problematic for understanding in some cases, so it was determined that all the DCs would be briefly described.

From the researcher's experience it can be said that the pilot test helped in identifying whether the questions were clear or understandable for the interviewee. Furthermore, it was important to confirm if the questions conveyed the intended information based on the responses, their form and their detail. Although it is true that semi-structured interviews allow

additional questions to obtain more details and clarifications, it is ideal that the question initially conveys the interviewees the type of information that is intended to be explored, since the questions can have a meaning in the interviewer's mind and a different meaning for the interviewee. This could also help the researcher improve his/her skills for formulating questions for future interviews.

In general, it can be said that the interview script worked well, with minor corrections to be applied. However, there was always room for improving questions or for the conduction of the interview, as more of these took place and the researcher received more feedback. This refinement is always allowed when using semi-structured interviews, but without leaving aside consistency and validity.

Summarizing section 3.6., it has discussed and justified the use of multiple and holistic case studies as the design for the research, as well as the selection of semi-structured interviews as the method for data collection. Interviews were conducted in five companies in southeast Mexico that have either a sustainability or a CSR programme, so the unit of analysis will be each individual company. The interviewees were employees directly involved in the design of the strategies for sustainability, in their implementation, monitoring and following-up processes, or affected by the changes.

## 3.7. Analysing the data

### 3.7.1. Data Analysis strategy and method: case description + thematic analysis

Any research requires a design to guide its conduction and to guarantee alignment between its philosophical stance and the methods for data collection. In the same way, a data analysis strategy is also required. This strategy should be chosen taking into consideration the research questions, the philosophical stance and the research design, so that they are compatible and provide further guarantee that collected data will be analysable (Saunders et al., 2016; Yin, 2018). Hence, the collection of data and its analysis are intimately related (Saunders et al., 2016), since from the moment data collection is taking place, researchers begin to process it.

There is no agreement in the literature on what are the specific strategies that can be followed for data analysis. Different authors mention different options, which have been called strategies, approaches, and less frequently, coding traditions. Saunders et al. (2016) lists Thematic Analysis, Template Analysis, Explanation Building and Testing (which includes Analytic Induction), Grounded Theory, Narrative Analysis, Discourse Analysis, Content Analysis and Data Display and Analysis as possible approaches. For his side, Bryman (2012) talks about Analytic Induction, Grounded Theory, Narrative Analysis, and has even started to consider Thematic Analysis, as strategies or approaches. In the second edition of the Handbook of Qualitative Research, Ryan & Bernard (2000) include Grounded Theory, Schema Analysis, Classic Content Analysis, Content Dictionaries, Analytic Induction, and Ethnographic Decision Trees as the major "coding traditions".



Table 9 presents a brief description of the most common strategies.

TABLE 9. MAJOR STRATEGIES FOR QUALITATIVE DATA ANALYSIS

STRATEGY	DESCRIPTION
Thematic Analysis	Strategy dedicated to the search of patterns or themes within data sets, starting from the identification of codes that will later be categorized into themes (Saunders et al., 2016). This strategy is acknowledged as flexible for its application in different contexts and different research approaches, and it is also characterized for not having philosophical commitments (Bryman, 2012).
Narrative Analysis	Strategy that focuses on preserving the narrative form of collected data. Special attention is given to the flow of events (sequence and chronological connections) and how they affect the life and stories of the participants (Bryman, 2012; Saunders et al., 2016).
Grounded Theory	This strategy avoids the use of codes and elements from the existing theories and initiates inductively, finding and developing codes, concepts and models from the data collected. These should lead to further development of substantial theories through an iterative process (Bryman, 2012; Ryan & Bernard, 2000; Saunders et al., 2016).
Discourse Analysis	In this strategy, social reality is seen as the product of discourses which are composed of interrelated sets of texts and the practices for their production, dissemination and reception. Hence, discourses create meanings and perceptions of the reality (Phillips & Hardy, 2002; Saunders et al., 2016).
Content Analysis	Referred to as an analytical technique, this strategy encodes and categorizes qualitative data to analyse it quantitatively and to test hypotheses. As a result, the manifest content of the communication is described objectively, systematically and quantitatively (Ryan & Bernard, 2000; Saunders et al., 2016).
Analytic Induction	Identified as a method, researchers seek a universal explanation of a phenomenon through the qualitative construction of causal explanations. Starting from a hypothetical explanation, several cases are examined until one proves the explanation false, so it has to be modified to include the new case or, the phenomenon has to be redefined. It is assumed that researchers will stop when there are no more inconsistent cases with the proposed explanation (Bryman, 2012; Ryan & Bernard, 2000).

Meanwhile, Yin (2018) proposes four strategies for the analysis of data in case studies: 1) relying on theoretical propositions, 2) working the data from the "ground up", 3) developing a case description and, 4) examining plausible rival explanations. From Yin's perspective, the strategy selected to conduct the data analysis for this research is the development of a case description, which is paired up with thematic analysis (Gioia et al., 2013). The latter has been identified as a generic and flexible approach (Bryman, 2012; Saunders et al., 2016) that can be used in conjunction with other strategies and with completely different purposes -for instance see Brockhaus et al. (2017) and Klewitz & Hansen (2014)-. Therefore, both case description and thematic analysis compose the analysis strategy for this investigation. The justification for their selection will be provided in the next section of this chapter.

A well-known fact amongst qualitative researchers, and reported by Bryman (2012) and Ryan & Bernard (2000), is that coding is the core of text analysis. Presumably, this argument comes from the high level of usage of this technique due to its flexibility that allows it to be applied in a variety of contexts, and from its compatibility with most of the approaches for qualitative data analysis. Coding pushes the researcher to make judgments about the meanings of blocks of text, which can be said to be inherent to the moment of collecting and reviewing data.

At this point, it is convenient to recall the main characteristics of data gathered from qualitative methods. According to Saunders et al. (2016), qualitative data is based on meanings that are expressed through words and images, so there is no standardization and therefore, it needs to be classified into categories so the analysis can be carried out through conceptualizations. This latter statement seems to support that coding will be undertaken to some extent.

Nonetheless, it shall not be overlooked that data obtained through qualitative interviews will surely include story telling from participants. Their answers will be told in such a way that the result of the interview can be considered a narrative, regardless of the analysis strategy (Saunders et al., 2016). Otherwise, one would be talking about quantitative interviews. Referring to narrative analysis, Bryman (2012) states that stories obtained from participants have a purpose, or an intention behind them. It is the belief of the researcher carrying out this research that this perspective is not exclusive of narrative analysis, since accounts of reality obtained from participants are not objective, and therefore it does not matter if they are analysed through codes and themes, or if new theories are developed from them. There will always be intentions or purposes behind the answers provided by participants and as such, the chosen strategy and methods for qualitative analysis should give them due attention.

Saunders et al. (2016) enlist a series of non-linear steps for thematic analysis: becoming familiar with the data, codify it, identify themes and relationships, refine the themes and if the scope of the research includes it, testing of propositions. Excluding the last step, this was the process covered in this project once the interviews were transcribed.

As per case study description as strategy, Yin (2018) suggests organising the case study according to a framework, the very same that should organise the analysis. This research follows this advice and incorporates two theories into its framework: DCs and CAS. Along with the research objectives and underlying aspects, the theoretical framework was used to compose the data collection instrument so that data was able to be codified following the structure of the topics and themes that interest this research. In the case that new themes arose, these were coded and classified into the relevant element of the framework. Here is where both strategies, case study description and thematic analysis, converge and enlighten the reason for their selection.

Since the research design for this investigation includes multiple case studies, the cases were first analysed in isolation, that is, individually, and then a second analysis was conducted across cases. This investigation follows Eisenhardt's (1989) suggestions concerning within-case and cross-case analysis. Regarding within-case analysis, its purpose is to become familiar with each case individually, so that unique patterns of each arise. Given that the same researcher conducted the interviews, transcribed and analysed them, her level of familiarity with each case

was high and this allowed her to find the codes in a more "natural" way. On the other hand, to perform the cross-case analysis it is suggested to look at the data in several divergent ways, so that the process of analysis is enriched and the possibility of biases is diminished, such as reaching conclusions based on limited data or being influenced by certain type of participants. Once the researcher has identified the codes and the respective themes for each case, it will be time to compare the different cases and determine similarities, differences and their causes, as well as possible refinement of the themes included in the framework.

The next section explains the details of the process for data analysis and subsequent composition of the framework that represents the contribution of this investigation.

### 3.7.2. Data Analysis process and framework composition

The within case analysis facilitated the in-depth examination of each company in its specific context. This was conducted following a coding system that involved a process of data definition, reduction and sense making (Miles & Huberman, 1994). In order to achieve this, thematic analysis was applied in an iterative process that moved between raw data and theoretical interpretations, resulting in the development of themes. The following steps comprised the within case analysis:

1. Description of the context for each case: a description was developed by company, consolidating varied information to depict the organisational context, competitive advantages, their concerns on sustainability matters and an overview of the activities undertaken in this regard.
2. In order to allow the emergence of potential new insights, first-order codes were identified from the interviews with no theoretical predisposition, trying to remain faithful to the terms used by the participants and with a minimum attempt to create clusters of codes (Gioia et al., 2013). This step was carried out by coding those pieces of data that provided relevant information for the research question or the organisational context. As the coding process continued, similarities and sharp differences between the codes began to emerge. Thus, a first effort at grouping was initiated.
3. Once the first-order codes were completed, a second-order analysis was conducted. The purpose of this step was to create aggregated dimensions, to sort and to classify similar codes under themes relevant for the research question and understanding of the organisational context.
4. In a switch of approach from first-order coding, following a more 'deductive system', a second and third exercises for coding were carried out based on the assumptions of the underlying research theories: DCs and CAS. The aim of this step was to identify the elements of each theory, and relevant information to the research objectives implicitly present in the participants' responses. Albeit time-consuming, this method seemed the most adequate to properly focus and elucidate the relevance of these theories for the individual cases.

Steps 3 and 4 allowed to assemble a data structure that would provide evidence on how the analysis progressed from raw data to codes, aggregated dimensions and themes. This aimed to prove rigour (Tracy, 2010) and traceability of the research.

Subsequently, the cross-case analysis sought to find patterns (similarities) and differences between the different cases, and to present them in a way that is meaningful to the objectives of the research. This analysis was focused in understanding how companies have dealt with sustainability based on their approach towards it. It also sought to discern how each company has made use of its DCs understanding the benefits derived from them, and finally how the deployment of these capabilities has facilitated changes at the system level.

Findings from the within and cross-case analyses enabled their discussion in relation to the extant literature seeking to confirm, refute, or extend available knowledge, as well as highlight their relevance. Building on this information and further synthesizing it, a theoretical framework combining both DCs and CAS theories was developed in the discussion chapter, attempting to explain how companies have capitalized from DCs when implementing their programmes for sustainability.

Table 10 presents the different stages and steps of the data analysis process.

Appendix 1 displays an illustration of the data structure that have resulted from the thematic analysis, while appendix 2 presents representative quotes that justify inferred themes and aggregate dimensions.

TABLE 10. STRUCTURE OF THE DATA ANALYSIS PROCESS

Stage	Steps/ Analytical activities	Output
I. Within-case analysis	1. Produce descriptions of each case to provide initial insights for each company's context.	5 case-context descriptions.
	2. First-order coding with no theoretical inclination and initial attempt for grouping codes	Around 150 codes attempting to apply participants' terminology.
	3. Second-order coding: Cluster similar codes under themes relevant for the research question and/or the organisational context. Afterwards, aggregate themes into dimensions.	6 aggregate dimensions (comprising approx. 79 second-order themes of codes) related to motivations, objectives, competitive advantages, issues while implementing sustainability, implementation process itself and strategies for sustainability.
	4. Code data to identify DCs exhibited by companies and their implications. Code data to identify elements from CAS theory in the organisational system.	1) 23 themes of codes for practices associated with DCs routines, grouped under <i>Dynamic Capabilities</i> aggregate dimension. 2) 6 themes of codes for CAS components, grouped under <i>CAS</i> aggregate dimension. 3) 12 themes of codes related to organisational benefits of DCs, grouped under <i>Benefits from DCs</i> aggregate dimension.

		4) 9 themes of codes related to changes at system level triggered by DCs, grouped under <i>Changes in CAS</i> aggregate dimension.
II. Cross-case analysis	1. Comparison of cases' strategies for sustainability at corporate, competitive and functional level.	Summary table with strategies for sustainability (table 11).
	2. Position cases in the means-end spectrum regarding their approach to adopting sustainability programmes (strategies).	Sustainability as means – end spectrum (figure 13).
	3. Identification and comparison of DCs deployed by cases and identification of the benefits derived from these.	2 tables: 1) Summary of cross case analysis- DCs occurrence in organisations (table 13). 2) Summary of cross case analysis- DCs and their support to the programme for sustainability and the overall company (table 14).
	4. Comparison of changes in each CAS (company) as a consequence of relying on DCs during the implementation of their programmes for sustainability.	1 table: Summary of cross case analysis- DCs and their contribution to the organisational system and its strategies for sustainability (table 15).
III. Incorporate findings and literature to build a theoretical framework.	1. Inform with extant literature the findings related to the primary motivation of companies adopting a CS programme.	Discussion of spectrum sustainability as a means – end.
	2. Inform findings on the changes brought about by DCs in organisational systems, and their contribution the adaptability mechanism of companies, with extant literature.	List with the specific contributions of DCs to the organisational system and its CS strategies. List discussion (figure 15).
	3. Inform with extant literature the findings on the benefits perceived by companies as a consequence of relying in their DCs.	List with the specific benefits of DCs for companies implementing programmes for sustainability (figure 16). List discussion.
	4. Merge findings on DCs, system changes and adaptation, and the benefits realized through DCs, to compose a theoretical framework that explains how companies capitalize from DCs during the implementation of their programmes for CS.	Theoretical framework explaining how companies capitalize from DCs when implementing programmes for sustainability (figures 17 and 18). Discussion of the framework.

*Adapted from Smith (2014)*

### 3.8. Chapter conclusion

Through this chapter, the philosophical and methodological elements that must be taken into account when designing an investigation have been pointed out while paying due attention to the literary grounds where the foundations of this particular research lie.

Initially, the research paradigms present in business and management research were discussed, for later elaboration of the prevailing philosophical assumptions in the three academic areas that conform this research: strategic management, systems research and CS.

Then, the philosophical position adopted for this work was described and justified. Ontologically, the beliefs of the social construction of reality were adopted while it is considered that epistemologically, the research looks at the world from the interpretivist point of view. Additionally, a qualitative and abductive approach has been adopted, since it is intended to contribute to the development of the theories guiding this research.

The following section of the document looks at quality in qualitative research and the criteria for evaluating it: dependability, credibility, transferability and confirmability respectively corresponding to reliability, internal validity, external validity and objectivity in the quantitative arena. Moreover, it also presents how this criteria was operationalised in this project.

The subsequent section outlines the research design, composed of multiple and holistic case studies. Data collection was conducted through a semi-structured interview elaborated based on the gaps and opportunities found during the literature review. The unit of analysis for this study were single companies located in south-east Mexico with a sustainability or corporate social responsibility programme. Five companies accepted to participate, while interviewees were selected amongst employees directly involved in the design, implementation or monitoring of the strategies. Additionally, the conduction of the pilot interview was addressed.

The final section of the document was focused on the selection of the strategy for data analysis, as well as the method for carrying out the analysis. Respectively, these are case study description and thematic analysis. Cases were first analysed individually, for later analysis across cases. Finally, the discussion of findings enabled the composition of the framework that embodies this research's contribution.

It is worth to emphasize that claiming generalizability of this study, as previously discussed in section 3.6.1., is risky since the environments faced by companies, even when located in countries with "similar" economic conditions to Mexico, can be diverse. One could think that countries such as Argentina or Brazil, both Latin and classified as Upper Middle Income as Mexico by the OECD (Organisation for Economic Co-operation and Development, 2018), could yield similar results in a parallel investigation. However, it should not be overlooked that there are several factors that impinge organisational strategies and policies, such as legal frameworks, customs and business practices, as well as the market. In light of the previous argument, this research tried to ensure that the methodology and design applied were documented in detail as well as the unforeseen events and the way in which they were dealt with, in order to provide the necessary information for replication while offering convincing evidence about the theoretical contributions towards theoretical generalization.

It is also pertinent to acknowledge the methodological limitations for the study. Data obtained from semi-structured interviews were not triangulated with any other source of information. Triangulation is common practice when conducting qualitative case studies as it enhances the credibility of the research. Its absence in this investigation responds to the researcher's inexperience, as well as to issues of secrecy or limited availability from some of the interviewed companies. In addition, given the nature of the phenomena to be studied (perceptions about deployment of capabilities, changes in the organisational system, and benefits perceived through the programme), it was deemed difficult to triangulate the responses of the participants with data from other sources. It has to be noted though, that the researcher did request information about the companies operation to gatekeepers prior to interviews. Moreover, websites of companies and online news about them were also looked at seeking to get a clearer picture of the operation and make more sense of participants' answers, as well as getting a better idea of what could be the problematic areas for each company in terms of sustainability.

As general conclusion for the chapter, one can say that this research lies in a stance that perceives reality as socially constructed, and that accepts that the way of perceiving it cannot be objective nor free of values due to the nature of the phenomenon that motivates this investigation. The selection of the research and analysis strategies, as well as the methods to be used for data collection and analysis, intend to be aligned with this stance.

The next chapter will introduce the cases context before delving into the analysis of data collected.

# Chapter 4: Cases context

## 4.1. Introduction

The adoption of both social responsibility and CS is a social phenomenon and as such, its existence is intimately linked to the business context in which it occurs (Wang et al., 2016). Therein lies the importance of understanding such context, as this enables qualitative researchers to make better sense of the findings. The study of strategies for sustainability are no exception to this logic and it is therefore relevant to delve into the context in which they are designed and implemented.

Furthermore, and as pointed out in the literature review (chapter 2), emerging economies are fertile ground for the expansion of theories focused on complex phenomena as they present more turbulent scenarios than those found in developed countries (Amui et al., 2017; Bezerra et al., 2020; Dobers & Halme, 2009; Silvestre, 2015). Moreover, companies operating in this context face tougher challenges when trying to implement CS, while the population deals with day-to-day problems ranging from the satisfaction of their basic needs (Pacheco-Vega et al., 2001) to distrust in the government (Dobers & Halme, 2009; Silvestre, 2015).

This chapter introduces the historical development of the current sustainability scenario for Mexican companies, highlighting the two main national certifications/accreditations that companies are achieving to demonstrate their commitment to sustainability: the Clean Industry certification, focused on environmental law and standards compliance, and the Socially Responsible Company (SRC) accreditation, which looks into socio-environmental aspects and the relationship with different stakeholders. Section 3 of the chapter will address the relevance of the Yucatan Peninsula, the second-tier region where case companies are located, as well as its specific characteristics and their implications to the sustainability scenario. Finally, section 4 offers concluding remarks from the chapter.

## 4.2. Mexico

A country of 128,932,753 inhabitants (10<sup>th</sup> in the world) and with a GDP of \$1,076,163.32 US dollars (15<sup>th</sup> in the world) as of 2020 (World Bank, n.d.), Mexico faces a sharp inequality in wealth distribution (GINI index of 45.4 in 2018) (World Bank, n.d.) and although it is rich in biological resources (García-Frapolli et al., 2009) it is not known for its leadership on environmental issues nor initiatives to advance sustainability (Lloret, 2016). Rather, it is identified as a country at an early stage of the sustainability learning curve (Aigner & Lloret, 2013). Paired up with this, companies in Mexico attempting to incorporate CS in their operations face challenges such as lack of clear industry standards, low public awareness (Blasco & Zølner, 2010) and customer demand, as well as deficient economic incentives (Lloret, 2016).

Yet, corporate awareness of sustainability and CSR has been increasing in the past 30 years (KPMG, 2020; Meyskens & Paul, 2010; Wendlandt Amezcaga et al., 2013). Various factors have contributed to this: Mexico's integration into the global economy in the early 1990s



(Meyskens & Paul, 2010; Wendlandt Amezaga et al., 2013), stronger demands from the Mexican Stock Exchange, more structured and strictly enforced environmental regulations (e.g. the General Law on Climate Change and the Federal Law on Environmental Responsibility), as well as global trends in standards and reporting for climate change and sustainability (KPMG, 2020).

Since the 1980s Mexico has enacted environmental laws that have brought attention to the topic, signalling a growing interest from the presidential cabinet (Perez-Batres et al., 2012). However, both regulations and enforcement were weak, facilitating non-compliance from companies (Dasgupta et al., 2000). It was until Mexico joined the North American Free Trade Agreement in 1994, the same year it also joined the OECD, that the new conditions shaped a new business scenario in the country, leading the government to take a new approach to improve the environmental performance of both public and private companies (Montiel & Husted, 2009). The new scenario brought a positive impact on the quality and environmental standards applied by Mexican companies (Wendlandt Amezaga et al., 2013).

### ***Environmental sustainability and the Clean Industry certification***

One of the measures introduced by the government to improve environmental performance, health and safety in high-risk industries, as well as to strengthen and improve regulatory processes, was the launch of National Programme of Environmental Audits (Programa Nacional de Auditoría Ambiental) in 1992. This flagship scheme was, and still is, voluntary and brings companies into compliance with national standards and regulations, as well as international standards and best practices. Originally, its main focus was on medium and large companies (Blackman et al., 2010; Ruíz et al., 2006).

The body responsible for this programme is the Procuraduría Federal de Protección al Ambiente (PROFEPA), the national agency in charge of environmental care and protection. Through third party auditors, the companies that voluntarily join the programme have their facilities inspected for compliance with national regulations, international standards and environmental best practices. In case of non-compliance, the specific plant is not penalised but given time to correct the deficiencies. Once full compliance is achieved, the plant obtains the Clean Industry (Industria Limpia) certificate, which is valid for two years during which the plant will not receive inspections from environmental authorities, as long as no incidents of concern are reported. After two years, those seeking to renew their certificate must undergo a new audit (Blackman et al., 2010; Montiel & Husted, 2009; Perez-Batres et al., 2012).

The National Programme of Environmental Audits has similarities with the ISO 14001 certification since both aim at improving business environmental performance and provide certifications, pushing the implementation of environmental management systems (Montiel & Husted, 2009). Today, the National Programme grants two additional certifications to Clean Industry: 1) Environmental Quality, for companies dedicated to commercial activities and services, and 2) Tourist Environmental Quality, for companies dedicated to tourist services and activities (Procuraduría Federal de Protección al Ambiente PROFEPA, 2020).

Additionally, in 2012 the General Law on Climate Change came into effect in Mexico, obliging companies and individuals with business activity to report and provide documentary support for their emissions of greenhouse gases and compounds.

Previous research informs that Mexican manufacturing firms, considered "dirtier" industries, are the most likely to engage in environmental sustainability initiatives (Aigner & Lloret, 2013), where compliance with environmental regulations, cost savings and the opening

of new markets are the main drivers (Lloret, 2016). Similarly, these companies in “dirtier” industries facing pressure from environmental authorities are the most likely to engage with the Clean Industry certification (Blackman et al., 2010; Perez-Batres et al., 2012). Additional factors that have led to such involvement are sales in foreign markets and importing of inputs (Blackman et al., 2010). Yet, questions have been raised about the effectiveness of this certification, as some studies report that in the long term the environmental performance of companies has not shown significant improvement (Blackman et al., 2010).

Regardless of whether there has been a marked improvement in environmental performance, it appears that engaging in environmental sustainability endeavours has been contributing to improve large companies’ competitiveness and their ability to cope with new market requirements (Aigner & Lloret, 2013).

### ***Social sustainability and the Socially Responsible Company accreditation***

While progress in environmental regulation and certification in Mexico has been strongly influenced by opening the national market to international trade, engagement in CSR has also had its roots in Mexican idiosyncrasies. In Latin America, social responsibility has historically been based on social values related to the Catholic doctrine (Blasco & Zølner, 2010; Wendlandt Amezaga et al., 2013; Weyzig, 2014). Particularly in Mexico, it has also stemmed from a paternalistic approach to philanthropy (Gold et al., 2018). Some studies point out that this emphasis on philanthropy in emerging economies derives from the social, health and educational problems they face, as well as their dependence on aid (Arena et al., 2020).

Although social values and international trade are recognised amongst the initial causes for involvement with CSR in Mexico, contrasting views on the main driver leading companies these days to implement social responsibility initiatives have been pointed out by previous academic work. On the one hand, some support the idea of an instrumental motivation given the positive relationship between social responsibility and corporate financial objectives (Wendlandt Amezaga et al., 2013), while others claim that management commitment to ethics is the dominant motive (Muller & Kolk, 2010; Weyzig, 2014).

The economic scenario in Mexico also provides specific characteristics shaping the national CSR agenda. The economy is characterised by a large informal sector and a high percentage of small and medium-sized enterprises (Blasco & Zølner, 2010), which do not always provide their employees with the social security they are entitled to (Weyzig, 2014). If one adds to this the corruption in the country and the strong trade union culture, it is not surprising that the national agenda for social responsibility is centred around labour relations and business integrity. Although there is a strong ethical incentive for some businesses engaging in CSR, weak local stakeholder pressures and low public awareness have led to the national agenda being dictated by the private sector rather than civil society. Moreover, companies seldom involve their stakeholders in CSR activities, and therefore these rarely permeate their supply chains (Blasco & Zølner, 2010; Lloret, 2016; Weyzig, 2014).

In Mexico, one of the most sought-after credentials for companies to demonstrate their commitment to social responsibility is the Socially Responsible Company (SRC) badge. This is awarded by the Mexican Centre for Philanthropy (CEMEFI) and the Alliance for Corporate Social Responsibility to companies committed to integrate socio-environmental values into their operations in relation to their different stakeholders (Centro Mexicano para la Filantropía AC, n.d.; Expok, n.d.). Following a self-diagnose process documented by companies and verified by CEMEFI, the badge is awarded to those that exceed 75% of the SRC index (Expok, n.d.). The distinction is valid for a year; thus, companies have to continuously engage in initiatives that

would allow them to renew it. CEMEFI has also established links with organisations and networks that advocate for social responsibility in Latin America, extending the distinction to this region and awarding it to companies located in other Latin-American countries (Blasco & Zølner, 2010; Centro Mexicano para la Filantropía AC, n.d.).

International guidelines for CSR reporting are also present in the Mexican context. The evaluation process followed by CEMEFI has incorporated the principles of the UN's Global Compact (Blasco & Zølner, 2010) and focuses on five areas: 1) CSR management, 2) quality of life in the company, 3) business ethics, 4) linking the company with the community, and 5) care and preservation of the environment (Centro Mexicano para la Filantropía AC, n.d.). Furthermore, large companies have also been engaging on their own with international initiatives that promote social and environmental responsibility, like the aforementioned UN's Global Compact and the Global Reporting Initiative. Scholars (Meyskens & Paul, 2010) argue that involvement with international CSR initiatives, alongside national ones, has led these companies to be regarded as role models for those wishing to follow suit. While CSR was not previously considered relevant to companies' reputation (Weyzig, 2014), it is now being leveraged as a way to publicise compliance and improve their image (Arena et al., 2020).

Despite hindering factors such as lack of disclosure regulations, limited non-regulatory pressure, scant media exposure and a confidentiality culture (Arena et al., 2020), the overall scenario indicates a growing awareness and adherence amongst Mexican companies to international standards for sustainability reporting (KPMG, 2020).

Some of the forces that have encouraged the adoption of sustainability practices in other contexts can be found in Mexico, but there are also important differences such as low pressure from society and the ethical, and even religious, determinants that also affect the conditions under which companies opt for sustainability. These differences present an interesting scenario to study the implementation of programmes for sustainability. Moreover, it still portrays similarities with other Latin American countries, and potentially with other emerging economies, that have decided to go down the path of sustainability but still find themselves at an early stage of the learning curve. Hence, the Mexican context offers ideal conditions to study the tools and capacities on which companies have been relying, as well as understanding how this process has been like and the benefits derived from it.

The following section will elaborate on the specificities of the Yucatan Peninsula and its sustainability scenario.

### 4.3. The Yucatan Peninsula

Located in the southeast of Mexico (figure 13), the Yucatan Peninsula comprises 3 states, Yucatan, Campeche and Quintana Roo, which together accounted for 3.96% of the national population in 2020 (Instituto Nacional de Estadística y Geografía, n.d.) and in 2019, the 3 states contributed 6% of the national GDP (Instituto Nacional de Estadística y Geografía, n.d.). The peninsula achieves this impact on the national economy through significant contributors to GDP such as oil extraction and tourism, positioning this region as a second-tier region in the Mexican territory.

Second-tier regions are located outside the country's capital and its metropolitan area, but their economic and social performance have the capacity to impact the potential

performance of the national economy (Parkinson et al., 2012, 2015). Although second-tier regions do not draw as much attention as their first-tier counterparts, they can still play an influential role nationally and internationally (Cardoso & Meijers, 2016). Their role in connecting urban and rural areas (van der Gaast et al., 2020), but more importantly, their part in achieving sustainable economic and social development (Agnoletti et al., 2015; van der Gaast et al., 2020) has been noted by scholars. Therefore, they can provide new and interesting insights for the understanding of sustainability programmes in firms.



FIGURE 13. THE YUCATAN PENINSULA

Geographically, the peninsula is approximately 1,000 km away from Mexico City and due to the national territory shape, it has been considered historically a relatively isolated area from the centre of the country. This impacts the overland transport of goods and in recent years, it has also posed a challenge for the supply of cleaner energies that are used by industries as alternatives to more polluting options and that are not locally produced. For example, natural gas, which reaches the peninsula through a network of pipelines, is mostly produced in northern border states such as Sonora, and in states located in the coast of the Gulf of Mexico, such as Tabasco and Veracruz (Observatorio de Inteligencia del Sector Energético, n.d.). With declining natural gas production at the national level (Comision Nacional de Hidrocarburos de México, 2019), the non-producing and more distant states are the most likely to suffer from the shortages.

Together, the 3 states in the peninsula have formed the Regional Climate Change Commission in which they share an agenda with activities for mitigation and adaptation of the area to the effects of climate change, on top of the initiatives that each state has individually planned for its jurisdiction. Moreover, Campeche and Yucatan have state-level secretariats specifically overseeing the planning and implementation of their SD programmes, which are aligned to the 2030 Agenda and to the SDGs (Secretaría de Desarrollo Sustentable Yucatán, n.d.). On top of this, different government agencies at national and state level are responsible for the protection and regulation of the exploitation of natural resources.

There has also been presence in the peninsula of civil organisations and academic-led initiatives, bringing together various businesses to share information and carry out joint activities aimed at improving social and environmental conditions in the region. Some examples are the Business Coalition against Climate Change, the Yucatecan Businesses Foundation (FEYAC) and the Yucatan Environmental Certified Organisations (OYUCAAC). The Business Coalition against Climate Change, launched by a local university, works with companies towards aligning their business actions to the UN's 2030 SD agenda. The FEYAC is an organisation where companies with the SRC accreditation come together to work on behalf of vulnerable and marginalised groups in the state of Yucatan. The OYUCAAC association has brought together companies that express interest in obtaining the Clean Industry certification, providing a forum in which they can share information on the subject.

The Yucatan Peninsula as a second-tier region offers a scenario that could be observed in other provincial regions with similar characteristics, given that Mexico is a vast country with several large cities and metropolitan areas scattered throughout the national territory. Second-tier regions are less likely to have access to facilities and infrastructure supporting improved sustainability performance, which are traditionally built around first-tier cities. Considering that issues such as poverty, inequitable distribution of wealth and unequal access to education are arguably more pronounced in these regions (Pacheco-Vega et al., 2001), it is crucial to understand their approach to sustainability given the harsher conditions for their daily business reality. The Yucatan Peninsula therefore offers favourable conditions for expanding knowledge on how local enterprises cope with, and benefit from, the challenge of CS.

#### 4.4. Chapter conclusion

While Mexico is not considered a spearhead country when it comes to sustainability, it has seen a gradual transformation and increased awareness in response to several factors that range from external trading pressures to cultural and idiosyncratic characteristics. All of this has been occurring in a context where corruption, a strong unionism culture, the potential lack of social security for workers and low levels of consumer pressure are still latent issues. For its part, the Yucatan Peninsula represents a second-tier region of relevance because activities of prime national interest, such as oil extraction and tourism, take place there. However, its remoteness and isolation from Mexico City represent additional challenges for companies located in the area. Given the previous historical, political, geographical and economical context, the peninsula presents unique and interesting setting for understanding how businesses in areas that are limited in terms of infrastructure and resources to support sustainable performance, yet of national relevance, are coping and adapting to the challenges that the sustainability pathway has presented them. It also presents attractive conditions for understanding whether and how such companies have benefited from the adoption of sustainability initiatives given their rugged landscape. In this light, the five companies that agreed to take part in the research are located in the Yucatan Peninsula.

Additionally, one of the underlying aspects of this research is to understand the main motivation of the companies engaging in CS, so the context described above provides initial information that will allow to make better sense of the companies' perspective towards sustainability.

The next chapter will present the within-case analysis for each of the case companies.

# Chapter 5: Within case analysis

## 5.1. Introduction

This investigation looks at the adoption and implementation of programmes for CS by companies located in the Yucatan Peninsula, a second-tier region in Mexico, focusing on how are these companies being enabled to capitalize on such implementation. There is an interest in understanding how are DCs supporting the adaptability of firms during the implementation process, as well as the benefits grasped by leveraging them.

In order to pay adequate attention to the unique context and the contribution of each case to the results (Eisenhardt, 1989) it was decided to analyse on a case by case basis and afterwards, cross-case analyse. By presenting the findings with this structure, it is intended to avoid overwhelming the reader with piles of information. For the researcher it is important to convey, and for the reader to understand, the situations each individual company faces and how it deals with them. Then the comparisons between cases and the underlying reasoning can make better sense. Stemming from these two stages, the theoretical framework that makes up the contribution of this research will elicit a generalisation of the findings in the discussion chapter.

This chapter presents the findings that emerged from the individual analysis of the cases. Each case company was assigned one of the first 5 letters of the alphabet in order to guarantee their anonymity. Additionally, interviewees are identified by their job role. The analysis of each case has been structured as follows: 1) contextual information of the company and preamble to the interviews, 2) the prime motives and objectives for the adoption of sustainability practices, as well as the company's competitive advantages, 3) the implementation process for the strategies and issues encountered along the way, 4) analysis of the strategies put in place, 5) CAS elements identified and the features of the company's adaptation process, and 6) the DCs that have been harnessed during the implementation. The analysis conducted in section 4, the strategies for sustainability, follows the structure suggested by Stead & Stead (2013) looking at three different levels: functional, competitive and corporate.

Table 11 presents an overview of case companies and the number of interviewees for each one.

The analysis resulting from this chapter will serve as the basis for the cross-case analysis in chapter 6.

TABLE 11. CASES' OVERVIEW

	Company A	Company B	Company C	Company D	Company E
<b>Size</b>	Large	Large	Large	Large	Large
<b>Sector</b>	Mining/ Industrial	Industrial	Industrial	Industrial	Industrial
<b>Number of production sites</b>	3	6	3	2 Plus distribution centres	6 Plus wide network of pig farms
<b>Main activity</b>	Sea salt extraction and processing.	Production of edible oils, vegetable and mixed fats, flours, cleaning products, and by-products generated during oils' production. Manufacturer	Lime production and manufacturing of construction materials.	Production of cookies, biscuits, crackers and pasta. Manufacturer.	Reproduction, breeding and sale of pork (alive) and pork meat.
<b>Interviewees and interview code</b>	1. Ecology Manager [A1] 2. Field and Harvest Manager [A2] 3. Chief Operating Officer [A3] 4. Plant Manager Las Coloradas site [A4] 5. Plant Manager Tizimin site [A5]	1. Ecology Corporate Coordinator [B1] 2. Environmental Corporate Manager [B2] 3. Quality Assurance Manager [B3] 4. Human Resources Manager [B4]	1. Process and Environmental Management Coordinator [C1] 2. Technical Director (Chief Operating Officer) [C2] 3. Plant Manager [C3] 4. Human Resources Manager [C4]	1. Human Capital Manager [D1] 2. Head of Regulations (industrial city plant) [D2] 3. Head of Regulations (Merida city plant) [D3] 4. Head of Human Capital [D4]	1. Head of Community Programmes [E1] 2. Community Programmes Coordinator [E2] 3. Community Programmes Promoter [E3-1, E3-2] 4. Farms Environmental Manager [E4] 5. Chief Financial & Sustainability Officer [E5]

## 5.2. Company A

### 5.2.1. Company Context

Company A extracts and processes sea salt for diverse purposes, including human consumption. In addition to the headquarters in the city of Merida, the company has two plants located in the town of Las Coloradas and in the city of Tizimin. The plant at Las Coloradas is located in a natural protected area in the coast of the state of Yucatan, specifically in the Rio Lagartos and Las Coloradas Biosphere Reserve, where the tropical salt pond ecosystem allows the natural generation and extraction of sea salt. This area has the presence of plant species typical of the coastal dune and migratory birds. The plant located in Tizimin receives the salt that has been extracted in Las Coloradas to refine part of it into table salt and continue with the packaging and distribution process.

Amongst the company's main customers are national supermarket chains, including Walmart, as well as companies that require sea salt for industrial uses.

It could be said that the main competitive advantage of this company is its geographical location and the ownership of the land that grants them access to the ponds that are part of the salt system, which originated the business that to this day continues growing. According to the Chief Operating Officer (COO), despite of not being the national leader in sales for table salt (which corresponds to salt extracted from mines), Company's A brand is the top selling sea salt. As it is a salt from a natural origin, there is a significant reduction in extraction and production costs compared to the competition (salt from mines), since Company A relies on natural sources of energy such as the sun and the wind for these processes.

The strong presence of this company in the community of Las Coloradas, where they are also the main employer of the local population, has led it to assume a paternalistic and problem-solving role not only with the employees but with the population in general.

Company's A main concern in terms of sustainability is the preservation of the reserve's biosphere ecosystem where Las Coloradas plant is located. This industry is highly dependent on climatic conditions and the proper use and care of natural resources or else, excessive exploitation of the natural environment could have a severe negative impact on the business. Consequently, the community of Las Coloradas has been included in the activities undertaken to protect the natural reserve's biosphere. For example, environmental education has been provided to the inhabitants regarding the conservation of endemic species in the area and the care that must be taken in the salt ponds so that salt production process is not "contaminated". With the aim of reducing the impact from population growth in the reserve's biosphere and in the salt pond system, the company is also involved in a project for controlled growth and development of the community, trying to maintain it as natural as possible. This project includes the provision of urban infrastructure such as streets, a church and a sports pitch.

Company A also supports activities for the conservation of native species of flora and fauna. For example, it is part of a programme for the conservation of the coastal dune and supplies plants grown in its own greenhouse to various institutions.

According to the Ecology Manager, during the last 15 years the company has been paying more attention to obtaining an environmental quality certificate. Therefore, it is currently undergoing the certification process as Clean Industry. The priority for obtaining this



environmental certificate has led to its inclusion in the 5-year corporate strategic plan. The Ecology Manager is responsible for the implementation of necessary changes to processes and facilities to achieve this objective.

Currently, Company A, the community of Las Coloradas and the reserve's biosphere are facing a touristic boom in the area. In recent years the pink water ponds (part of the natural salt production system) have become popular nationally and even for international tourists visiting this area of Mexico. As it happens in many unexplored areas or in small communities that were not used to or prepared for tourism, the inhabitants and even outsiders are beginning to see opportunities to make money, at the same time that havoc begins to be wreaked in the natural environment. For this reason, Company A intervened by organising the inhabitants of the community to provide guided tours to tourists arriving in the area while facilitating information on the ecosystem, the process of salt extraction and production, and even helping to prevent tourists from entering the ponds or littering. This activity currently represents an additional source of income for the inhabitants of the community of Las Coloradas, and efforts are being made to involve only locals. However, the company has also spotted business opportunities with the increasing arrival of tourists to the area. As a result, Company A began with the project to create the necessary infrastructure to attract and retain tourists looking for luxurious experiences.

#### 5.2.2. Preamble to interviews

The contact in this company was the Ecology Manager, who selected the participants based on the criteria provided by the researcher and informed each participant in advance about the study and the appointment for the interview. Five employees were interviewed in this company: the Field and Harvest Manager and the Plant Manager, both located at the site in Las Coloradas; the Manager of the plant located in the town of Tizimin, the Ecology Manager and the COO. The last two participants are based in the headquarters located in the city of Merida. The five interviewees were chosen because they are the heads of their respective areas/plants, so they were expected to have more detail and be aware of the sustainable practices carried out.

The interviews from the Field and Harvest Manager and both Plant Managers were conducted in the first day at their workplace, so the researcher visited the two plants on the same day. Before starting with the interviews at the salt plant, the Ecology Manager explained the researcher how the salt-pond system works and its relevance for animal species, especially migratory birds. Then, a brief walk was made through the facilities of the plant. Afterwards, the interviews took place. The first interviewee was the Field and Harvest Manager, a man with over 30 years of experience working at the plant and in close contact with plant workers and people from the community of Las Coloradas. Since he is responsible for monitoring the salt ponds and the stability of their physical and chemical conditions, he also deals with the region's fauna that is found in the salt ponds and in the surrounding areas, as well as with researchers who come from various educational and government institutions. He is also in charge of the greenhouse with plant species typical of the coastal dune. The second interviewee was the Plant Manager, a man that have worked at the company for slightly more than two years, but that has only been Plant Manager for 9 months. However, he has been engaged with sustainability issues from his previous job, in the US. At the end of the second interview, the researcher visited to the plant located in Tizimin in order to interview the Plant Manager. This was a man from central Mexico who had been working in the company for just over a year. Yet, he reported 16 years of experience with sustainability issues, acquired in his previous work.

As previously mentioned, both Plant Managers have been for little time in their positions. This could negatively affect the answers to questions related to the origins of the adoption of sustainable practices and the motivation for the adoption of the strategies. However, it was decided to proceed with the interviews as they could still provide relevant information for other components of the interview. Additionally, this would give the researcher a first idea of the importance that the company assigns to sustainability issues. If the company makes sure that the newly hired management staff is informed in detail of the actions and strategies in sustainability matters, it gives a positive sign of its relevance.

On the second day, the last two interviews took place at the headquarters. The first interviewee was the Ecology Manager, who has been working in the company for roughly 7 years, and although during this time he has had the same responsibilities, it was until a year ago that he was officially appointed as Manager. Since he joined the company, his responsibilities were focused on ecological issues mostly affecting the plant located in Las Coloradas. Part of his activities include dealing with environmental authorities and coordinating the follow-up to requirements and corresponding documentation. He is also in charge of meeting with other non-governmental organisations focused on ecological or sustainability matters. In recent years, his attention has been mainly focused on obtaining the Clean Industry certificate, which includes the implementation of an Environmental Management System (EMS). In several of the activities he is responsible for, the Ecology Manager is supported by his line manager and last interviewee, the COO. He has served the company for 18 years, in the same role from the beginning. This interviewee reported that his experience with sustainability issues goes back to his previous employment, as he was involved in the installation of plants for wastewater treatment. The COO's leadership is acknowledged by the other interviewees, who see him as a source of knowledge and support that allows frequent contact. In addition, the COO identifies himself as the link between the operational part of the company and the board of directors, of which he is a member. As such, he is aware of the business's vision from the perspective of the shareholders, as well as the weight and attention they give to sustainability issues.

All interviewees showed availability and openness to answer the questions asked by the researcher. None of them showed an attitude of holding back or not wanting to reveal information they had. On the contrary, occasionally at the end of the interview a couple of them shared some experiences from their work, especially in regard to the relationship with the community of Las Coloradas or with the various stakeholders involved in the ecosystem.

### 5.2.3. The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages

Along with its reputation of offering a natural and environment friendly product, Company A benefits from low production costs as a result of its location and access to natural resources. And these are its main competitive advantages. The company is recognized for offering a product that is natural and more friendly with the environment than its competitors that extract salt from mines. This image of a natural product is reinforced by the diversity of migratory wild birds that refuge in the surrounding ecosystem and in the salt ponds that form part of the system. Its location by the sea and access to natural resources allows the company to have low production costs since the process for the extraction and production of salt is largely served by natural energies such as the sun and the wind.

As a result of the previous factors, there is a strong link between the environmental and economic motives of this company to preserve the ecosystem, as the stability of the business and its low production costs depend on it. Also, maintaining its image of a "environment

friendly and natural product”, considered by the COO as one of its competitive advantages, is another strong motivation for undertaking sustainable practices that will preserve the ecosystem.

*“Our main attribute is that we are sea salt. We are an environmentally friendly and natural product. If you see our main brand, you will see how it is trying to highlight the attribute of being the sea salt. And why do we say we are the sea salt? Because from the two top selling brands in the country, we are the one that is sea salt. We are not the only sea salt available in the market, but we are the best-selling brand of sea salt [A3].”*

Due to its location in a natural protected area in Mexico, the company is not only obliged to comply with the environmental impact regulations that apply to any company, but it must also take extra care to preserve the surrounding ecosystem. Therefore, another reason that pushes this company to carry out sustainable practices is the compliance with various environmental regulations.

As it happens with most of the large companies today, there are also pressures from the supply chain to implement more sustainable practices. Clients such as Walmart require their suppliers to demonstrate fair and equitable treatment to their employees. Therefore, suppliers are subject to periodic audits in which they must demonstrate meeting all required standards.

When it comes to the objectives of this organisation in terms of sustainability, participants mentioned goals such as use of cleaner energies, a more responsible use of water and the preservation of the tropical salt pond ecosystem. However, emphasis was placed on two objectives: to achieve the Clean Industry certification and the development of the tourism industry in Las Coloradas.

In the case of Company A, the Ecology Manager and his Assistant are in charge of understanding the requirements for the Clean Industry certification, communicate them to the COO and approaching the operative staff to determine the optimal way to implement the changes that are needed. Later, the Ecology Manager is responsible for coordinating the efforts and making sure the actions are implemented as initially planned. The interest in obtaining this accreditation was palpable when talking to the interviewees, as well as the support that the operative personnel perceive from the Ecology Manager in this matter.

The development of the tourism industry in the town of Las Coloradas was declared by most of the interviewees as one of the sustainability objectives from the organisation. It was mentioned that through the development of tourist infrastructure in the community, the company intends to receive and host tourists from a premium-luxurious category, as well as tourist who take day trips to see the nature reserve and its ecosystem. According to the Field and Harvest Manager, the intention is to maintain the “natural and rustic” aspect of the town, only providing it with the services and infrastructure necessary for tourists to consume and stay longer. According to the COO, the tourism project will contribute to the SD of the community by bringing economic benefits to its inhabitants as well as expanding the services available and improving the quality of those already in place:

*“And also to... improve the services so that the population also benefits. This is not only for the premium tourists that can pay a luxury service, but also all the tourists that arrive and find everything in order to receive the suitable services in the suitable places and therefore, the economic benefit for everybody is greater... We want to provide Las Coloradas with the infrastructure for tourist to stay longer and spend more money that will be distributed amongst more people [A3].”*

Furthermore, the knowledge and the skills of the population seem to be enhanced since as the Plant Manager in Las Coloradas reported, the local population that has been involved in the incipient tourism activity has already received training from the Secretariat of Tourism, as well as English language lessons.

One could argue that the development of the tourism infrastructure compromises the health and stability of the natural reserve at Las Coloradas. However, this analysis is outside the scope of this investigation and therefore, it will not delve any further into it.

Concluding, by establishing and reinforcing practices focused on sustainability and the resources dedicated to them, the company seeks to maintain its competitive advantages. Sustainability seems to be functioning as a means to preserve such competitive advantages.

#### 5.2.4. Implementing sustainable practices and issues faced during the process

For Company A, sustainable practices are mostly focused on environmental activities. Although there is a positive impact in socio-economic terms in the community of Las Coloradas and equitable, fair and safety practices have been reinforced for employees working at the plants (in order to satisfy requirements of clients such as Walmart), in most cases interviewees consider that sustainable practices are about not damaging and contributing to the environment.

*“Researcher: What do you understand as an organisational sustainable practice?”*

*Participant: Any policy or action carried out by a company out of conviction aimed at obtaining a benefit for the community, for the environment and for the stakeholders of the same company [A3].*

*P: That the operations of a company are aligned with the preservation of its resources... In our case, our operations are aligned with sustainability because of our location, all the resources that are in the ecosystem [A1].*

*P: Where the company has a strategy, plans, to support or contribute to the environment in which it is located. Where it does not damage, but it can also contribute to the surrounding resources [A4].*

*P: Any activity focused on the integration of the industry, reconciling and maintaining environmental matters. That the industry is not aggressive, that it does not damage or harm the environment by which it is surrounded [A5].”*

The implementation of these practices has been coordinated by the Ecology Manager and his Assistant, but the support from the COO has been essential in achieving cooperation from operational staff. The Ecology Manager is responsible for staying informed and updated about the legal requirements related to environmental impact, as well as the requirements of the certification being sought. This information is then communicated to the COO so that he is aware of it and if necessary, due to the nature and scope of the activity, inform and request authorization from the board of directors. Once the practices have been approved by the COO, the Ecology Manager communicates them to the heads of the various operative areas, always endorsed by the COO.

During the implementation of sustainable practices, the company has faced issues with its employees, with the infrastructure available in the area, and problems inherent to the implementation process such as miscommunication.

On the employees' side, there was resistance to the changes brought up by sustainability-oriented practices, particularly from a long-term employee in a crucial position for the company, the former Plant Manager in Las Coloradas. Although the decision was not easy due to the seniority and operational knowledge of this manager, senior management decided to terminate his contract. A new Manager with international experience, and who had already dealt with environmental issues in the operation as part of his former role, took his place.

Another problem with the employees has involved disputes with the trade union. To give an example of the union's bargaining power, the Plant Manager in Tizimin, who comes from another area of Mexico, reported being amazed at the strong union culture in the area. Problems with the union in this company have two sources: first, the requirements from customers (supply chain) who ask the company to strictly apply labour regulations, and secondly, the changes in the way activities are carried out in the plant or additional activities that employees do not want to perform unless they are given a salary increase. Workers at the plant have been accustomed to work overtime, sometimes without being asked by the company, either on their own initiative or to cover for a colleague who needs some leave, knowing that this will translate into more income for them. According to those interviewed, plant workers are paid fairly and not underpaid, so overtime is not being generated to supplement a low salary. On the side of labour regulations, although these establish the maximum number of hours for the working day, the permitted overtime and the overtime rate, as long as employees are paid the corresponding overtime rate and the authorities are paid the corresponding taxes, workers can work as much overtime as the company allows them. However, when customers such as supermarket chains demand from their suppliers that their employees do not work overtime or work only a very small number of extra hours, the union feels its interests threatened. According to the Ecology Manager, the company is facing a conflict between satisfying the customer or maintaining the union happy so they do not call a strike:

*"You get into a conflict as an employer telling workers they can no longer work overtime, and they ask why if they have been doing it all their life... and this leads to a union dispute... So, who do we please? The ones that can call for a strike that impacts economic and production aspects? Or do we please the customer because we have to show that we are complying with the regulatory standards? [A1]"*

The implementation of sustainable practices at the plant located in Las Coloradas has brought about changes in some processes, especially those related to waste management. Additionally, new activities have emerged such as monitoring and maintenance/cleaning of the wastewater treatment plants. This is perceived by workers as new responsibilities for which they should receive additional payment or else the company should create a position responsible for these activities. On the one hand it is understandable that the company expects workers to adapt and align themselves to changes in the processes in which they are currently involved, which probably requires more care and attention resulting in a perception of higher responsibility. On the other hand, it is very likely that there will be new activities that require some special training, responsibility and even additional health risks. For instance, monitoring and dealing with sewage. In this case, the company could consider the creation of specialized positions but, based on the answers from the Ecology Manager, this does not seem to be the case.

*"Here our biggest barrier is the trade union, because obviously they have been working for 30, 40 years in a certain way and with certain responsibilities. And obviously, additional activities like separating the garbage... many of them don't analyse the situation and ask why they have to separate the garbage. They say it doesn't matter, if it goes to the same place anyway... Then there has been a labour conflict because they have a greater responsibility, or new responsibilities that are associated with their*

*position. They say, "Well, if I'm going to separate the garbage, then pay me more because it's a new responsibility for me". Or carrying out the inspection... today we have to look at the wastewater treatment system... "so pay me more, or create a new position specifically for the person who's going to unclog the septic tanks" ... So, these are sensitive issues with the union [A1]."*

At the time interviews were conducted, it seemed that there were still minor frictions with the union, yet, without escalating to a potential strike.

The main problem in terms of infrastructure is the lack of companies providing the service of waste collection and recycling in the community of Las Coloradas. Located approximately 230 km away from the city of Merida, the state capital, the number of companies or businesses that pay for this type of service is practically nil in the area. This causes high costs of having a service provider traveling all the way to Las Coloradas to collect the waste. If Company A wanted to store an amount of waste that would justify the cost incurred, it would be complicated for them to house such a quantity.

The last problem was detected by the researcher, and it is miscommunication. From the two production plants (Las Coloradas and Tizimin), attention to environmental issues and now even tourism, is mostly focused on Las Coloradas. This has caused employees at the Tizimin plant, including the Plant Manager, to be almost unaware of the environmental issues that concern the company and the activities conducted:

*"In our strategic map there is a guideline focused on sustainability. If I remember correctly, it is very much focused on taking advantage of the facilities, but more focused on Las Coloradas, not so much here (Tizimin). To take advantage from the nature and from the process (of sea salt extraction) to promote tourism... That's what comes to my mind right now. I don't participate in that process; I participate in other processes of our strategic plan [A5]."*

The little information that the Manager of this plant possesses comes from informal conversations with other managers. It is to be noted that this plant is also subject to environmental regulations and must comply with the requirements of customers in the supply chain. However, the focus of the business, justified in some way by the location and close relationship with the community, is on Las Coloradas. Nevertheless, some contradictions were found in the interview of the Ecology Manager, who claimed that all the management and executive staff were informed of the goals and objectives on sustainable matters.

*"Researcher: So then you are aware of the specific goals and objectives of the strategy... The certifications for the environmental and quality part... Do you have a detailed knowledge of each one of the goals and objectives pursued by the strategy in the sustainability aspect?"*

*Participant: All staff, starting from the Directive and Management level, were informed about the strategic plan and this should have been brought down to their staff. So all operating personnel, direct and indirect employees, are already aware of this strategy.*

*R: And this includes the plant at Tizimin?*

*P: Yes... The one that is mainly involved is the plant at Las Coloradas. Later, and working in parallel, is the Tizimin plant, but the priority is the plant at Las Coloradas because of all that it encompasses and the area [A1]."*

Although the plant under his responsibility is not the main focus of the sustainable activities being planned/implemented, the Plant Manager at Tizimin does not possess the knowledge assumed by the Ecology Manager. This could be a consequence of the short tenure in the company of this Manager, yet, this is information could be provided as part of the

company's induction and specially, to a Plant Manager. This lack of information gives an indication of the relevance given to sustainability, specifically to socio-environmental issues, outside the plant at Las Coloradas.

The low awareness of the Plant Manager in Tizimin regarding the socio-environmental plans and activities in Las Coloradas was not found to be a problem for the company. No interviewee mentioned concerns as a result of the plant being neglected in terms of the environmental and certification issues that occupy the company. However, if the company is interested in achieving a substantial reduction of its environmental footprint and in maintaining a commitment to environmental and social sustainability, then it will have to put in place an integral plan that makes sure the Manager of the Tizimin plant is aligned with the objectives pursued. In this way, this plant could contribute to the implementation of the sustainable practices and achievement of the goals.

Regarding the monitoring and follow-up of the sustainability activities carried out in Company A, the responsibility at the corporate level falls on the Ecology Manager. This, supported by an Assistant and the middle management of the different plants, is in charge of supervising that the actions are implemented as planned. As mentioned earlier, he is also responsible for the Clean Industry certification.

The company does not have measurable objectives, so the only way to monitor progress on environmental issues is through the indicators that the EMS itself has asked them to implement (as part of the requirements for the Clean Industry certification). The Ecology Manager is in charge of updating the indicators on a quarterly basis, for which he is supported by the plant personnel taking the relevant readings. On the other hand, he is also responsible for hiring companies to carry out the necessary environmental impact studies as part of the EMS.

As it can be read, the Ecology Manager's focus is on environmental issues. His involvement in the other major project for the company, the touristic development, is limited to legal-environmental procedures and interactions with certain members of the community. To a large extent, this project is being conducted by people outside the company.

Monitoring activities, and especially those of measurement, respond to a great extent to the requirements and indicators of the EMS that is being implemented with the objective of achieving the Clean Industry certification. Apart from this, the results of undertaken actions are not evaluated in order to conduct corrective or improvement measures when appropriate.

#### 5.2.5. Strategies for implementing Corporate Sustainability

This section will delve into the presence of sustainability strategies at the three levels previously referred to in the literature review: functional level, competitive level and corporate level.

Starting at the bottom level, functional, the company has a clear strategy focused on achieving a short-term objective, obtaining the Clean Industry certification. To achieve this, the company is making a series of changes to its facilities and processes in order to mitigate its impact on the environment in areas such as water use and waste management. Furthermore, the company must implement an EMS. As additional needs or requirements arise in the operation, these are presented to the board of directors, normally with proposed solutions, so

they can decide whether the activity is implemented, when, the budget allocated, and whether the activity should be included in the company's five-year strategic plan.

On the competitive level, the company relies on a strategy for product differentiation. However, rather than having chosen this option and making sustainability-oriented adjustments to its product, the company is only highlighting the intrinsic characteristics of the product it offers: sea salt with less environmental impact than mined salt. Therefore, this strategy is rather circumstantial than by choice. Fortunately for Company A, this differentiation strategy involves lower costs, as the process relies heavily on natural sources of energy such as the sun and the wind. Consequently, it also enjoys lower production costs than the competition.

It was clear that at the corporate level, the company does not have a strategy for sustainability, as informed by the COO: *"Formally, as a strategy, as a plan, there is no design or development of a strategy for sustainability [A3]"*. Nonetheless, the COO himself accepted that within the 5-year strategic plan there is a component focused on obtaining the Clean Industry certification. Some interviewees even confused this objective with the sustainability strategy. This idea has been probably reinforced by the doubling of investment within the last 6 years in ecological-environmental improvements for the operation, according to the Ecology Manager. Moreover, one should note that the Field and Harvest Manager considers the strategy to be the tourism development project in Las Coloradas, which also contemplates "controlled" population growth and improvements to the infrastructure available to the inhabitants. As for the Plant Managers, the one from Las Coloradas said he has a vague idea of the existence of a strategic plan but acknowledged that he is not aware of the real scope, whereas the Manager in Tizimin said that efforts are basically focused on the plant located in Las Coloradas.

All these different responses indicate that the information has not been adequately disseminated and explained to those involved. The vision they have of the changes being implemented is narrow and they are not fully aware of the big picture and what is the company trying to achieve. It could be then drawn that the corporate strategy for sustainability in this company is at a very early stage.

#### 5.2.6. Company's A sustainability programme through the CAS lens

The following section will address the main properties of CAS theory in the context of Company A. The company as a whole and its sustainability programme are considered a system.

##### **Agents**

Within the organisational system, agents comprise employees from different hierarchies (plant workers, middle-level managers, directors) and the board of directors. However, agents outside the system have greatly influenced part of the sustainable activities being implemented in the company. Amongst these are the population of Las Coloradas, government authorities, customers in the supply chain, academic institutions, environmental associations and environmental auditors.

##### **Dimensionality**

As far as dimensionality is concerned, or the degrees of freedom that the different agents within the system possess, it could be said that there are three different groups. With low dimensionality, group 1 consist of middle level managers, including the Ecology Manager, mostly abiding by regulations and facilitating the fulfilment of certifications' guidelines and clients' requirements. Additionally, since Plant Managers heavily rely on the Ecology Manager for environmental issues and due to his higher seniority, they have a good relationship with the



latter and rely even more on him, so they try to be aligned to the extent that is possible with his instructions.

Workers in the plants represent the second group of agents with a higher degree of dimensionality than medium level Managers due to their bargaining power as part of the union. This bargaining power somehow translates as empowerment and autonomy to rebel against instructions, increasing the unpredictability of the outcome for the implemented practice. A number of workers have been reluctant to implement some practices unless the implementation conditions (reflecting them in their wages for example) are modified, and ensuring that they do not go against their interests.

The third group consists of the Board of Directors, who due to their position in the company have the freedom to decide on sustainability practices, when to implement them and the quantity to be invested.

### **Schemas**

Different schemas can be observed amongst the agents. In the case of the Heads of Area, middle-level Managers and Directors, there is a high level of support and alignment to the sustainable practices being implemented. On the one hand, it can be argued that they have more information about the environmental impacts of their operation, but also a greater responsibility for the company to comply with these practices. On the other hand, knowing that the working relationship with the former Plant Manager at Las Coloradas was terminated for hindering the implementation, these employees may show themselves especially supportive. Therefore, it can be understood that these employees share interests with the company and align themselves to the schema of the system.

With respect to the workers in the plants and who belong to the union, both their schemas and interests are more conflicted with those of other agents and the system in general. Additional workloads, unpleasant activities, changes in practices that they have been conducting "comfortably" for a long time, or changes that go against their interests, have contributed to this conflict. One might think that by not aligning with the organisation's schema, workers face the risk of being fired. However, their power to collectively bargain as a union comes here into play, as does the company's close paternalistic relationship with the community of Las Coloradas, from which most of the employees in the plant come from.

### **Non-linearity**

As discussed, different reactions and attitudes have been obtained from employees (agents) in the different hierarchies. Despite miscommunication issues, employees in the middle and upper hierarchies have shown support and a positive response in general. In contrast, employees in the lower hierarchies of the plants have not been the most supportive of practices aimed at promoting the sustainability of the operation. Considering that the informant for middle and top management has not been the same as for employees in the lower hierarchical levels, as reported by the Ecology Manager, it is not surprising that the message received and the reactions and attitudes vary amongst hierarchies of employees.

*"All staff, starting at the executive and management levels, were informed of the strategic plan to be brought down to the level of their staff. And all operational staff, direct and indirect collaborators are already aware of this strategy" [A1].*

A good example of the non-linearity of feedback in this system is the case of the former Plant Manager at Las Coloradas and the then Plant Manager at Tizimin. Being at the same hierarchical level and being the heads of the two plants, both would have been informed by the same sources about the changes in sustainability and environmental certifications that were

intended. However, in the following months the Manager at Las Coloradas showed no support or cooperation for the implementation of the changes. This attitude was probably reinforced by his seniority in the company and his detailed knowledge of the operation, making him feel indispensable. As a result, this Manager was removed from the company and his place was taken by the Plant Manager at Tizimin. Subsequently, a new Manager was hired for the Tizimin site.

As described above, the responses received from both Managers (agents) were completely different (non-linear) despite receiving similar information. It should also be considered that this non-linearity is affected by the individual schemes of each agent. On the one hand, the Manager at Las Coloradas had seniority and operational knowledge, but little openness to new ways. The Manager at Tizimin have only been for a year and a half in the company, but had international and sustainability experience, as well as openness to changes being implemented.

### ***Self-organisation and emergence***

As mentioned above, there has been little cooperation from employees at the lower hierarchies of the plant in Las Coloradas. In addition, the previous Plant Manager was also not happy with the implementation of changes focused on sustainability. These agents have demonstrated that their schemas and own behaviours are misaligned with those of other agents in the top hierarchies of the system. However, this collective behaviour has not predicted the outcome of sustainable practices implemented at the system level. In other words, despite their rejection and little cooperation, changes are still underway, certifications are still being implemented and the relationships with large customers will be maintained following their requirements. Therefore, the so called “high-level order” is still achieved.

### ***Edge of chaos***

Without reaching the level of a crisis, there are elements potentially causing instability for the organisational system. In particular, the lack of support from unionised employees and the development of the tourism industry. As for the union, the company will have to find a way to align or allow the coexistence of its own interests and those of the employees, so that conditions are created to realise the intended objectives. In the second case, the company has decided to take the opportunity and create the scenario to take advantage of the developing tourism industry despite the risks this could bring to the natural environment and its operation.

## **5.2.7. Adaptability and Dynamic Capabilities for sustainability**

The adoption of sustainable practices constantly poses challenges and changes for companies. This section will address the DCs on which Company A has been relying during the implementation of its programme for sustainability, and to what extent have these DCs assisted to an enhanced design, functioning, resilience and adaptability of the system. These capabilities will be reviewed in order following the strength of evidence provided by interviewees, from the strongest to the weakest.

### ***Collaboration***

Company A has contributed to the development of skills and knowledge of the inhabitants of Las Coloradas, particularly by providing them with information about the process of salt production and extraction, as well as the cares that must be taken in the area to maintain the stability of the ecosystem and the production. Furthermore, by collaborating with government institutions the company has facilitated for the inhabitants to receive training regarding tourism services and basic English language lesson.

Additionally, the company has worked alongside the body responsible for the nature reserve to reinforce and reforest the coastal dune, thereby protecting endemic plant and animal species, but also reducing the vulnerability of the salt-pond system. There has also been involvement with ecological groups and academic institutions that protect various species in the region.

Company A is also open to listen to, and if possible, support initiatives presented by inhabitants of Las Coloradas that contribute to the care of the salt-pond system or the area in general.

As a member of the Business Coalition against Climate Change, Company A has a forum in which it can share and receive information on pro-environmental practices carried out by other companies in the area. This Coalition has also facilitated joint activities with member companies and/or with the university responsible for the initiative.

By deploying this DC, Company A contributes to the preservation of the health and balance of the ecosystem in which it is located, at the same time it engages even further the inhabitants of Las Coloradas in this goal. In consequence, there is a contribution towards upkeeping production stability and the business perpetuity by maintaining communication channels to spot and prevent possible threats derived from the tourist activity and the population in general. This leads to the maintenance of the company's competitive advantages, particularly the natural and environment-friendly product image, as well as the low energy costs it benefits from due to its location and the natural production process it follows. Furthermore, the organisational system, now armed with more tools (knowledge) acquired through collaboration for its own development and for protection and preservation of the ecosystem, enhances its functionality.

### ***R&D and Innovation***

Company A has not stood out for its innovation capabilities, yet, pro-sustainable adjustments and improvements have been made to its operating processes in the search for the Clean Industry certificate. They have particularly focused on wastewater treatment plants and waste management. By implementing these changes, the company has begun to measure data such as emissions and water discharges and their quality. With this information, it has been possible to set and adjust specific goals for their EMS. On the procurement side, the company has long prioritized buying from local suppliers, and now it is being more careful about the materials, their source, and their environmental impact certificates.

This DC has also required from the Ecology Manager to be updated and make use of government support programmes that promote the adoption of cleaner technologies. Through this, the company benefits in terms of equipment upgrades, compliance with regulations and requirements from various stakeholders, as well as potential financial and tax benefits.

When it comes to research and due to the lack of vast literature, the company reported to regularly conduct studies to increase the information available on the salt-pond ecosystem. Furthermore, Company A has allowed academic and local research institutions to carry out studies in the area, specifically looking at the ecosystem and the species that inhabit it.

There is also an overlap with the DC Internal Reconstruction, as there have been adjustments in technological resources and modifications in processes in response to environmental demands from government and customers.

Through this DC, the company contributes to the maintenance and stability of the ecosystem and the salt production, as well as to the image of a natural and environment-friendly product. By leveraging on this DC, the system further develops its capacity for self-management and control through new knowledge generated, advancing towards an enhanced operation. Furthermore, the new knowledge provides the company with information and tools that strengthen its capacity to respond to and recover from changes in the ecosystem.

#### ***Knowledge related and absorptive capacity***

This DC is highly related to the one discussed above, since the company is constantly generating and accumulating knowledge about the saline, which it must manage efficiently so that the area in charge of monitoring the natural indicators and stability of the saline system has information on what to do when changes beyond their control occur (due to natural factors). In addition to the research and knowledge the company generates on its own, it previously obtained information from the Salt Institute in the United States, but this has disappeared.

The company has carried out education work with the population of Las Coloradas, sharing with them information about the cares they should have, in their capacity as inhabitants, with the salt pond system in order to prevent its contamination, as well as with the animal and plant species in the area. It is expected that those who provide services as tourist guides will pass on this information to the tourists who come to the area, with the aim of reducing the impact of this activity on the ecosystem and the salt-pond system.

Although it seems that the application of this DC responds more to the core operation than to sustainability matters, this knowledge is also focused on maintaining a healthy balance in the ecosystem where the salt system is immersed. The successful operation and extraction of salt depends on it. Hence, this DC is also contributing to the company's stability and maintenance of its competitive advantages. Likewise, more insights to enhance the operation of the sustainability programme are acquired with this knowledge. The processing and absorption of this information provides the organisational system with more elements to better respond to threats that could arise from nature or from human activity.

#### ***Social Network Relationships***

Some participants expressed that social relations with various stakeholders are important to maintain the smooth operation of the company, which can be said also applies for sustainability issues. Employees like the Ecology Manager must deal with plant workers, inhabitants of Las Coloradas, local and national government authorities, auditors sent by customers, and even academic institutions and member companies of the Business Coalition against Climate Change. Each of these stakeholder groups requires proper and careful relationship management, as well as knowledge and understanding of their educational level, interests and needs (empathy) and being open to work with them in order to achieve the company's goals.

Even though this DC is not particularly strong, it does assist in the preservation of competitive advantages, but also in learning about and potentially joining new pro-sustainability initiatives. On a small scale it also helps to identify and respond to system's threats by keeping open communication channels with external stakeholders and other systems it coexists with.

#### ***Market oriented perception***

Although Company A is aware of market trends in terms of new requirements for its products and attends to forums where they can learn what other salt producers are doing, much of these efforts are not specifically focused on sustainability issues. Nonetheless, the Ecology Manager tries to keep abreast of technologies that could help reduce the

environmental impact of the operation, yet this does not mean that everything ends up being implemented. As a special case and in response to market concerns, the company addressed the issue of presence of plastics in the ocean through studies that proved that their salt is free from plastics.

This DC includes the sharing of information on sustainability and social responsibility issues with customers who request it. Specifically, large supermarket chains require their suppliers to demonstrate through audits compliance with requirements, primarily focused on issues of workplace safety and equality amongst workers.

Arguably, this DC is at an early stage and has been mostly the result of customer pressures in the supply chain. Maintaining the business relationship with large customers is important for the company's finances and image, so the DC mostly contributes to further consolidate its position in the market. It also tightens communication channels and improves the system's responsiveness to customer demands. But on the other hand, sharing information with customers makes the relationship more tedious and can even lead to conflicts within the system, as is the case with unionized employees versus Walmart's requirements. Overall, the operation and resilience of the system, the company, are not being greatly influenced by this DC.

#### ***Internal reconstruction***

Company A has demonstrated a certain level of adjustment, or reconfiguration of resources, caused by the pursuit of the Clean Industry certification and the growing legal and customer requirements in environmental matters. In addition to promoting the Head of Ecology to the position of Ecology Manager, there have also been two noteworthy changes: the increased investment in pro-environmental improvements and the change of the Plant Manager at Las Coloradas. As mentioned earlier, the previous Manager had a long seniority in the company and detailed knowledge of the functioning of the salt-pond system, which granted him power in the company and which he used to hinder the implementation of the necessary changes for the certification. As a consequence and after much consideration, he was removed from the company and his place was taken by the Plant Manager of Tizimin at the time, where later on a new Manager arrived.

Through this DC, the company takes action towards compliance with environmental regulations and requirements from the Clean Industry certification, while partially solving the problem of resistance to change that it has been facing with some employees. However, this is a weakly deployed capability as the company mostly reacts to issues rather than being proactive or seeking to implement changes of a broader scope and as such, the DC poorly contributes to an enhanced functioning and adaptability of the system. The empowerment of the Ecology Manager for implementing pro-environmental changes and the allocation of more financial resources are the few facts that account for this DC.

#### **5.2.8. Conclusion**

Summarizing, the company has mostly relied on its DCs to preserve its competitive advantages as well as to strengthen its market position. To a lesser extent, the DCs have helped Company A to learn about and potentially join sustainable initiatives, and to provide partial solutions to one of the problems it has faced while implementing its sustainability programme. Collaboration has been the DC with the greatest presence in Company A and this can be seen in the cooperation and joint work that the company has with various stakeholders. Moreover, the capacities related to the generation of knowledge and its management are indispensable to

further understand the ecosystem, but also to have information on how to respond to changes within it. Other DCs such as market-oriented perception and internal reconstruction are deployed in a more incipient way.

Could it be said that the system, the company, has evolved towards increasing its resilience and enhancing its functioning as a result of adopting sustainable practices? Despite having kept its operation stable, as well as the health and nature of the organisational system, the resilience of the company has been enhanced only by little. With or without external pressure to adopt more sustainable practices, the company is forced to facilitate research and generate knowledge on how to address the threats posed by climate change and human activity on the ecosystem and the production of salt. On the other hand, the company has not faced crises or severe difficulties in sustainability matters. Rather, its experience has been limited to external pressures and requirements that have pushed it to adopt certain practices and certifications. Besides the internal conflicts with operational staff and the solutions given, the responses from participants did not provide strong evidence that attending to these external requirements, pressures and problems have improved the company's resilience.

Moreover, beyond the close ties and support to the community of Las Coloradas due to their interdependence, there was no evidence of a stronger generativity, i.e. concern for the future and actively contributing to the next generation.

There has been adaptation to some extent with the aim of staying fit for the environment in which the company is immersed. Yet, the evolution of the system towards an improved version of itself remains at an early stage.

## 5.3. Company B

### 5.3.1. Company Context

Company B is a group dedicated to the production and sale of cooking oils (canola, soy, palm), vegetable and mixed fats, flours, cleaning products, as well as the sale of the by-products generated during the production of oils. They also manufacture products for large supermarket chains. The group has strong presence in the southeast of Mexico, where they first started several decades ago, and has expanded to the central and northern regions of the country. The group is made up of several companies which mainly divide the oil production process and its distribution, yet the personnel in charge of dealing with environmental issues, social responsibility and sustainability certifications is the same for all of them.

The main customers of this company are large supermarket chains with nation-wide presence, for which they manufacture mainly oil to be sold as the supermarket own brand. Additionally, Company B supplies convenience stores and national and local supermarkets with products of their own brand. Their customers also include large companies in the food industry that use Company's B products as ingredients in their production processes.

Amongst the competitive advantages of this group is the preference of consumers in the Yucatan Peninsula, who show loyalty to some of this company's products as they have been in the market for several decades, when other brands were not available. Additionally, its products are competitive in the national market as a result of their affordable prices, partly due to their geographical location that allows lower production costs:

- Water is one of the main raw materials in terms of quantity, and its cost in Yucatan, the state where the largest volume of production takes place, is much lower than in other parts of Mexico.
- Labour cost in the state of Yucatan is cheaper compared with other regions of the country.
- The proximity of the oil producing plant to customs in the port of Progreso, Yucatan, contributes with low cost of land transportation for the imported palm.

In terms of sustainability, the company is a member of the global platform SEDEX (Supplier Ethical Data Exchange) and reports information for SMETA (Sedex Members Ethical Trade Audit) and the Carbon Disclosure Project (CDP). Additionally, they are ordinary members (non-certified yet) of the Roundtable on Sustainable Palm Oil (RSPO), meaning that some of their products are produced with certified palm oil. In the environmental area, the processing and production plants have the Clean Industry certificate.

The management and implementation of sustainable practices of this business group are distributed amongst three areas that serve all member companies. The environmental and ecology department deals with the environmental impact of the operation and the Clean Industry certificate, while social sustainability matters and the Socially Responsible Company (SRC) accreditation are responsibility of the Human Resources department. The Quality Assurance department is in charge of reporting to SMETA, the CDP, managing and implementing the changes associated with the RSPO membership, as well as being involved with new products development due to the specificities in sustainable matters that these must comply with.

The greatest attention and concern for this company in environmental matters is the use of water in the production process, as well as its treatment once it becomes waste water. This waste is highly pollutant, so before being returned to the groundwater it must pass through treatment plants that separate the components that should not reach the subsoil. Additionally, due to the type of goods that this company produces, special care is required with some raw materials and with the by-products of the production process, which in addition of being pollutant can be explosive.

As for the focus on the social component of sustainability, it is mostly directed to the personnel working in the various plants and distribution centres of the group. According to the Human Resources Manager, work is being conducted to increase the female base of the workforce through innovation, which has traditionally been male due to the nature of work in the plants that requires physical strength.

Moreover, being Walmart one of the company's customers it is subject to compliance with their requirements and responsible supplier audits. Additional audits are also conducted by other customers where they are a tier of their supply chain.

During the last 4 years the group has been in an intensive growth phase increasing its size by approximately 200% as reported by participants, which has affected the practices focused on reducing environmental impact as well as the criteria for decision making. The priority at the organisational level is the growth project and those who work in the environmental department must have this guideline very clear at the time of conducting their activities.

### 5.3.2. Preamble to interviews

The contact within the company and arrangement of interviewees was through the Quality Assurance Manager, who selected the participants based on the criteria provided by the researcher. The participants in the study were the Ecology Corporate Coordinator, the Environmental Corporate Manager, the Human Resources Manager and the Quality Assurance Manager himself. With the exception of the Human Resources Manager, the interviewees work in the same complex where the group's corporate offices and oil production facilities are located, at the industrial park in Merida, the state capital. The office of the Human Resources Manager is located in the milling plant at the city centre.

The Ecology Corporate Coordinator and the Environmental Corporate Manager were interviewed on the first day during the morning. The former has worked with environmental affairs for 10 years, since graduating from university. He joined Company B five years ago, where he has been in charge of the operational and legal sides in the implementation of pro-environmental improvements, as well as the corresponding administrative tasks. The latter has a seniority of 15 years, but has 25 years of experience in environmental matters. In addition to being responsible for ensuring that all plants and facilities in the group comply with legal requirements on environmental issues, he has also fostered a pro-environmental culture in the company, starting at the senior managerial level. The Ecology Corporate Coordinator and a second employee report to this manager, and between the three of them cover the understanding of legal requirements, solutions design, implementation follow-up and training.

In the afternoon the researcher visited the milling plant in the city centre to interview the Human Resources Manager who has 17 years of seniority in the company, 10 of which have been as the area manager. However, she started dealing with the SRC accreditation from only 3 years ago. As part of the responsibilities of her position, she has been in charge of dealing with issues of equity and social security for workers in the plants and offices, and later on she was assigned the responsibility of obtaining the SRC accreditation but predominantly from an organisational perspective, i.e., the beneficiaries for most of the activities are the employees.

The interview of the Quality Assurance Manager took place on the second day in the morning. He has also worked for 17 years in the company, from the beginning as Quality Assurance Manager but took on sustainability matters 4 years ago. He is in charge of reporting to SMETA and the CDP the indicators from the different companies belonging to the group, and was the leader and responsible for the project to become a RSPO member. It is worth to note that this interviewee always referred to this membership as a being certified, however in the RSPO website the company appears as a non-certified ordinary member. Additionally, he is responsible for the industrial safety of the facilities.

The two participants from the environmental department were completely open to answer the researcher's questions. These were amongst the longest interviews due to the rich detail provided especially by the Environmental Corporate Manager. The Human Resources Manager was a little more closed and succinct in her answers despite attempts to obtain more detail. The Quality Assurance Manager was also brief, but provided more detail on his answers when asked more specific questions.



### 5.3.3. The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages

Establishing and expanding in the Yucatan Peninsula has proven to be an advantage for several companies, including Company B. In their case, the location directly impacts their main competitive advantage, low market prices. The production of oils, the group's main product, requires large amounts of water and this resource is more abundant and cheaper in southeast Mexico. According to the Environmental Corporate Manager, the price of water is 8 to 9 times higher in the central area of the country, where the main competitors are located. Thus, lower costs are reflected in the sales price of Company B.

When it comes to motivations, there have been two major forces pushing the company towards the adoption of sustainable practices. Firstly, supply chain pressures. As Company B is part of the supply chains of large supermarkets and national companies from the food industry, it is required to hold certain certifications and to be audited to remain part of these supply chains. One of the interviewees reported that the sales area has been one of the channels for receiving these requirements from clients, and from there certification and membership projects such as the RSPO were initiated. Requirements from customers range from environmental matters such as disclosing the carbon footprint of operations and holding an environmental certification for the production processes, reporting to audits such as SMETA; to fair and ethical practices with employees, for instance not hiring children.

Another strong motivation, and an obligation at the end of the day, is compliance with environmental laws. As environmental regulations and enforcement have become more stringent in recent years, the company has moved away from a focus on minimum compliance, where it used to prefer paying for fines rather than complying with regulations, to an approach of full compliance. As mentioned earlier, the company is undergoing an intense stage of expansion and both the Environmental Corporate Manager and the Quality Assurance Manager have been instructed by the COO that such growth must be under the protection of environmental regulations and the certifications currently held. Some interviewees also stated that the company has benefited economically from regulatory compliance, not only by avoiding the payment of fines and not having the plants shut down by authorities, but also by obtaining fiscal incentives that promote investment in cleaner technologies. More up-to-date and higher-value assets end up being reflected in an enhanced efficiency of the operations. This has led the company to see environmental law compliance as an insurance policy.

In the social-labour part, increasing the permanence of the employees in the company has been another motivation to improve their working conditions. According to the Human Resources Management, the investment in training is considerable and a reason to procure a long permanence of the plant personnel.

Specifically speaking of its environmental objectives, interviewees stated that the company has set annual goals in 5 areas: water, air, waste management, risk and energy. Yet, it was straight away clear that the main objective for Company B is the rational use of water, including the improvement of the quality of the discharges to the groundwater, as well as compliance with environmental regulations. Apart from being a highly monitored resource by authorities, it is indispensable for the operation of the company and therefore it is in its best interest to ensure that the supply and good quality of water is perpetuated.

Company B also aims to use cleaner sources of energy, as well as to generate its own electricity. All group companies and their operations have switched from fuel oil and diesel to

natural gas, as far as the supply allows it. Moreover, a new company was created specifically in charge of the electricity co-generating plant, which has been certified by the Federal Electricity Commission as an efficient co-generator and that also works with natural gas. The change from fuel oil and diesel to natural gas has also served to reduce carbon dioxide emissions, contributing to another of the company's environmental objectives, namely air emissions improvement.

Company B currently holds the Clean Industry certificate and one of its objectives is to maintain it despite the company's growth. Any new development of facilities in the group must be presented to the environmental department so they can give indications on the considerations that must be taken into account for compliance with environmental laws and the guidelines of the certification they hold. By preserving this certification, the company is basically fulfilling most of its environmental objectives.

The operation of the conglomerate is considered highly hazardous due to the use of hydrogen, hexane, and ammonia. Therefore, risk assessments are periodically conducted as well as programs aimed to prevent accidents.

With respect to the social pillar of sustainability, the only objective clearly identified amongst the responses of the Human Resources Manager was to obtain the SRC accreditation, which influences the activities carried out both with employees and with external stakeholders.

In summary, it can be said that the environmental pillar of sustainability is where the greatest attention is paid in this company. It is evident that the environmental department has clearly defined the areas in which it must pay special attention and care, in addition of being granted the interference in new developments and constructions. To a large extent this responds to the main drivers for adoption, law compliance and supply chain pressures. Although some of the customers' requirements are focused on equality and work ethics, efforts and attention given to the social pillar of sustainability at the organisational level are still in an early stage.

#### 5.3.4. Implementing sustainable practices and issues faced during the process

For Company B, sustainability remains largely an environmental issue. There are efforts to contribute to the social element, but the resources (time, money, personnel) invested in the environmental component are far bigger compared to the social program. This situation is reflected in the participants' emphasis on the environmental pillar when asked what a sustainable practice is.

*“Researcher: What do you understand as an organisational sustainable practice?”*

*Participant: I believe that all actions that encompass the operational areas together with the staff areas to achieve that your desired product is balanced between the economic, between the social, that your people are happy, and the environmental as well. It is the set of all those actions to achieve a common goal with economic, environmental and social benefits for the people and for the company [B1].*

*P: Basically, when the company's policies and procedures are aligned with a balanced development with resources, the nature and environmental laws. It has to do with energy consumption, with the consumption of natural goods, soil and in this case our raw materials that many come from seeds, others come from palms, and there has to be a harmony in which our economic activity does not impact more than necessary the*

*environmental part or the sustainable part in our society and the society where our raw materials and our inputs come from [B2].*

*P: One that seeks harmonious growth between productivity, the use of technology and the environment. In other words, there is parallel growth [B3].*

*P: Support for the community, support for the worker and support for contributing to the improvement of everything, environment and everything that has to do with the common good [B4].”*

At the organisational level, there is a Quality, Safety and Sustainability Management System that is supposed to integrate all sustainability elements; however, on a daily basis the responsibilities are divided between two main areas. The COO is in charge of those responsible for environmental issues, industrial safety and certifications related to business's operation. Social responsibility issues, on the other hand, are within the remit of the Chief Human Resources Officer and his staff.

*“Researcher: And within all this that you are mentioning, where is the social responsibility part? Because the people I have talked to here take care of the environmental part, and I see that the social responsibility part is more on the side of human resource management. Is it included in this that you consider sustainable? Or do you see it as two separate things?*

*Participant: We see it as two separate things, integrated in a Quality, Safety and Sustainability Management System.*

*R: The one that you deal with?*

*P: Yes. Because to say... we have a policy for quality and safety, another for industrial security, another for human rights. I concentrate all these policies and they are included in it. But yeah, on a daily basis the social responsibility part is conducted by Human Resources management.*

*R: The strategy designed by the COO... does it include social responsibility activities? Or does that fall entirely within the scope of human resources management?*

*P: It is on the side of the human resources management [B3].”*

The bottom line is that company's efforts are not integrated and managed within the same programme, but run as parallel programmes, with one lagging far behind the other.

Company B has come a long way from its days when compliance with environmental regulations was considered a burden and paying fines was preferred. Today, environmental compliance is indisputable at the organisational level. Any growth or improvement project must be under the umbrella of environmental regulations, so local government authorities now identify the company as compliant and at times even spend less time on periodic inspections because of the company's good reputation in this regard. According to the Environmental Corporate Manager, this has been achieved in large part by involving, educating and raising awareness amongst senior management about the consequences of not complying with environmental laws, as well as the environmental risks related to its operation. At the beginning of the journey, all senior executives were involved in meetings twice a month for the establishment of internal procedures and norms, which were only approved with all senior executives' signatures, regardless of their functions being more administrative than operational.

As far as the environmental part is concerned, the standard process for implementing changes driven by modifications to the law implies that personnel from the environmental department have full understanding of the updates to the law. In order to achieve this, they draw on the support of the legal department and also contact government authorities for clarification of doubts. Subsequently, regardless of whether the change to be implemented has been pushed by the law, the information is presented to the COO and later on the area

managers involved in the affected processes are summoned. Altogether with the COO and the Environmental Corporate Manager, they analyse the changes, identify impacts and potential risks and propose solutions that everyone agrees on. Once the necessary investment to implement the changes has been determined, the COO presents a summary of this information to the CEO, so that he can make the pertinent decisions.

The environmental department dictates the what, and the operational staff determines the how and implements it. However, the responsibility remains with the environmental department so all improvements and changes are directly supervised by them, ensuring that activities are carried out on time and under the agreed conditions. Progress and problems encountered along the way are reported to the COO.

All environmental improvements and changes are formalized and institutionalized through policies designed in the environmental department, which are then informed to the department in charge of methods and procedures so that they can communicate them to all operational staff. This department is responsible for managing the policies, thus at the time one of them is due to expire the environmental department is contacted so that it can inform whether the policy is still in force or whether it needs to be updated.

Furthermore, there is a dissemination and training program that provides information on environmental policies and procedures for operative staff. However, it seems that the information provided is of a limited scope and do not inform employees of what is it exactly being pursued by the organisation. According to the Ecology Corporate Coordinator, those whose activities are affected by the changes put in place are informed about the regulation to be met and the general objective being pursued, but not about specific and measurable goals. The reason for this is that the company is still at an early stage of gathering measurements but it does not know yet what the optimum level is or the specific goal it wishes to achieve, scenario that becomes more challenging as the business grows. Building on this, the Environmental Corporate Manager informed that employees at the lower hierarchies, the ones that see the changes in their daily activities, are not aware of the specific objectives pursued. This information still remains at the top hierarchies of the company and within the environmental department. Even the Quality Assurance Manager, who is part of the people leading sustainable changes in the organisation, reported not being completely aware of such objectives.

*“Researcher: Would you say that the people whose activities are affected by the changes in activities pushed by your department are aware of the specific goals of the strategy?”*

*Participant: No, not for now.*

*R: Is that more a knowledge of yours?*

*P: It's the top management, us and some of the operative middle level managers. For example, the Plant Manager, the Production Manager, we are involved with them. I would say the plant managers, the COO and the Chief Human Resources Officer are aware, and we, obviously. It hasn't been lowered at the people level (meaning lower hierarchies) [B2].*

*R: Do you know the specific goals and objectives of the strategy? percentage of reduction, energy sources...?*

*P: No, not at the moment. There is not a diffusion from the ecology department yet [B3].”*

Following a different approach, a project scheme has also been used as the method for implementing some sustainability improvements. An example is the membership to the RSPO. The Chief Sales Officer, the COO and the CEO appointed the Quality Assurance Manager as the project leader. A work programme was then drawn up including training for this manager on

the membership and its requirements, adjustments to the processes involved, and staff training. As the company is not a certified member yet, they still need to undergo the certification audit.

Somewhat more succinct in her answers, the Human Resources Manager reported that for the activities related to the SRC accreditation a team of four members from different departments, led by her, have been formed in the organisation. This team has an annual budget that they use to work through the year and while they do not need authorization to make use of it, they need to make sure not to go over budget. The team meets on a monthly basis and defines the activities that will be carried out during that period on the different categories that interest the accreditation. Activities are split between team members and at the end of the period, they meet again for progress review and to check whether the goals set at the beginning of the month have been met.

When it comes to the issues that the company has faced during the implementation of its sustainability program, these can be classified into four types: infrastructure, economic, related to government and laws, and implementation.

In terms of infrastructure, the problem is the scarce supply of natural gas to the peninsula. Even though plants' facilities have been modified to work with natural gas in order to generate less contamination, there is a lack of supply to this region of the country that pushes the company to often return to the use of fuel oil or diesel to continue with its operation. In other words, they work with natural gas as long as the supply allows them and then return to the more polluting fuels.

Regarding the economic issues, the main problem is the cost of the several audits the company has to undergo as requirement from its customers. Supermarkets and companies in the food industry work with different audit agencies, so Company B has to pay for each audit it undergoes in order to demonstrate compliance with the requirements that would allow it to remain in the supply chain. According to the Environmental Corporate Manager, these companies mostly evaluate the same type of information, causing both the economic resources and the time invested in the audits to multiply. While the company still benefits from the business relationship despite the cost of the audit, this could put smaller companies into disadvantage. In an ideal scenario, as the Environmental Corporate Manager commented, the company would pay for one audit that could be accepted by several customers.

As for environmental laws, the Ecology Corporate Coordinator reported that these are not always precise nor detailed. As part of his job responsibilities, he must be aware of law updates and coordinate their application in the operation. The problem is that some of the laws are not sufficiently clear nor explicit in all cases, so many times he must rely on the legal department to validate the interpretation given to the laws. If there is no clarity, then the authorities are consulted.

Similarly, the Ecology Corporate Coordinator commented it has been difficult at times to find specialists in the region with the specific knowledge for certain topics within the scope of his department, so he and his colleagues have had to take training in those specific topics.

It is worth mentioning that the issues mentioned above were listed by the interviewees belonging to the environmental department. Neither the Quality Assurance Manager nor the Human Resources Manager mentioned having problems in their respective sustainable activities and this could be due to the nature of their activities and possibly, due to the milder negative repercussions for non-compliance. In the case of the environmental department, while a long

way has been followed and technical knowledge has been acquired, much has been built on trial and error and experimentation. The staff of the environmental department has had to investigate, with the difficulties that this has entailed, the most efficient way to implement solutions in their operation that will allow them to comply with the law. Sometimes even despite poor infrastructure. For its part, the Quality Assurance Manager has had to conduct less investigation on how to give solution to requirements. His remit has been mostly to coordinate the adequate implementation of changes focused on obtaining certifications, which already have specific guidelines to be fulfilled. While still challenging, less room for interpretation and less dependence on external stakeholders might be an advantage, especially when obtaining these accreditations represent the maintenance or development of new business relationships. Finally, the human resources area, which is focused on the SRC accreditation, has had to adjust some of its activities or carry out additional ones in order to eventually obtain the accreditation. The complexity and impact of these changes has been lower compared to the ones conducted by her peers. Likewise, the potential negative repercussions would be of a smaller scale as they do not involve problems with the law nor the loss of business relationships.

In terms of the monitoring and follow-up to practices focused on advancing organisational sustainability, each area (environmental, quality assurance and human resources) is responsible for complying with what is planned in a timely manner and for monitoring activities within their scope.

When new projects or adjustments are carried out to reduce the environmental impact of the operation, the environmental department staff carries out operational and economic monitoring. As for the operative follow-up, they verify that activities are executed according to what has been planned and complying with the requirements that must be covered. To this end, they supervise the operational personnel in charge of executing the adjustments or dealing with external contractors. The supervision work is documented in minutes and reported to the COO. This is complemented with the economic follow-up, which consists of making sure that the budget allocated for adjustments or new projects is not exceeded. Additionally, an administrative follow-up is carried out focused on compliance with legal documentation and submitting declarations to environmental authorities, regardless of whether it is related to a new project or to daily operation.

Moreover, every six months the Ecology Corporate Coordinator carries out an internal audit based on the Environmental Self-Assessment Guide issued by PROFEPA in order to monitor the level of compliance with laws and, if necessary, take action.

The Quality Assurance Manager is responsible for reporting annually to the RSPO on the company's progress in the use of sustainable palm as a raw material in their production, information that is also shared with the COO. The former is also responsible for submitting the performance indicators to the CDP, information that is obtained from the environmental department.

When it comes to the activities aimed at obtaining the SRC accreditation, one of the 4 people who make up the team is responsible for monitoring and gathering information on the monthly progress of activities conducted. This person maintains constant communication with the other members of the team to inform them when any activity needs to be reinforced or when an aspect of the accreditation is not being fulfilled according to the plan, so they find a solution together. This, along with the rest of the activities carried out in the social- labour area with the workers, and every activity that implies the use of financial resources, is reported to the Chief Human Resources Officer, who presents the information in the weekly meetings with the other top managers and the CEO.

It is clear-cut that the environmental department has the greatest responsibility in the organisational programme for sustainability at the moment. It could even be argued that more than half of the efforts and resources are solely focused on reducing the environmental impact of the company. This is reflected in the more detailed and extensive processes for planning, implementing and monitoring in this department compared to the areas of quality assurance and human resources. As previously mentioned, the environmental department is the only one that provided evidence of having a strategy designed and approved from the top, by senior management. Not surprisingly, this is also the only department that mentioned adjustments to the strategy that guides its work.

The information provided by the interviewees from the environmental department makes it explicit that monitoring is focused on compliance with laws, audits and certifications. Notwithstanding, there is a fair attempt to feedback and adjust to the department's master plan based on progress and the situation the company finds itself in.

### 5.3.5. Strategies for implementing Corporate Sustainability

At the functional level, the company has a number of strategies focused on mitigating its environmental impact. The environmental department elaborated a master plan 3 years ago that addresses the five main concerns, namely water, air, waste management, risk, and energy, establishing annual objectives for each one. Additionally, a budget had been allocated with approval of the CEO and senior managers. Year by year, the master plan is adjusted following advice from the Environmental Corporate Manager. Furthermore, the environmental department gets involved in the design of new products, processes and facilities, pursuing full compliance with environmental law as well as eco efficiency.

It has to be mentioned that things used to run slightly different before initiating the expansion project. Under stable operating conditions, without growth and financial crisis, the company has a threefold criterion to filter and determine the environmental initiatives in which it will get involved: law compliance, economic cost and contribution to the company's image. These would result in the plan for the following year and the corresponding budget that were presented to the COO and CEO for authorization. However, since the company began with the expansion project these criteria have been put aside. Instructions from senior management indicate that the expansion project is priority and it should not be compromised, so the task of the environmental department is to make sure that such growth complies with environmental regulations. This could mean that if at any moment it becomes necessary to cause a negative impact on the environment in order to continue with the expansion, they will have to carry on making sure there is a way to compensate for it. Likely, this offsetting will be carried out with the least possible investment since the priority for the use of financial resources is the expansion project. It can be said then that Company B still takes into account law compliance and economic cost as criteria, leaving aside the activities focused on improving the image of the company.

*"The company says: 'wait, I'm going to kill 10 trees now and then we'll see how to replace them'. In other words, they don't say: 'I'm going to ask permission for what I'm planning to do and then I'll do it'. It's about complying with the investment project because it's a lot of money, and on the way we could lose the company [B2]"*

There have also been strategies with specific targets. For instance, the project to become member of the RSPO, as well as reporting performance indicators to international platforms such as SMETA (from SEDEX), and the CDP. In these cases, the COO defines a leader

who will have a specific objective and tasks to fulfil and coordinate within a work programme. These projects are aligned with organisational planning in terms of sales and growth.

But when it comes to the social and economic development aspects, strategies fall short compared to the environmental ones. At the moment interviews took place, the company was actively working to get the SRC accreditation. And this was after realizing that promoting social responsibility practices with workers also benefited the company, so the idea of formalizing and getting the accreditation arose. Yet, progress has been slower and the resources and planning involved fewer. Additionally, according to responses from the Human Resources Manager, there is no proper strategy in place to be followed.

*“Researcher: Do you have a strategy?”*

*Participant: I think strategy as such, no. From the beginning it was like creating a socially responsible company, those were our beginnings. Later, as we moved forward, we realized that this benefited workers and the company, and that was when we started to formalize it and we offered different... we made different types of strategies to keep what we wanted, happy (workers) and that they feel safe with us. [B4]”*

Looking at the competitive level strategies, the company predominantly goes by the cost leadership strategy, mainly through pollution prevention as most of its environmental concerns indicate. Nevertheless, there is an exception with the oil elaborated with palm certified as sustainable. Year by year the company expects to increase this production and shift away from non-certified palm. For this specific case, the company leans towards a product differentiation strategy. In terms of social responsibility, however, it cannot be said up until now that the company has chosen a strategy for an image of social responsibility, as it is not clear where its initial efforts will lead.

At the corporate level planification, strategies for sales targets, profitability targets, company growth, etc., follow organisational guidelines that include operation under compliance of environmental regulations. This is reinforced by the empowerment of the environmental department by the CEO, which included the re-education process for senior managers. Therefore, it can be said that the corporate strategic plan is embedded with environmental guidelines and aims to ingrate and coordinate the different projects and competitive strategies that seek to move forward the environmental culture in the organisation. Nevertheless, this situation is not yet true for the social pillar of sustainability.

### 5.3.6. Company's B sustainability programme through the CAS lens

Company B began its sustainable history by avoiding compliance with environmental regulations and preferring fines. Mostly due to external factors, it began a change process and an evolution that today positions the company in the eyes of the authorities as compliant, besides from having national and international certifications and memberships. The following is an analysis of this evolution, the strategy and practices undertaken through the eyes of CAS theory.

#### **Agents**

Within the system, three groups of agents can be distinguished. The first are the top managers, who have undergone a process of education and raising awareness of sustainable issues, mostly environmental. On the instructions of the CEO, the top managers have been involved in the development of the plans, their authorization and commitment to their fulfilment in each of their respective areas. The second group of agents is made up of those who actively participate in the implementation and monitoring of activities aimed at advancing



sustainability. Amongst them are the interviewees and the staff who collaborates in their respective teams. The third group of agents are the employees whose activities have been affected, or even benefited themselves, as a result of the implementation of the various sustainable practices. Some examples are the plant workers who now deal with the wastewater treatment plants and waste management, the departments that now have to distinguish between inventories and production with palm certified as sustainable, and those workers who can now enjoy a working schedule of four days a week and the women who joined the workforce as a result of technological adaptations.

Particularly in the case of Company B, it is relevant to recognize the groups of external agents that have been the cause of the shift towards a more sustainable organisational system. Specifically, environmental authorities and customers have demanded the company to be certified, to report or to be a member of platforms and organisations that promote more sustainable practices. It is through the interactions of these external agents with the various agents within the system that they have triggered most of the changes.

### ***Dimensionality***

In general, the dimensionality of the agents within the system seems to be low, and this is reinforced by the leaders in the various sustainable areas who were interviewed. The Environmental Corporate Manager, the Quality Assurance Manager and the Human Resources Manager must ensure that the programs and activities for which they are responsible are carried out according to plan, fulfilling the goals or objectives established within the organisational guidelines. This leaves minimal room for agents from lower hierarchies to act with certain degrees of freedom or to take initiatives that could contribute to the sustainability program.

It must be acknowledged that amongst the leaders interviewed, the Environmental Corporate Manager has the greatest freedom to make decisions, but always within the parameters established by the top management and the budget assigned to his department.

None of the interviewees provided evidence of employees acting on their own initiative, which is also not encouraged, nor defying established rules or controls.

### ***Schemas***

It can be said that the schemas of the agents within the system are aligned, or at least not in conflict, with the organisational planning and objectives. This was not always the case though; senior managers' schemas have evolved over time as a consequence of the coexistence with other systems and their respective agents. Consequently, the organisational system adjusted its schemas towards a more sustainable approach, with emphasis on the environmental and social responsibility components. And this has permeated agents at the lower hierarchies, who now demonstrate more knowledge and alignment to the guidelines of the environmental and social responsibility programs.

Notwithstanding, the schemas of the leaders in sustainable affairs differ due to the nature of their activities, the weight that the organisation assigns to these and the negative repercussions of non-compliance. While the Environmental Corporate Manager focuses on the risks associated with resources and plant operations, the Quality Assurance Manager focuses on ethics and external social responsibility activities, as well as industrial safety. Meanwhile, the Human Resources Manager focuses mainly on the accreditation as SRC and on social responsibility within the company. At the time of the interviews, the staff of the environmental department were always confident that their functions are of vital importance to the company to the extent that they must be involved in any change or construction of facilities for approval.

They also know the company is pleased with their work and interventions. This sense of confidence was not perceived from the other two participants.

Additionally, the prevailing view is that compliance with environmental regulations, and even the possession of environmental certifications, represents an insurance for the company. The investment in environmental sustainability upgrades represents less money than the cost of having the plants shut down by the authorities due to non-compliance. The fine is not even considered of a significant amount compared to the losses of stopping production at the different plants.

### ***Non-linearity***

The implementation of the strategies for sustainability can be understood as a non-linear evolutionary process. Internally, this is exemplified by the business growth and how this has made the environmental program diverge from its initial way of operating. The selection of environmental initiatives used to follow an assessment process that was left aside once the company initiated its expansion plans, shifting the environmental department priorities towards ensuring that such growth does not fall outside the law. The way the strategy was implemented had to change according to the organisational circumstances.

On the other hand, the external environment of the organisational system has also been constantly changing and the company has had to adapt in order to stay afloat. What started almost two decades ago as a double quality system, evolved to a greater concern for social responsibility until reaching today a greater awareness for the environment. In tandem, environmental laws and customer requirements have also evolved and increased their level of demand towards the company.

All these changes have feedbacked the organisational system, resulting in adjustment to the strategies accordingly.

### ***Self-organisation and emergence***

Due to low dimensionality and being most of the employees aligned to organisational guidelines, there are low levels of self-organisation from agents and emergency of patterns at the system level. However, there are examples worth exploring that have led to structural changes in the system.

Within the organisational guidelines of social responsibility, personnel from the Human Resources department devised solutions to needs detected in the local labour market. The Human Resources Manager and her team realised that a good portion of the labour supply were women who could not be hired for many of the operational jobs because physical strength was required. Consequently, a device was purchased and improved in-house in order to help women move heavier loads in the warehouses and production floor. On the other hand, many of the women hired are single mothers who had to spend many hours outside their homes to generate an income. In response to this problem, some plants adjusted their work shifts so that women have to work only 4 days a week and enjoy long weekends with their children.

As a result of these individual initiatives by some agents, the new order at the system level resulted in lower turnover of female staff and an increase in the number of women hired for operative work. Moreover, the Human Resources Manager reported that the staff in these plants are more satisfied with the company and consequently, more committed and willing to participate in volunteer initiatives or activities organised by the company to which they are invited. Both parties end up benefitted, since the company not only has happier employees, but also adds up points towards obtaining the SRC accreditation.

### ***Edge of chaos***

The previous position of the company towards sustainability, but mostly environmental, issues found itself clashing with demands from regulations and customers. This dragged the company to a point where there was no more option that begin to accommodate such requirements. Evolution to a new order was then triggered. At the moment, one could say that Company's B own growth is causing a small chaos and instability for the sustainability programme, yet still under control. It is to be expected that if the company tripled its size in a short time, there would be some unforeseen situations. The same Environmental Corporate Manager reported that for the first time after a long time there were items to be solved in a recent environmental audit, mainly caused by growth.

### **5.3.7. Adaptability and Dynamic Capabilities for sustainability**

This section will address the DCs that serve Company B in its purpose of implementing sustainable practices. These will be arranged according to the strength of evidence provided by interviewees, and each one of them will discuss their contribution to the company or its competitive advantages, as well as their input to boosts the system's design, functioning, resilience or adaptability.

#### ***Market Oriented perception***

This is the strongest DC in Company B. In response to the requirements of its customers and the market, the company has become a member and reports to international bodies such as SEDEX, RSPO, and CDP. In addition, the company is audited by its main customers in the areas of equality, ethics, justice, security and social responsibility. Annually, the company is expected to increase its production of cooking oils made from palm oil certified as sustainable. This means that as far as demand justifies it, this type of oil will be prioritized.

And yet, customer requirements, together with those of the authorities, have gone far beyond the adoption of more sustainable practices. These have triggered a change in the mentality and schemas of the owner and CEO of the company, who commanded involvement from senior managers in the approval of these initiatives, as well as forcing them to comply within their respective areas of influence.

This DC has mainly contributed to the maintenance of commercial relationships with the company's most important clients, and potentially to the development of new relationships by already having the infrastructure and basic accreditations sought by the Mexican market. This readiness for the market boosts the company's image of social and environmental responsibility. Additionally, the company has enhanced its capacity to respond to the continuous new requirements of the customers, the regulations and demands of the market in general. To a certain extent, it is becoming more resilient to external challenges while improving its adaptability. Furthermore, the system's transparency is also being boosted. All of these adds up to a better functioning and design.

#### ***Internal reconstruction***

The company has been undergoing a series of changes in its structure with the aim of implementing sustainable improvements. As for reconfiguration of resources, the Environmental Corporate Manager started in the company as responsible for engineering, security, assets and ecology; however, due to the importance allocated to environmental law compliance, additional obligations were assigned to other staff so that he would be solely

focused on environmental matters. From then on, the number of collaborators in this department grew as well.

The environmental department has been assigned more weight and influence organisationally, so now it is part of the committee for the approval of construction and improvements to facilities and processes, so as to ensure that any changes remain in line with environmental regulations. Part of the responsibilities for the Environmental Corporate Manager, which has helped to strengthen the position of his department in the company, is the raising of awareness, educating and involving senior managers.

The Quality Assurance Manager has also received new responsibilities in response to customers' demands, including reporting to international platforms such as CDP and SEDEX.

Some processes have also been adjusted to the requirements of certifications and sustainable practices. For example, the production of cooking oils with sustainable palm requires to track the palm from the time it is procured, received, stored, used in production, storage of finished product inventory, invoicing, and other supporting administrative processes. Additionally, periodic internal auditing processes and adjustments for compliance with environmental laws have been implemented, so every six months the Ecology Corporate Coordinator carries out a compliance audit. Furthermore, working hours have been adjusted in some plants so that single mothers can enjoy long weekends with their families, meeting a requirement from the local labour market.

Through this DC, the company has been able to develop the necessary structure in the organisation to maintain commercial relationships, comply with the law, and provide more flexible working conditions for its workers. All this together contributes to the advancement of the company's resilience capacity, to the strengthening of its market position, and to some extent to the maintenance of its competitive advantages. Moreover, through this DC the company has demonstrated its ability to respond to market requirements and improve its operation accordingly.

### ***R&D and Innovation***

Some of the company's processes have benefited from improvements that seek to reduce environmental impact. For instance, the incorporation of cleaner technologies that through oil refining and washing processes reduce water consumption and wastewater discharges. Additionally, some of the steam that is generated in production is recovered and reincorporated into the energy generation process.

Before the intensive implementation of sustainable practices began, the company already carried out some more environmentally friendly practices that at the same time generated extra income. For example, recovery of by-products from waste water treatment plants that are used as inputs for the production of laundry soaps, which can also be sold to pig and poultry feed producers.

The company's main product, cooking oil, has also seen changes in favour of sustainability. New types of oil have been designed where the production processes have less negative impact on the local environment.

Innovation has also directly benefited the employees in the plants. As a result of the design and adaptation of loading devices, it has been possible to hire more women in positions that had traditionally been occupied by men because they require physical strength.

The system that has resulted from the changes previously listed, presents a better design and functioning for the environment and for the employees themselves, demonstrating that the company is adapting to the requirements from the labour market and environmental laws. By having a reduced negative impact on the environment, the natural resources that the company exploits to produce extend their life while maintaining their quality, allowing the company to continue operating in its current location. This DC directly contributes to the maintenance of competitive advantages, as well as to the efficient use of by-products obtained during the production process and even to the development of new business opportunities.

### ***Cross-functional integration***

The company has conducted projects focused on sustainable improvements, and the nature of these projects requires interaction and coordination from different functional areas. Some examples are the production of cooking oils with certified palm, an effort led by the Quality Assurance Manager, and the reporting of indicators to platforms such as CDP and the SMETA audit, also under the responsibility of this Manager. In both cases, he has had to coordinate with different departments so that necessary adjustments can be made to the processes, as well as the necessary information can be collected for reporting to the corresponding platforms.

However, this DC has been exceptionally deployed by the environmental department. In their efforts to comply with environmental regulations, the staff of this department constantly consults updates to the laws, which they interpret and confirm with the legal department. Regardless of the legal department endorsing the interpretation or if external consultancy is needed, there is always feedback between the two departments on the final interpretation. Adding up to this cross-functional work, once the environmental department has understood the requirement to be covered, it must meet with operational middle and senior managers to share the information and together design the best solution. Furthermore, the environmental department has been involved in the expansion project of the company to ensure that growth abides environmental laws.

The environmental department is also in a constant interplay with the operational areas since it must give its approval to all construction and adjustments of facilities and processes. In the case of the latter, there is also a continuous interaction with the methods and procedures department, as this is responsible for managing organisational policies, including the environmental ones.

Cross-functional integration has facilitated the implementation of sustainability solutions required by customers and the market, but above all it has allowed an advancement of the overall knowledge of environmental laws for the environmental, legal and operational departments. The constant education in the understanding of the laws and working together with the legal department has provided the environmental department with better tools to understand and apply legal requirements. As a result, the organisational system thrives on knowledge and its application, satisfies external requirements and enhances its ability to respond to new requirements. Moreover, this DC contributes to face one of the problems that the company deals with, the lack of clarity in the Mexican environmental legislation. It also helps to preserve its competitive advantages through a reduced impact on the local environment, achieved by the joint work of the environmental department and the operational area of the company.

### ***Knowledge related and absorptive capacity***

This DC is mostly displayed by the environmental department, which is in a continuous process of revision, clarification with authorities, understanding and education in environmental

laws. This provides them with the basis to understand their impact on the operation of the company. The environmental department has also the initiative to investigate about technologies that could facilitate legal compliance and additional requirements for the operation.

The company also leverages on the knowledge acquired by this department. They are involved in the authorization of constructions and modifications to facilities and processes. Additionally, they are involved in meetings for the development of new products that might entail production processes not handled before.

Knowledge is shared with the organisation in different ways. Senior management learn about it at meetings held to analyse requirements, their impact on the operation and exploration of possible solutions; while lower-hierarchy personnel are provided with basic information through training that aims to raise awareness of environmental issues that concern the company. Specifically, there is a dissemination and training program on environmental policies and procedures for supervisory personnel and their subordinates.

Through the management of knowledge involved in this DC, employee learning and schemas have changed over time. The system as a whole has become progressively intelligent on its own and as Company B has been engaged for some time with sustainability matters, it has now a better idea on how to understand laws, where to look for assistance, how to address issues and also, the organisational procedures and approval of novelties that arise.

The drive to search for the latest information and technologies, the constant training and the management of acquired knowledge, has helped this company to address problems related to the lack of specialists in the region and the complexity of understanding the laws. At a minimum, it has also contributed to maintain its competitive advantages.

### ***Collaboration***

Company B has collaborated with the Business Coalition Against Climate Change, with the OYUCAAC and with state governments from the Yucatan Peninsula. With the Business Coalition against Climate Change, the company committed itself to reduce emissions in order to contribute to mitigate climate change and continuously reports its indicators. Periodically, the company meets with the other members of the coalition to carry out social responsibility and environmental activities. By way of the coalition, member companies signed goodwill agreements with the state governments in the Peninsula (Yucatan, Quintana Roo and Campeche), through which some of the social responsibility and environmental protection activities are undertaken.

As per OYUCAAC, it served as a source of information on standards, procedures, new technologies and accreditations, although at the time of the interview it was not considered a relevant body anymore.

On the other hand, and to a lesser extent, collaboration in Company B has also involved support for the development of small producers. The company has facilitated their access to raw material (seeds) and agrochemicals through financing, so that they can grow more seeds and sell them back for the oil production process.

Even though this DC is of a moderate strength, collaboration has facilitated this company's access to information, especially focused on environmental issues, while strengthening its links with other companies and universities in this region of Mexico. On a smaller scale, it assists to the improvement of its image with society. From the perspective of

the organisational system, this DC has contributed to the exchange of information, feedback and strengthening the interactions with other systems it coexists with. To some extent, this should encourage an improved system operation. The input to the maintenance of competitive advantages is weak, however it does assist in increasing and stabilizing the supply of raw material for oil production.

### ***Social Network relationships***

Company B has taken care to maintain good relationships with external stakeholders, and to some extent with internal ones. As for external stakeholders, the company has developed an excellent relationship with the environmental authorities, built on its good image and compliance with regulations. In second place comes the relationship with the member companies of the Business Coalition Against Climate Change, with whom the company maintains communication and carries out joint activities.

With regard to the relationship with employees, the company seeks to treat them empathetically and make them aware of the motivations for the changes put in place as well as the benefits for all parties involved. It shall not be ignored that employees at lower hierarchies are not given full information on specific targets or strategic objectives, so it seems they receive information in more simple and friendlier terms. In this way, it is aimed to obtain their support.

Although this DC has a minimal contribution to the company's competitive advantages, it has enabled the company to avoid problems with the authorities and, to be benefited by a more conducive treatment. Moreover, the organisational system could benefit from enhanced functioning if employees willingly cooperate and feel part of the change.

### **5.3.8. Conclusion**

To conclude, Company B has drawn on its DCs mainly to listen and react to the requirements from its main customers, the market in general and the government. This has allowed the company to consolidate its position in the market and even to undertake an ambitious expansion plan, as well as seeking the maintenance of its competitive advantages. Market-oriented perception and internal reconstruction are the two strongest DCs of this company. Not only was the environmental department officially created, but it has also been empowered and given a voice in different company projects. It has been responsible for changing the company's image through compliance with environmental regulations and customer requirements in environmental matters. Additionally, due to external requirements the company has obtained environmental certifications, has membership in international organisations to which it reports indicators, and is in the process of being accredited as SRC.

Other DCs that have also supported a more solid implementation of sustainable practices as well as the response to local labour market requirements, and even the reuse of by-products, are cross-functional integration, innovation and knowledge related and absorptive capacity. A weaker contribution to the improvement of the company's conditions and its competitive advantages is brought by collaboration and social network relationships.

There has been an evolution in the way the organisational system perceives and addresses sustainable market requirements. From considering them a burden and preferring to pay fines, the CEO changed his schema and now demands that there be no operation or growth outside the limits of environmental law. It is clear that this change in schemas and in the organisational system was pushed by external pressures that could mean loss of customers and suspension of operations. Although progress has been uneven between environmental and

social responsibility matters, one can say that this company's DCs have contributed to the system's enhanced capacity to respond to changes and demands from the outside, i.e., its resilience capacity. Additionally, the system has developed an improved design and operation that allows for the reuse of by-products and waste. In conclusion, the adaptability of this system has been greatly benefited by DCs.

## 5.4. Company C

### 5.4.1. Company Context

Company C is dedicated to the production of lime and manufacture of materials for the construction industry and it has 3 production plants located on the outskirts of the city of Merida: the bank of materials, the lime production plant and the plant producing construction materials. The company was founded in the city of Merida and has expanded its market all over the Mexican Southeast.

The main customers of this company are other companies either dedicated to construction or to the distribution of materials for this activity. Despite not being the sales leader in the market, this company's products are recognized for their high quality, which is reflected in their premium price.

The industry that produces construction materials is highly pollutant and hazardous due to the type of materials it works with (petroleum derivatives, explosives), the furnaces, the production machinery (which is also noisy), and the particulate matter and wastewater that originate in their production process. For instance, the production of lime requires the extraction of limestone from the subsoil, for which underwater explosions are carried out. This requires the company to have authorizations and permits from the Ministry of National Defence.

Being aware of its image and stigma with the society, Company C has made some changes with the aim of introducing sustainability into its operation and raise awareness amongst surrounding communities. It began by certifying the lime production plant as a Clean Industry, while the other two plants are in the process of certification. On the other hand, and on account of the impetus from the new generation of senior executives, it has been accredited as SRC. Moreover, the company is part of the FEYAC. In terms of staff responsible for the execution of sustainability related initiatives, the Process and Environmental Management Coordinator is in charge of the Clean Industry certification and liaison with environmental authorities and auditors, while the Human Resources Manager deals with the workload associated with the SRC accreditation.

Due to its immersion in a highly polluting industry, Company C is concerned with reducing as much as possible the impact of its operation on the environment. Moreover, they have been working on developing an organisational culture of social responsibility in which personnel from all hierarchies can feel included. The ultimate aim of the company is to show the society an image of care for the environment and its employees, supported by the actions and accreditations undertaken.



#### 5.4.2. Preamble to interviews

The first person contacted in this company was the Process and Environmental Management Coordinator, who helped identifying potential interviewees. Originally, five participants were supposed to be interviewed: the Manager of the lime production plant who had recently obtained the Clean Industry certification, the Manager of the bank of materials that was in the process of certification, the Technical Director (COO), the Deputy Director who oversees the economic aspects of the actions to be implemented, and the Process and Environmental Management Coordinator. However, when the researcher was in the company's facilities it was necessary to make modifications in the list of participants due to commitments that would not allow some of them to be part of the study.

All interviews were conducted on the same day. In the morning, the researcher met with the Process and Environmental Management Coordinator at the lime production plant. There, the Coordinator was the first to be interviewed. He has 5 years of experience in sustainability matters, developed entirely in Company C. He collaborates in the design and follows up the activities focused on reducing the environmental impact of the operation, as well as in the generation of indicators to assess the outcomes of the activities carried out. Although he is located in the main offices, he spends most of his time in the different plants of the company. The second interviewee was the Manager of the lime production plant, who has been with the company for 26 years but was promoted to manager six years ago. During his interview he reported working with sustainability issues in the last four years, but his answers to the questions did not provide enough support for this claim.

In the afternoon, two more interviews were conducted at the headquarters. The first interviewee was the Human Resources Manager in substitution of the Deputy Director, as she works closely with the Deputy Director on the issues related to the SRC accreditation. This Manager has been in the company for 3 years, and during this time she has been involved in social responsibility matters with a focus on the relationships with employees. The last interviewee was the Technical Director, who serves as the COO. He has a seniority of 36 years, but has worked with environmental sustainability matters for approximately 40 years. Together with the Process and Environmental Management Coordinator, he designs the activities that will be conducted in order to reduce the impact of the operation on the environment, as well as those aimed at obtaining or maintaining the Clean Industry certification in the plants. The Process and Environmental Management Coordinator reports back to this Director on the outcomes of activities implemented.

In general, the participants were open to cooperate with the interview showing a good attitude at all times. However, it was noticeable that the Manager at the lime plant was not well aware of environmental activities or certifications.

#### 5.4.3. The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages

The main advantage of this company is to be recognized in its sector for the quality of its products, which have a premium price. Commercially this means that it goes by the non-price competition strategy and possess a differentiation advantage. A second characteristic that puts this company in a superior position to that of its market competitors, although it has not yet brought an economic benefit, is that it is the pioneer in the construction industry in southeast Mexico to implement sustainability-oriented improvements in its operation. Unlike the company with the largest market share in the southeast, Company C has the SRC

accreditation and one of its plants is certified as Clean Industry, while the other two plants are in the process of certification.

This company has been motivated to adopt sustainable practices in the first place to improve its image and develop good relationships with the society and the local government. This is because the industry is identified as hazardous and highly polluting. The company has outreached the neighbouring communities and the government with the objective of collaborating with them on environmental issues, as well as showing the improvements that have been made to reduce the impact of the operation on the environment. Furthermore, the company wants to be identified as the pioneer in the southeast and its industry in obtaining the Clean Industry certification.

According to the Human Resources Manager, responsible for coordinating and maintaining the SRC accreditation, the company was already conducting actions aligned with the practices of this accreditation before it was granted, so this was a means and an instrument to formalize and identify what needed to be improved. In line with the above, the Technical Director recognizes that the first generation of Senior Managers, also owners of the company, were characterized by seeking a peaceful and harmonious relationship with the population of the city of Merida, reason why several years ago they decided to relocate the plants outside the city before a problem arose with the neighbouring communities inside the city. However, these Senior Managers were not particularly in favour of obtaining the SRC accreditation because they did not want public attention. It was not until the next generation of Senior Managers began to get involved and took control of the business that importance began to be placed on this type of accreditation.

Another reason why Company C began to implement changes in the area of sustainability is to comply with environmental laws, for which it has full support and commitment from the company's Senior Managers. However, the Technical Director recognizes that the company regularly seeks to comply with the least possible investment. And this is not at odds with the last motivation identified for the adoption of sustainable practices: economic benefit. As reported by the Process and Environmental Management Coordinator, the company realized that there were benefits in both production processes and the work environment, which has allowed the company to maintain its commitment to sustainable improvements.

Albeit specific objectives pursued by the company in terms of sustainability seem to be varied, there was no consensus amongst respondents. Yet, it is clear that the main concern and where most of the efforts are directed is to reduce the environmental impact of the operation. Objectives such as maintaining the Clean Industry certificate, reducing water consumption, preventing groundwater pollution from the exposure caused by explosions, minimize the area of used land and reduction of deforestation, noise pollution reduction, particulate matter pollution reduction, reduction of CO<sub>2</sub> emissions and waste management, were all mentioned by participants. Interestingly enough, none of these objectives was mentioned by the Plant Manager, even though operations in this site should be aligned to such objectives.

In the social domain of sustainability, the Human Resources Manager stated that the company seeks to develop an organisational culture of social responsibility in which all employees feel involved and participants of change, as well as to ensure the industrial safety of employees and suppliers entering the plants' facilities. All of these within the framework of the SRC accreditation.

Whilst it is recognized that the former senior management team had a commitment to maintaining good relations with the local community, it was not until the new generation of

Senior Managers took over the company that they began to look for certifications and accreditations that could be exploited for the benefit of the company's image. Most of the efforts and objectives are focused on the environment and reducing the impact of the operations on it, which ends up paying off in the relationship with the community and with the authorities that monitor the compliance with environmental laws. As far as the social axis is concerned, the focus has mostly remained in the internal area seeking better relations with employees and complying with the requirements of the SRC accreditation.

#### 5.4.4. Implementing sustainable practices and issues faced during the process

Company C concentrates its efforts on the environmental side of sustainability, and this is reflected in the responses of the participants who mostly consider this axis when they provide their understanding of a sustainable organisational practice. Some of them even have a narrower focus that only addresses one aspect of the environmental component.

*“Researcher: What do you understand as an organisational sustainable practice?”*

*Participant: It is a practice that is socially, environmentally and economically beneficial when seen from the perspective of the company and the society or environment around it [C1].*

*P: When the entire organisation is committed to a long-term project that damages the environment as little as possible and consumes the least amount of raw material in the area. Which is a bit complicated because we all use raw material and much of it is not renewable [C2].*

*P: I believe that it has to be the set of factors to conduct the management of waste of a company... and of its image towards the society [C3].*

*P: Well... to be able to contribute to the environment, everything that is culture, a sustainable culture, how can we contribute as a company, for me is that... I don't know if I'm right [C4].”*

It was not until the Human Resources Manager was asked specifically about her understanding of social responsibility practices that she incorporated elements such as the different stakeholders and the contribution of the company's values towards each of these groups. This seems to indicate that company members perceive sustainability and social responsibility as different, though related, issues.

*“R: What do you understand as a social responsibility practice?”*

*P: Everything that encompasses what is our behaviour, our ethics, our values with our stakeholders. Our suppliers, the people who work with us, there is also the environmental part, the sustainable part, all the stakeholders, our customers too... all of that. It is the relationship, but more than the relationship, is how can we contribute or provide through our values or through a plus. That is the social responsibility [C4].”*

As in other companies that are part of this research, the operational area is in charge of implementing environmental changes, while the Human Resources department is in charge of the accreditation as SRC and the overall social activities. Specifically, every year the General Director endorses the intention to continue working on sustainability issues as part of the annual priorities, so then the Deputy Director and Technical Director define the objectives to be achieved. To this end, they are supported by the Process and Environmental Management Coordinator for environmental issues and the Human Resources Manager for social responsibility issues, who are responsible for defining interventions and specific objectives to be met, as well as following up on them. Although a large part of the activities or interventions

respond to obtain or maintain certifications/accreditations, there are exceptions that may come from specific requirements of external stakeholders.

On the environmental side of sustainability, the Process and Environmental Management Coordinator detects needs or requirements to be met and informs the Technical Director so both of them decide whether the company will engage with them and how to approach the requirements. If economic investment is needed, they would bring the issue to the Deputy Director so he can decide the funds to be allocated. There is no annual budget to carry out the necessary activities focused on the Clean Industry certification.

Both the Technical Director and the Process and Environmental Management Coordinator reported that environmental objectives, requirements and interventions are subsequently communicated to the Plant or Area Managers so that they decide the best way to implement these changes in order to avoid conflicts with the company's operation. Subsequently, the Plant/Area Managers would inform their subordinates, the Heads of Area, about the changes so they in turn communicate them to their subordinates. Both the Deputy Director and the Technical Director would feedback the Managers during their weekly visits to the plants in order to confirm that the information was received correctly and to find out how they plan to address the requirements. Nevertheless, the Plant Manager at the lime production plant reported that he was not involved in the implementation apart from being told about waste management measures that had to be observed at the plant, and only after they were awarded the certificate, he was informed about it:

*"I found out that we were certified until the moment I was told that we were already a Clean Industry. I didn't know we were looking for that certification. I just followed what we knew we had to comply with, the separation of rubbish, the areas free of rubbish and weeds. But I knew about Clean Industry until we got the paper. And well... well, that's it! [C3]."*

This situation denotes that there is misalignment between what is said, or what executives in the headquarters believe happens at the plants, and what is actually happening. Moreover, this suggests a miscommunication issue between headquarters and the plants, which could affect the knowledge and commitment from the plant staff. This also suggest that the approach taken by the company seems to be more interested in having the certificate as soon as possible than in permeating this information and increase commitment amongst its staff. This belief is reinforced by the fact that the company is aiming at completing the process and getting the certificate for the other plants in half the time that is allowed by PROFEPA.

*"... (the company) has invested heavily and we have set out to do this, in spite of the fact that the programme can be done in up to three years, we have set out to do it in a year and a half or in a year. So, it is a matter of speeding up this programme and investing both time and efforts [C1]."*

Despite of this scenario, the Plant Manager at the lime production plant expressed that the staff is now more conscious of waste management processes, and careful during their daily activities.

As per the social responsibility programme, the initial policy was to "begin from home". The idea behind this internal campaign was to make workers aware of what is social responsibility and how their actions are connected to the community, customers and suppliers. The aim is to create an organisational culture of social responsibility in which all employees feel included and part of it. In subsequent years, the focus has shifted but always in line with the requirements of the accreditation. Each year, the Human Resources Manager puts together a work plan with a specific focus based on discussions with the Deputy Director, on information

obtained from institutions such as the FEYAC and the CEMEFI. The programme is then shared with the latter. This programme does receive a budget that seems to be limited, and extremely looked after by the Human Resources Manager and the Deputy Director. The Human Resources Manager, along with part of her staff, is responsible for overseeing the implementation of the new measures and conducting the activities part of the work plan. To this end, this Manager is in constant contact with the trade union's Secretary, the Plant Managers and the heads of area to ask for their support engaging union's members, or for implementing the new measures. As specifically reported by the Human Resources Manager, middle level managers have been notified that the company is accredited as socially responsible, what does this mean, why is the organisation interested in this accreditation and what can be expected from them. Yet, the Manager at the lime production plant said he has no information about this.

*“Researcher: And on the issue of social responsibility towards your employees, have you noticed that there is some kind of program being implemented or that someone is looking at more specific staff issues?”*

*Participant: No.*

*R: Have you not carried out any specific activity in relation to that?*

*P: The only thing that has been given to the people here is training in evacuation, firefighting, safe routes, gas management. But not in terms of social responsibility [C3].”*

Regarding the issues that Company C has faced during the implementation of sustainable practices, those related to employees were the most commented on by interviewees, followed by problems inherent to the implementation and finally, issues related to the government and the law.

On the side of issues with the employees, the implementation of sustainable practices focused either on the environmental or social responsibility aspects has represented additional workloads for employees, especially those in the plants. The Process and Environmental Management Coordinator reported that employees are still required to deliver the same results in terms of production, while simultaneously having the ability to organise themselves to meet the requirements and activities associated with the Clean Industry certification. On the other hand, the Human Resources Manager reported that it has been complicated to engage employees in activities additional to their jobs. This is because employees, especially male ones, are used to work overtime, up to 12 hours a day, in order to earn a higher income, so it has been difficult to get them to sacrifice some of that overtime for voluntary activities focused on social responsibility. In addition, some of these activities have been carried out on Sundays, day that employees expect to rest.

The first reaction from employees was of little support and even rejection, as now higher productivity is being expected from them. During the same working hours, or during additional time, they are required to do more activities not necessarily related to the job they were hired for. While measures are mostly cares that must be observed during production, others require additional effort. On top of this, inadequate communication about the Clean Industry certification, at least from the perspective of the Plant Manager, and potentially little training and motivation for employees, pose a likely scenario where employees in the plants feel disconnected from these efforts.

Nevertheless, the Human Resources Manager informed that there has already been an improvement in the level of employee involvement and engagement in social responsibility activities because the initial activities were those directly benefitting employees. Subsequently, their cooperation was requested in activities focused on the community, making them aware that it is all part of a holistic programme of social responsibility.

Openness to change is a factor that have helped the organisation to implement the modifications and improvements directed to reduce their impact in the environment and obtain the Clean Industry certification in the plants. To a large extent this has been due to old staff retiring from the company and new elements joining in with renewed ideas. This has prompted a change in the mindset of staff that has remained, which has been evidenced by increased support and involvement, especially from those who were previously reluctant to change. This openness to change, and involvement, has also been noticeable amongst senior and middle level managers, who have facilitated the implementation of new policies and regulations regarding the SRC accreditation.

In Company's C attempt to implement social responsibility improvements, the trade union has posed a challenge according to reports from the Human Resources Manager. Union members complained they were asked to carry out activities they did not perceive as part of their job. The Human Resources Manager has had to work on the relationship with the union's Secretary to gradually gain his support and endorsement for the initial activities carried out, as he is in contact and has influence over other union leaders, who in turn mobilize the rest of the union's members. Part of this support has also been achieved due to the policy "beginning from home", with activities that were directly for the benefit of the employees. Now, the Human Resources Management has started to ask for their support in voluntary environmental activities benefitting the community.

Another problem detected but not evident to those overseeing the certifications is the miscommunication during the implementation. As mentioned earlier, the Manager at the lime production plant has felt alienated from the plan and execution of the process for obtaining the Clean Industry certificate. According to his perception, the Process and Environmental Management Coordinator gave a series of isolated instructions on improvements to be made in the plant, and subsequently returned to verify that these had been carried out. However, he did not inform that all of this was part of a plan to obtain the certification or to comply with certain regulations. A lack of involvement from the Process and Environmental Management Coordinator with the plant staff was reported by the Plant Manager. The first point to note is that this plant, which is already certified, does not have adequate information about the certification. The perception of what the certification covers is almost limited to waste management matters, while its scope is much broader. Whether the Process and Environmental Management Coordinator or the senior management did not involve the Plant Manager, or the latter did not have the initiative or interest to be included, there is a palpable failure in the communication of the certification process. Secondly, and reinforcing the previous idea, there has been a lack of proper organisation regarding who should inform, involve and even support and train the workers. The idea that the company is mostly interested in having the certification document seems not to be far from the reality it lives in.

The last category of issues commented on by the interviewees, specifically by the Process and Environmental Management Coordinator, was about the differences they had at first with the authorities due to the unorthodox way of implementing the solutions that were supposed to reduce the impact on the environment. There was some reluctance from the authorities as they did not believe that the approach taken by the company would have positive results, but rather that it could cause more damage. According to the Process and Environmental Management Coordinator, the company demonstrated that the measures implemented did have benefits for the environment and from this its relationship with the authorities improved.

Miscommunication between those orchestrating the certifications/accreditations and the employees whose activities are affected is a problem that seems to be minimised, or not

given due importance, by the Process and Environmental Management Coordinator and Senior Managers. Statements from the Technical Director, the Process Coordinator and the Human Resources Manager are somehow contradicted by the Plant Manager's responses. There is a possibility that this issue might not be given due importance in the headquarters as the certification was still obtained despite the limited level of involvement. Although interviewees reported an improvement in the attitude of employees in general, their engagement, proactivity and contribution could be maximised if an effort were made to include, educate and train them. Resistance from union members could be also minimised if they felt included and listened to. Potentially, the company is only interested in obtaining certifications and accreditations to showcase them, while investing minimal effort, resources and time.

*"Regulation is quite strict in many aspects, but it makes us a little more creative. We have to try to do things in the best possible way, at the lowest possible cost, or rather with the least possible investment [C2]."*

When it comes to monitoring the activities part of the programme for sustainability, the Process and Environmental Management Coordinator is responsible for concentrating information on the outcomes of the environmental improvements, analysing them and then report to Senior Managers. On their side, the Human Resources department deals with the evidence and results of activities focused on social responsibility.

In environmental matters, the measurement of the progress and results is made based on specific parameters that come from the regulations or other types of obligations contracted by the company, such as the Clean Industry certification. The measurement of consumption and waste generation is performed in the plants by the workers, Heads of Area and Plant Managers, information that is later sent to the Process and Environmental Management Coordinator on a monthly basis. The Coordinator concentrates and generates indicators based on tons produced and also compares them against previous years to analyse progression. The Coordinator reports to the Technical Director and the Deputy Director, both considered ultimate responsible, who in turn report to the General Director.

It is worth mentioning that the Plant Manager sees these measurements as oblivious to the company's general strategy to maintain the Clean Industry certification and to comply with environmental laws. From his perspective, these are just activities intrinsic to his work.

Quarterly, the Coordinator and the Technical Director make a short-term assessment to ensure that everything is going according to plan, or else make adjustments in the activities being carried out to meet the objectives, which tend to remain unchanged.

On the side of the social responsibility activities, the human resources department is in charge of following up and collecting evidence throughout the year to present to the CEMEFI. The latter requests compliance with requirements that belong to different social responsibility categories, so the activities carried out during the year must have satisfied these categories. This information is only shared with the accrediting institution. Rather than adjusting the strategy or the plan based on the monitoring, the Human Resources Manager modifies the activities to be carried out during the year with the objective of adhering more closely to the requirements of the accreditation. Additionally, the Human Resources Manager is responsible for monitoring the use of the budget for the social responsibility program through the year.

The monitoring and assessment of sustainable activities aims to remain aligned with the indicators and requirements of the certifications and accreditations that the company holds, as well as with environmental laws. In the end, the company's strategy to improve its image and

show itself as a sustainable organisation is based on maintaining these accreditations. The strategy is not altered, but rather the activities carried out to fulfil this ultimate purpose.

#### 5.4.5. Strategies for implementing Corporate Sustainability

Are sustainable improvements being implemented through a strategy in Company C? at the functional level, the answer is yes. In an effort to improve its image with society and the authorities, the company has devoted resources, the minimum necessary, to obtain and maintain the certification as a Clean Industry and the accreditation as SRC. On the one hand, environmental strategies mostly focus on waste management and waste water treatment. On the other, the social responsibility strategy covers the SRC accreditation and engagement in socio-environmental activities sponsored by the city council. Both the Process and Environmental Management Coordinator and the Human Resources Manager have a work plan around the certification/accreditation that they deal with, which incorporates suggestions from auditors or institutions that they rely on in the process, to be then approved by the Directors of the next hierarchical level.

On environmental matters, decisions are made by the General Director, the Technical Director and the Deputy Director. On the social side, both the Human Resources Manager and the Deputy Director decide specific activities to be carried out. However, findings seem to indicate that decisions are made on a case-by-case basis, rather than having a formally institutionalized process. Additionally, the Process and Environmental Management Coordinator pointed out that activities should first involve middle and senior-level Managers and then be extended to the lower hierarchies of workers, and avoid the other way around.

Regarding the criteria for selection of activities, apart from maintaining or acquiring certifications that drive the company to opt for some activities, the main criterion is the economic cost. Both the Technical Director and the Process and Environmental Management Coordinator stated that this is a limitation and decisions are inclined towards those activities that require the least monetary investment, but they also try to keep the investment of time and personnel to a minimum.

In terms of competitive level strategies, the company has opted for cost leadership through pollution prevention, as its activities are rather directed to attenuate the negative impact of the operation in the environment. It has to be acknowledged that even though savings were mentioned at some point by participants, the inclination for these strategies stems from law compliance and satisfaction of certification requirements with the smallest possible investment. For Company C, differentiation strategies in terms of environmental impact might not be the best strategy to go for, since even though they do follow this strategy in commercial terms, its customers are mostly companies working in the construction industry which mostly seek medium range to cheap prices.

Competitive level strategies also include an image of social responsibility, reason why the company has gotten involved in the SRC accreditation and with the city council.

At the corporate level, however, there is no evidence of a sound strategy in place for sustainability. At best, it could be said to be at an early stage. This assertion is reinforced by the flawed implementation of functional strategies and the narrow awareness of organisational intentions. For instance, participant's perception of what the strategy involves is different. While everyone from their area deals with specific and different issues, which leads to an individualized awareness of what the strategy is about, an overall understanding shared by the



interviewees is missing. This becomes relevant given the fact that research participants are the ones involved in the design, implementation and monitoring of the strategies. The situation gets more evident with the Manager at the lime production plant, who only mentioned being a Clean Industry as the strategy, and within this, he mostly focused on waste management. At no time did he mention any issue of social responsibility despite recognizing that the company supports its workers in completing basic level studies.

Contradictory answers were provided by the Technical Director, the Manager at the lime producing plant and the Process and Environmental Management Coordinator when asked about the goals being pursued:

*“Researcher: Are the people involved or affected by the implementation of these practices aware of the objectives you are pursuing?”*

*Participant: Not all of them, it has to be said as it is. The heads of the plants are, but the others are not. Sometimes it is a little difficult to explain them, and it is a little difficult to make them understand the benefits that this brings. Unfortunately, our people are not very well prepared, I tell you that there are people to whom we had to sponsor primary education...[C2].”*

*“R: Do you know the specific goals or objectives that are being pursued with the strategy?”*

*P: No, I don't know a single one... the big goal is to lower accidents to zero for example. That's one I do know, and it's concerned with giving feedback to the staff about this goal of zero accidents. But that is the only one I know about [C3].”*

*“R: Are the heads of area informed of the specific objectives being pursued with the strategy, and of the activities being carried out in relation to the strategy in general?”*

*P: Those that may be more understandable are given as they are. Those that are not as understandable as specific study parameters... these are given more as the objective of isolating noise, the objective of reducing the waste storage, so that indirectly they have to reduce noise in some way and indirectly they have to generate less waste because they have a smaller storage site. So, there are some (objectives) that you can tell them just like that, like reducing water or emissions, and there are others that you can tell them indirectly.*

*R: And those that are mentioned directly, are they told very specifically or in general?*

*Like: “we want to reduce water consumption”, or are they given a percentage, for example 10%?*

*“P: More than a percentage, they are given a quantity. We already calculated the percentage, so the amount is given to them... Then they decide how to disperse that amount more than the percentage [C1].”*

While the Technical Director acknowledges that not everyone is aware of the objectives, he also expects the Plant Manager to know them. Then, the Process and Environmental Management Coordinator said objectives try to be communicated in the most understandable way to employees in the plants, but from the answers of the Plant Manager, he has no idea about them. Whether there is a strategy or not, the information has not been received by those affected in their daily activities, despite being of the hierarchy of Plant Managers.

Hence, findings suggest that the corporate level strategy in Company C is at an early stage where there is a lack of formalization and communication, as well as a low structuring of objectives and information about them.

#### 5.4.6. Company's C sustainability programme through the CAS lens

This section will address the main properties of CAS theory in light of the evidence provided by participants in Company C when describing the implementation process for their sustainability programme.

##### ***Agents***

Within this system 5 groups of agents can be identified: the staff specifically in charge of designing and following up on sustainable initiatives such as the Process and Environmental Management Coordinator, the Human Resources Manager, the Technical Director and the Deputy Director; the members of the owner family occupying a managerial position including the General Director, who have been the promoters of the company's new image towards society and the reason why the company embarked on the social responsibility accreditation; the middle management, such as the Manager of the lime production plant, who on a small scale has played a part in the changes implemented; the trade union leaders and finally, the employees in the lower hierarchies of the company. Activities from agents in the last three groups are the ones that have been significantly more affected by the changes put in place.

An external system cohabiting with Company C and whose agents have played a part in shaping its course, and to some extent to push for change, is the government. As a highly polluting industry, Company C is under great pressure and vigilance from the authorities to comply with the law and reduce its impact.

##### ***Dimensionality***

Dimensionality within this system is quite low. With regard to environmental matters, the Process and Environmental Management Coordinator works together with the Technical Director and the Deputy Director, taking into account suggestions from the auditors who support them in the process of certification as a Clean Industry. For its part, the Human Resources Manager acts within the framework of the SRC accreditation requirements, the budget authorized by the Deputy Director and the guidelines provided by him. The freedom to act and make decisions for both the Coordinator and the Human Resources Manager is quite limited by the indications of the senior management and by the guidelines of the certifications/ accreditations they work with.

If one pays attention to the degrees of freedom of employees like the Manager at the lime production plant, they are minimal. The information he receives and his involvement in the implementation of sustainability-oriented activities has been restricted to receive and execute instructions, a situation created intentionally by senior management and which is also replicated with employees in lower hierarchies.

Although at some point union members were not happy nor fully compliant of additional activities that came out of sustainability related changes, demonstrating a higher level of dimensionality, they have increased their engagement and alignment with the system schemas and aims after the "beginning from home" approach. Findings indicate then a change in dimensionality from agents at the lower hierarchy of the system.

##### ***Schemas***

Conflicting schemas are noticeable in the system represented by Company C, including both the perception of what is happening in the company and the roles of key agents. On the one hand, senior management has in mind that Plant Managers have knowledge of the objectives pursued by the company, while also perceive the Coordinator and the Human

Resources Manager as facilitators of the implementation of sustainable improvements. On the other, the Manager at the lime producing plant only knew about the Clean Industry certification until it was granted to the company. Despite having noticed changes with waste management and having received information about the waste water treatment plant, this Manager is not fully aware of the regulations that must be met, nor the requirements of the Clean Industry certification, nor the objectives that the company pursues in environmental matters. Moreover, differences are extended to his perception of the Coordinator's role in the company. The Plant Manager sees the Coordinator as someone who only visits the plant to give instructions on things that must be corrected and who will later return to verify these have been fixed, but at no time did he associate the Coordinator with being responsible for the certification.

Schema conflicts also arise on the side of the social responsibility program. The Human Resources Manager stated that the company's aim is for workers to know and understand what social responsibility is and how their actions are connected to and affect their various stakeholders. However, the Manager at the lime production plant reported having no information nor awareness of social responsibility practices, even though he mentioned staff-integration activities involving his plant's personnel. Whether he was informed or not about it, the message was not received and his understanding of what the company seeks differs from expectations.

Adding up to the conflicting schemas, what seemed to be a positive contribution in the eyes of the Plant Manager and definitely an effort that took a lot of trial and error, was the testing of a combustible made from waste. After plant staff successfully manage to make it work in one of the furnaces, they did not end up using it. This situation, perceived by the Technical Director and the Human Resources Manager as a paused effort, disappointed and discouraged the Plant Manager in this effort he felt part of.

The schemas in this system have also evolved gradually for different groups of agents. Although there was always an inclination to be friends with the community, the General Director preferred not to attract attention to the company, to be somehow invisible to those who were not customers. It was not until the current General Director took over (over 5 years ago) and other family members started to occupy middle-level management positions, that new ideas came into the company including the SRC accreditation. As a result, the company was forced to show itself to the community and thus define the type of image it wanted to project. The structure and schemas of the overall system have been influenced by the dominant schemas of these high hierarchy agents. Consequently, agents in the lower hierarchies are becoming more open and receptive to changes in their daily activities. It shall be noted that this initial change has been facilitated by the "beginning from home" approach, which has generated greater engagement. Furthermore, it has also been driven by the presence and vigilance of the Coordinator in the plants.

### ***Non-linearity***

The implementation of sustainable improvements in Company C has also been a non-linear process emerging from the interaction of agents within the system and with their environment. This is exemplified by the union members and their leaders who initially were reluctant and not engaged with changes. Through efforts from implementation leaders to make them aware and sensitized with the new activities, a change of attitude began to be noticed.

Actions and interactions are not always matched with an output of the same magnitude in a CAS. Despite the efforts and intentions of senior management and those directly involved in the implementation, the Manager of the lime plant feels and shows himself excluded from what is happening in the company. Yet, despite this lack of inclusion the company managed to obtain

the Clean Industry certification in the lime plant and the SRC accreditation in the whole company.

It can be said that non-linearity could lead to different results from the same input, and this has also been the case in Company C. Although not receptive from the outset, plant staff have generally been more open and willing to embrace the changes brought about as a result of the sustainable programmes than the office staff. Plant staff are usually less educated than office staff, which would suggest that they would be more reluctant to accept change, but to the surprise of the Human Resources Manager the case has been the opposite.

### ***Self-organisation and emergence***

Overall, the company has a low level of self-organisation. The guidelines on what should be included in the environmental and social responsibility strategies and how to implement them come either from the bodies that grant the accreditations/certifications, or from instructions of senior management. Based on this top-down flow of information, both the Coordinator and the Human Resources Management work towards the objectives.

Nonetheless, it cannot be said that there is a central controller of the strategy or its evolution. Neither the senior managers, nor the intentions of the business owners, nor the interventions of the Coordinator or the Human Resources Manager have fully determined the results obtained or the level of involvement from the different employees. Rather, it has been a process of interaction at varying intensities with the different agents within the system aiming to modify their attitudes towards the implementation process and to gain their support and involvement. It seems that this process has been more effective in some cases, for instance the union and its leaders, than in others, such as the Manager of the lime production plant.

Looking at this scenario from the opposite perspective, the lack of information and involvement of those who have seen their activities affected by the changes has not prevented the company from achieving the sought-after certification and accreditation.

Occasionally, the leaders in charge of the implementation have had to set aside unilateral movements and retrieve inputs from employees. According to the Coordinator, ideas that were designed "from the desk" to implement the environmental programme were modified once feedback was received from staff in the plant. Building on this, the Human Resources Manager argued that the reason for the "begin from home" approach was to create a conducive environment to social responsibility, so the program and its reach could be subsequently expanded to other stakeholders.

It can be said that in an incipient way, the system has just started to see the emergence of supportive behaviours from agents in the lower hierarchies.

### ***Edge of chaos***

Company C is not facing an external situation or structural change causing additional chaos. Rather, the chaos is created internally by the lack of clear information towards employees, by abandoned efforts that have disappointed staff, by the transition in the plants, by the initial reluctance of the union and its leaders, and by the entrenched economic approach of the company's senior management that restricts the activities in which implementers can engage. It is in response to some of these factors that those responsible for ensuring that the company meets its objectives have had to devise innovative ways to stay on track with the certification, the accreditation, their goals and activities associated. It can be argued that this chaos has begun to push for the evolution of the implementation process.

#### 5.4.7. Adaptability and Dynamic Capabilities for sustainability

Although Company's C main advantage has been its reputation, a couple of years ago they decided to go beyond offering a quality product and started developing an image of concern for the environment and society, despite the industry in which they operate. The following section will discuss the DC on which this company has relied on to implement sustainable improvements, their contribution to the company's differentiators, as well as the design, functioning, adaptability and resilience of the organisational system. These will be arranged according to the strength of evidence provided by interviewees.

##### ***Collaboration***

Company C collaborates and exchanges knowledge on how to reduce pollution with the national leader in cement and ready-mix concrete production, which also has worldwide presence. Additionally, through the collaboration with this key partner Company C gets involved in external environmental and social activities.

At a very early stage, the company has begun to pay attention to the environmental impact of its suppliers. Part of this new approach includes informing them about their capacity as a SRC and what would be expected from them as their suppliers.

The relationship with its key partner contributes to the image of social responsibility and care for the environment that Company C wants to project with the community and authorities, while strengthening its relationship. From the organisational system perspective, the exchange of information and knowledge with other systems has provided elements to advance the functioning of Company's C system. Nevertheless, there was not enough evidence to claim this DC has a significant contribution to the adaptability and resilience of the system.

##### ***Social Network Relationships***

This DC has been particularly demonstrated in the relationship with the city council. Through support and cooperation in socio-environmental initiatives such as beach cleaning and reforestation, the company has strengthened its ties and improved its relationship with this authority and with the surrounding communities.

Related to the previous DC, Company C is also paying attention to its relationship with suppliers and is subsequently adjusting it based on the new principles being implemented. This gradual evolution of the relationship has begun by informing suppliers why Company C has decided to become a socially responsible company and what will be expected from them.

Company's C links with local councils and its support to their social responsibility and environmental initiatives has contributed to the good image it has decided to build, as well as improving its relationship with these stakeholders. This situation has also resulted in the company receiving facilitation of procedures and a better treatment when entering into business relations with the government. In addition, the improved relationship has helped to ease the issue of disagreement with the government when dealing with environmental problems arising from its operation.

While it cannot be said that this DC is exceptionally strong in this company, it has had positive effects on its objectives. Furthermore, the evolution of the relationship with the government has brought benefits for both parties and, in the process, increased interaction with the community and facilitated communication channels to inform on how the company is improving the impact of its operation. By placing more emphasis on relationships with agents

from other systems, the organisational system improves its level of attention, responsiveness and adaptability to changes in the environment.

#### ***Knowledge related and absorptive capacity***

Through interaction with auditors and environmental authorities involved in the Clean Industry certification process, Company C has extended its knowledge on how to deal with problems caused in the environment by its operation. Similarly, it has acquired knowledge on how to formalise the social practices that it has been carrying out with its workers and the neighbouring communities as a result of its engagement with the SRC accreditation. In both cases, the company has invested time and monetary resources to expand another resource, knowledge.

This wealth of knowledge acquired and applied to the processes examined by the certifications/accreditations not only helps Company C to comply with the regulations, but also to get closer to fulfil its objectives and to build the good image it pursues. It can also be said that to a limited extent, specific pieces of this knowledge have been shared with agents that perform tasks specifically affected by the Clean Industry certification.

In a limited proportion, the knowledge related and absorptive capacity has equipped the organisational system with additional elements that are reflected on an enhanced design and adjusted operation that seeks to meet the requirements posed by the changing environment. This DC is the result of the co-evolution of the environment and the system, which has led the company to interact with new stakeholders and to modify the focus of pre-existing relationships, as well as to permeate, though in a deficient way, some of the knowledge acquired to agents at the lower hierarchies. Thus, employees' knowledge has just started to evolve.

#### ***Internal reconstruction***

Although communication has not been completely clear, there have been changes around production incorporating requirements from law and the Clean Industry certification. These changes range from additional activities to the acquisition of equipment for specific purposes to reduce environmental impact. Other associated measures are present in the form of operating policies, such as the attempted reduction of exploited land to obtain the aggregates used as raw materials. The social responsibility programme has also begun to raise awareness and increase the involvement of unionised employees in activities that benefit them directly and activities carried out for the benefit of surrounding communities, leading to smoother relationships.

Through internal reconstruction, the organisational system has begun to extend and modify its resources to meet the new demands from the environment and the systems it coexists with. Although to varying degrees, employee learning and schemas have also begun to evolve. This set of changes contributes to the responsiveness towards challenges in the environment. While it does not help to develop new competitive advantages, it does help to maintain the good reputation the company has been building.

#### **5.4.8. Conclusion**

Summarizing, one must begin by recognising Company's C effort to improve its image with society and to reduce its impact on the environment, specially being part of a stigmatised industry due to its level of pollution. It can be said that to some extent Company C has made use of its DCs to boost its reputation as more friendly to the environment and society, to

improve its relationship with the government and, along the way, benefit from a better treatment. For this purpose, it has relied in DCs such as collaboration with a blue-chip company in the construction sector, has established closer and more cooperative ties with town governments and has acquired knowledge that allows to comply with the environmental law and maintain the sought-after accreditations and certifications.

More incipient DCs, namely knowledge related and absorptive capacity and internal reconstruction, are also present but need to be further advanced to contribute to the preservation or development of the differentiators and advantages of this company. The limited dissemination of relevant information and the still poor involvement of employees from different hierarchies are issues that the company should look at. Not surprisingly, the evolution of schemas and employee learning is just taking off and advancing at a slow pace.

So how has the organisational system benefited from the deployment of DCs during the adoption of sustainable practices? Whether there has been a substantial contribution to an enhanced performance and resilience is questionable. Although the company is alert to demands from its environment, to engage more with partners in sustainability-oriented activities, and has implemented changes that have reduced its footprint on the environment, the focus has largely been from the perspective of having a good image rather than working on an internal transformation. Due to this external image approach many of the changes or ways of tackling the implementation are facing deficiencies, which hinders the capacity of the system to advance its design and functioning. Furthermore, its ability to recover quickly from difficulties has not excelled as it has not gone through a severe crisis in terms of sustainability that would push a major change beyond fulfilling the law. Overall, it can be argued that the capacities for resilience and adaptability of the organisational system are yet to be benefitted from a sustainability-driven change.

## 5.5. Company D

### 5.5.1. Company Context

Being established more than 100 years ago in the Peninsula of Yucatan, Company D produces various types of cookies, biscuits and crackers. It also produces different types of pasta for its own brand and manufactures for supermarket chains. This company is by far the market leader in the Peninsula. It also has a minor strategic business unit for the sale of biscuits to livestock feed producers.

Company D has two production sites located in the city of Merida, one close to the city centre and the other in the outskirts of Merida, at the Industrial City. Additionally, it has 19 distribution centres in southeast and central Mexico.

Its customers range from supermarket chains, convenience stores, small grocery shops and canteens in schools and workplaces. Customers also include feed producers for the livestock industry.

The main competitive advantages of Company D are related to the prestige and tradition they represent in the market of the region:

- Consumer loyalty in the Yucatan Peninsula. The long-standing consumer preference means that several of the products are part of the day-to-day diet in

a large number of households. Both the quality and taste of Company's D products are preferred by local consumers compared to the leading national brand, along with its competitive prices.

- The company is recognised within the business community in the region as a promoter and a benchmark in environmental care, as well as being committed to the development of the society.

During the last 20 years, the Company has been actively seeking certifications that validate the quality of its products, its EMS and its responsibility towards society. On the environmental realm, apart from having the ISO 14001 standard, Company's D two production plants have the Clean Industry Certification and it is part of the Business Coalition Against Climate Change and the FEYAC. In social terms, it has the SRC accreditation. Furthermore, Company D participates in the Communication on Progress (CoP) programme of the United Nations Global Compact initiative, through which it annually reports on the progress of its operations with respect to the principles on which corporate sustainability is built.

There are two departments in the company dealing with the implementation and following up of the sustainability-related practices. In charge of the environmental side of things, the Regulations department has the responsibility of ensuring that plants' operation fully complies with environmental regulations and the certifications already held. Each plant has been assigned a Head of Regulations, each one with a staff team. In the social responsibility side, the Human Capital department is in charge of carrying out activities focused on community outreach and the renewal of the SRC accreditation, reporting to the CoP, and liaising with external stakeholders such as the Business Coalition Against Climate Change and the FEYAC. The main responsible for this area is the Human Capital Manager, who is assisted by the Head of Human Capital and a number of assistants in this department.

Company D is considered a pioneer and benchmark in the peninsula in terms of the measures it has taken to reduce its environmental impact. An example is the implementation of a wetlands system in each of its production plants for the treatment of wastewater generated from the production process and office facilities. The company is also developing projects for the implementation of greener energies to power some of its operations and, to disclose information about carbon and water footprints in its products. Moreover, it was a nationwide early adopter of the Clean Industry certification back in 2003.

Regarding the social pillar of sustainability, the company conducts activities to renovate schools in marginalised areas in the state of Yucatan or wherever the plants have a direct impact. In addition, it is part of several programmes for human capital development and to increase employability of recent graduates and elder people. Some of the practices used to involve and convey to employees the company's mission, values and main concerns have been praised for their innovativeness. The interviewees' pride for being part of this company was noticeable, as they see it as a reliable source of work that takes their needs into account.

In recent years, Company D has initiated a growth phase towards the central part of Mexico, market where it competes with the largest national biscuit producer. Nevertheless, it can be said that its main concern when it comes to sustainability is to maintain its pace of growth with an increasing reduction of its impact on the environment, as well as to continue contributing to the development of the communities in the region. On the other hand, the company is also focused in obtaining more accreditations that would endorse its commitment to sustainability.



### 5.5.2. Preamble to interviews

The initial contact was through the Human Capital Manager, who was met to discuss the research project. From this meeting, it was determined that four people would be interviewed: the Human Capital Manager himself, the Head of Human Capital and the two Heads of Regulations, each one in charge of one production plant. The first two are located in the administrative offices, while one of the Heads of Regulations is located in the plant inside the city of Merida and the other in the plant at the Industrial City.

The first interview took place in the morning with the Head of Regulations in the city of Merida. She has worked in the company for 25 years, of which the last 9 have been in this position that involves dealing with environmental issues. The responsibilities of this participant are oriented towards the plant's compliance with the regulations and guidelines related to the certifications held by the company, ranging from quality issues to environmental impact aspects. To this end, she deals with those directly responsible for production. The second interviewee of the day was the Human Capital Manager, who has worked for Company D for 8 years in the position of Manager. However, his experience with sustainability issues goes back 30 years. In addition to being responsible for human capital management, he is also primarily responsible for the SRC accreditation, for engaging with the Business Coalition Against Climate Change meetings and activities, as well as validating the information reported to the UN CoP programme. On the same day in the afternoon the Head of Human Capital, who reports to the Human Capital Manager, was interviewed. She is in charge of administrative activities for recruitment and pre-payroll processing. With 8 years of seniority in the company, she was promoted to Head of the area two years ago but has been working with social responsibility matters for the last 5 years. She was included amongst the participants as she is directly responsible for collecting evidence to ratify the accreditation as a SRC and for collecting the information that is regularly submitted to the CoP.

On the second day in the morning, the Head of Regulations at the Industrial City plant was interviewed. He has been in the company for just 14 months but has worked with environmental issues for 8 years. His responsibilities are the same as for the Head of Regulations at the plant in Merida, with the difference that the Industrial City plant is larger and therefore produces a higher volume of products.

All participants were open to cooperate with the interviews, especially the Human Capital Manager who gave all the facilities for the interviews to take place.

### 5.5.3. The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages

Few brands in the southeast of Mexico enjoy the prestige of Company D. The brand is synonymous with tradition and quality, and taking advantage of this situation, it has positioned itself as a promoter of family values and as a supporter of development in communities, even reaching out to schools in the southeast. Moreover, the price level of the products offered by this company is competitive with leading national brands. All these advantages have earned the company's products the preference and loyalty amongst consumers in the Yucatan Peninsula.

Additionally, the company considers its human capital another of its competitive advantages as it has counted amongst its ranks highly experienced and recognised executives in their fields. For the four participants interviewed, it is a pleasant experience to work in a company that is sensitive to the needs of its human capital and encourages its development.

This is also an advantage when it comes to attracting new talent to join the company. Such a situation turns out to be convenient in the current time when the company is expanding into central Mexico's market.

Although Company D is facing a scenario that has been changing over the years and has led businesses to become more socially and environmentally responsible, participants claimed that the company has a core of social responsibility rooted in the ethical and religious ideology of the founding family. It was reported that the founders and subsequent generations of management have always been concerned about society, their staff and the environment. It can be assumed then that the main motivation for Company D to adopt a commitment to sustainability is intrinsic, i.e., the end result.

However, there are additional drivers that have reaffirmed the decision to be a company that carries social responsibility as a banner. In the first instance, compliance with environmental regulations. These require that all the company's operations and growth take place under the protection of the law. A second motivation, which also encourages the company to continue obtaining certifications, is the perception of social responsibility as a competitive advantage that adds value to its products. According to one of the interviewees, this is a requirement in international markets that not all companies in Mexico, and even less so in the southeast, are able to meet.

In terms of objectives, it can be said that the company's main interest is to ratify the certifications and accreditations it holds for both the environmental and social responsibility areas. Derived from these, there is a particular interest in the reduction of CO<sub>2</sub> emissions and in the responsible use of electrical energy, including its generation from cleaner sources. To maintain its environmental certifications, the company has an EMS through which the environmental indicators of its operation are monitored. Ideally, these should improve year by year.

Aiming at a more responsible use of energy, apart from installing energy-efficient lighting, the company has also equipped power plants that are switched on during the peak hours of energy demand in the city. The aim is to help relieve the burden on the infrastructure that supplies the city during those times of the day. In this vein, Company D is also pursuing the use of cleaner energy sources. To this end, it has a programme for the implementation of solar panels and budget allocated for the installation of a combined heat and power turbine.

Other objectives that were also briefly mentioned target the reduction of specific types of pollution: noise, particulate matter and soil, pairing the last one with care for the groundwater. Lastly, waste management was also commented on, with the idea of reaching a zero-waste level.

Summarizing, it can be said that Company's D main driver for the adoption of sustainability-oriented improvements comes from the ethical and ideological beliefs passed on for generations, and still palpable until today amongst senior management. There have also been extrinsic motivations leading the company to stay in this path and to make efforts to excel amongst other companies, especially if they are to retain the prestige they have maintained in their main market for over a century. It is to be noted though, that despite having an impact in the environment as any other business with industrialized production, the burden caused by Company D is less than that of others due to its products. This situation definitely works in their favour.

#### 5.5.4. Implementing sustainable practices and issues faced during the process

What is it that participants from Company D understand as a sustainable practice? Although the most common conception remains environmental, some respondents in Company D did include the social component regardless of the area in which they work. The idea of business permanence over time was also mentioned.

*“Researcher: What do you understand as an organisational sustainable practice?”*

*Participant: Sustainability can be seen from two angles. One is that the activity in which you are engaged does not damage or harm the environment, considering the environment and even the social part. This includes the subsoil, the ecosystem and the social part. That would be one. The other is that it is sustainable in the sense that it produces enough wealth to continue, to keep functioning. These are the two parts in which I consider that a company must be sustainable over time without causing a negative effect [D1].*

*P: Something that I can develop in the organisation that will benefit the environmental side... in processes or in activities...*

*The objective of the sustainability part is to develop practices that are friendly with the (production) plant, I mean in the plant's processes, to benefit the plant or to benefit society. We are a Socially Responsible Company; all our processes must be in accordance with the environment in which we are working [D2].*

*P: These are goals that the company sets for itself to improve its activity according to the process. For example, the Clean Industry certification helps us to take care of the environment in different areas: water, air, soil. So that is a goal that the senior management set, that we were going to take care of the environment, and we achieved the certification and have been ratifying it [D3].*

*P: Something that goes over time, something that makes the organisation endure over time. It is the idea of sustainability [D4].”*

Although Company D has always had a spirit of altruism and responsibility towards society, over the years changes in the market and in technologies have led senior management to actively seek certifications and accreditations to formalise what had been done so far. As a result, the implementation of sustainable improvements and the execution of activities focused on social responsibility have fallen on two departments: regulatory and human capital.

The Regulatory department is responsible for maintaining and ensuring compliance with certifications focused on quality, food safety and the environmental impact of the production plants, including ISO 14001 and Clean Industry. Each Head of Regulations receives from auditors or from Managing Directors at the higher hierarchies the requirements and information about the change to be implemented, and in coordination with the leaders of the operational areas affected by the modifications, they decide the best way to implement the change. The Heads of Regulations are responsible for following up on full compliance with the agreed guidelines and ensuring that adherence to the certifications is upheld. When audits are carried out on these certifications, Heads of Regulations are also responsible for dealing with non-conformities.

Information about the changes and adjustments to operation in order to fulfil environmental improvements can be transmitted to lower hierarchies by the leaders of the production process, managers or Heads of Regulations.

Meanwhile, the Human Capital department is in charge of activities and accreditations focused on social responsibility. Furthermore, the area has an annual work programme that includes initiatives repeated on a yearly basis. Each activity is assigned to a member of the Human Capital department, who is responsible for coordinating, raising funds or looking for volunteers to carry out the activity. With regard to the SRC accreditation and its renewal, the Head of Human Capital is responsible for gathering the evidence amongst the activities carried out by her department or other departments that benefit either communities or the company's staff. Evidence from the actions that fall under the responsibility of the Regulatory department is also gathered.

Support from senior management is recognised as a major factor in the success of the implemented changes and certifications. In fact, most of the ideas for new certifications, accreditations, or adoption of new technologies or equipment frequently come from senior management. Then, the competent area studies and implements in coordination with those impacted. According to the Head of Regulations from the Industrial City plant, senior management always seek involvement from operative leaders and listen to their suggestions. Additionally, the support, availability and leadership shown by the Human Capital Manager, who is ultimately responsible for social responsibility matters, was also acknowledged.

Whenever new activities or programmes outside the purview of the Human Capital Manager or the Heads of Regulations are required, decisions are escalated to the senior management committee, comprising the CEO, COO, Chief Commercial Officer and some senior managers including the Human Capital Manager. As well as jointly developing the five-year strategic plan for the company, they also make major decisions that require resource allocation or that could have an impact on the company's image.

The values that the company stands for, the information regarding its certifications and accreditations, and the transmission of the overall spirit of concern for the environment and responsibility towards society is passed on to new staff through initial training provided by the Human Capital department.

Company D has also encountered problems during the implementation of sustainable activities and improvements, which can be classified into two groups: those related to employees and those related to infrastructure.

On the employee side, the first one is the reluctance of operational staff, including supervisors, to undergo constant training. This has led in the past to a tendency of assigning staff to simple activities that require minimal training. However, the Head of Regulations at the Merida plant reported that they are seeking to move away from this approach and instead involve more the production supervisors in the design of solutions, as they have so far been apathetic or alienated from the plans and requirements. As in many cases, the priority for this staff is the production and not the additional activities stemming from the certifications. According to the Head of Regulations, efforts are being made to address this issue by inducing production supervisors to train their subordinates and share with them the responsibility of the outcome, rather than perceiving changes as someone else's responsibility.

Another problem is the additional workload that comes with the several certifications Company D currently holds, particularly for the Heads of Regulations. According to the Head of Regulations at the Industrial City, this workload could be ideally split or partially delegated to operative staff given the importance of these certifications for the company, increasing their engagement. This would additionally help to alleviate the long time spent on the administration of the certifications.

As per infrastructure, the shortage of natural gas in the region is the main issue. The company has invested in modifying its facilities to run on natural gas, a cleaner source than the previous fuel; however, the shortage of natural gas in the peninsula means that the company has to switch back to a more polluting source of energy to continue producing.

Excluding issues with the infrastructure in the area, it could be said that the challenges faced by Company D are manageable. The fact that the company is used to work with management systems linked to its certifications, the prestige that underpins its relationship with society and its workers, and belonging to an industry not perceived as highly polluting, contribute to a scenario that is perceived as less problematic.

When it comes to the monitoring and evaluation of results for undertaken actions, the Human Capital area has no formalised process for assessing the results of activities conducted for the benefit of external stakeholders, neither for those benefitting the staff. However, some exceptions such as reforestations in schools involve informal contact to find out whether donated green areas are being taken care of and hence, remain within the group of beneficiaries.

Renewal of the accreditation as a SRC requires the submission of evidence about the activities that the company carries out in this regard. This accreditation does lean the organisation towards a more structured programme where activities are measurable and repeated over time rather than conducted as a one-off event. However, it cannot be said that from the beginning all activities fulfil these requirements while there is not an evaluation of outcomes nor comparison against specific targets.

The only specific and measurable objectives for Human Capital staff that came up in the interviews were related to the evaluation of their performance, which is conducted annually. This evaluation indicates the target number of schools to visit, the number of activities to carry out, and more. Such targets are determined in conjunction with the line manager. For example, the Human Capital Manager defines his performance indicators together with the Director to whom he reports, and the same happens between the Human Capital Manager and the Head of Human Capital. This assessment of performance based on indicators was not reported by respondents from the Regulations department, but it is likely they omitted the information.

As for the environmental area, the monitoring process is more formalised compared to the human capital department. On a weekly basis, the Regulatory team collects the necessary information to determine the values for the environmental indicators and compare them against the relevant targets and/or periods. This information is recorded in the management system and is reviewed in weekly meetings between the Head of Regulations to the corresponding plant and the leaders of the production areas. Non-conformities that may have been previously flagged out are also followed up. The information resulting from these meetings is subsequently shared with those involved so that they can inform their subordinates. If required, the Heads of Regulations issue memos that are circulated to all staff. On a monthly basis, the information regarding environmental indicators, amongst others, is reviewed with the Manager that oversees the production for both plants. Notwithstanding, it should be noted that not all environmental indicators have specific targets. In such a case, indicators reviewed during the meetings are compared against last year's values.

Information generated from the indicators is shared with the government institutions in charge of the environmental domain, in addition to auditors for the certifications.

Neither the Human Capital nor the Regulations department reported that adjustments to the five-year strategy plan have been applied following the actions or indicators' results.

Now, to what extent are those involved in social responsibility activities aware of the objectives pursued by the company? It seems that outside the human capital department, those that participate do not have full details of what is exactly being pursued. They are aware of the socially responsible core of the company, but rather have limited information about the few specific targets, which are mostly part of the Human Capital staff performance evaluation. If considered that the Head of Human Capital herself declared that she is not completely sure as to what extent her performance evaluation is aligned with the organisational objectives, the situation denotes lack of communication at least regarding sustainability objectives.

From the Heads of Regulations responses, one could say that the environmental objectives are of a more widespread knowledge, at least in the production side. Having weekly meetings to inform about the progress on different types of indicators, including environmental, the leaders of production are expected to convey this information to their subordinates. Relevant information can also be shared at the beginning of their work shifts and even on induction training.

As it happens with most of the companies in this study, greater scrutiny and close monitoring is given to environmental performance compared to social performance. Environmental laws and certification requirements imply not only mandatory and more stringent requirements, but also greater repercussions for the company. In contrast, there are no regulations for the social pillar imposing penalties. One could think of the SRC accreditation, but this represents lower pressure than the environmental certifications.

#### 5.5.5. Strategies for implementing Corporate Sustainability

There are several strategies that Company D has implemented at the functional level targeting a better performance in sustainability terms, and similarly to previous companies, most of them focus on their environmental concerns and eco-efficiency, with fewer resources allocated to strategies of a social or economic development nature. In terms of natural environment strategies, an EMS has been put in place, which is also audited as part of the Clean Industry certification and the ISO 14001 standard. Additionally, two strategies mentioned by most of the respondents were the one for energy efficiency and another for CO<sub>2</sub> emissions reduction. Furthermore, the company is involved in environmental reporting through UN CoP programme. In the social sphere, the company looks both internally and externally for the adoption of its strategies. Thus, amongst others, it has the SRC accreditation and the strategy "the chemistry that binds us together", through which it disseminates internally information about the company's values and its culture of social and environmental responsibility.

Compliance with environmental law and ratification or attainment of environmental and social responsibility accreditations are the starting points for determining the activities and functional strategies the company will engage with. From these initial parameters, senior management takes additional considerations such as primarily benefiting the communities directly affected by the company's operation, the cost-benefit ratio and the investment of non-financial resources. For both the environmental and the social responsibility axes, decisions are made at the senior management committee level.

Despite having these strategies, the company's attitude is one of openness to listen new ideas, to change and to adopt new ways of doing things when merited, as reported by Human Capital Manager:

*"We are open to listen, to see ideas, and if we think it will add up, we jump in. That's how it has worked.*

*...not everything has to be planned in advance. What you do have to be is open to change and to accept new ways of doing things [D1]. "*

Regarding the strategies selected to compete in the industry, the company has clearly developed and maintained its image of social responsibility towards the community and its employees. And this image is well known by companies in the region. Moreover, the company also leans towards a pollution prevention strategy, aiming for cost leadership. As in the case of other companies, it should be recognised that cost leadership is not the only reason for engaging in such strategies. However, it can be observed that strategies such as the one for energy efficiency aim to generate their own electricity through cleaner and more affordable sources.

At the corporate level, one shall begin by noting that the company identifies itself in its mission as socially responsible. Furthermore, the adoption and maintenance of environmental certifications, the SRC accreditation, and overall, the strategies that aim to mitigate the impact on the environment, are considered within the 5-year strategic plan that covers all company operations. Moreover, respondents are clear that social responsibility is an axis of their organisational culture that continues to be nurtured and disseminated amongst employees.

*"I think that commitment from senior management and from the Human Capital Manager has helped us a lot, because it encourages us every day to be more consistent in these types of activities and to create awareness, not only for one person, but also for all the other members of the team. And part of the things that the team has, at least the human capital team, is that willingness to do different things, and what the (Human Capital) management sets [D4]."*

Furthermore, additional and equally important criteria focused on maintaining the good image and prestige of the company are considered while deciding on strategies:

- alignment of the activity to the company's values and vision,
- interest in being linked to other organisations involved in the activity, for which their reputation is assessed and,
- Company's D interest in having an impact on the area targeted by the activity.

These findings further support that all actions and decision must be under the umbrella of the corporate strategy aiming at a clear and strong social image, where the company gives great weight to its reputation and the values it promotes and these, are decisive factors that have permeated strategic decision making.

It was also observed that even though the management of social responsibility and environmental activities falls under two different departments, both reported that working together and staying in communication is in the best interest of the company. Indeed, interviewees' responses indicate that information and increased involvement in sustainability matters is not limited to the responsible departments, but extends to departments directly affected by environmental and social responsibility activities. Adding to this idea, organisational communication has been a tool that Company D has leveraged to make the majority of its employees aware of both the accreditations and certifications it holds, so the human capital and regulatory departments are not oblivious to what the other is doing. In this light, findings indicate that Company D does possess a strategy for sustainability at the corporate level.

#### 5.5.6. Company's D sustainability programme through the CAS lens

The organisational system for sustainability in Company D, comprising environmental and social programmes, will be analysed below with a focus on the mechanisms of a CAS.

##### **Agents**

Respondents' answers revealed four groups of agents within the system. The first group is made up of employees in the lower hierarchies, including those involved in the production area and administrative staff. The leaders of the various production areas make up the second group of agents, whose position allows them greater influence and intervention in the design and implementation of environmental solutions. Participants in the study conform the third group, in their role as responsible for ensuring compliance and maintenance of the various certifications and accreditations, as well as leaders for the implementation of environmental and social responsibility initiatives. Finally, the last group of agents are senior managers and the Board of Directors, who propose the largest number of sustainable initiatives with a significant effect on the business operation and who also authorise proposals coming from lower hierarchies.

Since the company was introduced to social and environmental responsibility matters at an early stage due to its business philosophy, it cannot be said that the external agents with whom the system cohabits today have pushed major changes. However, they have helped to formalise activities, schemes, and to engage the system in new initiatives.

##### **Dimensionality**

The degrees of freedom for the different groups of agents within the system represented by Company D are low. Those in charge of implementing and monitoring compliance with certifications, the middle level managers, and the operational staff, all support and adhere to the guidelines handed down by the senior management.

The senior managers, inspired by the ideology of the founding family, have been mostly successful in transferring the spirit of social responsibility and care for the environment to lower hierarchy agents. This has been achieved through constant information flows and interaction to disseminate the message and demonstrate it is a fundamental part of the overall system schema. The pride in the company's philosophy and its behaviour expressed by interviewees indicate that they have adopted the overall schema and follow it to a large extent. Therefore, agents do not really question nor challenge and stick to the patterns and schemes defined by the top hierarchies. If anything, they strive to complement and further build on this ideology.

##### **Schemas**

The schemas of agents at the different system levels are well aligned, which has brought benefits to the company.

Senior managers' schemas largely govern the organisational system, and they continue to support the philosophy and ethical core committed to social responsibility, people and to the environment. In addition, they are open to receive input from outside and to the organisational system creating alliances with other systems with which it coexists. The organisational system is eager to interact and feed from the outside. In the words of the Human Capital Manager "*to renew or die*" [D1], to question whether things are being done in the best possible way and to update where necessary.



The belief that the company's good reputation is part of its strength in the market, as well as a useful tool that could cushion a crisis associated with its image, especially in the era when social media plays an important role in consumer perception, is also part of the schema exhibited by senior managers.

Agents in lower organisational hierarchies perceive a high commitment from senior management, which encourages them to align their schemas to those of the system. The idea of being a socially responsible company is well embedded in the mindset of agents and therefore their activities and the operation of the company should be aligned with this. The pursue of benefits for society and the environment, conducting oneself with transparency and not falling into illegal practices, are part of this deep-rooted belief. This whole scenario results in high employee commitment and a proud sense of belonging to Company D.

At the level of the human capital department, work schemas have started to divert towards benefitting communities where the company has direct impact, in contrast to the previous approach where any community in need could receive support.

### ***Non-linearity***

Non-linearity implies that the same input could lead to different outputs, or that the size or proportion of changes in inputs can lead to outcomes of a different magnitude. But when it comes to Company D and its sustainability programme, no robust evidence was found in the participants' responses to indicate a strong presence of this mechanism. One could argue this is the result of a system with low dimensionality where agents in different hierarchies willingly adopt schemas from the top, given that sustainability is perceived as an end rather than a means. Therefore, non-linearity is weakened.

### ***Self-organisation and emergence***

Similar to the previous mechanism, it can be noted that self-organisation and emergence are not particularly strong in this system. Due to the high degree of alignment and acceptance of guidelines dictated by senior management, the emergence of new structures or patterns not originated from the higher hierarchies was not detected.

Interactions between agents and the outcome of these interactions are not too far from the ideal scenario that the higher hierarchies want for the system. Although senior managers motivate middle level managers and production leaders to get involved in designing and implementing solutions, ideas or suggestions tend to be in line with organisational schemas. Even small changes tend to stay aligned with the structure of the system.

Are weak self-organisation and emergence bad for the system? One cannot assert this. At no point did the participants express dissatisfaction with the organisational environment or report that it hinders their opportunities for growth. Although the changes and evolution of the system have not been drastic, the system has not ceased to seek continuous improvement. While it cannot be said that movements are completely unilateral from top to bottom hierarchies, senior managers' schemas dominate the system by far. However, this way of operating has not been ineffective nor have the agents shown themselves reluctant to it.

### ***Edge of chaos***

Company D is a rare case of "relative stability " and little chaos around its activity. Despite the existence of changes in the market and regulations, the company has been diligent in keeping up to date, and even ahead, of requirements from authorities and customers. The proactivity demonstrated in environmental and social responsibility issues has allowed this

system to be ready to meet external demands and implement changes with an efficient response capacity.

In this scenario, one must acknowledge that the company's operation is not perceived as highly polluting nor does it offer a product deemed as harmful. Its status as a “friend of society” has led to fewer conflicts from outside, which results in fewer external factors causing instability in the system. Nonetheless, the company's expansion into central Mexico, together with the increase in production, presents a latent risk of falling out of line with the environmental responsibility schemas established in the system.

#### 5.5.7. Adaptability and Dynamic Capabilities for sustainability

The following section will analyse the DCs that Company D has drawn on to implement its sustainability programme. This discussion will break down how each DC has contributed to the organisational system, its evolution, adaptation, resilience and generativity. Furthermore, it will address how the company's competitive advantages have benefitted from the DCs, to what extent they have helped to the resolution of problems faced in the process of implementing sustainable improvements, and additional benefits resulting from their deployment.

##### ***Collaboration***

By valuing and actively seeking collaborations on social and environmental responsibility projects/programmes, the evidence gathered from interviews indicates that this is one of the strongest DCs for Company D. Collaboration has included, but is not limited to, universities, government, civil society bodies, business coalitions or individual companies. The company perceives these collaborations as a source of new opportunities for involvement in interesting projects considered relevant to its approach. Moreover, the company prides itself on constantly receiving invitations for collaboration with external organisation as this is largely the result of its good reputation in the marketplace, while also continues to boost this image and reaches the ears of more consumers and organisations.

As part of the Business Coalition Against Climate Change, for instance, the company discloses information about its environmental impact, as well as jointly conducting environmental and social responsibility activities with the other member companies. The company also collaborates with the FEYAC, where other local companies certified as SRC come together to work on behalf of vulnerable and marginalised groups in the state of Yucatan, sometimes collaborating with the government.

This strong inclination towards collaboration and involvement in new projects fosters dynamism and contributes to the continuous strengthening of the organisational system and its sustainability programme. In addition, it enables the maintenance and strengthening of what the company considers to be one of its main competitive advantages: its good reputation and image of a socially responsible business.

##### ***Knowledge related and absorptive capacity***

In terms of the acquisition, generation and application of knowledge, this is evidenced by the company's permanent interest in finding and applying technologies and improvements to the production process and the overall operation aiming to reduce its environmental impact. Examples of this are the current projects on water and carbon footprints to be included in product packaging, the project for zero waste operations, and the studies for the implementation of cleaner energy sources.

Some of the knowledge is administered through an Integrated Management System, which includes socio-environmental aspects. In addition, the company's social responsibility core, as well as basic information on certifications, is shared internally with employees through training. Externally, ideas and information are shared with organisations it collaborates with. This knowledge sharing ranges from allowing visits from other companies to its wetland system, to the two-way flow of information with the organisations part of the coalitions and business groups to which Company D belongs.

This DC strongly contributes to the organisational system evolution through an improved design and operation that originate from updated knowledge and shared practices with the external systems it coexists with. Evolution starts from within, where agents learn and assimilate information received through training, and it is further boosted by the inflows of information. Moreover, by sharing knowledge with other organisations, its good reputation spreads and grows further, preserving this competitive advantage.

### ***Market oriented perception***

This capability is mostly leveraged through information sharing with large customers such as Walmart. Mostly focused on issues of industrial safety, production quality and fair and ethical treatment of employees, the company must undergo periodic audits to ensure compliance with the requirements to be part of the retailer's supply chain. In some other occasions, customers also request information on the certifications held by the company.

However, Company D shares more information than the requested by its customers. It has joined the UN CoP programme, sharing information about its operation to demonstrate its commitment to and awareness of global sustainability issues.

The constant attention to and engagement with sustainability initiatives that arise in the market, even though they are not yet expected from Company D, leads the system to continue formalising its operation and fine-tuning its evolutionary process. Hence, its readiness to deal with unexpected external requirements is boosted, enhancing its responsiveness capacity. The system is eager to signal other systems and the environment that its schemas are aligned with demands from the outside while concerned with generativity. Finally, the reputation as an ethical employer, provider of quality products and committed to global issues, is fostered through this capability as well as the maintenance and development of business relationships.

### ***Social Network Relationships***

Based on its certifications and the audits received from its customers, Company D started audits of its main raw material suppliers. Amongst the many points evaluated is the use of inputs with reduced environmental impact.

Furthermore, the company is concerned with maintaining an appropriate relationship with the various stakeholder groups with which it coexists in the market. In general, it tries to behave ethically in all its relationships and tries not to link up with organisations that could be singled out for their dubious reputation. With regard to the authorities, the company has policies that prohibit involvement in irregular practices and prioritises transparency and cordial relationships with them. This becomes relevant in countries where corrupt practices are not uncommon.

This DC is important for the company as it influences its good reputation with the government, other businesses and society at large. This was confirmed by one of the participating companies in this study that is also a supplier of raw materials to Company D, which acknowledged that Company's D standards for its suppliers are high as a result of the

stringent standards it has in place. To a lesser extent, this DC also contributes to the maintenance of consumer loyalty as supplier audits contribute to the maintenance of product quality. As for the organisational system, it is favoured by an improved functioning and responsiveness to issues that emerge during supplier audits. Ideally, the system will learn from every relationship and evolve by learning how to deal with problems that may arise.

### ***R&D and Innovation***

Even though this capability does exist within Company D, one could say it is of a moderate strength when it comes to its application in the sustainability realm. The production side of the company has benefitted from innovative measures created by its own personnel, as part of their programme to encourage and reward employees to develop solutions that improve the production process. Ventilation and dust collection systems are amongst the examples. While these were not necessarily created thinking of a sustainable enhancement, they do improve the working conditions for employees at the production floor, hence they can be considered within the realm of social sustainability.

Pro-environment improvements have also been made in several processes and facilities as a consequence of the Clean Industry and ISO 14001 certifications, but none of these have been developed in-house nor are the fruit of internal research. The same applies to the current projects aiming to make use of cleaner sources of energy, which would reduce the carbon footprint of the organisation.

While this capability does not directly contribute to develop or maintain a competitive advantage, nor to solve a specific issue, it does demonstrate to employees the company's commitment with the environment, while also endorsing its sustainability-best practice approach. As per the organisational system represented by the sustainability programme, it gets benefited from an enhanced design and operation that in the process, strengthens agents' alignment with the system's schema.

### ***Internal reconstruction***

It cannot be claimed that this DC has been highly leveraged in Company D in response to external demands in the sustainability domain. While the company has made adjustments to its operation as part of the environmental certifications it possesses, the implementation of these stems from its ethical and social responsibility philosophy rather than stakeholder demands. Thus, its motivation is intrinsic and not to satisfy external demands.

Notwithstanding, it is worth mentioning some of the changes incorporated by the company. For example, in addition to the adjustments focused on reducing the environmental impact of the production, changes have also been made focused on the social axis. These have included hiring elderly and deaf people, population groups who usually find it difficult to get a job, for repacking and cleaning containers for biscuits respectively.

The company has also reconfigured its resources as a result of internal resource assessments. As such, production supervisors have been involved in the training of their subordinates on quality and environmental certifications, aiming to ensure their awareness of these areas of prime interest and to share with them the responsibility for compliance rather than them feeling alienated.

Although this is not one of the strongest DCs, this capability assists to the solution of problems such as employees' reluctance to receive frequent training on environmental improvements, supporting the preservation of accreditations and certifications. Additionally, by involving and sharing responsibility with agents in the middle hierarchies for the transmission of

knowledge to the lower hierarchies, their alignment to system's schemas increases and enhances the system's ability to overcome internal inconveniences. On the other hand, internal reconstruction reinforces the company's good reputation as ethical employer while also expanding labour opportunities (and sources).

#### 5.5.8. Conclusion

The ethical and socially responsible ideology that governs the operation has led Company D to be ready in advance for market demands. Requirements from various groups of stakeholders have been met through the high quality, environmental and social responsibility standards that characterise the company and that are part of its organisational strategy. Capabilities such as Collaboration, Knowledge related and absorptive capacity, Market oriented perception and Social network relationships have enabled the company to preserve one of its most important competitive advantages: its good reputation in the market and with society. In addition, they have enabled the company to develop and strengthen important commercial relationships.

Other DCs present are R&D and Innovation and Internal reconstruction, which have helped to maintain the company's social and environmental credentials with its employees and with external stakeholders. While the problems faced by this company have not been particularly challenging, some of them have also been alleviated by these DCs.

From the perspective of the organisational system, it could be said that it continues to gradually evolve towards an improved operation that results from its focus on best practices, including sustainability, and its openness to new ideas. However, it has also been greatly enriched by the constant exchange and collaboration with the other systems it coexists with. Furthermore, it can also be said that originating in the midst of concern for the environment, social responsibility and ethical conduct, this system that sees sustainability as an end, is committed to leave a positive legacy which in turns fosters its generativity.

It should be noted that this system particularly presents a low degree of dimensionality from its agents, hence the high alignment of employees to organisational schemas. External actors have not posed challenging demands to this system that has been preparing in advance to meet their sustainability-related requests. While this situation cannot be said to be entirely positive for the system, as chaotic and highly challenging scenarios make learning, adaptation and evolution thrive, it can be said that the generativity verve of the organisation justifies and compensates for its low degree of evolution and adaptation.

## 5.6. Company E

### 5.6.1. Company Context

Company E is engaged in the breeding, rearing and sale of live pigs and pork meat, and is one of the top five pork meat producers nationwide. This denotes a highly vertically integrated business model as the company owns genetics farms, commercial production farms, pig feed production plants, meat processing plants (slaughterhouses), and a chain of point of sales for pork meat.

Its business model also includes pig farmers in their supply chain. These are part of their commercial production farms and can be either private or ejido groups, to whom the newly weaned pigs are sold to be reared and fattened. Once the pigs have reached the desired weight, they are sold back to Company E so they can be sold live or as pork meat. Pig feed is produced to meet the company's own demand and that of the pig farmers part of its supply chain.

Although Company E initiated its activities in the state of Yucatan, a couple of decades ago it was acquired by a national holding company with global reach and listed on the Mexican Stock Market. The current production volume of pork meat in Company E places the state of Yucatan in the 4<sup>th</sup> place nationwide (Servicio de Información Agroalimentaria y Pesquera, 2020), while the company maintains its growth expectations.

Its customers include butcher shops, food production industries, restaurants, supermarkets, and individual consumers who buy at their points of sale. Additionally, it is one of the main national exporters of pork meat to Japan, Korea, USA and China, accounting for 30-35% of their sales (Máñez-Gil, 2019).

Company E possesses the following competitive advantages that have enabled it to gain an edge in the market:

- Geographical location. Its location in the Yucatan Peninsula allows better containment of the diseases that affect pigs. This is due to the fact that the company leads an important number of the region's small producers of pig, who are often part of its supply chain. Moreover, there is a reduced number of land routes through which pigs from outside the Peninsula can enter. Due to its large size and influence, Company E has the power to monitor pigs coming from other areas of Mexico and its opinion is taken into account by different stakeholders within its industry.
- High technology level in its breeding process and production capacity. According to senior management, the company's production capacity and its genetic technology for breeding have made it possible for pigs to adapt better to the region's climatic conditions and to obtain higher piglet numbers per sow than nationwide competitors.
- Quality standards certifications, which allow Company E to export to North American and Asian markets.

With regard to sustainable credentials, the company is part of the Business Coalition Against Climate Change and has the SRC accreditation. Following the sustainability lead of its parent company, Company E issues reports on its progress in sustainability matters. Nevertheless, it is noteworthy that it does not possess any certificate or accreditation on environmental matters, although the pork industry is considered highly pollutant. On several occasions, this company has been involved in scandals related to contamination of the groundwater and unpleasant smells that reach neighbouring communities to the farms.

In the environmental domain, the company has heavily invested in and prioritized technologies for the treatment of wastewater from its farms and plants, as well as for harnessing the gases generated from waste and subsequent conversion into energy. Most of the farms growing pigs are owned by pig farmers who should at least have the necessary infrastructure for wastewater treatment. Otherwise, they could not be part of the company's supply chain. Yet, not all farmers that were part of the chain prior to changes in environmental regulations currently have this infrastructure or the economic strength to instrument it, so the company argues it is supporting them to do so.

With regard to social responsibility, the company has a strong focus on external stakeholders. It is currently implementing a community outreach plan in those communities

directly affected by the operation of the farms or the plants, and even in nearby communities that reject the company's operations. In order to develop this plan, the company hired a foreign consultancy firm who conducted a preliminary diagnosis and elaborated a plan which then had to be adapted to local conditions, customs and requirements. However, none of the interviewees provided information regarding social responsibility with the company's own employees as this is within the scope of the Human Capital department.

The company has a robust sustainability department overseen by the Chief Financial and Sustainability Officer (CFO). At the head is the Sustainability Manager, reporting directly to the CFO. Subordinated to the Sustainability Manager are the Head of Community Programmes, the Head of Environmental Management and the Head of Social Responsibility. The Head of Community Programmes supervises a group of Community Programmes Coordinators, who in turn lead groups of Community Promoters. This area is responsible for the development and good maintenance of relationships with the communities where the plants or the farms that belong either to the company or, to farmers part of the feedlot network, are located. For its side, the Head of Environmental Management oversees the Environmental Manager for ejido farms, the Environmental Manager for private farms, the Industrial Environmental Manager in charge of the pig feed processing plants and the plants that process pork meat, and a fourth Commercial and Projects Environmental Manager responsible for the company's own points of sales (for pork meat). According to the Farm Environmental Manager, the environmental area also has technical experts in charge of issues such as wastewater, waste and energy generation. Finally, the Head of Social Responsibility is in charge of the communication with internal and external stakeholders about the company's activities in favour of communities and the environment. To this end, he has a team that helps him coordinate activities with other areas of the sustainability department. This position is not responsible for social responsibility practices that are conducted for the direct benefit of the company's employees.

The main concerns for Company E are centred around the negative image the business has. On the one hand, it makes sure it complies with environmental regulations to avoid problems with the authorities that would continue to worsen its image. Therefore, it has a considerable amount of human capital dedicated to the supervision of operations at the different sites and of the farmers who are part of its supply chain. For this same reason, it has invested a vast number of resources in technologies that reduce the impact of its operations on the environment. On the other hand, the company has set out to redeem its negative social image through community outreach programmes, which would allow it to increase its level of acceptance and to cultivate in the communities the desire for the company to establish operations there. This scenario would support its growth plans.

### 5.6.2. Preamble to interviews

The contact with this company was through a staff member of the Human Capital area. She received the guidelines for the selection of participants and informed them to the Sustainability department, where they selected those who would be interviewed. Unlike the other companies that provided a list of potential interviewees and the justification for selecting them, this company provided the information at short notice, without justifying the selection, and was not flexible to accommodate adjustments in the interview plan. Originally, the interviewees were the Sustainability Manager, the Head of Community Programmes, two Community Promoters and one Community Programmes Coordinator. However, the Sustainability Manager could not be interviewed due to various commitments. Instead, the CFO was interviewed. Additionally, once the researcher realized through the interviews that all the interviewees were engaged in the same area of the company's sustainability department, she

requested to interview the Head of Environmental Management. This was not possible, but instead the Environmental Manager for Farms was interviewed.

On the first morning, the Head of Community Programmes was interviewed. He had joined the company a month earlier, so his knowledge of the position was based on theory rather than practice. However, he had 5 years of work experience with sustainability issues. Subsequently, the Community Programmes Coordinator was interviewed. He worked for 20 months in the Human Capital department but was transferred to the Community Programmes area where he has spent 7 months. His background in sustainability programmes goes back 10 years. In the afternoon, at the company's request, two Community Promoters were interviewed at the same time. The woman had been with the company for 7 months and this had been her only experience working with sustainability issues in communities. The man had joined the company a year earlier, but had an additional year of experience in the field.

On the second morning the researcher was invited to a scheduled tour to one of the company's owned farms, where key members of the community where the farm is located were also invited. This is one of the interventions carried out with some communities, called "Open House", with the aim of showcasing the environmental safety protocols and the facilities where the company operates. The tour included a visit to the biodigester for wastewater treatment and energy generation (from the gases released by the decomposition of waste), a walk through the green areas of the farm, which the company claimed were irrigated with the water treated by the system. The Head of Community Programmes, the Head of Social Responsibility, one Community Programmes Coordinator and some Promoters were present during this visit. That same day in the afternoon, the Environmental Manager for Farms was interviewed. She has been with the company for 5 years, plus another 4 years of experience in sustainability matters.

Approximately 3 weeks later, the interview with the CFO was scheduled. This executive has been with the company for 25 years, 20 of which had been as CFO. He started working with sustainability issues during the last five years.

Respondents were overall open to answering the questions asked by the researcher. However, those from higher hierarchies put special effort to present a positive image of the company, arguably attempting to disprove communication issued by the press or emphasizing that the company's operation has significantly reduced its impact on the environment.

### 5.6.3. The change to sustainability: what does the company stand for? Motivations, Objectives and Competitive advantages

Company E has developed competitive advantages that have allowed it to consolidate its position in the market, becoming one of the main producers at national level. Firstly, its location in the Yucatan Peninsula has been an advantage due to its isolation from the rest of the country. Due to the limited communication routes that discourage the arrival of pigs from other parts of the country, as well as the company's power of agglutination over the farmers in the area who are often part of its feedlot network, the Peninsula offers convenient sanitary conditions that allow to better contain diseases that could affect the pigs. Secondly, although the high temperatures in the region may not seem favourable for pig breeding, the company has invested heavily in genetic technology and in the facilities that house the piglets and pigs in more advanced stages, which has allowed them to adapt successfully to the climate of the region. By doing so, and because it is in its best interest, the company is able to maintain its operations in this isolated area of the country. Finally, the international quality certifications



that Company E holds have opened the doors for exports to the North American and Asian markets, a representative proportion of their overall sales.

It is clear to participants that one of the main reasons why Company E adopted a more sustainable approach to its operation, and why it has decided to become closer to the communities, is the negative perception of the business both in the communities where the operations are located and in the city of Merida. Traditionally, pig farming is perceived as a dirty activity, because it is associated with the "filthy" image of the pigs and due to its impact on the environment. Although the company has invested economic resources and made important changes to reduce its environmental impact, this negative image is still ingrained in society. All of this occurs in the context of the company's expansion plans, being already one of the largest businesses in Yucatan, growth could worsen its negative image as its environmental impact would increase. Thus, the company realized that the smoothest way to maintain its commercial success and to increase its volume of operations would be to improve its relationship with affected communities, while supporting their development on different fronts. Ideally, to be seen with friendlier eyes by communities and stakeholders.

Another driver and mandatory guideline from senior management has been environmental legal compliance. Being closely monitored by various stakeholder groups, the company cannot afford to fall into non-compliance as, in addition to causing sanctions, could further negatively affect its image.

The code of ethics from the parent company, as well as reporting to the Mexican Stock Exchange, are also drivers for the adoption of sustainable practices. A sustainability-focused philosophy is claimed by the parent company, enforcing it in the companies it conglomerates. As a consequence, Company E adopted this philosophy along with the parent's code of ethics. Moreover, the parent company issues biannual reports that include the progress in terms of sustainability for each one of its subsidiaries, which is also circulated amongst these companies. Additionally, the parent company annually reports on its level of maturity in sustainability to the Mexican Stock Exchange. This information includes the performance of its subsidiaries. However, the parent company is not part of the S&P/BMV Total Mexico ESG Index, which is specifically focused on companies that take sustainability as their flagship.

Improving the image and reputation of the company and its operation is not only a motivation but one of the main objectives identified by interviewees, to which a significant number of resources have been devoted. Company E wants to be seen by the community and stakeholders as more than a pork meat producer, they want to be associated with their social responsibility and environmental activities. In the words of the CFO, to be seen as a first-class company. Thus, most of the objectives mentioned by participants are aligned, or are goals that would allow to achieve this main objective.

Obtaining social license from the communities to operate within their territories is one of these goals, where the company also seeks to involve the community in the activities and benefits of the business. As the CFO put it, to be seen as their friend.

*"Look, I'll make it easy for you, the friend's farm doesn't smell as bad as the enemy's farm. In the end, it comes down to perception [E5]."*

According to the Head of Community Programmes, only few communities remain without allowing the company to operate within them.

This acceptance and permission must come not only from the inhabitants, but also from the local authorities. In order to be seen as a friend and to be allowed to work without conflicts,

the company relies on the Community Promoters who represent the "friendlier arm" with the community.

A third company objective is the establishment and consolidation of communication channels with the communities and stakeholders that can exert influence in the public opinion. The aim of the Community Promoters and Coordinators is to establish a network of key agents (opinion leaders) in the communities with whom ties of trust are developed. In this way, the Promoters have more tools to find out what is happening in the community, whether it is related to the operation of the company, and intervene if it is in the company's interest to do so. Likewise, this objective includes making communities aware of those actions that make the company more than a pork meat producer, and specifically inform municipalities about the activities carried out in their communities. Furthermore, guided visits to the farms owned by the company have been organised to demonstrate that the way in which pig farming is conducted is far from the traditional negative image of the activity.

The CFO mentioned as one of the most relevant sustainability practices and objectives for the organisation, the conservation of the environment. However, his responses and those of the Environmental Farm Manager did not provide details of specific concerns or objectives pursued in the environmental area. It seems that the work on the environmental side has been consolidated in contrast with the community work that started just recently, so compliance with the law is taken for granted and interviewees do not perceive environmental issues to be the main focus of attention at the moment of the interviews. In the case of the CFO, the emphasis of his responses remained more on the community work side. One could argue that the company might not have had intention of disclosing details about its environmental programme, as staff from this area was not initially selected to be interviewed. It should also be noted that despite of having several quality certifications, it has none for reduced environmental impact or for best practices. For a company that is aware of the social stigma of its environmental impact, the researcher finds surprising they do not possess an environmental certificate, nor did they mention the intention of getting one.

In conclusion, it can be said that most of the objectives are primarily for the benefit of the company rather than for third parties, whether to maintain its competitive advantages or to support its growth plans. Although specific environmental objectives are likely to exist, the company did not put effort in making the researcher aware of them, but was more concerned with showing the progress of the community work. This poses questions on the intended image of environmentally responsible company.

#### 5.6.4. Implementing sustainable practices and issues faced during the process

It can be noted from the participants' responses on their understanding of organisational sustainable practices that there are expectations of benefits for the company, whether it is permanence in the market, growth, or an improved image with the community. Although the interrelationship between the community, the environment and the business was acknowledged, it was also evident that the company grounds its approach in the business case for sustainability.

*"Researcher: What do you understand as an organisational sustainable practice?"*

*Participant: Is the one that leads to tangible effects, where the company sees an economic return and the complete operation of its companies is socially accepted. From*

*the point of view of social responsibility, each (Mexican) peso that is worked on in terms of social responsibility has to be tangible for the business and in that way the group, the area, is considered sustainable [E1].*

*P: It is that set of actions supported with... well, thought out with a well-defined objective and methodology, of an organisation, of a company, in which permanence and growth are sought...*

*Well, a practice is an action, not an occasional one, but one that is strategically established, or is believed to be strategic for the organisation, in which it is considered that it will add to the continuity and good management of all the factors. Continuity of the company and good management of all the factors that indicate, and for which it is considered that way [E2].*

*P: Those actions that the company will carry out in order to become a sustainable company [E3-1].*

*P: These are all the activities that we carry out as a company, in order to achieve the objective, which is to keep the company stable, so that no problems occur with it and that we are always seen in a correct manner by the community [E3-2].*

*P: These are the practices or procedures implemented by a company to guarantee the survival of its operations over time without (negatively) affecting third parties [E4].*

*P: I have never thought about the concept before, but will you repeat the name so that I can create a concept?*

*R: A sustainable organisational practice...*

*P: In that sense I would understand that, let's say in our case that it's pork meat production, that the farming of pigs is done according to sustainability standards. From any of its points of view, from emissions to the atmosphere, waste water management, community relations, because for all activities in this company we have defined the model of sustainability as the interrelationship of community, environment and economy, and business. In other words, if one is missing there is no business because there is no sustainability, because sustainability is not an action for the good of the planet, nor is it charity work, it is an integral part of a business model [E5]."*

While each participant has a different interpretation of what an organisational sustainable practice is, and barely considered the 3 axis that comprise sustainability, all of them mentioned some type of benefit that the company should see from its involvement in sustainable practices. Only one respondent considered that third parties should not be (negatively) affected, while the CFO clearly stated that sustainability is not a charity but part of their business model.

As mentioned earlier, the sustainability department has three areas and each of these has its own way of working and implementing its activities. The following is a description of the process followed in the area of community programmes and of the process followed by the environmental area on company-owned farms and ejido group-owned farms growing pigs. No information was provided by participants on how other sections of the environmental area, nor the Social Responsibility area, have implemented their interventions.

The structure of the Community Programmes area and its work plan are more recent than those of the environmental area. In light of the negative image they had in the eyes of communities and environmental groups, and considering the Company's intention of increasing their production capacity, it was decided to hire a foreign consulting firm to carry out a diagnosis of the communities' perception and attitudes towards the company in the state of Yucatan, as well as their social needs. Communities were classified based on their degree of acceptance or rejection of the company's operation. The firm would also develop a strategic plan to reverse negative perceptions and attitudes through lines of intervention in three areas

identified as pillars: health and environment, education and culture, and productive development. Both the diagnosis and the strategy to be followed were delivered to the CFO and the Sustainability Manager.

During the last year, the Community Programmes area has been evolving until reaching the current structure in which the leader, the Head of Community Programmes, is in charge of four Community Programme Coordinators, who in turn have three Community Promoters each. The latter are responsible for walking around the communities every day, finding the key agents and develop channels of communication that will inform what is happening in the community. Promoters are the "friendly arm" of the company in the community, and ideally, they should develop bonds of trust to act as a buffer when problems arise in the community towards the company. They are also responsible for organising and carrying out the various activities included in the quarterly plan, which cover the lines of intervention identified as priority in each community.

Although there is a catalogue of activities for each of the pillars, suggestions are accepted from the communities as long as these are aligned with the priority pillars for the community, the community is of high priority for the company and/or the cost/benefit ratio is acceptable.

On their side, Coordinators harmonise and follow up the work of the Promoters; they draw up the quarterly plan of activities to be carried out in the communities they oversee and communicate it to relevant stakeholders within the organisation. The Coordinators also serve as the communication channel between communities and the Head of Community Programmes or the Sustainability Manager. Furthermore, Coordinators also deal with various community stakeholders, including local authorities.

As well as supervising the Coordinators, the Head of Community Programmes reports to the Sustainability Manager on the performance and results of the area, and receives instructions on the route to be followed, which should permeate his subordinates.

More recently, an approach whereby operative managers, farmers in the feedlot network, and their staff, engage more with the community programme has started. However, this is still at an early stage.

The implementation of sustainable improvements in the environmental area focused on farms owned by the company and by ejido groups begins at the senior management level. The Sustainability Manager and even the CFO inform the Head of Environmental Management and the Environmental Manager for ejido farms about the goal or objective to be implemented. On the other hand, new requirements may have been generated by changes in environmental laws and it is the responsibility of this area to be aware of such changes. Both the Environmental Manager for ejido farms and the Head of the Environmental Management analyse the technical specifications to be covered, what has to be done, and communicate them to the staff responsible for the operational strategy along with the deadline for compliance. It is the operational area that determines how to satisfy the requirement in the most operation-friendly way, as well as when will they be able to comply with it. This information must be shared with the environmental area. In the case of farms owned by ejido groups, the Environmental Manager for ejido farms meets with them and explains the requirements to be satisfied and the justification for them. Whether the farm is owned by the company or by an ejido group, the environmental area has supervisors verifying that farms implement the requirements in the way and time agreed upon.

According to the Environmental Manager for ejido farms, the company pays attention and attends to the demands of various stakeholders, including authorities and communities, as it does not want to be seen as the problem but as part of the solution through innovation.

Company E has faced a number of issues during the process of evolving into a more sustainable company. As it might be expected, a number of these problems are rooted in its relationship with various external stakeholders. Furthermore, there have also been difficulties with partners in the feedlot network, during the implementation of the strategy for community programmes, and with the government.

The problems with external stakeholders arise from the pig farming industry image as highly polluting. Although efforts have been made to significantly reduce the environmental impact of operations, the size of the company and the nature of its operation continue to attract attention and criticism. According to interviewees, environmental groups and detractors of the company influence communities in their perception and acceptance of the company, as well as questioning Company E for maintaining a level of negative impact under the guise of compliance with environmental law. In addition, community outreach programmes staff have received comments from communities that their job is to persuade and keep them happy so that they do not protest against the company. Although altercations with influence groups continue to occur, the company has chosen to focus on its operation, on developing and strengthening the relationship with the communities, and on carefully taking care of its image to not attract more negative attention.

The company has also faced challenges with the ejido farmers who are part of its supply chain. One of the requirements for working with the company in the fattening of the pigs is that the farm's facilities comply with environmental regulations, however there are ejido groups whose business relationship with the company precedes changes that have been made to the law. Company E has therefore had to work with these groups to make them realise the need to comply with environmental laws and explain what the changes are about, which brings difficulties that begin with the language spoken by ejido farmers, since some of them speak Mayan as their first language and not all of them speak Spanish. In addition, some of them have an educational level up to primary school. These conditions have represented challenges for the Environmental Manager for ejido farms, who explains in Spanish some technicalities of the changes that must be implemented in the facilities. In addition, these changes have also required investments that have sometimes been a barrier for ejido groups. Every time the law is modified and new requirements arise, this situation could arise too. Despite the above, the Environmental Manager for ejido farms reported that ejido farmers are willing and collaborative in adapting to the required changes.

The implementation of the plan for the community outreach programme has also had some issues arising from the strategy suggested by the consulting firm. In general, the plan is not perceived as being aligned with the company's interests for growth and the productive development of the communities in conjunction with the company, but with a charitable approach. Additionally, some of the interventions suggested by the consulting firm have had to be adjusted to the culture and customs of the region, as well as to the characteristics and social requirements of the community to which they were initially directed. In other words, the interventions and the plan in general have had to be adjusted by the Sustainability Manager and the community outreach programme staff so that they could reach the expected outcomes.

When it comes to the issues with the government, conflicts have arisen when Company E tries to implement innovations in its facilities aimed at reducing their impact on the environment. It has occurred that the government is not ready to understand or evaluate the

impact of such improvements, which are often not contemplated in the law, so it may be reluctant in the first instance to accept them. Hence, the company engages in dialogue with the government to clarify, persuade or lay the foundations for further implementation of the improvements. In a way, the government is being pushed, and has been changing, in response to those companies that seek out innovation when addressing their environmental impact.

As the analysis has tried to convey so far, Company E has a programme that encompasses community outreach, specifically benefitting external stakeholders, as well as a plan focused on reducing its negative impact on the environment. What activities does Company E carry out then to monitor that these plans are implemented as originally conceived? Have the plans been adjusted as a result of the monitoring process and its results? The following paragraphs aim to provide answers to these questions.

The way in which the Community Programmes area monitors its progress starts with the Promoters. They produce a weekly report of the activities undertaken in the communities, either for specific events that have taken place or for the planning of future events. This report is submitted to the respective Coordinator. In turn, each Coordinator consolidates the information received from the Promoters under his/her supervision and prepares a quarterly progress report that one of the Promoters usually presents to the Sustainability Manager and the CFO. This report is also circulated to senior managers and to the operative managers (production, logistics) involved in the operation in those specific communities. The information contained in this report includes the numbers for attendance and direct beneficiaries to the various activities conducted.

A bi-annual action report is also produced by the Community Programmes Coordinators, and approved by the Sustainability Manager, whose main audience are the key agents in the communities, including the Commissioner (local authority) and the community committee if one exists. This report is also shared with the parent company.

The monitoring conducted within this area is mostly focused on learning about the plan's progress and the community's perception, attitudes and acceptance towards the company, rather than comparing quantifiable results against specific, measurable targets. As several interviewees reported, the implementation of the communities' programme is an ongoing learning journey where nothing is set in stone, so the company keeps on understanding what is working and what is not, adjusting activities and interventions as needed, as well as determining what are the desirable specific goals to achieve.

The consulting firm also keeps track of the implementation process carried out by Company E. This monitoring focuses on ensuring that the methodology employed, the lines of action defined and their respective interventions are maintained and respected. Here is where the adjustments to the initial activities and interventions can also be observed, since some of them had to be customized according to the community, its composition, its customs and social needs. According to some participants, this is a result of the consulting firm not being Mexican and not having the exact context of the customs and needs of the region.

With regard to the environmental area, the only information provided is that supervisors visit the farms owned by the company and by ejido groups, as well as the production plants in order to verify that the projects are being executed as planned and to monitor compliance by collecting information on the environmental parameters. This information is then reported to the corresponding Environmental Manager and the Head of Environmental Management. To what extent there is an assessment of results and a later

adjustment of the environmental strategy is something that was not mentioned, and likely not in the awareness, of interviewees.

It could be said that those involved in the implementation of the community outreach programme are aware of the overall objectives being pursued and have a good understanding of short-term goals, which may not be measurable nor quantifiable but the Promoters and Coordinators maintain a constant communication with higher hierarchies to know at what point the results are acceptable. On the environmental side, the Environmental Manager for ejido farms reported that those responsible for the farms are also aware of the objectives to be met, which are quantifiable and measurable to avoid ambiguity in compliance.

The higher number of interviewees from the Community Programmes area justifies having more details on the process for monitoring the progress of this component of the sustainability strategy, while for the environmental component scarce information was provided. This also denotes the interest and weight that the company is placing on the community programmes and its desire to make them of public knowledge.

#### 5.6.5. Strategies for implementing Corporate Sustainability

Looking at the functional level environmental strategies in Company E, they mostly comprise the reduction of its impact on the environment and that of its partners in the feedlot network. This has been mainly done by installing equipment and making changes in their facilities that would lessen the impact of their operation in water resources and the land, which is also required from farmers growing their pigs. Additionally, the company has an energy strategy that currently creates energy out of the gases collected through the biodigester, and that will seek to generate its own energy in farms through cleaner sources.

As per social strategies at the functional level, this is the only case company that has not only invested heavily, but that has devoted an important number of resources to them. Along with a consulting firm, the company has developed the community outreach programme, where activities fall under one of the three pillars that support it: health and environment, education and culture and productive development. Every activity and intervention are carefully planned quarterly by Community Programme Promoters following the guidelines, while they are also allocated a budget. Their progress is often monitored while outcomes reported regularly. Interventions such as the "open house" are example of these functional level strategies.

Minor decisions can be made at the different areas that compose the Sustainability department. In the case of Community Programmes, although there is already a catalogue of activities that can be conducted in the various communities, there are criteria indicating which activities can be undertaken with each community or what additional activities to the catalogue could be included. The first criterion identified is the priority level of the community. This depends on the priority of the relationship between the community and the company, the location of the groups that represent the greatest conflict for the company, as well as the social needs of the community. A second criterion is the alignment with the strategic pillars and the different stages of rapprochement. The third criterion is economic. The Community Programmes area is allocated a monthly budget that is primarily applied in the communities of greatest interest and with activities from the catalogue. However, when the proposed activity is not in the catalogue and/or is for a community that does not represent a red flag, approval depends on the availability of the budget for that month. Additionally, the cost/benefit ratio is also evaluated or whether there is a social return for the company and contribution to improve its image.

While the quantity of resources allocated to the community outreach programme is significant, the same cannot be said about strategies for internal social sustainability. Company E strongly focuses on its image with society, while questionably giving due importance to internal matters like its collaborators and their working conditions. It seems that the strategy is solely focused on external stakeholders and leaves aside those that keep the company going. Or at least, the company was not interested in making the researcher aware of how are they providing adequate working conditions for their employees.

As per the competitive level strategies, it is clear that the company has opted for an image of social responsibility in order to achieve the social legitimacy of its operation. The company is aware that in order to expand its production capacity and increase its sales, it has to come with productive and social development for the communities directly impacted by their operation. For this reason, it decided to further develop its relationship with the communities where its facilities or those of its supply chain partners are located, and by making these measures of public knowledge. The overall community outreach programme embodies this strategy, that still continues to be customized by Company E in order to adjust it to the needs and characteristics of the locals, as well as to the company's objectives. As interviewees reported, nothing is set on stone and these are paths that continue to be discovered.

On the environmental side of competitive strategies, the company also follows a cost leadership strategy via pollution prevention. As in other companies, it has to be acknowledged that the company is not exactly looking to become a cost leader through the changes it has made on sustainability terms, but rather to mitigate its impact through the option that makes more economic sense for the business. In this case, abide environmental laws, ease pollution levels and improve its image, rather than differentiate its product.

Finally, the philosophy for sustainability inherited from parent company, the structure of the sustainability department, and the mix of activities and plans put in place in several fronts, denote that Company E does have a corporate level strategy for sustainability. The awareness of the burden placed on the industry in which it operates, and its growth plans, have motivated the company to engage in and invest resources in improving its image following a thorough plan that is overseen by the CFO. Moreover, the approach is to innovate with technologies and improvements to facilities, showing not only concern for its immediate milieu but also a cutting-edge technological image. According to participants, it is estimated that the full benefits of the community outreach programme strategy will be seen in about 10 to 12 years, where the optimum outcome is to build a mutually beneficial relationship with the communities with economic development. Ideally, communities will want the company to establish operations in their locations. However, the corporate strategy for sustainability seems to leave the human capital, i.e., internal social sustainability, outside of its scope.

#### 5.6.6. Company's E sustainability programme through the CAS lens

The sustainability system within Company E will be analysed below from the perspective of CAS theory.

##### **Agents**

No different from other cases, Company E has agents that belong to different hierarchical structures, but these agents can also be classified as internal and external. Internal agents comprise those that work for the organisation, namely the CFO, the Sustainability Manager, the Heads of area that she line manages (Community Programmes, Environmental



Management and Social Responsibility), and the team that collaborates with each of these individuals such as the Community Programmes Coordinators, Community Programmes Promoters and the Environmental Manager for ejido farms. These agents also include those whose activities are impacted by the sustainability programme, including staff in charge of the plants that process pork meat, plants that process pig feed and the company's own farms. The external agents include leaders in the farms that belong to Company's E feedlot network, whether they belong to ejido groups or to a private owner.

There are two additional groups of agents that are worth considering. Firstly, the parent company to which Company E belongs, who sets the guidelines that must be followed in ethical and sustainability matters. Secondly, the foreign consulting firm that was hired to diagnose and elaborate the community outreach programme. This work set the basis for the current structure and operation of the community programmes area.

### ***Dimensionality***

Agents involved or affected by the environmental side of the sustainability programme and by the Community Programme enjoy low dimensionality. In the environmental side, the staff works towards law compliance by allowing themselves to innovate in the process, but any part of the operation should cast doubt about its compliance. The company's reputation cannot afford it. Consequently, those operating in the different plants and farms, whether they belong to Company's E, must follow. The few degrees of freedom granted would be for compliance beyond the law, and these could only be observed on farms that are not owned by the company and that have the autonomy to make decisions of this nature. Nevertheless, this was not the case according to participants.

On the community programmes area, staff also have limited degrees of freedom and only to adjust activities that are already part of the programme, or to suggest activities within the lines of action that could bring them closer to the desired results. Yet, the cost of such activities must first be authorised as they are not part of the original programme.

Dimensionality for Company E itself is limited by its parent company, which delimits the margins of action.

### ***Schemas***

The prevailing schemas in the system represented by Company E are very clear. Sustainability, but above all the community outreach programme that was labelled as an insurance for the company's operation, are seen as means to an end. This was demonstrated by the responses of four out of the five participants, who emphasized the importance of understanding the relationship between business results and sustainability, as well as the value of social return for the company that includes both an economic benefit and social acceptance. To achieve this, the agents at the lower hierarchies, the Promoters, must actively demonstrate that their schemas are aligned and empathetic with those of the external agents, in the communities, from whom they seek acceptance and the development of cooperative relationships.

The participants also highlighted the commitment and involvement from senior management with the programmes that make up the company's sustainability strategy, which motivates the staff in the lower hierarchies and increases their commitment to these programmes. Therefore, the schemas of the agents in the lower hierarchies react accordingly and align with the schemas demonstrated by the higher hierarchy agents and the system in general.

The system that represents the programme for sustainability in Company E has also been formed based on the strong schemas and philosophies from the parent company, with an especial emphasis on legal compliance and innovation in the implementation of environmental solutions. Due to this approach, schemas embraced by staff in the environmental area are often confronted with the schemas held by external agents such as the owners of the farms. Both groups of agents possess different backgrounds, knowledge, expertise, educational level, and sometimes even language, yet, they come together and devise the best possible solution for both the environmental requirements and the business operation.

Finally, it can be said that the system's communication approach to the outside world is one of the schemas that has evolved the most. Previously, the company followed a more secretive policy of not allowing outsiders access to its facilities, nor did it engage in negative press coverage and waited for reports to stop attracting attention. Today, however, they are taking the opposite approach seeking for external stakeholders to visit their facilities and observe how they operate. According to the CFO, the company no longer remains silent in the face of negative press reports but clarifies the information.

### ***Non-linearity***

As in other companies, not everything that was initially planned has yielded the expected results. In the case of the community outreach programme, the interventions and activities initially proposed by the consulting firm had to be adjusted to the objectives of Company E and to the idiosyncrasy, the socio-economic and the cultural characteristics of the communities involved, as not all the activities suited all the communities. Hence, responses were not close to the intended outcome. According to the Head of Community Programmes, the plan delivered by the consulting firm has more of a charitable feel to it that could be applied by a non-for-profit organisation than for a company seeking to develop a mutually beneficial relationship. While in some cases, minor adjustments to activities have been sufficient to obtain responses more aligned with the company's objectives, in other cases more work has been necessary to start developing relationships and gain sympathisers in the communities.

Building on the above idea, the response to the community programme from residents and authorities has varied from community to community. This is attributed to their different social composition, their socio-economic needs, language, location and degree of involvement with Company E, resulting in different attitudes towards the company and its operation. What might be received positively in one community could have a weak effect in another or even be rejected. Despite receiving the same input, the output obtained from each community can vary dramatically.

### ***Self-organisation and emergence***

The development and implementation of the sustainability programme in Company E has been supported by self-organisation and emergence. The constant interactions between internal and external agents to the system have resulted in the structuring of environmental solutions, planning and adjustments to the community outreach programme, as well as preliminary evaluation of results from undertaken actions.

The lines of community work are a first example. These are being followed as patterns and emerged from the requirements identified in the communities. This diagnosis was carried out by the consulting firm with the help of staff from the Community Programmes area.

Secondly, agents in the lower hierarchies, such as the Coordinators, have had a voice in the adjustment, improvements and monitoring of results made to the community outreach programme. In terms of measuring the progress and performance of the Community

Programme area staff, it was reported that there is no standardisation in the individual assessment applied to each. Rather, it has been an exchange of ideas and proposals between the Coordinators and the Sustainability Management so that together they determine the indicators or points to be evaluated for each and the respective subordinated personnel.

As for the specific goals pursued for the community programme, these have not yet been determined but are in the process of being defined. According to the Community Programmes Coordinator, they must first understand what do they have in their hands in order to know where they want to be. The goals will then emerge based on the fieldwork and the understanding of what can be achieved.

From the perspective of the Head of Community Programmes, the heterogeneity of agents such as the Community Programmes Coordinators, as well as the differences between their schemas that stand out while interacting during work meetings, enrich their points of view and end up emerging as adjustments to the community outreach programme. This observation was also reported by the Environmental Manager for ejido farms, who mentioned that the constant interactions she has with other internal and external agents, namely farm managers or farm owners, structure the solutions to meet environmental requirements.

As it can be read, the general structure of the programme has been determined by the various interactions of agents at different levels, without being completely controlled by a specific agent or by the highest hierarchies. Rather than unilateral movements from the top, the process has taken place through cooperation and feedback between agents from different hierarchies.

### ***Edge of chaos***

The very origin of change in a CAS is the edge of chaos. The instability derived from this point pushes the system to fight for what it knows as order and to face and react to the changes presented by the environment in which it is immersed. In the case of Company E, the bad reputation of the pig farming industry, the negative impact on the environment and the accidents that have damaged the natural ecosystems in which it operates, are the main causes of chaos and instability from outside.

This bad reputation has been kept alive by detractors and groups who have spoken out against the company's operation. Members in some communities have confronted Community Programme Promoters claiming that the mere objective of the activities put in place is to buy them out and keep them happy so that they do not protest.

To counteract these situations and due to its need to be accepted in most of the communities, Company E has been pushed to implement measures to help minimise the poor perception of its operation, as well as to identify and intervene with those who feed this perception in the communities. Reputation studies, advice from experts on communication plans, and guided visits to some farms are amongst the measures implemented.

It can therefore be said that Company E behaves like a CAS, trying to maintain certain order through the measures triggered by the chaotic situation that has been caused by its reputation in environmental matters. This set of actions, however, makes the company enter a transition phase in which the idea of order previously established is adapted to the new circumstances, leading to the system's evolution.

### 5.6.7. Adaptability and Dynamic Capabilities for sustainability

Throughout the course of this analysis, it has been sought to demonstrate how Company E does have a strategy to address its sustainability concerns. This is borne out by the number of resources invested. So what capabilities has it leveraged to make the most out of these resources, preserve its competitive advantages and address sustainability challenges? This section will address the DCs on which this company has relied on, and their contribution to a system of strengthened performance, adaptability and resilience.

#### ***Social Network Relationships***

This could be considered one of the strongest DCs for Company E due to its commitment to the improvement of the relationships with stakeholders beyond customers. Interviewees provided evidence on the company placing significant weight on developing relations with the communities where its facilities and those of the farmers who are part of its value chain are located. Company E needs the approval of local residents and local authorities to continue growing its operation, which justifies the number of resources allocated to the community outreach programme.

The improvement of relations with the communities and other stakeholders is not limited to the presence of the Community Promoters in town streets, but has also sought to improve communication and to show the company more transparent about its operation. Key agents from some communities have been given tours of the farms to demonstrate the industrial hygiene and sanitary control under which feedlot operations are conducted. Moreover, a biannual report is expected to be shared with the local authorities in order to inform about the activities carried out and the plans for the following six months.

Responses provided by interviewees indicate that networking and social skills are indispensable for the Promoters and Coordinators who represent the company in the communities and who seek approval for its operation.

This DC has also been demonstrated through the fine-tuning of relationships with partners in the feedlot network. In the environmental area, compliance with regulations is a requirement for a farmer to join the feedlot network. When changes in environmental laws occur after the business relationship has been established, then Company E must work together with farmers to ensure their transition towards compliance with the new regulations. More recently, Community Programmes staff have begun to raise awareness of the programme amongst farmers and the managers of the production plants so that eventually they also get involved in it. The objective is that in the eyes of the community, the leadership at the work centres show themselves aligned and participative in the activities.

Through the deployment of this DC, the company has been dealing with two of the problems that have arisen since it began its journey towards a more sustainable operation: adjusting the programme developed by the consulting firm to the needs and requirements of the local communities, as well as showing a more responsible image to counteract the criticism and accusations from opposing groups. In addition, this DC contributes to an improved responsiveness of the system to unexpected situations and/or criticism from various stakeholders. Finally, this DC is a factor that strengthens the permanence of the company in its current location, as the community programmes plan contemplates almost all the communities in the state of Yucatan.

### ***Internal reconstruction***

This DC can be observed throughout the sustainability department. Its robust staff structure has evolved to cover the main areas of concern for Company E: environmental, community programmes and social responsibility. However, participants' responses confirm that the community programmes area is highly dependent on this DC.

The company has incorporated resources to meet the needs of the community outreach programme as designed by the consulting firm. As a result, staff with a strong humanities and social work orientation, such as anthropology, communications and psychology, have joined the team.

As mentioned earlier, internal reconstruction has also been reflected in the adjustments to the community outreach programme received from the consulting firm. This has had to be adapted to the composition of the communities, their customs and their social needs. Beyond this, some activities are adjusted on the move to meet the current needs of the communities. These requirements for short-term change are detected by the Promoters through their daily interaction with the communities, and it is they who follow up with higher hierarchies to ensure that they are implemented as soon as possible.

The reconfiguration of resources is also observed in the environmental area, especially in the technological aspect. The company's tendency to be at the forefront of technology means that its facilities and operations are constantly benefitted from reduction of their impact on the environment.

Internal reconstruction also encompasses the timely response to challenges that, if satisfactorily resolved, bring the company closer to achieving its objectives. The Community Promoters reported that the Sustainability Manager is always available and open to new ideas to address and solve problems that arise on a daily basis. Moreover, when these problems are not within the scope of their area of responsibility, but are the responsibility of one of the operational areas to solve, the Sustainability Manager redirects them so that they can be resolved promptly. This demonstrates the guidelines set by the company's leadership in which the heads of the operational areas must listen to and solve the reports received from the sustainability area.

The major contribution of this DC is towards the system's ability to deal with the challenges posed by the environment, especially those that specifically affect its image. Although there is still a great deal of work ahead, it is yet in its early stages and so far, outreach to communities is reported to be mostly successful. On the other hand, this DC also helps to address problems faced by the company such as the misalignment between the plan proposed by the consulting firm and the reality of the communities where it operates; as well as the poor perception from its operation and criticisms from different stakeholders. By helping to improve relations with the residents of the communities, this DC contributes in a minor degree to keep the company comfortably operating in the area, which in turn allows it to continue expanding the volume of its business.

### ***Knowledge related and absorptive capacity***

This DC is mainly illustrated by the environmental area. Despite the fact that only two of the participants had information on the subject, it is clear that the company is in the constant pursuit of new knowledge, training and technologies that will help in reducing the environmental impact of the operation. This characteristic is not limited to frequent training, but the company has also created links to share knowledge with national and international companies in both environmental and community programme matters. For instance,

information about the community programme is shared with a Chilean company in a similar industry.

As a result of relying in this DC, the system updates its knowledge base and this is reflected in an improved operation. At the same time, the knowledge acquired provides the system with more instruments to deal with environmental crises and the challenges arising from changes in environmental laws. Considering that the system exists in an environment of constant public scrutiny and attention, its experience in dealing with crises coupled with its knowledge base allows it to improve its level of response and resilience. Nevertheless, it cannot be said there's substantial contribution towards the company's competitive advantages nor to address any of the sustainability-related issues.

### ***Collaboration***

Collaboration has proven to be an important capacity for Company E, since it has been employed in both environmental and community programmes. The company has formed alliances with partners such as the Business Coalition Against Climate Change, for which the CFO is the spokesperson. Recently, an alliance with Save the Children has also been established to work on the education and health lines within its community outreach programme. Save the Children's know-how, coupled with the knowledge from communities that Company E has acquired, would allow this synergy to yield more promising results than Company E could have achieve on its own. In addition, it increases the credibility of Company's E actions.

Another partner the company has been working with is the Ministry of Agriculture and Rural Development. Together they have been developing a composting product that would benefit horticulturists in the south of the Yucatan Peninsula. So far, plans indicate that the company is not seeking to profit from this.

The company also collaborates with farmers who are part of its value chain. The environmental area, through Environmental Managers, evaluates the performance of these partners with respect to environmental legal compliance. However, this collaboration goes beyond evaluation and also includes the materialisation of new environmental requirements that may arise. In the event of these changes requiring financial investment out of reach for feedlot owners, Company E may intervene by supporting with loans in some cases.

Engaging and collaborating with new partners and members of its value chain as a result of the sustainability strategy brings Company E closer to compliance with environmental laws, as well as avoiding further damage to its image and instead, taking actions that would revamp it. At the same time, there is an increased flow of information from the local industry and other organisations working with objectives aligned to sustainability.

Collaboration as a DC helps the system hone its ability to recover from difficulties through constant interactions with agents in other directly related systems such as its supply chains. The more interaction with them, the better the company learns to handle them and guide them towards legal compliance. On the other hand, it assists in maintaining and further expanding its volume of operations, which contributes to its near-monopolistic control of the pork market in the region.

### ***R&D and Innovation***

Company E has a spirit of constant innovation and of keeping at the forefront of technology with regard to its pig breeding and production processes, and this same spirit is perceived in the environmental area of the sustainability department. Company E is constantly seeking to improve its facilities for reducing the operation's impact on the environment. An

example is the study for energy generation from solar and wind sources being conducted by a Spanish company, which has advised other pork meat producers. The CFO himself has previously travelled to Spain to visit farms with similar implementations.

Furthermore, the company is also involved in projects for research and development of sustainable improvements that would benefit its operation and the region. The previous DC noted the collaboration with the Ministry of Agriculture and Rural Development for the development of compost products for horticulture in the south of the Peninsula. Additionally, an agreement was recently signed with the Autonomous University of Yucatan to evaluate the waste water treatment system in the farms and based on their expertise, issue a diagnosis on how to hone its functionality.

Through the engagement with new agents and coexisting systems, Company's E system gets involved in research and development projects aiming to achieve an enhanced operation that would reduce its impact on the natural ecosystem. These projects aim to contribute towards greater energy efficiency in the operation, thereby providing some support to the company's production capacity and its attempt to improve its social image. However, no major contribution to its competitive advantages could be claimed at the time data was collected.

#### 5.6.8. Conclusion

The DCs for sustainability exhibited by Company E are found to be strong and well entrenched in day-to-day operations. While not all of them contribute to the same extent to the maintenance or development of competitive advantages, nor to better overall system performance and resilience, they all have noticeable positive contributions.

By dealing with the poor image of the business and offsetting it through the creation of ties with the communities, by adjusting its structure and operation to meet its ambitious community outreach programme, and by formalising and monitoring their relationships with their supply chain partners, company's capabilities such as Social Network Relationships and Internal Reconstruction have been boosted. On the other hand, the need for compliance with environmental regulations, the spirit of innovation and technological edge, and the company's need for validation of its sustainable image through links with noteworthy organisations, mean that DCs such as Knowledge Related and Absorptive Capacity, Collaboration and Research & Development are nurtured.

The DCs deployed in Company E have mainly assisted in containing and dealing with issues arising from the various stakeholders that draw attention to the environmental impact of the operation. DCs have also facilitated the maintenance and increment in the volume of operations under the protection of laws. As a result, Company E strengthens its dominant position in the regional and national pork meat market.

Ultimately, it can be highlighted that the DCs deployed in the implementation of sustainable practices have served well the organisational system by strengthening its ability to deal with and respond to problems and threats posed by the environment. This has been mainly the result of learning to react and act on stimuli from external agents. Moreover, the cultivation of the relationship with farmers in their value chain contributes to a better operation of the system. The sum of these factors results in a system that in fairly moderate proportion has evolved towards a new order in which it encounters greater resilience and improved operation.

# Chapter 6: Cross-case analysis

## 6.1. Cross-case analysis overview

The previous chapter focused on the individual analysis for each of the case studies, concentrating on the key themes of interest to this research. This chapter will conduct the cross-case analysis, with the aim of extracting the similarities and differences between them. While the findings in each case were interesting and informative, to maximise their value further interpretation is required based on the positioning of each case in relation to the others. Therefore, to make the findings in the cases more meaningful, they will be combined and merged.

By comparing and contrasting findings from the cases, it will be possible to determine whether there is a consensus on the specific themes being looked at. At this point it is important to remind the reader of the heterogeneity of the companies analysed as individual case studies, since each one has a different industrial focus. Thus, the understanding and potential determination of consensus across industries becomes even more relevant.

This study does not aim to provide generalisations, as this falls outside the nature and spirit of qualitative research. Instead, the research hopes to provide tools for understanding and sense-making of the phenomena present in case companies, which can be later applied to other companies facing similar situations.

This chapter is structured as follows: first, section 2 will present the main characteristics of each case company. Next, the strategies for sustainability adopted by case companies will be compared and contrasted in section 3. Subsequently, the companies' approaches to the adoption of a sustainability agenda will be addressed in section 4. The following section will focus on the similarities and differences between the DCs exhibited by each case, as well as their contribution to companies. The chapter will close with section 6 analysing the contributions of DCs to the organisational system represented by each case company from the perspective of CAS, presenting also a comparison of case companies' degree of evolution.

## 6.2. Cases' main characteristics

Table 12 presents the main characteristics of case companies, including their competitive advantages and their environmental and social accreditations and certifications. It should be noted that at the time data was collected, most of them were in the process of obtaining additional accreditations or certifying more of their production plants as Clean Industry.



TABLE 12. CASES' CHARACTERISTICS

	Company A	Company B	Company C	Company D	Company E
<b>Size</b>	Large	Large	Large	Large	Large
<b>Sector</b>	Mining/ Industrial	Industrial	Industrial	Industrial	Industrial
<b>Number of production sites</b>	3	6	3	2 Plus distribution centres	6 Plus wide network of pig farms
<b>Main activity</b>	Sea salt extraction and processing.	Production of edible oils, vegetable and mixed fats, flours, cleaning products, and by-products generated during oils' production. Manufacturer	Lime production and manufacturing of construction materials.	Production of cookies, biscuits, crackers and pasta. Manufacturer.	Reproduction, breeding and sale of pork (alive) and pork meat.
<b>Competitive advantages</b>	<ul style="list-style-type: none"> <li>● Natural and environment friendly product.</li> <li>● Low production costs.</li> <li>● Access to natural resources.</li> </ul>	<ul style="list-style-type: none"> <li>● Low production costs.</li> <li>● Low market price.</li> </ul>	<ul style="list-style-type: none"> <li>● Non-price competition strategy: higher quality of products compared to closer competitor.</li> </ul>	<ul style="list-style-type: none"> <li>● Consumer loyalty in the Yucatan Peninsula.</li> <li>● Good reputation and prestige for social and environmental responsibility.</li> </ul>	<ul style="list-style-type: none"> <li>● Geographical location in the Yucatan Peninsula and control of pork market.</li> <li>● Technological edge in breeding process.</li> <li>● Production capacity.</li> <li>● International quality standards certifications, facilitating exports to America and Asia.</li> </ul>
<b>Environmental and social accreditations and memberships</b>	<ul style="list-style-type: none"> <li>● Member of the Business Coalition against Climate Change</li> </ul>	<ul style="list-style-type: none"> <li>● Member of SEDEX, reporting to SMETA</li> <li>● Reporting to Carbon Disclosure Project</li> <li>● Ordinary member (non-certified) of the Roundtable on Sustainable Palm Oil</li> <li>● Clean Industry certification</li> <li>● Member of the Business Coalition against Climate Change.</li> </ul>	<ul style="list-style-type: none"> <li>● Clean Industry certification (1 plant)</li> <li>● Socially Responsible Company accreditation</li> <li>● Member of the Yucatecan Businesses Foundation (group of SRC accredited organisations).</li> </ul>	<ul style="list-style-type: none"> <li>● ISO 14001 certified</li> <li>● Clean Industry certification</li> <li>● Socially Responsible Company accreditation</li> <li>● Member of the Communication on Progress (CoP) programme of the UN Global Compact initiative.</li> <li>● Member of the Mexican Dual Training Model.</li> <li>● Member of the Business Coalition against Climate Change</li> <li>● Member of the Yucatecan Businesses Foundation (group of SRC accredited organisations).</li> </ul>	<ul style="list-style-type: none"> <li>● Socially Responsible Company accreditation</li> <li>● Member of the Business Coalition against Climate Change</li> </ul>

### 6.3. Strategies for sustainability

The companies in the study are at different levels of maturity in terms of their sustainability strategies. This level of maturity, which is related to the length of time they have been engaged with sustainable practices, has also been affected by demands and pressures from external stakeholders, by the business industry, and by the competition they face. This section will contrast the different strategies in case companies following a top-down approach, starting with strategies at the corporate level, then with competitive strategies and finally, with functional strategies.

At this point it is worth to highlight the case of Company A. While its main activity and its location within a nature reserve demand to implement strategies focused on the protection of endemic plant and animal species, as well as reducing the vulnerability of the salt-pond system, these were not considered within this analysis since they are part of the historical, and natural, dynamics of the organisation. For the sake of analysing companies' strategies under the same conditions, only those interventions and functional strategies from Company A that arose from the ideas of mitigating the operation's impact on the environment, or social responsibility, were included.

#### 6.3.1. Corporate Level Strategies

Results show that at the corporate level, only Companies B, D and E have a strategy for sustainability. However, while Companies D and E include both environmental and social aspects, Company B falls short of the inclusion of social responsibility.

Company B has projects on several fronts that are included in the corporate strategic plan, ranging from the production of oil with certified sustainable palm to the Clean Industry certification. The embedding of organisational guidelines and philosophy with environmental conscience is the result of the evolution of the CEO's approach, who made the environmental department stronger and more influential within the organisation to the extent of re-educating senior management to gain their support and involvement. Now, the company has shifted its focus to one where it is more committed to value creation through sustainable practices and strategies intertwined in its various processes and production lines.

Meanwhile, Company D, which identifies itself as socially responsible in its mission, develops a corporate strategic plan every 5 years that includes the maintenance of its environmental management system's certifications and the CSR accreditation, both components of its integrated management system. Furthermore, organisational practices are designed to disseminate and reinforce the organisational culture of social responsibility and its values. The company's staff know they are part of an organisation that seeks to contribute to future generations with commitment and ethics.

In the case of Company E, its corporate strategy for sustainability has been inherited from the philosophy of its parent company. Moreover, the industry in which it operates and the constant scrutiny from various stakeholders in the market were compelling reasons for the company to develop a strategy for sustainability. This is coordinated and executed from a specific sustainability department that brings together environmental management, social responsibility and the community outreach programme, all under the supervision of the CFO. The combination of the various activities undertaken and the resulting synergy is expected to have a significant positive impact on the social legitimacy of the company.

For both Companies A and C, it cannot be said that there is a strategy for sustainability at the corporate level, since for Company A the COO himself declared this does not exist, while for Company C there was no clear evidence amongst respondents' answers. It can be acknowledged though, that the 5-year strategic plan in Company A does have a component focused on obtaining the Clean Industry certification. For their side, Company C has actually certified one of its production plants and holds the SRC accreditation. This would not have happened in Company C without the approval of senior management. Therefore, one must admit that still at a very early stage, these 2 companies have started their path for a corporate level strategy.

### 6.3.2. Competitive Level Strategies.

To some extent, it can be argued that most of the companies -B, C, E, and D- tend to follow cost leadership strategies, specifically pollution prevention. It cannot be said however, that they follow a purely economic rationale for saving costs when deciding for these strategies, since law compliance and external stakeholder pressures also play a significant role. Nevertheless, beyond law compliance, additional measures are more likely to bring cost savings to companies, while being able to show them off.

Only two companies, A and B, have adopted product differentiation strategies. On the one hand, Company B has started the procurement of palm certified as sustainable and the production of oil derived from this, aiming to increase the production year by year. On the other, rather than having decided for product differentiation as a strategy and making changes around it, Company A is mostly highlighting its product's characteristics and strengths. Sea salt extraction pollutes less than salt extracted from mines, since it is a more natural process served by natural sources of energy, resulting in cheaper production costs. It could be argued, that Company A gets double benefit due to its production process.

In the social realm, Companies C, D and E are also applying a social responsibility strategy, with a strong focus in communities for Company E. Company C has centred its attention in workers at production plants, while conducting some external activities favouring neighbouring communities. Company D has followed the same approach, but with more resources and efforts devoted, as well as a stronger emphasis on its human capital. Conversely, Company E has developed and deployed a very ambitious community outreach programme and has acquired the necessary resources to materialize it throughout the state of Yucatan and neighbouring states. All of these, overseen by the CFO. Yet, there was no sight of social responsibility towards the company's employees.

### 6.3.3. Functional Level Strategies

The functional level strategies, aiming to achieve short-term objectives, have been mostly focused on mitigating the environmental impact of production processes. The most popular is obtaining or maintaining the Clean Industry certification, which entails key objectives such as reduction in water consumption and disposal of waste water, waste management and energy use and generation. As it can be inferred, each company has a different version of the same strategy, but it can be asserted that they are working towards the achievement of major objectives.

Regarding functional strategies for environmental management, both Company B and Company D stand out. For Company D, certifications are an important part of its strategy, so in

addition to the Clean Industry certification, it has certified its environmental management system under the ISO 14001 standard. Furthermore, both companies have a strong orientation towards the market and its environmental demands, so they have included environmental reporting in their strategies. On the one hand, Company B reports to SMETA, the CDP and the RSPO. On the other hand, Company D reports to the UN's CoP initiative. Additionally, Company B was the only one to report that those responsible for the environmental strategy, i.e., the environmental department, are involved in the design of products, processes and facilities.

Case companies have also implemented functional strategies focused on social responsibility. The most common is obtaining or maintaining the SRC accreditation (Companies B, C, D, and E). Moreover, Company D has implemented strategies/programmes, which have received awards, focused on disseminating information to its employees about its ethical values, social responsibility, and its environmental and quality assurance certifications. Nevertheless, Company E excels the most in this area. Whilst the community outreach programme can be considered a competitive strategy, it encompasses three pillars, health and environment, education and culture, and productive development, which in turn are further comprised of specific interventions such as the "open house" and "water conservation project in the communities". This is an example of a well-articulated and detailed strategy with specific objectives at the service of a greater goal: achieving social legitimacy.

#### 6.3.4. Summary of the cross-case analysis for sustainability strategies

Table 13 lists the different sustainability strategies implemented by case companies.

Concluding, it can be said that while not all case companies have a corporate level strategy for sustainability, they all have functional level strategies and based on these, they show a tendency or predilection for certain types of competitive strategies.

In the case of functional strategies, the vast majority are focused on the environmental axis of sustainability. This reflects the reality of the companies taking part in this study, and arguably in the Mexican southeast, since aside from Company E, all of them have invested more resources (economic, human, time) in the design and implementation of strategies that mitigate the environmental impact of their operation, than in strategies for the benefit and development of the communities impacted by their operation. There is still a wide gap between the weight placed on the environmental and social aspects of sustainability in southeast Mexico, which may be reinforced by regulations that only address environmental or workplace safety aspects.

In terms of competitive strategies, companies are inclined towards those that provide them with cost advantages through eco-efficiency, although lower costs are not the main motivation for adoption. It should be considered that the commitment and changes that would be implied by pursuing a differentiation strategy are much higher and in the cases of our companies, with the exception of E, they are not yet demanded by their main markets.

Finally, it can be said that at the corporate level, Companies B, D and E show strategies for sustainability that are embedded in the corporate strategic plan. Nevertheless, their approaches reflect the demands of their environment and market. That is why Company B is basically focused on the environmental aspect, while Company E has decided that through its strategy, it will pursue the social legitimacy it requires to continue expanding its operation in southeast Mexico.

TABLE 13. SUMMARY OF CROSS CASE ANALYSIS- STRATEGIES FOR SUSTAINABILITY

	Company A	Company B	Company C	Company D	Company E
<b>Corporate Level strategy</b>	Early stage	<ul style="list-style-type: none"> <li>●Corporate strategic plan embedded with environmental guidelines.</li> <li>●Senior Management re-education, organisational change, generative learning.</li> <li>●Budget for the environmental department has been allocated with the approval of the CEO and the rest of Senior Managers.</li> <li>●When the scenario changed (expansion), the strategy and its implementation began to see modifications.</li> </ul>	Early stage	<ul style="list-style-type: none"> <li>●The company identifies itself, in its mission, as SR.</li> <li>●The maintenance of environmental certifications and the SRC accreditation, are considered within the 5-year strategic plan, which covers all company operations</li> <li>●"The chemistry that binds us together" and activities to reinforce responsible organisational culture.</li> </ul>	<ul style="list-style-type: none"> <li>●Sustainability philosophy from parent company</li> <li>●Sustainability department conglomerating environmental, SR and communities outreach programme, overseen by CFO.</li> </ul>
<b>Competitive Level strategy</b>	<ul style="list-style-type: none"> <li>●Product differentiation (sea salt), which implies lower costs</li> </ul>	<ul style="list-style-type: none"> <li>●Cost leadership: Pollution prevention</li> <li>●Product differentiation (certified palm oil)</li> </ul>	<ul style="list-style-type: none"> <li>●Cost leadership: Pollution prevention</li> <li>●SRC image</li> </ul>	<ul style="list-style-type: none"> <li>●Cost leadership: Pollution prevention</li> <li>●SRC image</li> </ul>	<ul style="list-style-type: none"> <li>●Cost leadership: Pollution prevention</li> <li>●SRC image (social legitimacy) - Community outreach programme</li> </ul>

	Company A	Company B	Company C	Company D	Company E
Functional level strategy	<ul style="list-style-type: none"> <li>●Clean Industry, still in the process.</li> <li>●Water strategy</li> <li>●Waste management</li> </ul>	<ul style="list-style-type: none"> <li>●Clean Industry</li> <li>●Involvement of environmental department in product and production process design.</li> <li>●Master plan elaborated 3 years ago that addresses the five main concerns, and for each one annual objectives have been established:               <ul style="list-style-type: none"> <li>-Energy strategy: steam recovery for energy production, use of cleaner sources of energy.</li> <li>-Water strategy</li> <li>-Cleaner air strategy</li> <li>-Waste management</li> <li>-Risk management</li> </ul> </li> <li>●SMETA reporting</li> <li>●CDP reporting</li> <li>●Ordinary member (non-certified) of the Roundtable on Sustainable Palm Oil</li> <li>●SRC accreditation (in process)</li> </ul>	<ul style="list-style-type: none"> <li>●Clean Industry (1 out of 3 plants).</li> <li>●Waste management.</li> <li>●SRC accreditation.</li> <li>●Water strategy.</li> </ul>	<ul style="list-style-type: none"> <li>●Clean Industry</li> <li>●ISO 14001</li> <li>●Energy strategy: power plant and cleaner sources of energies project.</li> <li>●CO2 emissions reduction</li> <li>●SRC accreditation</li> <li>●"The chemistry that binds us together" strategy.</li> <li>●Reporting to Communication on Progress (CoP) programme, UN Global Compact initiative.</li> </ul>	<ul style="list-style-type: none"> <li>●SRC accreditation</li> <li>●Interventions within the community outreach programme pillars:               <ul style="list-style-type: none"> <li>-health and environment</li> <li>-education and culture</li> <li>-productive development</li> </ul> </li> <li>●Energy strategy: energy production from gases, cleaner sources of energy project.</li> <li>●Water strategy.</li> </ul>

## 6.4. Two approaches to sustainability: a means vs an end

Whilst it cannot be claimed that case companies are completely disinterested, or the opposite, self-interested, in their approach towards their sustainability agenda, one must acknowledge the nuances that place them in different ranges of the spectrum.

It was clear that Company D is the only one that sees sustainability as an end. Participants' responses made it explicit that the company has a spirit of social responsibility originated with the founding family, and to this day they conduct themselves according to their code of ethics and values. This perception was shared by all interviewees:

*"Here we think that first people and then the company [D2]."*

*"I think that, being a family business, the parents always worried about what they were going to leave for their children. So, being a family business, before having the General Management run by a person who is not a family member, the family did think a lot about the care for the environment and what were they going to leave, what planet they were going to leave for their children [D3]."*

On the other hand, the rest of the case companies evidenced that for them, the adoption of a sustainability programme is a means to obtain further benefits, particularly emphasizing the business and its stability.

*"Sustainable practices are not charity or goodwill towards the planet, but rather are part of the business model [E5]."*

*"The company says: 'wait, I'm going to kill 10 trees now and then we'll see how to replace them'. In other words, they don't say: 'I'm going to ask permission for what I'm planning to do and then I'll do it'. It's about complying with the investment project because it's a lot of money, and on the way we could lose the company [B2]."*

*"Managers must understand the relationship between business results and sustainability [E5]."*

*"The relationship with communities should be mutually beneficial [C2]."*

Some participants from Company B and E even reported that both compliance with environmental laws and investment in community work are seen as an insurance that could be claimed back in the future should it be necessary.

A special consideration must be made with Company A. While most of their efforts with the environment and local community are driven by the conservation of the salt-pond ecosystem, without a healthy ecosystem the production of salt will suffer. Hence, there is a thin and blurred line that makes it difficult to ascertain whether their approach is more an end or a means. Again, nuances must be acknowledged.

Figure 14 presents the spectrum Sustainability means-end, and place case study organisations within this. It must be noted that the position in the spectrum is an interpretation from the researcher and by no means attempts to represent a numerical scale. The figure is meant to give a subjective illustration.

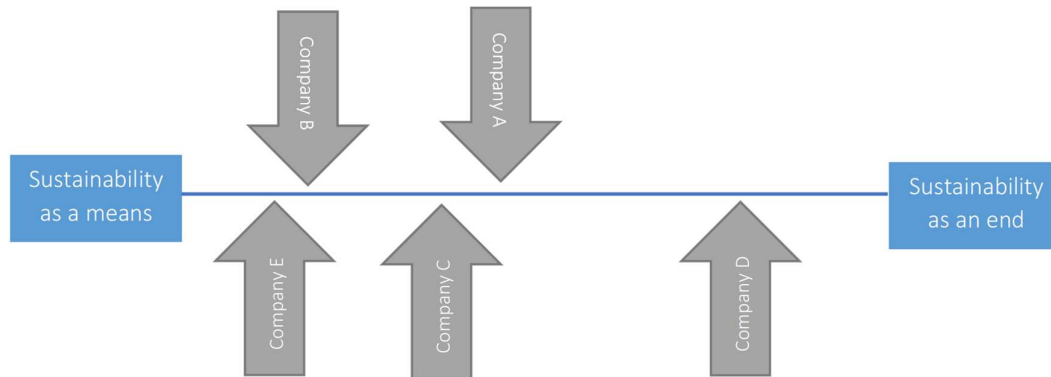


FIGURE 14. SUSTAINABILITY AS A MEANS – END SPECTRUM

Despite being the only company that sees sustainability as an end, and similarly to the other case companies, Company D also considers the cost-benefit ratio, the maintenance of its accreditations, and the impact on its image when deciding which sustainable activities to engage with. Yet, it was the only company to consider the alignment of the activity to the business values and to what it stands for.

It has also to be acknowledged that Company D does not assign equal weight to the three pillars of sustainability. Despite its intrinsic and genuine interest, despite the constant quest to support the development of the community within its sphere, it cannot be said that economic prosperity, social development and environmental impact receive the same attention and resource allocation in Company D. If this were the case, strategies pursuing social outreach and economic development of local communities would be broader in scope and would have a greater investment of economic resources, just as it happens with its environmental strategies.

The same situation can be observed in companies A, B, C and E. For them, the environmental pillar is the one that receives greater attention, resources and budget. However, Company A also assigns due weight to the economic development of the community of Las Coloradas.

In contrast, while Company E has heavily invested in technology and facilities to reduce its environmental impact, where it has also devoted significant amounts of human resources and time, its current focus is on the community outreach programme. It is not just about the number of staff involved in this area within the sustainability department, but the range of activities being undertaken, and the financial investment that has been made since its conception with the consultancy firm.

Company E far exceeds the other companies in this study, and probably several in south-eastern Mexico, in terms of its efforts to contribute to the social and economic development of the communities directly impacted. It should be noted, however, that this exceptional effort comes with an interest in being accepted in the communities into which they wish to expand operations and/or improve relations (where they currently operate). Not all communities have welcomed this initiative and, on several occasions, there have been allegations of an attempt to buy allegiances. Despite the above and the fact that this effort is a means to a specific end, the company has developed skills, capabilities, and knowledge in response to the demands of its environment and external stakeholders.

It can be understood from the cross-case analysis that in the context of these Mexican companies, the focus largely remains on the environmental pillar of sustainability and falls



behind for the social and economic development ones. It can also be appreciated that, with the exception of Company E, the management of activities within the social realm falls upon the staff of the Human Resources/ Human Capital department, as additional responsibilities, contrary to environmental activities for which specific departments and staff are assigned.

The cross-case analysis shows that the approach (means – end) followed by organisations does not affect their level of compromise, the outcomes of their strategies, nor the quantity of resources allocated. Companies B, D and E are proof that regardless of their purposes and end goals, organisations can deploy a considerable quantity of resources and achieve the outcomes expected from their strategies. As per DCs, the following section will illustrate how these are not affected nor less exploited based on the companies’ approach to sustainability.

## 6.5. Dynamic Capabilities

This section of the cross-case analysis will look into the utilization of the DCs observed in case companies, as well as the contributions and benefits for the latter. Specifically, Collaboration, R&D and Innovation, Knowledge related and absorptive capacity, Social Network Relationships, Market oriented perception, Internal reconstruction and Cross-functional integration will be looked at. Vertical Integration and extending the business was the only DC not exhibited by companies and therefore, it will not be included in the cross-case analysis. However, its absence will be later addressed in the summary of this section.

Table 15 presents the detail of what DCs, and their comprising routines, can be found in each case company, as well as their strength level.

The DCs will be addressed based on the overall strength and the embeddedness they demonstrated in companies. In order to do this, the level of strength of each DC was first identified for each case company, with the options being Strong, Moderate, Weak and Negligible. Subsequently, a table was developed with all the DC's and their level of strength per company, and based on this, the overall ranking of the DC's was determined. This information is presented below in table 14.

TABLE 14. SUMMARY OF CROSS CASE ANALYSIS - RANKING OF DYNAMIC CAPABILITIES AND THEIR STRENGTH

Overall ranking	Dynamic Capability	Company A	Company B	Company C	Company D	Company E
1	Collaboration	Strong	Moderate	Weak	Strong	Strong
2	Knowledge related and absorptive capacity	Moderate	Strong	Negligible	Strong	Strong
3	R&D and Innovation	Moderate	Strong	-	Moderate	Strong
4	Social Network Relationships	Weak	Weak	Weak	Strong	Strong
5	Internal reconstruction	Weak	Strong	Negligible	Moderate	Strong
6	Market oriented perception	Weak	Strong	-	Strong	-
7	Cross-functional integration	-	Strong	-	-	-

### 6.5.1. Collaboration

Company A, D and E strongly leverage this DC, while it is of a moderate use for Company B and weak for Company C. Collaboration has taken place with stakeholders such as the government, local communities, academic institutions, ecology groups, civil society organisations, business coalitions, local and national companies, international NGOs and members of the supply chain.

Looking into collaboration with the government, Company A has partnered up with them in order to provide training and information to the inhabitants of Las Coloradas to support the development of tourism as economic activity in the region and for the preservation of the nature reserve. On their side, Companies D, B, and C have mostly collaborated with the local authorities through participation in social and environmental responsibility activities in neighbouring communities to the city of Merida. As per Company E, it has collaborated with government agricultural institutions to jointly develop a product that would benefit horticulturists in the Peninsula.

Collaboration with academic institutions has been mostly present in Companies A and D. While Company A co-produces research on the salt-pond ecosystem where its production site is located, Company D works with universities and initiatives that enhance employability from students and graduates by offering internships or jobs. In the case of Company A, research and the preservation efforts for the nature reserve are also jointly conducted with ecology groups.

The 5 case companies collaborate with business coalitions, whether the Business Coalition against Climate Change, the OYUCAAC, or the FEYAC. Through these organisations, case companies engage in social and environmental responsibility activities jointly conducted in the city of Merida or neighbouring communities, as well as sharing information on environmental or social responsibility certifications and accreditations. Additionally, they disclose information about their environmental performance indicators.

As for local and national companies, Company C collaborates with a blue-chip company in the Mexican construction industry, sharing information on how to reduce their pollution levels and engaging in social and environmental responsibility activities. Frequent invitations to collaborate in sustainability-related initiatives are received by Company D from local companies and other types of organisations such as civil society bodies, mainly due to its good reputation in the industry.

Company E was the only one reporting collaboration with international NGOs such as Save the Children, aiming to achieve a synergistic outcome for communities built on the NGO's know-how and the company's knowledge of the context in the Peninsula.

When it comes to collaboration with members of the supply chain, the practice is undertaken by Companies E and B. On the one hand, Company E contributes to the development of its supply chain partners, specifically the farmers growing the pigs, by sharing information and advice on environmental regulations to be complied with. Company B also supports small producers part of its supply chain by facilitating their access to seeds (for oil production) and agrochemicals.

**TABLE 15. SUMMARY OF CROSS CASE ANALYSIS - DYNAMIC CAPABILITIES OCCURRENCE IN ORGANISATIONS**

Dynamic Capability	Company A	Company B	Company C	Company D	Company E
<b>Knowledge related and absorptive capacity</b>	MODERATE	STRONG	NEGLIGIBLE	STRONG	STRONG
Knowledge generation	X			X	
Knowledge acquisition and feedback	X	X	X	X	X
Knowledge management	X	X		X	
Knowledge sharing	X	X		X	X
Knowledge application to products, services, and processes related to sustainability		X	X	X	X
<b>R&amp;D and Innovation</b>	MODERATE	STRONG	-	MODERATE	STRONG
Working with new stakeholders or existing stakeholders in creatively different ways					
Development of new products		X			
Innovation capabilities to make pro-sustainability improvements in products/services and processes	X	X		X	X
R&D partnerships orientated towards sustainability	X				X
<b>Collaboration</b>	STRONG	MODERATE	WEAK	STRONG	STRONG
Partner development	X	X			
Partner-based synergies	X	X	X	X	X
Joint development of products and processes					X
Sponsorship of sustainability related projects	X			X	
Collaboration with government and industry (to set market-shaping standards)	X			X	
Assessment of SC partners' performance and/or sponsored projects. Taking corresponding actions if needed			X		X
<b>Social Network relationships</b>	WEAK	WEAK	WEAK	STRONG	STRONG
SC Re-conceptualization: inclusion of NGOs, communities, policy makers					
Adjustment of the relationships with SC partners			X	X	X
Properly handle relationships with customers and other stakeholders in the market	X	X	X	X	X
<b>Market oriented perception</b>	WEAK	STRONG	-	STRONG	-
Keeping abreast of changes in technology and products of competitors, as well as changes in customer demand	X	X			

Dynamic Capability	Company A	Company B	Company C	Company D	Company E
Prioritizing in portfolio products and services elaborated through sustainability practices					
Information sharing with customers	X	X		X	
<b>Internal reconstruction</b>	WEAK	STRONG	NEGLIGIBLE	MODERATE	STRONG
Quickly integrate/reconfigure resources (including technology) to respond to changes in the environment. Changes could be brought about as a result of evaluation of current resources	X	X	X	X	X
Process modifications to incorporate pro-sustainability changes		X	X	X	
Timely response to achieve company's objectives					X
<b>Vertical integration and extending the business</b>	-	-	-	-	-
Development of new business units and/or brands					
<b>Cross-functional integration</b>	-	STRONG	-	-	-
Intensive interactions amongst employees from different functional areas		X			

The benefits and support obtained by companies relying on this DC are varied. All case companies enjoy facilitated access to information from the local industry in terms of sustainability/certifications due to their engagement with business coalitions. However, only Companies A, D and E have reinforced and maintained competitive advantages such as the image as a natural and environment-friendly product, good reputation in the industry, and the control of pork market respectively. Other benefits obtained from this DC are improved stability of production and business perpetuity for Company A, increased and more stable supply of raw material for Company B, contribution towards the image of social responsibility and concern for the environment sought by Company C, attraction of more stakeholders seeking collaboration with Company D and, continuity of operations in the Peninsula for Company E.

### 6.5.2. Knowledge related and absorptive capacity

This DC has strongly supported Companies B, D and E. Company A has moderately relied on it, while Company C has drawn on it only minimally.

To varying degrees, all case companies have been involved in the acquisition and generation of knowledge, however, not all have put in place mechanisms to adequately manage new information. Companies B, D and E are continuously searching for and learning about new technologies that would help mitigate the impact of their operation on the environment, as well as for energy generation. Specifically for the case of Company B, the environmental department is actively involved in understanding the Mexican legislation and expanding its knowledge about it. Company A is constantly involved in research related to the salt-pond ecosystem, mainly covering scarcity of literature on the subject. As for the negligible use of this DC in Company C, new knowledge has stemmed from interactions with the Clean Industry certification auditors, with environmental authorities, and from the involvement in the SRC accreditation.

Management of new knowledge, nevertheless, was mostly addressed by Companies D and B. The former pointed out mechanisms such as an integrated management system and training, while the latter mentioned that training, policies and procedures are documented and administered by the Methods and Procedures department. Even though Company E did not elaborate on the mechanisms, new information and knowledge emerging from interaction with communities, is reflected on the communities' outreach programme. The same situation was encountered with Company A, where information that comes out from research is added to their reservoir of knowledge and applied during the monitoring of the nature reserve, yet responses from participants did not provide much detail about it.

It is on knowledge sharing where case companies differ the most. While Companies D, E and A have an external and internal sharing approach, Company B is more focused on internal sharing of the information. Amongst others practices, Company D is open to exchange of information with external parties who wish to learn about its wetland system for waste water treatment. Company E has created links with national and international companies to share information on its community outreach programme and on environmental and energy technologies. Knowledge generated by Company A has been shared with academic and ecological protection institutions interested in the salt-pond ecosystem, as well as with the population of Las Coloradas so that they can contribute the preservation of the nature reserve and inform tourists visiting the area. For Company B, the focus has been on the internal use of its expertise, since little of it has been shared with external stakeholders. The knowledge has been utilised by the company for the development of facilities and new products, also including

the legal-environmental component. As per Company C, it has poorly shared information internally.

This DC has supported both the maintenance of competitive advantages, and the attention to problems arising from the implementation of the sustainability programme. Company A has maintained competitive advantages such as its image of a natural and environment-friendly product, as well as contributed to maintain production stability and perpetuity of the business. Similarly, Company D has also maintained its main competitive advantage by adding up to its good reputation and prestige. Company B has mostly addressed issues such as the lack of specialist on environmental topics and the unclear Mexican environmental legislation. As for Company C, it has vaguely added to its image of social responsibility and concern for the environment through engagement with certifications and accreditations. Interestingly enough, even though Company E does acquire and share knowledge constantly, it has not seen sound contribution towards competitive advantages or to alleviate any of the sustainability-related issues.

### 6.5.3. R&D and Innovation

This capability was only identified in 4 of the case companies in the study. Both Company B and Company E rely heavily on it, while Companies D and A make use of it to a moderate degree. It has been mostly deployed through improvements in products and processes, as well as research and development partnerships.

In the case of improvements to processes, the majority have aimed to mitigate their environmental impact. For instance, Company B has implemented cleaner technologies that allow to reuse wastewater to obtain by-products that are used as inputs for production. Consequently, water consumption and wastewater discharges are reduced. Technologies for recovery of steam derived from production and its reincorporation for energy generation have also been implemented. Meanwhile, Company E is conducting studies to generate energy on its pig farms from solar and wind sources. The company is equally known for its technological innovation, which is also reflected in its facilities and solutions for mitigating its environmental impact. Looking at the Clean Industry certification, even though most of the companies in the study have or are in the process of obtaining the certification, Company D was a pioneer in Southeast Mexico, also certifying its environmental management system to the ISO 14001 standard. By being a first-mover, the company wants to reinforce its image of innovation and quality.

Improvements in processes have also reached the social aspect of sustainability. Company B developed a device that allows women to perform activities that require physical strength, for which men would traditionally be hired. This enabled the company to expand its labour opportunities for women. In the case of Company D, it encourages and rewards the development of solutions by its staff to improve the production process, thus it has implemented initiatives that improve working conditions in the production plants and increase workers' commitment to the company.

Nonetheless, only 2 of the case companies have engaged in research and development partnerships. Company E has developed a product in conjunction with a government institution for the benefit of horticulturists in the region, and is also working with academic institutions to evaluate and improve its wastewater treatment system. Company A conducts ongoing research with academic institutions and ecology groups on the salt-pond ecosystem. Although no new

products are developed, the company improves its knowledge of the ecosystem and the species that inhabit it, and applies it to maintain its health and stability.

Involvement with this DC has mostly contributed to companies' competitive advantages. Both Companies A and D have seen their images positively affected, one offering a natural and environment-friendly product and the other as innovative. In the case of Company B, the reduced consumption of water resources in the area presumes the possibility of prolonged permanence on it, as well as the benefit of low costs of production associated. Other benefits linked to this DC are maintenance of production stability and business perpetuity for Company A, expansion of labour opportunities for women in Company B, endorsement of the sustainability best-practice approach and increased worker commitment for Company D. Nonetheless, Company E has not seen tangible contribution.

#### 6.5.4. Social Network Relationships

This DC has been mostly demonstrated by adjusting relationships with supply chain partners and by properly handling relationships with customers and other stakeholders in the market. Two of the case companies have leveraged this DC strongly: E and D. The other 3 case companies, A, B and C, have relied weakly on it.

Adjustment of the relationships with supply chain partners have occurred in Companies E, D and A, although in different ways. In order to ensure compliance with environmental regulations in their farms, and to eventually bring them on board with its community programme efforts, Company E has had to fine-tune its relationships with farmers in its feedlot network. On its side, Company D has long been auditing its main suppliers of raw materials in various areas, including inputs with reduced environmental impact. As for Company A, its relation with the community of Las Coloradas has been shifting from being the main employer and father figure in the town, to include them in the development of other economic activities in the region such as tourism.

The five case companies have put effort in the improvement of their relationships with different groups of stakeholders in the market. The best example is by Company E, where its community programme has not only received a great deal of financial, human, and time resources, but is one of the company's flagships in the sustainability arena. This programme aims to reconceptualise relations with the communities where the company operates and with those in which it aims to establish operations. To this end, in a change of strategy, the company is now open and transparent in its operations, and seeks to maintain constant communication with the key agents in the communities. Through the pillars of the programme, the company aims to be seen as a friend of the community, and to make those communities it has not yet reached yearn for its presence.

Looking into Company D, it has a policy to always conduct itself ethically, avoiding links with organisations that could be singled out for their dubious reputation. In addition, it prohibits involvement in irregular practices and prioritises transparency with the government. In the case of Company A, it has also positively liaised with local and national government authorities, academic institutions and groups interested in the nature reserve in which it is located. For both Companies B and C, changes have been mostly seen in their relationship with environmental authorities and the government. Company B has transformed this relationship from being problematic to now being recognised as a company that always abides by the law. As per the weak use of this DC in Company C, it has engaged in socio-environmental initiatives of the local

government, seeking to demonstrate an image of social responsibility and care for the environment.

By harnessing this DC, companies have seen benefits such as maintenance of competitive advantages for A, D and E, addressing issues for Companies C and E, and additional benefits for Companies B and E. Through the relationship with the community and research groups, Company A contributes to the health of the ecosystem and therefore to the preservation of competitive advantages such as the natural image of the product and its low production costs. This DC allows Company D to capitalise on its relationships and continues to preserve its prestige and good reputation. For Company E, the reconceptualization and enhancement of its relationship with communities adds to an improved image and more importantly for them, allows to continue operating and expanding in the southeast of Mexico. It has also helped to counteract the negative attention and criticism from detractors due to the industry's bad reputation. Through an improved relationship with the government, Company C has been able to alleviate the issue of disagreement on how to implement solutions to mitigate its environmental impact. Finally, Company B is enjoying an improved business image and relationships with the government.

#### 6.5.5. Internal reconstruction

In response to demands from and changes in the environment, resources such as staff and its responsibilities, projects, programmes, operations and processes, facilities and technologies, have been either integrated or reconfigured in the 5 companies, though to a different extent. Nevertheless, only Company E has faced an environment in which constant attacks have pushed it to excel the ability to respond in a timely manner to these challenges and continue in the pursue of its objectives.

While Company B and E have strongly seized this DC, Company D has made a moderate use of it, Company A has weakly leverage it and Company C has had a negligible reliance on it.

In order to face demands from various stakeholder groups, Company B allocated more weight and powers to the environmental department, and also increased the number of staff working for it. In addition to technological adjustments to operational processes to reduce their environmental impact, at the request of the CEO the Environmental Corporate Manager also took on the responsibility to educate and raise awareness amongst senior managers. Structural changes also permeated the Quality Control department, as its Manager is now responsible for reporting to platforms such as the CDP, SEDEX and the RSPO, with the corresponding changes these have implied in the processes. Engagement with these platforms and projects have also been driven by external requests. Finally, internal adjustments even reached the Human Resources area, where work shifts for plant workers were modified to suit their needs.

In the case of Company E, internal reconstruction has been evident for the entire sustainability department and its robust structure, but above all for the area in charge of the community outreach programme, followed by the environmental area. From the outset, staff whose characteristics specifically meet the requirements of the community programme were incorporated. The programme has had to be adjusted to the characteristics and needs of the area, as well as to the objectives of the company itself. Timely response to challenges has also been possible due to openness from the Sustainability Manager. With regard to the environmental area, where attention from external stakeholders have been placed in their consumption of resources such as land and their levels of pollution, the technological edge of facilities has contributed to mitigate their impact on the environment.



Looking into Company D, alongside internal adjustments in terms of environmental technologies, the company has also made changes that stem from its core of social responsibility. For example, deaf staff and senior citizens have been hired for container cleaning and packaging activities respectively. Additionally, production supervisors got involved in training their subordinates on various topics, including environmental and quality certifications.

As per Company A, its weak support in this capacity has been seen in the form of environmental improvements to its facilities, as well as changes in its staff. First, the change of manager at one of the plants in response to his reluctance to align to new policies and ways of doing things, including activities related to the Clean Industry certification. Subsequently, the appointment of the Ecology Management as part of the endorsement and importance assigned by the Board of Directors to the certification.

The impact of this DC on Company C has been minimal, however initial changes have begun to be noticed. In addition to facilities' improvements, policies and environmental processes that enabled one of the plants to be certified as a Clean Industry, the work of the Human Resources Manager has begun to sensitise operational and union's staff and gradually, gain their support in some of the social responsibility activities carried out by the Human Resources department.

How does internal reconstruction have supported the programme for sustainability and the overall firm? In terms of competitive advantages, Companies D and E have been predominantly benefitted. The former has been able to expand its good reputation as an ethical employer and committed to global issues, while the latter is able to continue operating in the Peninsula and maintains its plans for expansion. Issues have also been addressed in Companies D, E, A and C. Company D addresses staff reluctance to receive constant training, whereas Company E fights the negative attention and criticism from detractors due to the industry's bad reputation, as well as the misalignment of the community outreach programme to the local context and business' objectives. Interestingly enough, while in Company A this DC partially supports the solution of the issue of resistance to change from plant staff by bringing in new people in managerial positions, Company C addresses another issue that is also present and unresolved in Company A, namely the lack of support from unions due to new workload. The difference between the two companies is that internal reconstruction in Company C is targeting workers at the plant to gain their support; situation that was not found in Company A.

Furthermore, there have been additional benefits for Companies A, B and C. For Company A, the adjustments work towards obtaining the Clean Industry certificate. Meanwhile, Company B achieves a stronger market position, maintains important commercial relationships and becomes ready for new commercial relationships demanding certifications and information disclosure. Lastly, Company C receives input to its sought-after image of concern for the environment and social responsibility.

#### 6.5.6. Market oriented perception

Case companies have demonstrated this DC by being alert and aware of changes in technologies from competitors and in customer demand, by prioritizing in their portfolio products and services elaborated through sustainability practices and, by sharing information, most of the times through audits, with their customers. Company B has remarkably seized this DC, while company D has also relied on it strongly. In the case of Company A, it has been rather weak. In terms of Company E, it basically does not exist in the sustainability realm.

The change towards sustainability for Company B has been driven by external requests from its customers and others groups of stakeholders in the market, so the company has been keeping abreast of changes in customers' demands. This is how it became a member and started reporting to international platforms such as SEDEX, the CDP and the RSPO. In the case of Company D, it is open to and constantly seeking for new initiatives that arise in the market and that could further endorse its commitment with the environment and society, even if they are not yet expected from them. As per Company A, the Ecology Manager tries to be informed about technologies that could help reduce the impact of its operation, but most of these do not end up being implemented as the company is still in the early stages of its sustainability journey. However, in order to answer concerns from the market, this company undertook a study to prove that their product, sea-salt, is free from ocean plastic.

When it comes to the prioritization of products elaborated through sustainable practices, it was only Company B who declared that as part of the RSPO programme, they aim to increase year by year the production of cooking oils made with sustainable-certified palm, and shift away from the non-certified one. Other case companies are not yet emphasizing products elaborated with a more sustainable approach.

In terms of information sharing with customers, Company B and D respectively, are the best examples. Through platforms such as SEDEX, the CDP and the RSPO, Company B discloses information on their environmental and social responsibility performance indicators. Furthermore, the organisation shares information with some of its customers through audits, looking at different areas such as equity, ethics, industrial safety and social responsibility with its employees. Regarding Company D, they share information with their larger customers through audits and have become a member of initiatives such as the UN's CoP, where it shares information on the sustainable impact of its operation. In the case of Company A, they also share information with customers through audits on workers welfare and safety.

Contributions to competitive advantages have been seen by Companies A and D, in both cases impacting their images. For Company A, this DC allows it to continue in the path for consolidating its market position as a more natural and healthier version to table salt, and for Company D it continues fostering its reputation as an ethical employer, provider of quality products and committed to global issues. Companies A, B and D are maintaining important commercial relationships thanks to this DC, while Companies B and D likewise stay ready for new commercial relationships that demand certifications and information disclosure, also strengthening their market position.

#### 6.5.7. Cross-functional integration

From all 5 case companies, it was only Company B who has harnessed this DC with a strong deployment of it.

The production of oils with palm certified as sustainable, reporting to the CDP and the SMETA platform, have required coordinated work between different departments in the organisation, all of them led by the Quality Assurance Manager. Additionally, there is a constant flow on information between the environmental, the legal, the methods and procedures, and the production departments. All of this with the purpose on understanding and accurately implementing new measures and adjustments that stem from changes in the environmental law. Cross-functional integration has provided the environmental department with better tools to understand and apply legal requirements, and has led to an overall advancement of the

company's knowledge in environmental laws. Furthermore, it has helped to face the issue of lack of clarity in Mexican environmental legislation and, to preserve the company's competitive advantages through a reduced impact on the local environment.

It is worth noting that the other case companies, like most companies, do have interaction between different departments, including interaction between the environmental department and other areas. Now, the other companies did not provide sound evidence that this interaction and support between areas was intensive to the point of being considered a strength or outstanding capability.

#### 6.5.8. Summary of the cross-case analysis for Dynamic Capabilities

In summary, the DCs that case companies rely on the most, albeit to varying degrees, are Collaboration, Knowledge related and absorptive capacity, Social Network Relationships and Internal reconstruction. These are followed by R&D and Innovation, Market oriented perception and Cross-functional integration respectively.

Evidence seems to indicate that Collaboration is the strongest DC because it is relatively easy for companies to engage with it. In some cases, it comes naturally to the industry in which the company operates, which attracts academic institutions, research, or advocacy groups. On the other hand, some companies have an interest in ensuring the stability of their relationships with suppliers in their supply chains, which leads companies to develop cooperative and supportive ties with them. The membership to business coalitions is also a factor that enables collaboration in various CSR activities, knowledge sharing and to some extent, facilitates peer pressure on companies to improve the environmental performance indicators they report on. Furthermore, some companies actively seek to develop collaborative ties with the government, sometimes hoping to improve their image with this institution. Likewise, those that collaborate with NGOs.

In terms of the support provided by DCs to case companies, it appears that Collaboration, R&D and Innovation, Social Network Relationships and Internal reconstruction are the ones that have delivered more benefits. They are followed by Knowledge related and absorptive capacity, Market oriented perception and Cross-functional integration. One should highlight though, that R&D and Innovation, Market oriented perception and Cross-functional integration were not present in all 5 case companies.

Table 16 presents the DCs and the different benefits that their leverage has brought to case companies. On the whole, benefits can be classified into two different domains: first, advancing and supporting the implementation of the sustainability programme, which brings them closer to achieve their sustainability objectives. Secondly, by supporting the overall firm operation, including the benefits that are not necessarily related to sustainability outcomes.

Vertical Integration and extending the business was the only DC not present in any of the case companies. The findings seem to reveal that at least in the context of these companies, it has not been necessary to respond to sustainability requirements through the acquisition of supply chain partners. In fact, some business models were conceived and developed as separate companies representing different tiers in the same supply chain, but not for sustainability purposes. Moreover, case companies seem to prioritise close collaboration with members of their respective supply chains rather than integrating them, probably because this represents high risks or volumes of operation that they have decided not to take on for the time being.

TABLE 16. SUMMARY OF CROSS CASE ANALYSIS- DYNAMIC CAPABILITIES AND THEIR SUPPORT TO THE PROGRAMME FOR SUSTAINABILITY AND THE OVERALL COMPANY

Dynamic Capability	Company A	Company B	Company C	Company D	Company E
<b>Collaboration</b>	<ul style="list-style-type: none"> <li>●Maintain competitive advantage: image as a natural and environment-friendly product.</li> <li>●Maintain competitive advantage: low energy costs</li> <li>●Maintain production stability and perpetuity of the business.</li> <li>●Facilitates access to information from local industry</li> </ul>	<ul style="list-style-type: none"> <li>●Facilitates access to information from local industry</li> <li>●Increase/stabilise supply of raw material</li> <li>●Adding to image of social responsibility and concern for the environment.</li> </ul>	<ul style="list-style-type: none"> <li>●Adding to image of social responsibility and concern for the environment.</li> <li>●Facilitates access to information from local industry</li> </ul>	<ul style="list-style-type: none"> <li>●Maintain competitive advantage: good reputation.</li> <li>●Adding to image of social responsibility and concern for the environment.</li> <li>●Attract stakeholders seeking collaboration</li> <li>●Facilitates access to information from local industry</li> </ul>	<ul style="list-style-type: none"> <li>●Maintain competitive advantage: location in the Peninsula</li> <li>●Maintain competitive advantage: control of pork market</li> <li>●Facilitates access to information from local industry</li> </ul>
<b>Knowledge related and absorptive capacity</b>	<ul style="list-style-type: none"> <li>●Maintain competitive advantage: image as a natural and environment-friendly product.</li> <li>●Maintain production stability and perpetuity of the business.</li> </ul>	<ul style="list-style-type: none"> <li>●Address issue: lack of specialist on environmental topics.</li> <li>●Address issue: unclear Mexican environmental legislation.</li> </ul>	<ul style="list-style-type: none"> <li>●Adding to image of social responsibility and concern for the environment.</li> </ul>	<ul style="list-style-type: none"> <li>●Maintain and expand competitive advantage: good reputation.</li> <li>●Adding to image of social responsibility and concern for the environment.</li> </ul>	-
<b>R&amp;D and Innovation</b>	<ul style="list-style-type: none"> <li>●Maintain competitive advantage: image as a natural and environment-friendly product.</li> <li>●Maintain production stability and perpetuity of the business.</li> </ul>	<ul style="list-style-type: none"> <li>●Expansion of labour opportunities for women.</li> <li>●Maintain competitive advantage: low production costs linked to location in the Peninsula.</li> </ul>	-	<ul style="list-style-type: none"> <li>●Maintain and expand competitive advantage: innovation and good reputation.</li> <li>●Endorse sustainability best-practice approach and increased worker commitment.</li> </ul>	-

Dynamic Capability	Company A	Company B	Company C	Company D	Company E
<b>Social Network Relationships</b>	<ul style="list-style-type: none"> <li>●Maintain competitive advantage: image as a natural and environment-friendly product.</li> <li>●Maintain competitive advantage: low production costs.</li> </ul>	<ul style="list-style-type: none"> <li>●Improved business image</li> <li>●Improved relationship with Government.</li> </ul>	<ul style="list-style-type: none"> <li>●Address issue: disagreement with Government on how to implement solutions to mitigate environmental impact, improved relationship with Government.</li> </ul>	<ul style="list-style-type: none"> <li>●Maintain and expand competitive advantage: good reputation.</li> <li>●Adding to image of social responsibility and concern for the environment.</li> </ul>	<ul style="list-style-type: none"> <li>●Contribution to improve business image.</li> <li>●Improvement of relationship with local communities.</li> <li>●Maintain competitive advantage: location in the Peninsula and continue with expansion plans in this location.</li> <li>●Address issue: misalignment of community outreach plan to local context and business' objectives.</li> <li>●Address issue: attention and criticism from detractors due to industry's bad reputation.</li> </ul>
<b>Internal reconstruction</b>	<ul style="list-style-type: none"> <li>●Address issue: resistance to change from staff (partially).</li> <li>●Actions towards obtaining the Clean Industry certificate.</li> </ul>	<ul style="list-style-type: none"> <li>●Stronger market position.</li> <li>●Maintain important commercial relationships.</li> <li>●Readiness for new commercial relationships demanding certifications and information disclosure.</li> <li>●Actions towards obtaining and maintaining the RSPO membership.</li> <li>●Adding to image of social responsibility and concern for the environment.</li> </ul>	<ul style="list-style-type: none"> <li>●Adding to image of social responsibility and concern for the environment.</li> <li>●Address issue: lack of support from union members as a result of additional workload.</li> <li>●Actions towards obtaining the Clean Industry certificate.</li> </ul>	<ul style="list-style-type: none"> <li>●Address issue: staff reluctance to receive constant training.</li> <li>●Maintain and expand competitive advantage: good reputation (ethical employer issues).</li> <li>●Expansion of labour opportunities for elderly and deaf people.</li> <li>●Maintain and expand competitive advantage: Human Capital</li> </ul>	<ul style="list-style-type: none"> <li>●Address issue: misalignment of community outreach plan to local context and business' objectives.</li> <li>●Address issue: attention and criticism from detractors due to industry's bad reputation.</li> <li>●Maintain competitive advantage: location in the Peninsula and continue with expansion plans in this location.</li> </ul>

Dynamic Capability	Company A	Company B	Company C	Company D	Company E
<b>Market oriented perception</b>	<ul style="list-style-type: none"> <li>● Maintain competitive advantage: image as a natural and environment-friendly product.</li> <li>● Maintain important commercial relationships.</li> </ul>	<ul style="list-style-type: none"> <li>● Stronger market position.</li> <li>● Maintain important commercial relationships.</li> <li>● Readiness for new commercial relationships demanding certifications and information disclosure.</li> <li>● Adding to image of social responsibility and concern for the environment.</li> </ul>	-	<ul style="list-style-type: none"> <li>● Maintain and expand competitive advantage: good reputation (ethical employer and committed to global issues).</li> <li>● Adding to image of social responsibility and concern for the environment.</li> <li>● Stronger market position.</li> <li>● Maintain important commercial relationships.</li> <li>● Readiness for new commercial relationships demanding certifications and information disclosure.</li> </ul>	-
<b>Cross-functional integration</b>	-	<ul style="list-style-type: none"> <li>● Address issue: unclear Mexican environmental legislation.</li> <li>● Maintain important commercial relationships.</li> <li>● Readiness for new commercial relationships demanding certifications and information disclosure.</li> </ul>	-	-	-

## 6.6. Dynamic Capabilities contributing to the evolution of Complex Adaptive Systems

The final piece of the cross-case analysis is the contribution that DCs bring to the system represented by each case company. This section of the analysis will begin by briefly recalling the environment in which each company is immersed. It will then analyse how each DC has supported the organisational systems of case companies, and finally, the summary and the stage of evolution for each system will be addressed.

### 6.6.1. Environments of case companies

The following paragraphs intend to briefly remind the reader of the contexts in which each case company is immersed.

Company A main production site is embedded in a nature reserve, where it coexists with the inhabitants of the town of Las Coloradas. Because of its "natural" process, low environmental impact in relation to other industries, and its involvement in the preservation of the ecosystem, it does not receive major threats or demands from other systems such as the government, academic institutions or ecology groups, but rather develops collaborative ties with them.

Company B has made a 180° turnaround in its relationship with the government and in the perception that other businesses have about it in terms of compliance with environmental laws. While its industry consumes significant amounts of water and also generates substantial amounts of waste water and emissions, the company has made numerous changes that significantly mitigate its level of pollution. In addition to improving relations with the government, another equally or more important reason for engaging with a sustainability agenda were the requirements from the market, from its customers and later on, its expansion plans.

Company C has mostly received pressure from environmental authorities to reduce the impact of its operation on the environment. Although the industry in which it operates is highly polluting, the company has kept a low profile and has not attracted the attention of environmental advocacy groups. Neighbouring communities to its production plants do not represent a threat either. In its case, the market is not yet demanding the implementation of sustainable practices.

Company D has a long-standing reputation for social responsibility in this part of Mexico, so its relationship with the authorities and other companies in the region is friendly. The company is often taken as a benchmark by others in terms of environmental compliance, innovation and its management systems' certifications. While it has an impact on the environment like any other industry, it is probably the least polluting after Company A. Albeit consumers are not demanding sustainability-oriented improvements in its products, large customers such as supermarkets demand some requirements mostly focused on employee safety and welfare.

Company E has the least favourable reputation from all case companies. This has been the consequence of the pollution degree in its industry, and also due to the significant tracts of land it occupies in southeast Mexico, where its farms and production facilities cohabit with marginalised communities who bear the brunt of its operation's impact. This has attracted the

attention of advocacy groups, media, society and government authorities in some cases. The company relies heavily on technology to ensure the safety and quality of its products, and the same approach has been taken to mitigate its impact on the environment, but this has not been sufficient, at least from the perspective of the various stakeholders who are watching it.

#### 6.6.2. Collaboration

By means of the different collaborative links that case companies have developed through this DC, organisational systems in companies A, B and C have exchanged information and knowledge with other systems that help them advance their functioning and that of their sustainability strategies, while also strengthening these partnerships and bonds. In the case of Company's E system, it has benefitted by honing its ability to recover from difficulties through constant interaction and feedback with agents in other systems. The more interaction occurs, the better the system learns to handle arising difficulties. Furthermore, it could be said that in some cases, Company E is even spanning its boundaries to include agents from directly related systems, such as farmers in its feedlot network. Nevertheless, the CAS represented by Company D finds itself in a different situation than that of previous companies. Due to its positive reputation with other coexisting systems, Company D keeps on creating links with them, being immersed in a loop where it continues to attract opportunities for new inputs and exchange. This scenario assists to a fostered dynamism and to the evolution of its programme for sustainability.

#### 6.6.3. Knowledge related and absorptive capacity

Despite being at different stages of their journeys, both Companies B and C have seen changes in the schemas, behaviours, and for some cases in learning, from agents at upper and lower hierarchies. Company's B system, which has harnessed the new knowledge, has become progressively intelligent on its own.

In the case of Company's E system, it is constantly updating its knowledge base and this has been reflected in an improved operation of its strategies. This very same knowledge provides the system with more instruments to deal with environmental crises and challenges arising from changes in environmental law. Similarly, Company's A system is equipped with more insights that along with continuous learning, provide the system and its agents with more elements to respond to threats arising from nature or human activity. Additionally, the boundaries of Company's A system are spanned, including the inhabitants of Las Coloradas as new agents. For Company E, the outcome is a system with improved resilience that results from its experience in dealing with crises coupled with its updated knowledge base.

As per Company's D CAS, the evolution starts from within, where its agents seek, obtain, assimilate and learn new information, reinforced by the strategies put in place in the organisation. Evolution in this system is further advanced by improvements in the design and operation of its strategies that originate from updated knowledge and shared information with other systems.

#### 6.6.4. R&D and Innovation

Looking at the contribution of this DC into the evolution of the systems and strategies in case companies B, D and E, these have been benefitted by an enhanced design and functioning. For Companies B and E, the accommodation of ecological request from external systems while



creating and applying new knowledge, positively affects the natural environment and their own knowledge base. Moreover, Company's B staff is also benefitted as a result of paying attention to cues from the social external environment. As for Company D, by leading by example it has also strengthened the alignment of its agents with the system's schema.

In the case of the system in Company A, who is particularly focused on research, it develops its capacity for self-management and control, advancing towards an enhanced operation. Furthermore, new knowledge provides the system with information and tools that strengthen its capacity to respond to and recover from changes in the ecosystem.

### 6.6.5. Social Network Relationships

Organisational systems in both Companies C and E are more vigilant and have seen an improved level of responsiveness to unexpected situations, threats or changes demanded by other systems they coexist with, or from the overall environment. While Company C is still at an early stage and have poorly enjoyed these benefits, Company E has become more resilient and is mastering its ability to deal with and counteract criticism from stakeholders. Less skilled than E, but arguably with better outcomes, Company A has likewise improved at identifying and responding to system's threats by keeping open communication channels with external stakeholders and other systems.

By reacting to environmental signals, the system in Company B has upgraded its relationship with other systems, such as environmental authorities and business coalitions. Consequently, it has boosted its fitness to survive. Additionally, lower hierarchy agents have gradually started to align their schemas to those of the organisational system.

The programmes for sustainability at Companies B and D are being favoured by an improved functioning and responsiveness to issues that emerge during supplier audits. Moreover, the systems draw lessons from every relationship and evolve by learning how to deal with problems that arise.

### 6.6.6. Internal reconstruction

Overall, most case companies have entered into a process of adaptation in which through this DC they have modified their resources and organisational structure, or have adopted new resources, in order to satisfy external requirements or to signal internal and/or external agents. The exception would be Company's A system, which has not seen tangible benefits from this DC yet.

The two organisational systems that have been strongly benefitted by this DC are Companies B and E, in both cases seen an advancement in their resilience capacity. For Company B, through the implementation of a strategy of internal environmental audits. In the case of Company E, through the timely attention and response to issues from the community outreach team. Additionally, internal reconstruction has boosted in Company's B system the ability to respond to current and future market requirements, whilst pushing the revision of its strategies and operation accordingly. In the meantime, Company's E system enhances its ability to deal with the challenges posed by the environment, especially those affecting its image. By means of the implemented strategies, the system learns how to better navigate its chaotic environment.

Regarding the system in Company D, internal reconstruction has led to increased alignment of middle level managers schemas to the system's schemas, apart from enhancing the system's ability to overcome internal inconveniences with lower hierarchy agents.

Lastly, Company's C system has just started to see a change in lower hierarchy agents' schemas, a nascent contribution to system's responsiveness to external challenges, and some adjustments to sustainability-strategies.

#### 6.6.7. Market oriented perception

By means of this DC, the system becomes attentive to changes in other systems or customer demands, giving rise to other DCs such as R&D and Innovation, or Internal Reconstruction. Market oriented perception, that has only been observed in 3 case companies, has brought major contributions for systems in Companies B and D, and to a moderate extent in Company A.

In the case of Company B, there has been a change in the mentality and schemas of agents at the top hierarchies, including the owner and CEO of the company. This DC has also enhanced the system's capacity to respond to continuous new requirements from the market through a better design and functioning of strategies and its operation. Moreover, it has boosted the system's transparency while making it more resilient to external challenges.

The strong focus on the market has taken Company D to fine-tune its already decent system functionality, as well as that of its programme for sustainability. This system is eager to cue the environment its concern for generativity.

When it comes to Company's A system, this has been mostly benefitted by tightened communication channels with other systems and getting used to react accordingly, while also improving the system's responsiveness to market demands.

#### 6.6.7. Cross-functional integration

Company B is the only one relying on this DC, and the system embedded within this organisation is also benefitting from it. Thanks to the constant flow of information between agents within the system, it thrives on knowledge and reflects it on the strategies. This has allowed the organisational system to satisfy external requirements and has enhanced its capacity to respond to new demands stemming from other systems.

#### 6.6.8. Summary of the cross-case analysis for Dynamic Capabilities' contribution to CAS

Table 17 presents the overall contributions of DCs to organisational systems and to the strategies for sustainability in case companies, while Figure 15 illustrates where the case companies stand between the spectrums "degree of adaptability and evolution" and "strength of DCs".

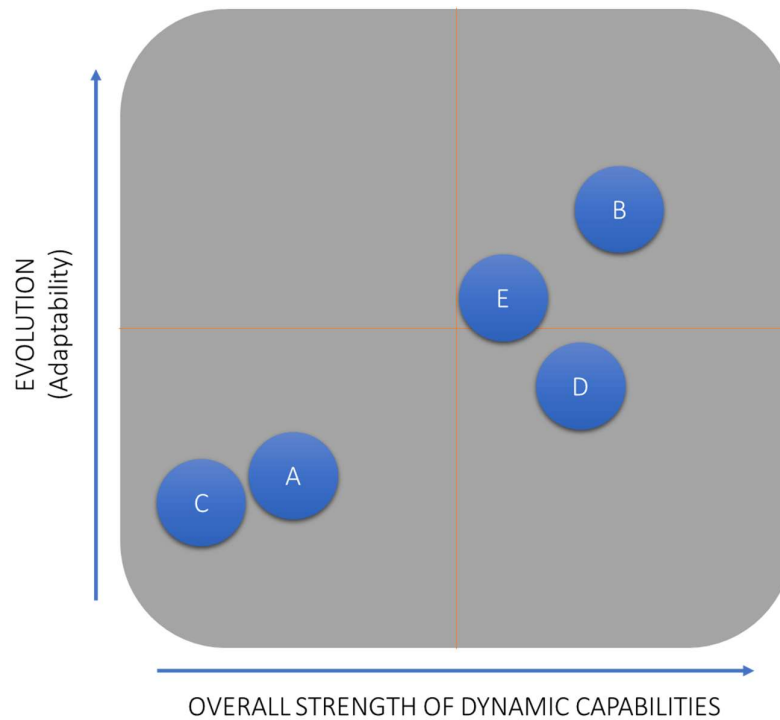


FIGURE 15. SYSTEMS' EVOLUTION AND STRENGTH OF DYNAMIC CAPABILITIES

Figure 15 shows that Companies C and A are the less evolved systems and overall, possess weaker DCs. This might be due to low environmental and market requirements, either because the industry does not demand it yet, because it is under less scrutiny, or in the specific case of Company A, because its activity is significantly less polluting.

Company E shows a greater evolution than D, and this may be originated in tougher scrutiny and demands from various stakeholder groups, plus the high level of pollution of its activity and its public exposure, which have forced Company E to act, design and articulate strategies that have enabled it to face and counteract attacks and requirements. Conversely, Company D has the opposite image to E but slightly stronger DCs that allow it to continue improving and fine-tuning the functioning of its strategies. However, the company has not been pushed to do so, but has done it at a convenient pace and without having to act expeditiously in the face of environmental demands. Pressures and demands from the environment do seem to make a difference when looking at evolution of case companies.

Finally, there is Company B, which not only has strong DCs, but has the more advanced evolution and has significantly adjusted its operation through strategies that have greatly mitigated its impact on the environment, improved its relationships with other systems, and enabled it to be ready to meet new market requirements.

TABLE 17. SUMMARY OF CROSS CASE ANALYSIS - DYNAMIC CAPABILITIES AND THEIR CONTRIBUTION TO THE ORGANISATIONAL SYSTEM AND ITS STRATEGIES FOR SUSTAINABILITY

Dynamic Capabilities	Contribution case companies' systems
<b>Collaboration</b>	<ul style="list-style-type: none"> <li>Increased flows of information and feedback within the system and with other systems: Internal exchange of information between agents and with agents from other systems.</li> <li>Spanning of boundaries and inclusion of new agents.</li> <li>Attracting other systems for information and knowledge exchange.</li> </ul>
<b>Knowledge related and absorptive capacity</b>	<ul style="list-style-type: none"> <li>Higher alignment of agents to system's schema: positive change in behaviours and learning.</li> <li>Better preparation to face threats and challenges from environment by applying new insights and knowledge for improved operation of strategies.</li> <li>Spanning of boundaries and inclusion of new agents.</li> </ul>
<b>R&amp;D and Innovation</b>	<ul style="list-style-type: none"> <li>Expansion of knowledge base and enhanced response capacity through creation/adjustment and application of knowledge for improved strategies.</li> <li>Higher alignment of agents to system's schema.</li> <li>Further development of self-management capacity.</li> </ul>
<b>Social Network Relationships</b>	<ul style="list-style-type: none"> <li>Open communication channels build towards the system's capacity for detection and response to threats/requirements from other systems.</li> <li>Improvement of relationships with other systems</li> <li>Higher alignment of low hierarchy agents to system's schema.</li> </ul>
<b>Internal reconstruction</b>	<ul style="list-style-type: none"> <li>Adjustments and new inputs in the system and its strategies to meet demands from other systems or to signal internal/external agents.</li> <li>Enhanced response capacity resulting from preparation to meet future requirements and changes.</li> <li>Higher alignment of low and middle level hierarchies' agents to system's schema.</li> <li>Learning to overcome conflicts with lower hierarchy agents.</li> </ul>
<b>Market oriented perception</b>	<ul style="list-style-type: none"> <li>System attentive to changes in other systems or customer demands, paving the way to use other DC.</li> <li>Change of schemas from agents in top hierarchy leads to enhanced capacity to respond to new requirements in the market, as well as create and/or adjust strategies.</li> <li>Increased system transparency</li> <li>Fine-tuning of strategies</li> <li>Tightened communication channels with other systems, reacting accordingly.</li> </ul>
<b>Cross-functional integration</b>	<ul style="list-style-type: none"> <li>Adjustment of strategies, satisfaction of external requirements and better capacity to respond to new requirements as a result of the constant flow of information between internal agents.</li> </ul>

From the previous cross-case analysis it can be drawn that overall, but to varying degrees, systems are benefitting from a higher alignment of agents to organisational schemas; communication channels with directly related systems are being improved leading to better exchange of information and knowledge; their response capacity to threats and challenges is being enhanced; and for some cases, boundaries are being spanned integrating new agents. Hence, these contributions drive boosted strategies for sustainability.

The next chapter will discuss in light of extant literature the benefits and contributions of DCs to organisational systems and programs for sustainability.

# Chapter 7: Discussion

## 7.1. Introduction

This study aims to answer *how do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?* To answer this question, the following research objectives were articulated in the background chapter:

- To understand how are DC contributing to the adaptability of firms and that of their programme for sustainability.
- To identify the benefits realised by companies when seizing the DCs related to the implementation of their programme for sustainability.

Five large companies in south-east Mexico, accredited as socially responsible or following sustainability as one of their business guidelines, were interviewed for data collection. The unit of analysis are the individual companies; therefore, they were treated as individual cases during data collection, the within-case analysis, and the subsequent cross-case analysis. Data were thematically analysed.

Throughout the empirical chapters of this thesis (chapters 5 and 6) it has been shown that case companies have relied to different extents on DCs for the implementation of their sustainability programmes. Different benefits have been observed not only at the organisational level, but towards the sustainability strategies themselves and in the interactions and relationships of companies with their environment and their stakeholders. Specifically, chapter 6 focused on highlighting commonalities and differences between cases, providing deeper analytical insights and allowing a better understanding and sense-making of the findings. Additionally, it confirmed the DCs supporting the implementation of strategies for CS within the context of this study.

Chapter 7 will discuss the findings in relation to the extant literature in order to confirm, refute, or extend available knowledge, as well as highlight their relevance. During the revision of literature, the weaknesses of current frameworks and models which do not provide a complete picture of the benefits that organisations can realise through the deployment of DCs were highlighted, and thus, the discussion will look into these.

The chapter is structured as follows. First, it will address the firms' motivations for engaging in CS programmes. Afterwards, it will concentrate on the two research objectives to lay the ground for answering the main research question. At the end, the research question that motivates this study will be answered while introducing the theoretical framework that combines both DCs and CAS theories and that represents the main contribution from this research.

## 7.2. Firms' motivation for implementing programmes for sustainability.

In the context of the second-tier region studied in Mexico, companies are situated on a spectrum that indicates their main approach towards the adoption of sustainability programmes. On one side of the spectrum, some follow an approach that views CS instrumentally, as a means, which allows them to comply with enforced environmental regulations, improve their image in the eyes of various stakeholder groups, gain social legitimacy, and satisfy market and supply chain demands. These results partially mirror those reported by Lloret (2016) within the Mexican context and by Bansal & Roth (2000) for companies in the UK and Japan, where regulations, previous fines, or legal proceedings, in the first study, and the search for social legitimacy in the second, lead to the adoption of sustainability-aligned programmes and certifications. For organisations that approach sustainability as a means, the adoption of CS is seen as part of a business model in which managers must understand the relationship between business results and sustainability, which is sometimes considered an insurance policy.

On the other side of the spectrum, companies' prime motivation for involvement in CS is derived from their ethical ideology, morals and organisational values. Such an approach may even come from the founding owners of the company and is passed down to managers at the top, who in turn permeate down to middle level-management. For these organisations, the adoption of CS is part of their sense of responsibility towards the environment and future generations, it is "the right thing to do". These results corroborate findings from previous studies by Bansal & Roth (2000); Paulraj, Chen, & Blome (2017) and Sajjad, Eweje, & Tappin (2020), that highlight concern for the common good, and an ethical and philanthropic sense as motivations for engaging in sustainability practices. Moreover, Bansal & Roth (2000) and Sajjad et al. (2020) also indicated that decisions are made based on the values of the most powerful individuals in the organisations, including the CEO or owners. Findings from this research agree with them and also corroborate findings from Paulraj (2009), where companies that see sustainability as an end are proactive in the implementation of this type of programmes, being considered in most cases as pioneers or early adopters, as in the case of Company D.

The findings also point out that both approaches to sustainability are nuanced, i.e., no company is completely self-interested or, conversely, purely motivated by philanthropy or social conscience. Thus, companies are positioned on a means-end spectrum in their approach to sustainability. These insights resonate with those of Brockhaus, Fawcett, Knemeyer, & Fawcett (2017), who in their typology of corporate motivations for sustainability engagement recognised that the categories identified are not mutually exclusive and that companies may exhibit traits from more than one of them.

Findings regarding companies that primarily approach sustainability as an end in itself contrast with previous studies also conducted in Mexico. Montiel & Husted (2009) found that factors such as linkage to the international market, linkage to the maquila sector, or linkage to an industry association that offered free resources, were key to early adoption of voluntary environmental programmes such as Clean Industry. Nevertheless, this research shows that Company D, which has been certified as a Clean Industry since 2003 and has largely approached sustainability as an end, was not linked to any of these factors back then. It is possible that the inclination towards ethical and socially responsible behaviour from the owners, and transmitted to senior managers, may have led the company to engage in this type of certification at an earlier stage, without pressure from external factors. Yet, Company D is fully aware that its

certified environmental management system is a strength that will be useful should they embark on international trade.

The findings also contradict those of Lloret (2016), who argued that corporate image is not a driver for the adoption of sustainability in Mexican companies. This doctoral research shows that business image is not only important for those companies that approach sustainability as an end, as is the case of Company D, but also for those that are in search of social legitimacy and license to continue operating, such as Company E. One potential explanation for this difference in results may be the weight that Company D has assigned to its image of tradition and promoter of "family" values, which is considered one of its assets as a brand. In the case of Company E, the difference could be explained by the magnitude of the national political power and influence that the companies in Lloret's study have, while Company E's influence is mostly confined to the southeast of Mexico and therefore it has to work harder to have good relations with stakeholders that threaten its operation. These possible explanations are certainly worth investigating further. Nonetheless, the findings align with those of Lozano (2015) who found reputation as a driver for CS.

Another interesting result is that invested resources, engagement, and outcomes from the sustainability programme are not necessarily affected by the company's driving motivation alone. This situation challenges assumptions from research such as that of Paulraj et al. (2017), who concluded that companies mainly driven by moral motivations when adopting sustainability-related practices have a better performance than those approaching sustainability as a means to a specific goal. While this research confirms that organisations with strong ethical or moral motivations (sustainability as an end) have a strong sustainability programme in place that contributes to a solid reputation, and that accomplishes engagement from their employees in the different interventions, it cannot be said that those companies have a more robust programme or have experienced better organisational outcomes than the ones that see sustainability instrumentally (as a means). Rather, additional factors such as the industry where the company operates and pressures from external stakeholders such as governments, customers, neighbouring communities and NGO's can push organisations to turn around their performance by officialising their commitment and spreading it to its work force, regardless of their main motivation. Moreover, it is likely that if new staff joins the organisation from the onset of the sustainability program, more positive attitudes and support towards sustainability and its deployment will be shown, potentially gaining adepts to their cause amongst incumbent employees. Company B is a great example for this case.

From the perspective of a second-tier region in an emerging economy, the findings presented in this section provide elements to expand our understanding of the companies' behaviour in relation to their primary motivation for adopting a CS programme. First, an ethically motivated firm is likely to be a pioneer or early adopter without requiring external forces, as its primary motivation resides in its core moral values. Additionally, regardless of an end or means approach to sustainability, corporate image can be one of the main drivers for sustainability adoption. Likewise, regardless of the organisational approach to sustainability, companies can achieve outstanding outcomes either because of ethical and moral values, or as a result of instrumental changes aiming to achieve the goals required to survive in the market. Therefore, it can be argued that companies that approach sustainability as a means must face strong pressure from the external environment in order to set up a sound corporate strategy for sustainability, just as companies with solid ethical motivations would do. Chaotic and highly challenging scenarios are a conducive environment that make companies' change and adaptation thrive.



### 7.3. Contribution of Dynamic Capabilities to the organisational system and the programme for sustainability.

The first research objective was to understand how are DC contributing to the adaptability of firms and that of their programme for sustainability. This objective aims to look at the change process in organisational systems through the eyes of CAS theory. Findings in relation to the specific changes occurring in organisational systems, which have led to adaptation, have not highlighted any surprises with regard to the body of knowledge on CAS. Therefore, this research is supportive of the extant theory in the literature. Nevertheless, the findings propose a more profound understanding of how these changes are affected by the main motivation of companies (a means or an end) when engaging with the implementation of CS. Henceforth, this research has provided new insights into how organisational changes vary based on the company's prime motivation. Furthermore, while previous research has addressed these changes individually, no study has provided a comprehensive compilation that is empirically supported.

At this point it is pertinent to remind the reader that beyond evolution, the capacity to adapt is what distinguishes a CAS from other complex systems. It is this characteristic that allows it to reach a new order with enhanced functioning, more suitable for survival. Consequently, this section of the discussion will address the changes that DCs have brought about in organisational systems and that serve to improve their adaptive capacity.

Building on table 17 in the cross-case analysis (chapter 6) and further synthesising its information, 9 specific changes were identified as the result of leveraging DCs. These changes, that can be understood as contributions for the organisational system, are listed in figure 16.

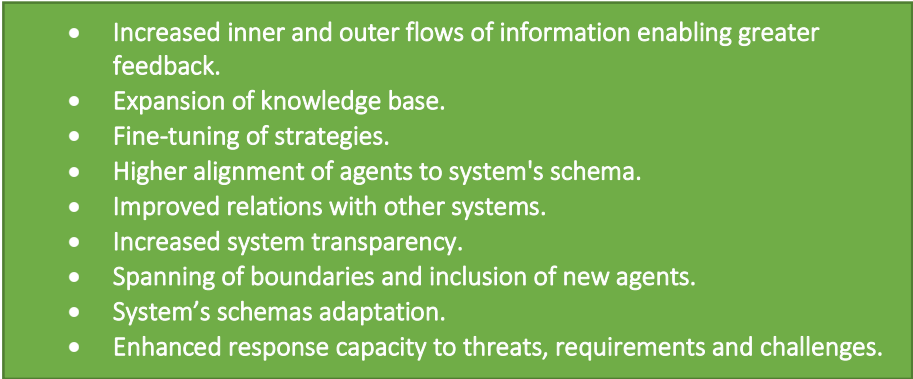
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- Increased inner and outer flows of information enabling greater feedback.
  - Expansion of knowledge base.
  - Fine-tuning of strategies.
  - Higher alignment of agents to system's schema.
  - Improved relations with other systems.
  - Increased system transparency.
  - Spanning of boundaries and inclusion of new agents.
  - System's schemas adaptation.
  - Enhanced response capacity to threats, requirements and challenges.

FIGURE 16. SPECIFIC CONTRIBUTIONS OF DCs TO THE ORGANISATIONAL SYSTEM AND ITS CS STRATEGY

#### 7.3.1. Increased inner and outer flows of information

This positive change for the system is particularly favoured by DCs such as collaboration, internal reconstruction, market-oriented perception and cross-functional integration, as they are the DCs with the strongest emphasis on information flows within the system (focal company), as well as on the communication with other systems it cohabits with.

The continuous exchange of information and knowledge between agents within the system and with agents that are part of other systems, allows companies to advance their operation and to hone their strategies for sustainability. This will develop on what can be considered a network of connections. For instance, communication across departments to

better understand and implement environmental law requirements, or the exchange of information with business coalitions or industry partners to collaborate on social responsibility initiatives. Additionally, when companies enjoy a prestigious reputation in terms of sustainability, other companies seek to create information-exchange links with them, which at the same time attracts more companies and creates a loop that perpetuates as long as the company's good reputation and availability are upheld. Previous studies (T. B. Porter & Córdoba, 2009) agreed that sustainability-focused solutions can be found in network structures. As a side effect of this information exchange, the company actively shapes its environment.

Moreover, the feedback received from other systems is used as input to make adjustments that will lead to meet their requirements, while also relying on this exchange of information to send out signals to external and internal agents. The more the system interacts, the more chances it gets for learning how to cope with the difficulties posed by the environment. For instance, being part of a business coalition (Touboul et al., 2018) not only enables access to new thinking, information and tools, but also allows organisations to share their experiences and learning, feeding back and supporting other coalition members. Yet, communication on a regular basis is a requisite to fully realise these benefits (Beske et al., 2014).

Whether companies approach CS as a means or as an end, it did not prove to significantly affect the frequency of information flows within the system, nor its interactions with external systems. Companies positioned on both sides of the means-end spectrum showed a high frequency of information exchange both internally and externally.

Case companies have benefitted from these increased flows of information with several stakeholders, from members of the supply chain, partners, competitors, research institutions, government, and even neighbouring communities. Although diverse in nature, the information received and the exchange with other systems triggers the evolutionary and adaptive process for the focal system. Additionally, it also provides elements to give confidence that key business partners and members of the supply chain are heading in the same direction in terms of sustainability (Beske et al., 2014).

### 7.3.2. Expansion of knowledge base

Through constant interactions with external agents and systems, information can be obtained, processed, absorbed and incorporated in the focal system's knowledge stock. Yet, new knowledge can also be the result of an internal R&D process triggered by the accommodation of mostly environmental requirements from co-existing systems. Nevertheless, for some companies the drive for increasing the knowledge base does not necessarily come from the outside, it is rather part of long-standing institutional schemas and values that cultivate innovation as in the case of companies D and E, while it could also be the outcome of the evolutionary process that the system has undergone, such as the case of Company B. Whether developed internally, or acquired from external sources, this finding echoes that of Hörisch, Johnson, & Schaltegger (2015), who claimed that the company's internal knowledge base must be enlarged, or supported from external sources, for a successful implementation of CS strategies.

There was no difference between the companies that engage with CS as a means and their counterparts that see sustainability as an end, in terms of the enlargement of their knowledge stock. Rather, differences in the scale of increments lie in the companies' schemas (drive) for acquiring new information.

By expanding their knowledge base, systems broaden their pool of resources for potential improvements. Hence, these might be reflected in a more efficient operation with reduced environmental impact, which in turn may assist in obtaining or maintaining environmental certifications, in achieving greater stability of the production process or by adding to the image of social and environmental responsibility. Therefore, the individual organisational system continues to strengthen its capacity to meet external demands and its ability to survive.

### 7.3.3. Fine-tuning of strategies

Continuous interaction and feedback between the focal system and external systems can lead to the fine-tuning of the strategies for sustainability. Some of these systems, such as large customers and public authorities, take on the role of change enquirers, while others, such as business coalitions, partners and research institutions, take on the role of facilitators in this evolutive process. Yet, roles from external systems might evolve. For instance, government institutions shifting from change enquirers towards facilitators.

By harnessing the new information added to the knowledge base, the focal system has more elements to adjust and refine its strategies for sustainability. In addition, new demands emerging from the market can be met by continue modification of current strategies. Hence, market-oriented perception and knowledge related and absorptive capacity are the DCs with a large input to this system improvement. These findings support the work of Touboul et al. (2018), who also found that other CAS coexisting with the focal system may play a role in the development and emergence of its strategies for sustainability.

Strategies are being fine-tuned regardless of companies seeing CS as a means or as an end, since it is in the best of their interests to design and implement a strategy that satisfies requirements, whether externally imposed or ethically motivated.

As a result of refining sustainability strategies, the organisational system becomes better equipped to maintain or obtain sustainability-related certifications, to improve its image of social and environmental responsibility, as well as gets more elements to tackle issues caused by the adoption of sustainable practices such as the misalignment between the strategy designed by external consultants and the company's aims, or the conflicts between the company's proposed solutions to environmental issues and the government's stance on them. Moreover, the system receives support to maintain current business relationships while getting ready for new ones.

### 7.3.4. Higher alignment of agents to system's schema

Although a greater alignment of the agents to the system's schemas reduces their dimensionality and could hinder the evolutionary process, it can be said that the sustainability strategies and the company as a whole are currently benefiting from it. The findings indicate that agents in the lower, middle and upper hierarchies have increased their schemas' alignment to those of the system where they are embedded, attributing greater importance to sustainability. Moreover, the higher the hierarchy, the greater the alignment. These findings resonate with those of Touboul et al. (2018), where they indicate that in order to achieve a smoother transition towards sustainability, schemas from supply network members should assign equal importance to sustainability, or else, take action to modify uneven schemas and achieve greater alignment amongst them.

For some systems, alignment from lower hierarchy agents has largely been the result of witnessing commitment from the company, and its leaders, to social responsibility and SD. This indicates that an ethical motivation and genuine social concern might have a positive impact on the alignment of the agents' schemas to those of the wider system. Therefore, while there was an increased alignment of lower hierarchy agents' schemas to those of systems approaching CS instrumentally, stronger cohesion and conviction was perceived from agents in companies that take on CS as an end.

In particular, the DC internal reconstruction has had a major input into this system change. In the case of agents in middle and lower hierarchies, adaptive changes have been reflected in their behaviours and in a greater interest in learning about environmental improvements. Consequently, the emergence of behaviours in which there is a continuous search for information, subsequent assimilation, and learning was observed. As for agents at the top hierarchies, changes are visible in the approach and priority they now assign to the operation's sustainability in the areas where they are responsible. In addition, these changes are also noticeable in the level of attention, responsiveness and availability to meet market requirements on sustainability.

The higher alignment of agents' schemas to those of the wide system has helped to deal with the complexities associated with CS. This change also adds to the companies' external image of social and environmental responsibility, improves the relations with external stakeholders, and contributes to the maintenance of existing business relationships and readiness for new ones. Moreover, it assists in addressing problems that arise from the adoption of sustainability practices, for instance dealing with conflicting demands from different groups of stakeholders, which ends up endorsing the sustainability best practice approach promoted by companies and generates greater employee engagement.

#### 7.3.5. Improved relations with other systems

An additional change that organisational systems have seen is the improvement of their relations with external systems, leading to increased cooperative interaction between them. By paying attention and reacting to signals sent out by external systems in environmental and social matters, the focal system evolves to a version closer to meeting external demands. Thus, it increases its adaptive capacity and fitness to survive.

Improved relations to other systems are strongly influenced by the DC social network relationships. This is how companies that initially had a damaged relationship and reputation with governmental authorities have made a 180° turnaround in their relation, occasionally receiving a facilitated treatment in administrative processes, holding environmental audits that are less scrutinised, or even jointly conducting projects focused on sustainability. This aligns to and enriches findings from Lozano (2015), who reported that improving relations with authorities and facilitating access to permits is a driver for companies engaging in CS. Findings from this research suggest that apart from being drivers, improved relations and better access to permits are also outcomes of CS programmes.

Interaction with other systems such as business coalitions, business partners or research institutions can also yield elements to upgrade the relationship with the government, in addition to increase cooperative ties that enhance the sustainability performance of the focal system. Literature has reported the benefits for firms occupied in regularly meeting other directly related firms, such as supply chain partners (Beske et al., 2014), as well as the benefits

for taking part in business consortia (Touboul et al., 2018). Amongst these, forming and strengthening relationships, and support for navigating the uncertainties associated with the implementation of sustainability practices. These benefits are in line with findings from this research.

As with other changes, there was no difference in the improvement of relationships between the companies instrumentally or ethically motivated in their approach to sustainability. Yet, it is arguably more likely to find closer relationships with stakeholders who do not necessarily have a strong influence on the company in those seeing CS as an end in itself.

By enjoying improved relations with external systems, the focal system can gain facilitated access to local industry information, adds to its image of social and environmental responsibility, addresses issues arising from the adoption of sustainable practices such as disagreements with the government on solutions to environmental matters, and generally improves its relations with various internal and external stakeholders.

### 7.3.6. Increased system transparency

In order to meet market trends and requirements from large customers and/or regulations (Essid & Berland, 2018), the studied systems have been pushed to increase the transparency of the sustainability-related aspects of their operations, mostly through information flows towards external systems. As such, some of them have joined international platforms, voluntarily in some cases, to which they report on their sustainability performance. Moreover, they regularly undergo audits focused on social responsibility by their customers. The recurrent sharing of information and the availability for consultation by different stakeholders, increases the visibility and the transparency of the efforts undertaken by companies (Székely & Knirsch, 2005). Therefore, this change at the system level has been significantly prompted by market-oriented perception as DC.

While companies on both sides of the means-end spectrum engaged in initiatives that increase the accountability of their sustainability-related operations, companies approaching CS as a means have shown the greatest leap increasing the transparency of their operations.

As a result of the changes put in place to report satisfactory progress on the different platforms and audits, the focal system paves the way to obtain and maintain sustainability-related accreditations, adds to its image of social and environmental responsibility, gains greater employee commitment to sustainability programmes, improves its relationship with various stakeholders, maintains current and prepares for new business relationships, resulting in a stronger market position. Moreover, the fact that external stakeholders are provided with information that would enable them to make better informed decisions with regards the focal firm, allows an advancement and co-evolution of both systems (Székely & Knirsch, 2005).

### 7.3.7. Spanning of boundaries and inclusion of new agents

The findings suggest that this change in organisational systems has a solid link to collaboration and knowledge related and absorptive capacity as DCs. Hence, it has been mostly present when the sustainability performance of the system is affected by that of other directly related systems, e.g. members of the supply chain. This pushes the focal system to closely monitor and ensure that the performance of the related-systems is aligned with its own through various interventions. In other words, higher alignment of inter-system's sustainability schemas is pursued. Expansion of boundaries also occurs when the link with certain community groups

or external entities is tightened to establish symbiotic relationships that could lead to the development of at least one of the parties, or to the improvement of the conditions under which the focal company operates. As boundaries between systems start to look blurry and external agents seem to behave accordingly to the focal system's schemas and interest, they can be considered additions (T. Choi et al., 2001). Thus, partnerships for collaboration, information exchange, and working to develop external agents or systems can lead to an expansion of the system's boundaries. Furthermore, by promoting changes in other cohabiting systems, focal systems are also shaping their environment.

The expansion of boundaries in organisational systems has not been influenced by companies' approach to CS. Whether seen as an end or a means, this change is mostly a response to the business industry and the influence that external actors may have on its operation and sustainability performance.

Overall, organisations are benefiting from the expansion of boundaries by improving their image of social and environmental responsibility, by improving relations with various stakeholders, by contributing to the stability of production or by maintaining competitive advantages. Additionally, and consistent with findings from Touboul et al. (2018), boundary spanning provides the system with more elements to address issues that may have arose from the adoption of strategies for sustainability, for instance, those related with members of their supply chain. Furthermore, the organisational system is equipped with an improved resilience capacity that enables it to deal with crises in a more effective way.

### 7.3.8. System's schemas adaptation

For most of the cases, the evolution of organisational system's schemas has been the result of a learning and evolutionary process driven by demands coming from the external environment. The incorporation of requirements placed by these demands has led to the adaptation, to varying degrees, of the systems studied. Thus, it can be argued that by keeping abreast of and acting accordingly with these demands, market-oriented perception is the DC with the strongest influence on the adaptation of system-level schemas.

The findings indicate that the greater the external demands, pressures and chaos, the greater the changes within the system. Therefore, not only have the agents' schemas changed and become more aligned with those of the system as a whole, but the schemas of the system itself have also evolved to better accommodate requirements from the market and authorities. As a result of the continuous evolutionary process, agents in the higher hierarchies have seen a transformation of their schemas and their approach towards the sustainability aspects of the operation, which has permeated down the hierarchies causing further alignment.

From being in a position where the social and environmental implications of the business operation were not given due weight nor relevance in most of the cases, senior managers have paid attention and learnt from feedback with the market, and now understand that the negative consequences of not changing could be severe for the organisation. This new approach to sustainability is even emphasised by some companies as an advantage or differentiator from competitors.

Just as it happens in the case of increased system transparency, companies that engage with CS instrumentally have seen the greatest evolution and adaptation of their schemas at the system level, given that those seeing CS as an end in itself already featured schemas that gave significant weight to the social and environmental responsibility of their operations.

The adaptation of the system schemas to the requirements imposed by the environment has had a wide range of positives for companies. From support to obtain and maintain sustainability certifications, endorsing the image of social and environmental responsibility, increasing the commitment of the workforce to the sustainability project, expanding job opportunities within the company, improving relations with various stakeholders, stabilising the supply of raw materials and services, maintaining the stability of production, sustaining existing business relations and preparing for new ones, to strengthening the market position and maintaining competitive advantages. These findings are akin to reports from Williams, Kennedy, Philipp, & Whiteman (2017), who suggests that as managers in complex systems adapt to the lessons learned from their experiences, the competitiveness and survival of the system are enhanced.

### 7.3.9. Enhanced response capacity to threats, requirements and challenges

Immersed in uncertain contexts largely loaded with the conflicts inherent to sustainability, it can be argued that focal systems' boosted response capacity and resilience arises at the edge of chaos (Espinosa & Porter, 2011). Thus, companies have had to seize the tools and knowledge available to navigate this scenario closer to success than failure, or else risk their stability and reputation.

Challenges faced by the organisational systems come from various sources, be they agents within the organisation displaying non-linearity or misaligned patterns to those of the system at large, or from external systems that frequently impose new threats or requirements. Additionally, not all companies are facing the same demands from their environment, nor to the same extent. The industry in which they operate plays a determining role. However, through the system-level changes above discussed, there has been a contribution, in varying degrees, to an advanced capacity for coping with uncertainties.

The scenario of uncertainty and threats in the environment have led systems to procure communication channels with other systems (Wu et al., 2013), aiming to remain vigilant to unexpected situations. This is how demands from stakeholders such as communities, opposition groups, NGOs, authorities, business coalitions, amongst others, are detected. To these, market trends and demands, as well as those of large customers, are added. To meet these requirements, companies have acquired or developed new knowledge (Beske, 2012; Dangelico et al., 2017; Hong et al., 2018; Konlechner et al., 2018; Zheng et al., 2011), searched for and experimented with new technologies (Hong et al., 2018; Iles & Martin, 2013; Ko & Liu, 2017; Lin & Wu, 2014; Wong, 2013; Wu et al., 2013), reconfigured their resources, processes and competencies (Chen & Chang, 2013; Dangelico et al., 2017; Hong et al., 2018; Iles & Martin, 2013; Lin & Wu, 2014; Wu et al., 2013), as well as collaborated with other stakeholders (Hofmann et al., 2012; Iles & Martin, 2013; Klassen & Vereecke, 2012; Van Hoof & Thiell, 2014; Wu et al., 2013). All these measures and adjustments are part of their learning process that ends up being reflected in new or refined strategies for sustainability (Amui et al., 2017; Eikelenboom & de Jong, 2019). Thus, it can be said that this change has been influenced by all seven DCs observed in the companies studied.

The findings illustrate that alertness, the identification, and the actions towards meeting sustainability-related requirements, maintain individual systems in a constant state of learning and modification of the behavioural patterns exhibited by their agents. It can also be argued that the enhanced responsiveness emerges from specific groups of agents working on implementing sustainability programmes, which then spreads to the wider organisation when

learning at the local level is consolidated. This is, individual agents' experiences have a further reach that leads to the creation of shared meaning and behaviours (Murray & Donegan, 2003). Therefore, one could also say that systems are becoming smarter by seizing new and extant knowledge and as such, they are now an upgraded version of themselves that yet, maintain their integrity.

According to evidence, whether companies follow their ethical ideology, morals and organisational values when engaging with CS, or that they mostly approach it instrumentally, has not had an impact on the enhancement of the response capacity. Companies on both sides of the spectrum means-end have shown themselves to be strongly responsive. The enhancement of this capacity itself means that individual systems, regardless of their main driver, have started an adaptation process and are now better prepared to survive.

#### 7.3.10. Summary of contribution of Dynamic Capabilities to the organisational system

This section has discussed the specific changes that organisational systems have seen as a result of relying on their DCs, which are regarded as benefits as they enhance the system's ability to adapt to external challenges. In the eyes of CAS theory, the adaptability of the system implies an enhancement of its functionality, as well as better resilience and generativity. In other words, the system's evolution increases its fitness to survive and improves its performance in response to its environment.

On the other hand, DCs are abilities and ways to make use of knowledge and resources that allow companies to cope with changes and challenges from the environment while giving due attention to competitive advantages. Therefore, it is fair to say that DCs contribute to the adaptability mechanism of individual systems. Moreover, DCs can be influenced by and reflect the system's patterns of behaviour (rules, norms, experiences and prior learning).

This research challenges the work of authors (Cavaleri & Shabana, 2018) that see strategies as the vehicle through which an organisation adapts to its environment, and poses that DCs are the mechanism by which systems, organisations, evolve and adapt. In other words, the mechanism through which the system arrives to an enhanced and fitter version of itself. The strategy rather sets the path and direction for achieving the organisation's objectives and it should be adjusted as a result of the ongoing exploitation of DCs.

Likewise, while the dominant approach that companies take when engaging with CS does not necessarily influence the system's evolution nor adaptation on its own, if paired up with the adequate environmental conditions it can play a role in the extent to which DCs' benefits are harnessed. Evolution tends to originate from chaotic situations and in this line, companies B and E, that see sustainability as a means and that had face some of the toughest requirements from their environment, have had to strongly seize their DCs in order to cope with these demands. As a result, they are perceived as more evolved and achieved higher adaptation than other companies such as A and C. On the other hand, Company D that sees sustainability as an end and that is the most concerned with generativity, has also robustly relied on its DCs to maintain its competent performance as well as its favourable reputation, and continues reaping the benefits this has brought on various sustainability-related fronts. For instance, higher alignment from agents to system's schemas and dealing with less conflicts than other companies. It has to be noted though, this is also as a consequence of its business industry posing fewer demands.



Figure 15 (taken from chapter 6) illustrates the position of case companies in the spectrums “degree of adaptability and evolution” and “strength of DCs”. Strong DCs mean higher capitalization from their benefits.

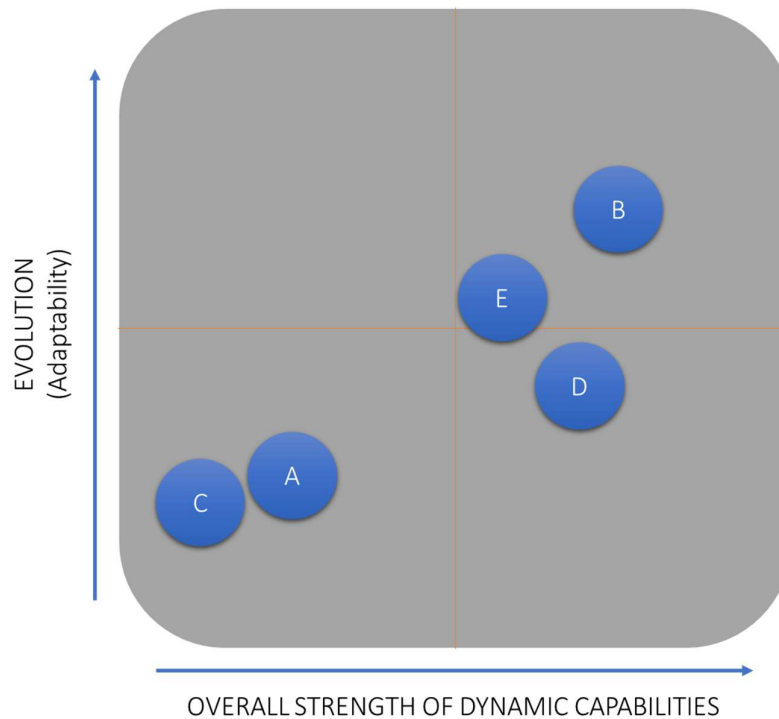


FIGURE 15. SYSTEMS' EVOLUTION AND STRENGTH OF DYNAMIC CAPABILITIES

In line with the discussion in section 7.2, in order for the organisational system to derive greater benefits from the DCs deployed, the company must approach sustainability as an end or, if approached as a means, the environment must have pressured companies to the point that forces them to make adjustments that enable adaptation and survival. Chaotic and highly challenging scenarios make learning, evolution and adaptation thrive. In such a case, companies approaching sustainability as a means can also reap sound benefits for their organisational systems.

By going through an adaptation process, companies and their programmes for sustainability not only upgrade their design and operation, they also enhance their capacity to respond and recover from internal and external challenges. Consequently, the organisational system better exploits the benefits stemming from DCs.

#### 7.4. Benefits of Dynamic Capabilities for companies implementing a programme for sustainability

The previous section addressed the changes that organisational systems have seen as a consequence of relying on their DCs. Such changes are regarded as benefits given their support for the adaptive process when coping with the threats and challenges posed by an environment that strives for sustainability. Now, this section will reflect on the findings relevant to the second

objective of the research, i.e., the specific benefits realised by companies when seizing the DCs underpinning the implementation of their programme for sustainability.

As outlined in the literature review and at the beginning of this chapter, there are few studies accounting for the tangible benefits that companies realise from leveraging DCs related to the implementation of their programmes for sustainability. In most cases, these benefits are focused on maintaining competitive advantages, on 3BL performance, or are tautological. There are several opportunity areas that call for a deeper and thorough understanding of the potential benefits that strong DCs can bring about. Above all, the context of CS in second-tier regions of emerging economies presents a fertile ground for the study of theories that focus on complexity and highly changing scenarios, which in this case is further strengthened by looking into a second-tier region. Consequently, this research provides a new perspective on current thinking and expands the theory of DCs with new and more comprehensive insights, grounded to different realities, into the benefits that firms implementing CS can realise.

Building on table 16 from the cross-case analysis (chapter 6) and further synthetising its findings, two groups of benefits for companies were identified. The first group comprises benefits specifically supporting the strategies for sustainability, while the second group includes benefits that support the overall firm. Both groups are presented by figure 17.

At the intersection of the two groups, there are two benefits, expansion of labour opportunities and improvement of relationships with stakeholders, regarded as contributing to both areas (support for the strategy and for the overall firm).

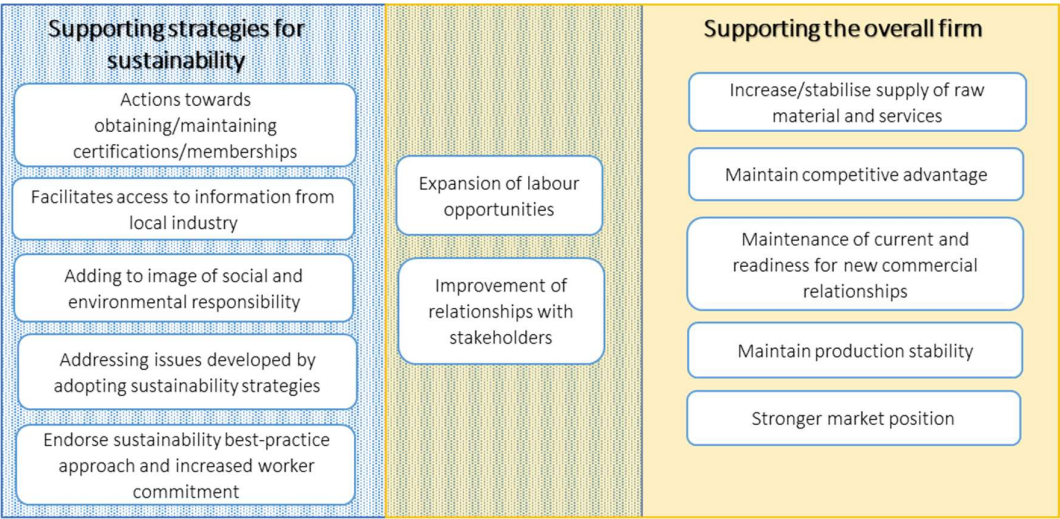


FIGURE 17. SPECIFIC BENEFITS OF DCs FOR COMPANIES IMPLEMENTING PROGRAMMES FOR SUSTAINABILITY

Next, each one of these benefits will be discussed.

#### 7.4.1. Supporting actions towards obtaining/maintaining certifications/memberships

According to the findings, companies have seen their strategies for CS benefited through obtaining or maintaining, environmental or social responsibility certifications such as Clean Industry, as well as membership to initiatives such as the RSPO. To achieve this, companies have gone through a series of changes ranging from increased investment in equipment and facilities that improve their environmental performance, adjustment to

processes, user training and reallocation of responsibilities. Additionally, the process of change is sustained as new knowledge can be used for new certifications/ accreditations should they be needed. Hence, internal reconstruction has been the DC with the greatest input to this benefit.

Findings from this research are similar to those of Essid & Berland (2018), who also found the certification of Environmental Management Systems to be an outcome of organisational routines for external threat detection (components of the capability to sense threats and opportunities). Nevertheless, the current study attributes this outcome to more specific DCs such as internal reconstruction, and provides a more detailed account on the routines that comprise these DCs.

#### 7.4.2. Facilitating access to information from local industry

Access to sustainability information from the local industry is a benefit for CS strategies as it equips companies with knowledge and tools that may enable them not only to fine-tune the strategies and improve their social and environmental performance, but also to facilitate the attainment of certifications and accreditations, and furthermore, to improve their image with various stakeholders. By far, collaboration and knowledge related and absorptive capacity are the DCs that have mostly led to this benefit, with less influence from social network relationships.

Collaboration with business coalitions has not only enabled companies to engage in joint social and environmental responsibility initiatives, but also allows them to exchange information with member companies on sustainability interventions, certifications and accreditations, ranging from clarification of requirements to insights on how to meet them. These findings match those of Touboul et al. (2018), who found that consortia offers a platform for companies to exchange their experiences from implementing sustainability strategies, in turn assisting them to deal with uncertainty and to further develop their own strategies.

In some cases, the information accessed comes from blue-chip companies that are business partners. In addition, working together with members of the supply chain, mostly small suppliers, provides insights into their current position and status regarding the required sustainability practices within the supply chain. This in turn helps companies to take action as needed. This study therefore aligns with findings of Beske et al. (2014), who link collaboration between supply chain partners -by means of regular meetings and discussion and decision making on joint sustainability projects-, to the provision of reassurance that partners are moving in the same direction.

Interestingly, this exchange of industry information occurs between firms that are not in competition with each other locally, so that firms do not feel threatened. It would be worth exploring whether the same would be the case between competing firms.

#### 7.4.3. Adding to image of social and environmental responsibility

Another benefit observed supporting the overall strategy for sustainability is the input to the image of social and/or environmental responsibility. Although not all companies have seen this contribution to the same extent, one way or another it has manifested in all of them. Collaboration, social network relationships, market-oriented perception, knowledge related and absorptive capacity and internal reconstruction are the DCs primarily linked to this benefit.

Collaboration with various types of stakeholders such as business coalitions, the government, research institutions, civil associations, industry partners, etc., promote involvement in social/environmental responsibility initiatives that show a more favourable face of the company to its customers, government and surrounding communities. In the case of Company D, it also shares knowledge on some of the improvements to enhance its environmental performance with different stakeholders, which continues to strengthen its positive image. Enhanced reputation and legitimacy have been previously found in extant literature as outcomes, and drivers, of practices/strategies for social responsibility and sustainability (Harmon et al., 2008; Lozano, 2015; T. B. Porter, 2008). Specifically in the case of consortia, Touboul et al. (2018) found it to represent a source of enhanced reputation for the companies involved. However, none of the studies aforementioned attach this benefit to the leverage of DCs, so this is where this investigation expands their insights.

Involvement in accreditations, certifications, international platforms, or audits from large customers entails modifications to facilities and operational processes, as well as the disclosure of information regarding environmental and social performance. As a result, auditing clients, certifying institutions and the government, get an improved perception of the company in terms of sustainability, in some cases strengthening their business relationship. If the company also promotes these accreditations, this positive perception can likewise permeate to the market. These results mirror those of Beske et al. (2014), who found that DCs can create or support stronger and trusting ties between supply chain partners, and that meeting certifications and the inclusion of non-traditional supply chain members can also have a positive impact on relationships with various stakeholders.

In other cases, the contribution to the company's more favourable image is the result of a great effort and resources dedicated to this specific purpose. Such is the case of Company E through its community outreach programme, which has gradually begun to gain acceptance in the communities. Fang, Huang, Wei, & Huang (2010) found that through flexible organisational restructuring as DC, companies can attain the legitimacy of their operation set as the objective of their CSR strategies. The current research agrees with them as it is only now, after investing and reallocating resources, that Company E has started to perceive this outcome.

Although all companies have benefited from this improvement, the cases of Company B and D are notable. Company D, which approaches sustainability as an end, has the strongest and most consolidated social image of all the companies, and here the DCs deployed contribute the most to maintain this good reputation. As per Company B, which sees sustainability primarily as a means, its image has taken a 180° turn and its efforts to improve its environmental performance are now recognised by the government, its customers, and other local companies. This company, which has the strongest DCs in relation to the other companies, has also benefited greatly from relying on these capacities, confirming Fang et al. (2010).

#### 7.4.4. Addressing issues developed by adopting sustainability strategies

This research reveals that through DCs support, companies have been able to navigate or partially solve some of the problems that have arisen from the implementation of their sustainability programmes. Emerging problems pertain to the personnel, the government and environmental laws, external stakeholders, and the implementation itself.

Resistance to change, lack of support from unionised staff, and the reluctance to receive continuous training on environmental certifications, are the staff-related problems that have been mitigated in the light of DCs. Internal reconstruction has provided support to

circumvent some of these issues by deploying routines such as human resource adjustments, involvement of middle management in training, and conduction of programmes to boost support from union members and increase their awareness and commitment to changes. This study found that unionised staff play an important role in the implementation of CS programmes, a link that has little coverage in extant literature. Their support is not only a reflection of their proclivity or aversion to change, but also of how their interests are perceived as threatened, either by an increased workload or by conflicting requirements from customers. Both Companies A and C have struggled with workers that possess the power to collectively bargain when they perceive their stakes at risk. While Company C has started to gain union leaders support through interventions that align their interests to those of the CSR programme, Company A has not dealt with the issue and still faces resistance. Hence, it can be claimed that internal challenges such as those posed by unions also represent a potential source for DC development. Power dynamics (Touboul et al., 2018), as exemplified by trade unions' bargaining power, have been previously evidenced as influential when attempting to advance sustainability, and this research agrees with this idea.

In terms of problems with the government and environmental laws, the difficulty to comply with unclear regulations, as well as disagreements with government over solutions to mitigate environmental impacts, have also been addressed by means of DCs. On the one hand, the lack of clarity of regulations has been tackled through an ongoing process of education in which members of different departments work together to study, review and clarify with the government their understanding of these laws. Such knowledge is then applied in the development of facilities and new products, as well as disseminated to employees once the path is clear. On the other hand, in order to improve the relationship with the government and secure its acceptance for the solutions to be implemented, government-driven socio-environmental initiatives are constantly supported. This has gradually contributed to improve the relationship with this institution, facilitating its support for the measures introduced. Both situations resonate with findings from Lozano (2015), which illustrate that improving relations with regulators and easing their pressures are external drivers for companies adopting CS. However, this study goes further and finds that these are not only drivers, but also consequences of the enhanced relationship with the authorities achieved by means of DCs routines.

The lack of environmental specialists in the region, as well as the misalignment of the community outreach programme to the local context and business objectives, are the implementation problems where DCs have been a solid support. In the absence of specialists in the region, companies have had to optimise their capacity to search for information, analyse it and subsequently apply the knowledge. In the case of the misaligned community outreach programme, an important number of resources and effort have been allocated to identify the required improvements and adjust as needed, leading the company to increase communication and transparency of its operations towards communities as well as to incorporate specialised staff to carry out these tasks. By addressing this issue, the organisation develops and enriches its capabilities to tailor its strategy to the new challenges being faced (Buzzao & Rizzi, 2021).

Finally, there are the issues related to external stakeholders, mainly the attention and criticism from detractor groups on account of the poor image of the industry in which the business operates. Efforts linked to the community outreach programme, the reshaping of the relationship with members of the supply chain by driving compliance with environmental regulations and encouraging their involvement in the community outreach programme (Glavas & Mish, 2015), and continuing to drive the technological edge of the facilities to reduce their environmental impact, have all added up to smooth this problem.

Based on the above findings, it can be said that the DCs with the greatest contribution to this benefit are internal reconstruction, knowledge related and absorptive capacity, cross-functional integration, and social network relationships.

#### 7.4.5. Endorse sustainability best-practice approach and increased worker commitment

Company D encourages and rewards operational staff to engage in the design of innovative improvements to the production process, which in turn improves working conditions at the plants. Consequently, the company reinforces the sustainability and current best practice discourse while employees engage more and increase their commitment to the company's sustainability programme (Harmon et al., 2008; T. B. Porter, 2008). By encouraging the innovation and development capacity of its staff, this company relies on R&D and innovation as DC. These findings somewhat stand in contrast to those of Lozano (2015), who did not find support for increased personal engagement and innovation as (internal) drivers for CS. While he talks about drivers rather than benefits, it has been observed across studies that drivers are pursued as outcomes when implementing CS programmes.

While only Company D perceived this benefit as it was the only one reporting to actively involve and reward its staff in the development of these types of solutions, it cannot be said that this is exclusive to companies approaching sustainability as an end. It would be interesting though, to find out whether companies that do not have an ethical and moral core but that do involve operational staff in processes improvement, obtain a higher degree of employee commitment and alignment to their sustainability programmes.

#### 7.4.6. Expansion of labour opportunities

Leveraging DCs has also allowed some companies to expand labour opportunities outside of the traditional segments of the population that would be targeted for certain production and warehouse-related tasks. In the case of Company B, there has been an increase in the number of women employed in warehouse activities as the result of developing a device that enables women to perform activities that require greater physical strength, and for which men would conventionally be considered. Here, R&D and innovation was the key DC to reach this benefit. On the other hand, Company D has been accommodating elderly people in manual biscuit packing activities, as well as deaf people in noisy activities such as cleaning metal biscuit containers. This has been achieved through internal reconstruction, focusing on modifying processes towards a greater positive social impact.

This benefit could be understood as twofold, since on the one hand it increases the options for recruiting personnel to segments that were not traditionally considered and that as a consequence, may show greater commitment to the job. On the other hand, the company's image is positively affected.

The findings are to some extent at odds with those of Lozano (2015), who did not find employee attraction and retention as a driver for CS engagement. It should be acknowledged that this is probably not a motivation per se, but rather a benefit that is achieved down the road when the company has shifted its schemas towards greater sustainability embedment. On the other hand, while some research (Harmon et al., 2008; Quazi, 2001) mentions attracting and retaining talent for the higher hierarchies of the company as a benefit of showing a sustainability-oriented image, this research takes a different approach and focuses on

increasing opportunities for the less favoured sectors of the population, usually occupying the lower hierarchies, as a potential benefit for companies.

#### 7.4.7. Improvement of relationships with stakeholders

Relationships with stakeholders such as local governments, neighbouring communities, and supply chain partners have grown closer and have been enhanced by various DCs, but most notably by social network relationships.

In the case of Company E, the need to maintain a solid relationship with the communities where it operates and to consolidate its social licence has prompted the allocation of a good number of resources and time to the community outreach programme. This has led to share information with various community stakeholders aiming to demonstrate transparency and to build trust. Company's E capabilities have also been utilised in the relationship with partners in the supply chain, which has been fine-tuned to ensure compliance with environmental regulations and engagement with its community outreach programme. Meetings between environmental staff and supply chain partners, training and advisory, are amongst the activities undertaken by Company E. Compliance with environmental regulations (Hong et al., 2018; Walker et al., 2008) and sustainability requirements from various stakeholder groups (Meinlschmidt et al., 2016) have been hitherto reported in the literature as motivations for adjusting relationships with supply chain members. Some findings also indicate that companies go beyond compliance with environmental legislation (Walker et al., 2008), resembling Company E that also aims to involve farmers part of its feedlot network in the community outreach programme. Although with shortcomings, the relationship with communities and supply chain partners has been strengthened, allowing the company to become aware of potential problems before they escalate, and take action accordingly.

The relationship with local governments and environmental authorities has been paramount for companies such as B and C, which have seen substantial improvements through means such as support and cooperation in socio-environmental initiatives promoted by the government itself, but also through the mere fact of complying with environmental regulations and staying within the legal boundaries. In the specific case of Company B, the benefit extends to the favourable treatment it receives from government representatives and the easing of administrative dealings with them. These findings suggest that in the context of case companies, compliance with regulations alone can be perceived as a positive feature of responsible companies (Dobers & Halme, 2009), rather than as their responsibility.

Social legitimacy, improved relationships with regulators and influence with government have been documented as drivers for CS (Lozano, 2015) and as benefits of CSR practices (T. B. Porter, 2008). This study agrees and recognises their dual role for companies. Moreover, it also sheds light on how are DCs routines playing a role to achieve such benefits.

#### 7.4.8. Increase/stabilise supply of raw material and services

Supporting small producers by facilitating their access to raw materials and inputs necessary for their production, translates into increased output from which focal firms can benefit by having a wider supply. Only case Company B has reaped this benefit, although to a minor extent since efforts, capacities and resources allocated were found to be minimal, leading to a slight contribution to the continuous supply of seeds for oil production. Through financing, the company adds to the productive capacity of supply chain partners, a routine part of collaboration as DC. Substantial work and investment of resources from the focal firm, including

financing, targeting small producers in the supply chain have been pointed out as factors potentially assisting a stable supply of high-quality commodities (M. E. Porter & Kramer, 2006). This research endorses these claims while also highlights the seldom-acknowledged role of capabilities such as collaboration for attaining this benefit.

#### 7.4.9. Maintenance of current and readiness for new commercial relationships

This benefit was found in those companies that were highly interested and acting to meet market demands in terms of sustainability certifications. Whether by explicit requirement, as a matter of image, or thinking of future advantages, Companies B and D have strongly taken up this benefit, also Company A but to a lesser extent.

All three companies are audited by their larger customers, specifically looking at employee welfare and safety. Company B and D have joined international platforms and initiatives through which they disclose information related to various sustainability aspects of their operation, including SEDEX, RSPO, UN CoP, CDP and RSPO. Membership to some of these platforms has implied the assignment of responsibilities and new tasks to middle management and lower-level staff, but also the adjustment of processes to comply with the requirements. In addition, coordinated work between various departments has been essential to understand the changes, implement and monitor them. Additional measures by Company B include the gradual increase of oil production with sustainable certified raw materials, as well as the implementation of internal environmental audits. Company D is alert and keen to engage in initiatives introduced by various market actors in order to further build its ethical and moral image.

Market oriented perception is the DC that has demonstrated an exceptional contribution to preserving important business relationships, especially with large customers such as supermarkets, as well as enabling companies to be ready to enter into new relationships where certifications and disclosure of information are required by customers. Previous research (Ko & Liu, 2017) has linked access and engagement with new customers who are more environmental conscious with a marketing competence. Hence, findings from this research enrich this line of thought. Furthermore, internal reconstruction and cross-functional integration have also had a significant input.

Lozano (2015) also identified market expectations, future sustainability markets and access to markets and customers, as drivers for CS engagement. Once again, this research agrees with him and extends this perspective by stating that beyond drivers, they are also potential benefits of the implementation of CS programmes when companies rely on DCs.

#### 7.4.10. Stronger market position

This benefit is related to the previous one, as by maintaining business relationships with their most important customers and by being prepared to enter into new relations, companies end up strengthening their position in the market as they possess highly sought-after characteristics. Both companies B and D are the ones who have mostly experienced this benefit.

Market oriented perception and internal reconstruction are the DCs with the greatest contribution to this benefit, relying on routines such as obtaining certifications, undergoing audits by large clients, belonging to international platforms and initiatives where they disclose information on their sustainability performance, and all the operational changes and resource modifications that the above-mentioned practices have entailed.



#### 7.4.11. Maintain production stability

While businesses rely on a healthy environment both in their location and where their raw materials are sourced from in order to sustain their operation, this dependence becomes even stronger when the company is engaged in primary activities such as salt extraction. In the case of Company A, there is a fine and blurred line between the capabilities focused on maintaining its operation and the ones for sustainability performance improvement. Given the tight relationship between the company's operation and the ecosystem, any change on one side can have far-reaching repercussions on the other. Being aware of this, Company A relies on collaboration, R&D and innovation, and knowledge related and absorptive capacity, to preserve the health and balance of the nature reserve in which it sits, as well as tapping into this benefit that contributes to the perpetuity of the business.

Research and knowledge generation on the salt-pond ecosystem, both internal and in collaboration with academic institutions, is stored and exploited to maintain productivity levels. Additionally, activities are carried out in collaboration with those responsible for the nature reserve. On the other hand, the close relationship with the inhabitants of the community allows the detection and prevention of possible threats to the natural reserve. Moreover, through a process of education the company has involved inhabitants in the preservation of the natural reserve, providing them with information on the care they must take on a daily basis and also, with information they must communicate to tourists visiting the area. Finally, pro-sustainability improvements in processes and facilities, have enabled the company to ameliorate, to some extent, the negative impact of its operation on the ecosystem.

In business sectors such as that of Company A, which is engaged in a primary activity, reliance on its DCs for sustainability also brings benefits to the overall operation of the company. To the best knowledge of the researcher, no investigation has previously pointed out the contribution to production stability as a benefit of DCs related to CS, so this study expands current insights of the benefits associated with DCs in the sustainability context.

#### 7.4.12. Maintain competitive advantage

One of the most discussed benefits in the DCs literature within the context of sustainability is their contribution to enable competitive advantages (Beske, 2012; Essid & Berland, 2018; Hofmann et al., 2012; Ko & Liu, 2017; Reuter et al., 2010; Wu et al., 2013), and findings from this research support this line of thought. Although each company has different competitive advantages, most of them draw on various DCs to incorporate routines that strengthen the existing competitive advantages.

The contribution to advantages associated with image and prestigious reputation stand out the most. In the case of Company A, its image as a natural and environmentally friendly product has been supported by several routines such as collaboration with various stakeholders including ecological groups, academic institutions and inhabitants of the community, with whom knowledge is generated and shared, including education on how to preserve the health and balance of the salt pond ecosystem. Furthermore, modifications have been made to the facilities and cleaner energies have been adopted in order to mitigate the low environmental impact of this method of salt extraction. As for Company D and its prestigious reputation, some of the activities that have reinforced its image of social responsibility are the collaboration and involvement in various initiatives promoted by diverse actors such as civil associations, business coalitions, universities, etc. Moreover, it shares information on some of the measures it has

implemented to reduce the impact of its operations on the environment, discloses information on its sustainability performance in audits and in the international platforms where it is a member. The company also audits its suppliers. In addition, it has policies that penalise involvement in unethical behaviour both outside and inside the organisation, and it is engaged in improving the employability of disadvantaged sectors of the population. In summary, it can be argued that almost all DCs contribute to this competitive advantage.

Associated with the image of a natural and environmentally friendly product, Company A also has low energy costs as an advantage over its competitors that extract salt from mines. As long as the health of the ecosystem is preserved, the company is likely to continue possessing the means to maintain its low-cost production level and hence, its sales level, which is the highest for sea salt nationwide. Thus, this competitive advantage also benefits from the routines outlined above.

On the other hand, Company D counts amongst its competitive advantages its human capital, as it attracts highly qualified personnel as a consequence of its good reputation in the Mexican Southeast (Harmon et al., 2008; Quazi, 2001). This advantage is reinforced by the inclusion of vulnerable groups of society in its workforce. As long as the company's prestige is maintained and instrumentalised through its DCs, the company will continue to attract the type of personnel that reinforces its ethical and moral image as well as its competitive level as an organisation.

Another competitive advantage strongly benefited by the DCs is the continuity of the operation in the current location (the Yucatan Peninsula) and the perks associated with it. Both Company B and Company E have tapped into this benefit. Company B benefits from the abundant groundwater, the low water costs and the proximity to the customs port of entry. In its case, R&D and innovation has been the DC deployed aiming to favour this advantage via modifications to production facilities for reduction and reuse of water in the production process, as well as the reduction of wastewater discharges. In addition, improvements have been made to the oil production processes to considerably reduce their environmental impact, especially on water resources of the area. Meanwhile, Company E benefits from the privileged location that allows it to control pig traffic to the peninsula and to contain the diseases that affect these animals, as well as control and influence the pork market in the region. The collaboration with farmers in its feedlot network to monitor compliance with environmental laws (Beske, 2012), plus the resources invested in its community programme, add up to the efforts to obtain the social licence for the company to continue operating in the area without major turbulences, and to continue with its expansion plans and the increment of its production capacity. For this company, collaboration, social network relationships and internal reconstruction have been the main DCs.

Findings indicate that Company C was the only one that did not see a contribution of DCs to its competitive advantage. This may be due to most of its DCs being at an early stage, coupled with the fact that the building materials industry in this part of the country still faces fewer requirements in terms of its contribution to SD. Most of the efforts undertaken already go beyond what environmental laws require, however they are not yet appreciated by their customers nor the market. This seems to be hindering the maximum leverage of their DCs.

Previous research (Wu et al., 2013) has found that in the context of CS, DCs enable companies to timely identify and tap on emerging opportunities related to SD. The current investigation expands this understanding by claiming that DCs also reinforce competitive advantages possessed before the adoption of programmes for CS.

The findings also illustrate that several companies can rely on the same DC and still attain or reinforce their competitive advantages. Despite the dissemination of specific sustainability capabilities within a region and industry, individual companies can still derive benefits as they reconfigure their resources in idiosyncratic and different ways and as such, they will hardly obtain the same outcome (Reuter et al., 2010). The idea of a single company holding a unique competitive advantage these days is becoming less feasible in globalized and highly changing markets.

#### 7.4.13. Summary of benefits of Dynamic Capabilities

Through the discussion in this section it has been attempted to demonstrate how companies that rely on DCs for the implementation of CS programmes can achieve wider-ranging benefits than those reported so far in the literature. The findings indicate that such benefits not only support sustainability strategies and programmes, but have a further reach that ultimately impacts the overall organisation.

While some of the benefits discussed in this section have been previously noted in the literature, few studies recognise the role of DCs for their realisation within the context of CS implementation. Coupled with this are the studies that do address the benefits of DCs but fall into the aforementioned disadvantages such as largely focusing on creating or maintaining competitive advantage, 3BL performance, or that are tautological. Moreover, no research was found indicating that DCs deployed in sustainability contexts can also contribute favourably to overall organisational practice, and not only support sustainability strategies and programmes. This is another important aspect in which this research adds to the theory of DCs, recognising that just as individual DCs are linked to one another (Beske, 2012), the organisational benefits derived from relying on them are also linked and can affect each other.

The following section will bring together the discussion in sections 3 and 4 of this chapter to lay the ground for answering the research question and elaborating the theoretical contribution for both CAS and DCs theories.

### 7.5. Capitalizing from the implementation of sustainability programmes

This research was motivated by the question: *how do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?* In order to answer this question, data were analysed through the lens of DCs and CAS theories. In the first instance, the DCs exploited by case companies were confirmed. Subsequently, the changes that systems represented by case companies have undergone were identified and understood, with the assumption that these changes constitute the ongoing processes of evolution towards an improved version better prepared to survive internal and external challenges. In other words, the capacity for adaptability is enhanced. The findings indicate that this scenario is achieved by means of the DCs deployed by the systems, making these capabilities part of the adaptability mechanism.

Once the adaptive changes brought about by DCs begin to manifest themselves in the system, the firm starts experiencing the benefits associated with these capabilities. The improved version of the organisational system learns to make better use of the routines that constitute DCs, and is therefore able to better exploit its DCs and adjust its resources

(Eikelenboom & de Jong, 2019) and networks so that benefits are greater and broader. Combining these findings with the approach taken up by companies when implementing CS, if sustainability is mostly seen as a means, the larger the changes in the organisational system, the greater the scale of the benefits achieved through DCs. For instance, a system that increases the transparency of its operations may achieve benefits such as an improved image of social and environmental responsibility, improved stakeholder relations and maintenance of existing business relationships. This chain of change and benefits can be triggered by DCs such as social network relationships and market-oriented perception to name a few. However, when sustainability is mostly approached as an end, changes of a small scale tend to have a larger repercussion even though the starting point was closer to the end result.

The environment of changing demands and uncertainty that case companies have faced while implementing their sustainability programmes have lead them to a series of changes that enhance their adaptive capacity as a system through the DCs utilised, and thus benefits are gained not just for the sustainability programme, but for the overall firm performance. Therefore, it can be argued that adaptive changes in the system are the vehicle through which the benefits of DCs are realized by the firm. Figure 18 presents the framework that depicts this process.

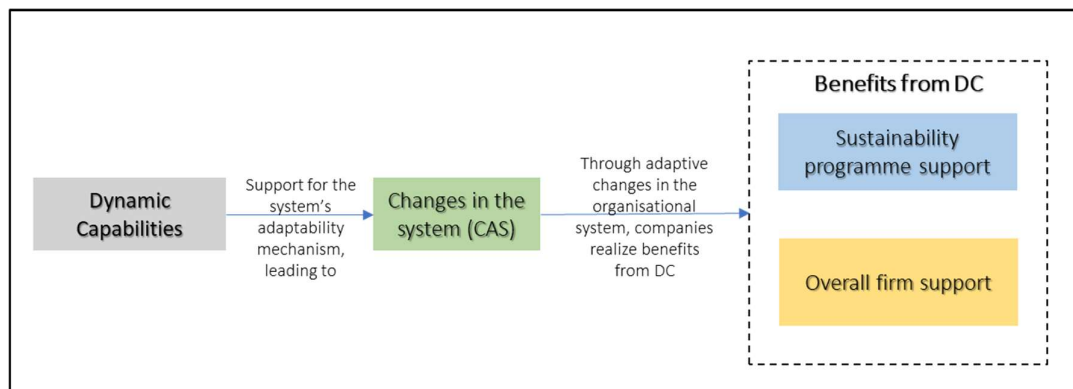


FIGURE 18. THEORETICAL FRAMEWORK INFORMED BY FINDINGS – COMPANIES CAPITALIZING FROM DCs WHEN IMPLEMENTING PROGRAMMES FOR SUSTAINABILITY

Therefore, the findings exhibit that case companies have been enabled by the complexities in their contexts to capitalize on the implementation of their programmes for sustainability in three different, but interrelated, ways:

- By leveraging their DCs in support of the system's adaptability mechanism.
- By achieving DCs' benefits supporting the sustainability programme.
- By achieving DCs' benefits supporting the overall firm.

Figure 19 presents a detailed version of the framework that illustrates the theoretical contribution from this investigation. On the green square, changes in the system that comprise the evolutionary process and the adaptability mechanism are listed. The blue square includes the benefits for sustainability programmes while the yellow square contains the benefits that support the overall firm, in both cases as a consequence of companies seizing their DCs through adaptive changes.

This research hence offers a different and novel perspective to what has been documented in the literature in relation to the change process that companies undergo, as well as the benefits associated, when implementing strategies for CS. Previous frameworks of DCs for CS do not take into consideration the systems perspective (Cezarino et al., 2019), especially

the CAS view that recognises the capacity of organisational systems to evolve and adapt, a feature expected in companies relying on DCs (Teece, 2018). The CAS view is crucial for DCs as the nature of the latter implies changes in resources to cope with challenging and uncertain environments, while preserving their strengths. By merging both DCs and CAS lenses when studying the implementation of CS, there is an acknowledgment of the complexities associated to sustainability issues and of the ongoing evolutionary process, while also paying due attention to the capabilities that companies leverage and capitalize from, in order to navigate this chaotic environment. The combined theoretical lens allows to better understand the changes that organisational systems endure and the role of DCs in both the changes and their outcomes.

Little research provides a comprehensive account of the changes and the benefits that can be achieved by means of DCs. Therefore, this study advances current CAS literature by compiling a list of the changes observed in organisational systems going through sustainability implementation. It also provides new insights to current knowledge as it brings attention to the role of DCs as part of the adaptability mechanism exhibited by organisations.

Furthermore, this investigation enriches previous studies (Beske, 2012; Bezerra et al., 2020; Hofmann et al., 2012; Hong et al., 2018; Mousavi et al., 2018; Wu et al., 2013) by providing a more extensive account on the benefits that can be reached by relying on DCs. While the work of Bezerra et al. (2020) provides a comprehensive list of organisational capabilities' benefits, including DCs, it casts doubts on the linkage between both DCs and their benefits since even though some benefits are indeed strongly influenced by certain DCs, it cannot be said this is an exclusive relationship. DCs can affect each other (Beske, 2012) and consequently, benefits can be attributed to more than one DC. Additionally, this research poses that in order to reach such benefits, the organisational system should first experience adaptive changes triggered by DCs deployment.

Nonetheless, the novelty of the perspective offered by this research goes beyond the combination of both theories for understanding the change process and the benefits obtained by companies seeking to align their operations to a sustainability agenda. To date, there are scarce studies, and theoretical contributions, developed from the angle of the complex realities faced by firms in emerging economies, and even fewer studies contextualised in second-tier regions in emerging economies. On the one hand, the Mexican context is characterized by national idiosyncrasies related to Catholic values, low public awareness about sustainability issues and customer demand, unprecise environmental legislation, and a CSR agenda mostly dictated by the private sector rather than civil society. On the other, the Yucatan peninsula (second-tier region) faces problems such as limited infrastructure and access to services that favour greener operations, and a lack of experts to consult on environmental improvements, which are more severe in second-tier regions than in the country's primate cities. On top of this, conflicts with trade unions arising from programme-related changes and consultancy projects for community-outreach programmes with failed outcomes, are some of the specific situations faced by case companies that have led them to deploy their DCs. This compilation of issues chronicles the realities of case companies as they seek to implement sustainability-driven change, and conforms the unique setting that provides valuable insights feeding into the framework that embodies this research's contribution.

In terms of transferability, although DCs are context-specific and embedded within the organisations that possess them, they can also be tested in other contexts (Schilke et al., 2018). Whilst this research was developed in a unique context affected by the dynamics of a second-tier region in Mexico, the findings that emerged can also enrich the global debate (Marques et al., 2021) for both CS and the theories underpinning this work. Thus, the framework derived from this research has better possibilities of resonating with other similar contexts, especially

other Latin American countries that share idiosyncrasies with Mexico. The evolution of society from a mixture of indigenous peoples and mostly Spanish colonisers (Portuguese for Brazil; French for Guiana, Haiti, etc.), the connection of social values to Catholicism (Blasco & Zølner, 2010; Wendlandt Amezaga et al., 2013; Weyzig, 2014), the paternalism of companies towards the population and their employees (Gold et al., 2018), and latent problems of poverty alleviation, inequality, corruption, crime and lax law enforcement, are some of the overarching characteristics across this region of the Americas (Arevalo & Aravind, 2011; Dobers & Halme, 2009; Hart, 1997; Hossain et al., 2010; Marques et al., 2021; Montiel & Husted, 2009; Silvestre, 2015). Therefore, it is feasible to suggest that the outcome of this research is more likely to speak to these similar contexts than studies purely developed on the assumptions of the global North.

Failed efforts to implement CS programmes, or strategies that result in outcomes far from desirable, can undermine the involvement and commitment of staff from different hierarchies in the organisation. A poor understanding of the implementation process and its changes, a lack of guidelines, or not giving due attention to supporting elements, might lead to a negative perception of the sustainability programme effects. Consequently, requirements from direct and indirect stakeholders could be addressed just superficially with minimum efforts. This research offers a list of DCs and their underlying routines in the hope of providing tools or guidelines to support the implementation of CS programmes. In addition, it lists the changes that can be seen in the organisational system during the process of adaptation to an environment that strives for sustainability, and highlights the role of DCs in driving them. It also details the potential benefits linked to DCs and argues that these benefits permeate not only into the CS strategy but into the company as a whole. Hopefully, this insights will be relevant in the turbulent context of sustainability faced by firms in other second-tier regions of emerging economies.

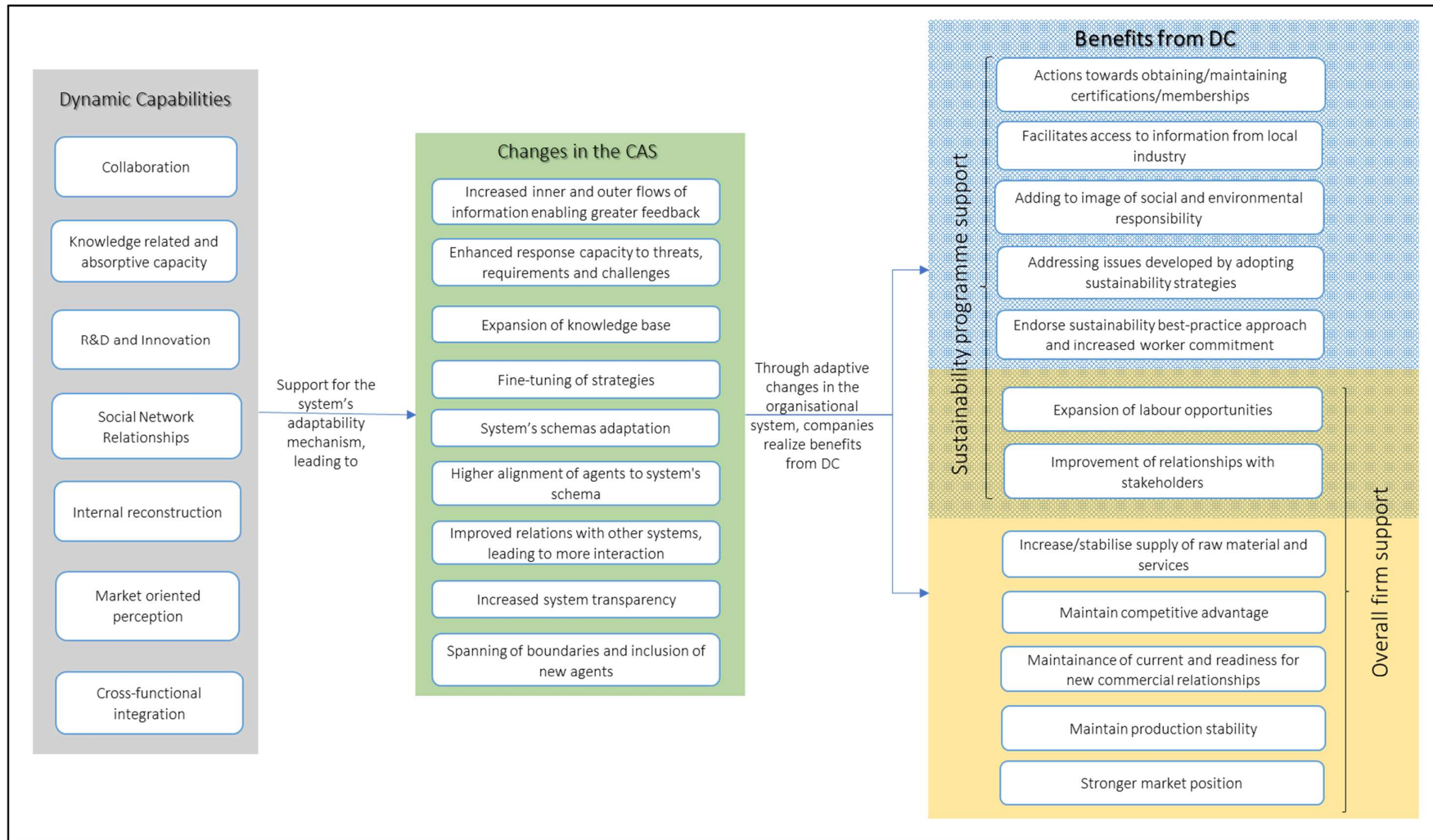


FIGURE 19. THEORETICAL FRAMEWORK INFORMED BY FINDINGS (DETAILED) – COMPANIES CAPITALIZING FROM DCs WHEN IMPLEMENTING PROGRAMMES FOR SUSTAINABILITY

# Chapter 8: Conclusion

Following the analysis of the data and discussion of the findings, the purpose of this chapter is to present the overall conclusions of the investigation and their implications for the body of knowledge where it is positioned. The chapter will begin with an overview of the thesis. Subsequently, the conclusions in relation to the research question and objectives will be outlined. The next section will discuss the contributions of the investigation to knowledge and practice, to later address the implications for managers. Finally, the limitations of the investigation and opportunities for future research arising from it will be pointed out.

## 8.1. Thesis overview

This research aims to explain how companies located in a second-tier region of an emerging economy leverage and benefit from the implementation of sustainability programmes. To this end, it is proposed that this phenomenon ought to be studied through the eyes of theories that recognise the unpredictable nature of business environments, such as that posed by sustainability. Likewise, it is important to acknowledge that such environments entail an ongoing evolutionary process where companies must adapt in order to survive and maintain their strengths. Consequently, this research suggests a theoretical lens that merges both CAS and DCs theories.

By means of the research question *how do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?* this investigation conducted within the context of the Yucatan peninsula, a second-tier region in Mexico, aims to contribute bridging the gap that CS research, mostly focused on developed economies, has created. Furthermore, it acknowledges that second-tier regions in emerging economies are a fruitful ground for theory expansion, especially when focused on change, evolution and adaptation.

Two objectives were laid out in this research. First, to understand how are DCs contributing to the adaptability of firms and that of their programme for sustainability. Secondly, to identify the benefits realised by companies when seizing the DCs related to the implementation of their programme for sustainability.

Additionally, it was necessary to explore underlying aspects to the research such as the main motivation driving firms to implement a programme for CS and their implications for the firm behaviour, as well as identifying the DCs that support the implementation of these programmes for sustainability.

While reviewing two of the research strands supporting this project, namely CS and strategic management, the role of companies in achieving the longed-for SD was highlighted. Nonetheless, gaps regarding the strategies for sustainability, the context where they have been studied and the research methodology employed, were identified. First, a dearth of empirical studies addressing the integration of CS into strategic management was pointed out (Engert et al., 2016; Morioka et al., 2017). Second, the need for understanding the motivation behind firms engaging with sustainability, and their implications for the business, was also emphasized (Pinelli & Maiolini, 2017). Third, since research on sustainability in the business context has been largely concentrated in developed economies, academics have been urging to conduct



more research from the emerging economies perspective (Amui et al., 2017; Bezerra et al., 2020; Dobers & Halme, 2009; Silvestre, 2015) as these nations face additional challenges and disadvantages that make the quest for SD harsher. It was also highlighted how there are even fewer studies taking into consideration the realities of second-tier regions. Fourth, following suggestions from different scholars (Bezerra et al., 2020; Engert et al., 2016; Engert & Baumgartner, 2016; Silvestre, 2015), there are opportunities for conducting more empirical research favouring qualitative approaches such as case studies.

Furthermore, a paucity of investigations exploring the capabilities that would assist firms to overthrow the challenges posed by SD was revealed during the review of the third strand of research underpinning this investigation, namely DCs (Cezarino et al., 2019; Engert & Baumgartner, 2016; Hofmann et al., 2012; Pinelli & Maiolini, 2017; T. B. Porter, 2008). Therefore, studies aimed at identifying the specific DCs that would support companies to effectively implement CS initiatives have been encouraged (Amui et al., 2017).

Through the literature review regarding the fourth strand of research, CAS, the potential benefits of applying systems thinking to the study of CS were highlighted, considering that companies are naturally immersed in a series of complexities to which, the additional complexities inherent to sustainability are added. Therefore, there are invitations to further understand this complexities in the business context through systems thinking (Williams et al., 2017). Additionally, there have been calls to conduct more research combining systems thinking and DCs (Cezarino et al., 2019; Teece, 2018). By comparing different systems theories, CAS was underscored as the best fit for this study.

The literature review also made noticeable the absence of a comprehensive list of DCs for CS. Hence, a more unified and detailed list was composed in order to guide this investigation. In this line, a scarcity of information regarding the tangible gains that companies can tap into when relying on DCs during the implementation of their strategies for CS, was identified. Furthermore, it was also noticed that frameworks of DCs applied to CS fail to link the DCs at stake with the potential benefits that can be obtained, since they rarely provide detail on these benefits, or are mostly limited to claim contributions to competitive advantages or 3BL performance. Consequently, this research posits that by drawing on CAS theory to broaden the understanding of CS strategy implementation and its corresponding adaptive changes, a more comprehensive and holistic framework of DCs can be elaborated, thus providing a better overview of the potential organisational benefits.

Being of a descriptive nature, this research allows the use of a qualitative and abductive approach. In order to obtain data that would help answer the research question, the researcher sought to capture the perceptions of the interviewees, acknowledging that these are constructed by their own experiences in their everyday working reality. This involves considering the specific situations of interviewees and of the company they work for. Consequently, the interpretation of their answers cannot be considered an objective expression of an external reality. Moreover, this research aimed to describe the selected phenomenon within a specific context, so rather than testing and validating theories, it ought to enrich them with new insights.

Case study has proven to be a useful research strategy when trying to reach a deeper understanding of the scenario and the situations arising in organisations that have decided to implement strategies for sustainability. Therefore, this investigation adopted a multiple and holistic design, which offers richer data, comparison between cases, and supports theoretical replication. This research looked at the individual company as the unit of analysis, and considered each company as a case. Five companies were interviewed in total, all of them: 1)

private-owned and located in southeast Mexico, 2) either accredited as socially responsible or explicitly following sustainability as one of their business guidelines, 3) operating in the industrial sector and under B2B model, and 4) large in size.

Data was collected through semi-structured interviews, targeting between 4 and 5 participants per company that were either involved in the design, implementation or following up of the strategies for sustainability. Interviewees also included staff whose activities have been affected by the implementation of the programmes for sustainability. Thematic analysis was selected as method for data analysis, firstly conducting a within-case analysis for each company, and afterwards a cross-case analysis that assisted in finding patterns and differences in the way each company has dealt with sustainability.

Looking into the Mexican context, the country is not known for its leadership on sustainability and has been considered to be at an early stage of the sustainability learning curve (Aigner & Lloret, 2013). Yet, it has seen an increase in sustainability awareness amongst the business sector. Key drivers have been the opening of the Mexican market to international trade and its integration into NAFTA, more structured and strictly enforced environmental regulations, global trends in standards and reporting for climate change and sustainability, but also national idiosyncrasies related to social values stemming from the Catholic doctrine (Blasco & Zølner, 2010; Wendlandt Amezaga et al., 2013; Weyzig, 2014) and a paternalistic approach to philanthropy. At national level, the two main distinctions sought by business to demonstrate their commitment to sustainability are the Clean Industry certification, focused on environmental law and international standards compliance, and the SRC accreditation, which looks into socio-environmental aspects and the relationship with different stakeholders.

The particularities in the Mexican context have been shaping the national agenda for sustainability and social responsibility. These include the issues faced by companies when trying to engage with sustainability, such as lack of clear industry standards, low public awareness (Blasco & Zølner, 2010) and customer demand, deficient economic incentives (Lloret, 2016), corruption and a strong trade union culture (Weyzig, 2014). Paired up with the economic scenario, this outlook has led the national CSR agenda to be mostly dictated by the private sector rather than civil society. For the benefit of large companies, embarking on sustainability has meant improved competitiveness and ability to cope with new market requirements (Aigner & Lloret, 2013).

Case companies are specifically located in the Yucatan Peninsula, a second-tier region in Mexico that represents a scenario potentially observable in other provincial regions. Despite being geographically isolated and far from the central part of the country, economic activities of national interest occur in the peninsula, such as oil extraction and tourism. Second-tier regions are less likely to have access to facilities and infrastructure supporting improved sustainability performance, while the recurrent social issues of emerging economies such as poverty, inequitable distribution of wealth and unequal access to education are questionably more pronounced (Pacheco-Vega et al., 2001). The remoteness and isolation of the peninsula from the central part of the country has arguably posed additional challenges for business trying to align their operations to a sustainability agenda.

Under the above circumstances, findings from the analysis indicate that the DCs that have proved to be supportive for the sustainability programmes and their implementation in case companies are:

- knowledge related and absorptive capacity,
- R&D and innovation,
- collaboration,

- social network relationships,
- market oriented perception,
- internal reconstruction and,
- cross-functional integration.

It was also identified from the findings that the main motivation for companies to engage with sustainability can be explained by a means-end continuum, acknowledging nuances in their approaches to CS. Also, invested resources, engagement, and outcomes from the sustainability programme are not necessarily affected by the company's driving motivation alone, rather additional factors such as the industry where the company operates and pressures from external stakeholders can play a relevant role regardless of its main motivation. It was found that companies that approach sustainability as a means must face strong pressure from the external environment in order to set up a sound corporate strategy for sustainability, just as companies with solid ethical motivations would do.

## 8.2. Conclusions regarding research questions

To answer the question *how do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?*, two objectives were laid out to help with the investigation.

- i. *To understand how are DCs contributing to the adaptability of firms and that of their programme for sustainability.*

As abilities to make use of knowledge and resources enabling companies to cope with changes and challenges from the environment, DCs are tools arguably contributing to the adaptability mechanism of individual systems. By relying on DCs while implementing their programmes for sustainability, the changes listed in Figure 16 can be observed in organisational systems:

- Increased inner and outer flows of information enabling greater feedback.
- Expansion of knowledge base.
- Fine-tuning of strategies.
- Higher alignment of agents to system's schema.
- Improved relations with other systems.
- Increased system transparency.
- Spanning of boundaries and inclusion of new agents.
- System's schemas adaptation.
- Enhanced response capacity to threats, requirements and challenges.

FIGURE 16. SPECIFIC CONTRIBUTIONS OF DCS TO THE ORGANISATIONAL SYSTEM AND ITS CS STRATEGY  
(from chapter 7, Discussion)

As companies go through a process of adaptation, their design and operation, and that of their programmes for sustainability is upgraded. This would lead to see more solid changes brought about by DCs. Additionally, their responsiveness and resilience to internal and external challenges is also enhanced. Consequently, the organisational system is prepared to better exploits the benefits stemming from DCs.

- ii. *To identify the benefits realised by companies when seizing the DCs related to the implementation of their programme for sustainability.*

This research identified that companies relying on DCs when implementing their CS programmes can achieve wider-ranging benefits than those reported so far in the literature. The findings (as shown in Figure 17) indicate that such benefits support sustainability strategies and programmes, but also have a further reach that impacts the overall organisation.

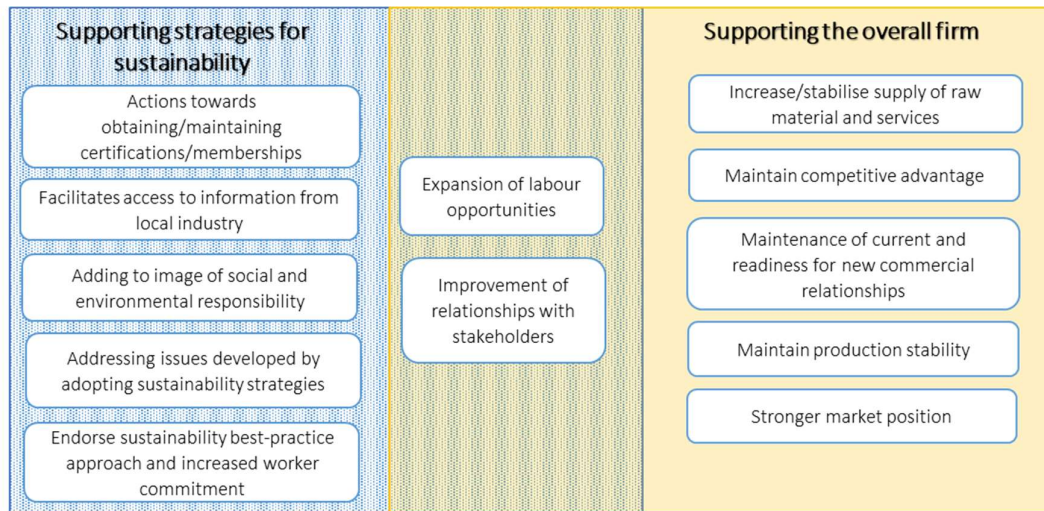


FIGURE 17. SPECIFIC BENEFITS OF DCS FOR COMPANIES IMPLEMENTING PROGRAMMES FOR SUSTAINABILITY (from chapter 7, Discussion)

Benefits are classified into two groups. The first group comprises benefits specifically supporting the strategies for sustainability, while the second group includes benefits that support the overall firm. At the intersection of the two groups, 2 benefits are regarded as contributing to both areas.

Responses to both objectives set the ground for answering the research question that motivates this study:

***How do complexities in a second-tier region in Mexico enable firms to capitalize on the implementation of their programme for sustainability?***

The environment of changing demands and uncertainty that companies face when implementing sustainability programmes leads them to a series of changes that enhance their adaptive capacity as a system through the DCs utilised, and thus benefits are gained not just for the sustainability programme, but for the overall firm function. Therefore, it can be assumed that adaptive changes in the system are the vehicle through which the benefits of DCs are realized. This relation is illustrated by figure 18.

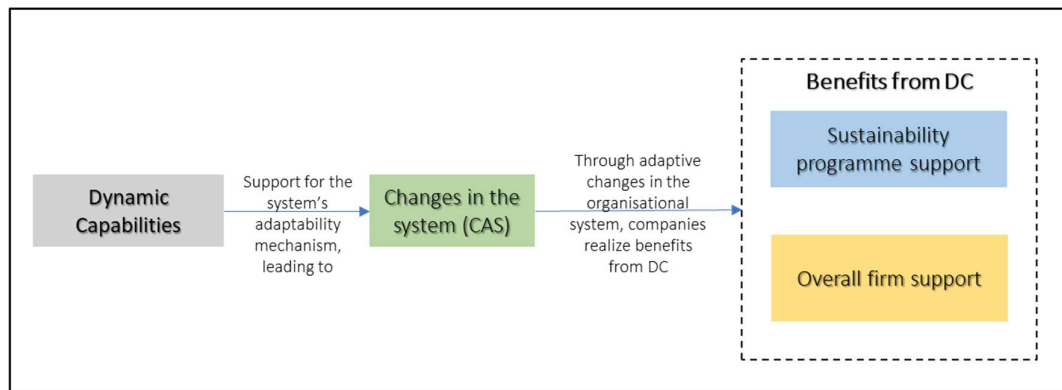


FIGURE 18. THEORETICAL FRAMEWORK INFORMED BY FINDINGS – COMPANIES CAPITALIZING FROM DCS WHEN IMPLEMENTING PROGRAMMES FOR SUSTAINABILITY (from chapter 7, Discussion).

The findings show that case companies have been enabled by the complexities in their contexts to capitalize on the implementation of their programmes for sustainability in three different, but interrelated, ways:

- By leveraging their DCs in support of the system's adaptability mechanism.
- By achieving DCs' benefits supporting the sustainability programme.
- By achieving DCs' benefits supporting the overall firm.

### 8.3. Contributions to new knowledge

This investigation contributes to knowledge in the realm of DCs applicable to sustainability in organisations, while answering recent calls to further study capabilities in the context of emerging economies (Amui et al., 2017; Bezerra et al., 2020). This contribution was evident through two key elements of the investigation.

- First, it provides a more comprehensive and empirically supported list with the DCs, and their comprising routines, that have assisted organisations in the quest for implementing their programmes for CS. This list aims to address previous critiques to DCs highlighted in the literature review such as vagueness (Sunder M & Ganesh, 2020), as well as inconsistencies in micro-foundations and routines.
- Secondly, it expands knowledge on the potential benefits that firms can perceive as a result of deploying DCs (figure 16). To date, studies accounting for the tangible benefits that companies can attain from leveraging on DCs while implementing their CS programmes are scarce. In most cases, these benefits are focused on maintaining competitive advantages, on 3BL performance, or are somewhat tautological. While some of the benefits identified by this investigation have been previously noted individually in the literature, few studies recognise the role of DCs in realising them within the context of CS. Additionally, scholarly literature has so far fallen short in acknowledging that DCs deployed in sustainability contexts can also contribute to overall organisational performance beyond supporting sustainability strategies. Moreover, just as it has been previously acknowledged for DCs themselves (Beske, 2012), the benefits attained by relying on DCs are also interrelated.

CAS literature is also advanced through this study by compiling a list of the changes (figure 15) observed in organisational systems during the process of adapting to an environment

that strives for sustainability. It also provides new insights to current knowledge as it brings attention to the role of DCs as part of the adaptability mechanism driving these changes.

Furthermore, the main contribution from this investigation, responding calls by previous academic work to incorporate systems thinking into CS research (Lozano, 2015; Morioka et al., 2017; Van der Byl & Slawinski, 2015; Vildåsen et al., 2017; Williams et al., 2017), is the enhanced theoretical lens that merges both DCs and CAS for a better understanding of how firms and their embedded systems, capitalize on their capabilities when implementing strategies for sustainability in complex environments. The proposed theoretical framework (figures 7.3. and 7.4.) explains how the DCs deployed by organisational systems trigger the changes that constitute the evolutionary processes towards an improved version of the system. Such improved version is better prepared to survive internal and external challenges, resulting in enhanced adaptability. This allows to suggest that DCs are part of the adaptability mechanism for firms; and once the adaptive changes begin to manifest in the system, the firm starts experiencing the benefits associated with these capabilities. Moreover, the improved version of the organisational system learns to make better use of the routines constituting DCs, and is thus able to better exploit its DCs by further adjusting its resources (Eikelenboom & de Jong, 2019) and networks, so that benefits are greater and broader. Therefore, the proposed theoretical framework offers new insights into how the adaptive changes in the system are the vehicle through which the benefits of DCs are realized by firms.

The value of this contribution is strengthened by the uniqueness of the setting where case companies were studied (Dubois & Gadde, 2002). Not only has the framework been built upon insights from an emerging economy, as opposed by the majority of research developed from a global-north perspective (Marques et al., 2021; Touboulis & Ejodame, 2017), but it has also incorporated insights from a specific second-tier region fraught with harsher circumstances for firms following sustainability aspirations. Specific issues faced by these companies such as conflicts with trade unions, reduced infrastructure and availability of experts, and failed consultancy projects for implementing community initiatives, provide an account of the dynamics operating in these complex realities. Hence, theories looking into complex phenomena with constant and unpredictable change, can certainly benefit from these perspectives, hopefully advancing our understanding from the standpoint of a second-tier region in an emerging economy. Moreover, these findings and the resulting framework are more likely to speak to similar contexts than those purely developed on the basis of a global North perspective.

## 8.4. Managerial implications

This research offers points of advice to practitioners in charge of designing, implementing or making decisions in relation to sustainability strategies in firms.

In the first instance, it provides a more comprehensive list with the capabilities, and their underpinning routines, that would assist a sounder implementation of programmes for sustainability. By developing or strengthening such capabilities, companies become equipped with additional tools that favour the penetration of interventions, the strengthening of relationships with various stakeholder groups, and the improvement of the strategies' outcomes. Decision makers and those responsible for the implementation of sustainability programmes can benefit from assessing the maturity level of their organisations and DCs before starting the implementation. That is, in preparation for such an effort, identify what capabilities

need to be developed so that practitioners and their firms start the process on a better footing. Moreover, this research has provided an account of the type of problems faced by participants and how some of them have begun to address these problems through DCs. These insights may resonate with some practitioners, so this investigation suggests the sorts of capabilities and routines that might help them address such problems.

This project also highlights the importance of establishing links with external organisations that are facilitators of sustainability knowledge and expertise. From academic/scientific institutions, business coalitions, members of the supply chain and potentially government institutions, focal companies can access information on new developments, tactics or advice to implement change, how to deal with sustainability-related certifications, and even opportunities for collaboration. Knowledge exchange can be a powerful tool for companies about to start or in the process of implementing their sustainability programmes, and this project seeks to make managers aware of this.

Additionally, trade unions have demonstrated their capacity as an influential ally, or adversary, in the process of implementing sustainability programmes. This research aims to draw the attention of practitioners and decision-makers to the important role that trade unions play, so that any effort to improve sustainability practice start with a process of sensitisation and inclusion of unionised staff. Interventions could entail increasing their awareness through training and education, promote their engagement so that they feel part of the learning and change process, and including them in the design of initiatives. Ideally, these suggestions can lead to a more favourable climate for the implementation and would be likely to benefit from DCs. Therefore, research looking into the role of trade unions while implementing programmes for sustainability, and to what extent DCs help, is highly encouraged.

The research also suggests a list of changes (figure 16) that can be expected in the organisational system should DCs were consolidated and maintained. Observing such changes would be an indication for managers that the capabilities are working in the firm's favour. Ideally, these changes should lead to meet the identified benefits of DCs (figure 17), thus the provided list of benefits can act as an agenda to assess to what extent the firm is exploiting its capabilities, and serve as a guideline indicating where to direct the business efforts.

Finally, adopting the proposed capabilities can help strengthen the adaptive and resilience capacities in firms, which are needed to navigate environments fraught with ups and downs and change. In the context of this study, firms could overcome emerging sustainability challenges more effectively if managers prioritize the development of these capabilities. As demonstrated by case companies, regardless of their dominant approach to sustainability, if robust enough these capabilities have the potential to turn around the organisational image and enhance their sustainability practice.

## 8.5. Limitations and future research

Like any other research, this study faces limitations that must be acknowledged. This section of the chapter will address them along with avenues for future research.

The first limitation is methodological, as the research did not triangulate collected data. Its absence is explained by the researcher's inexperience, as well as to issues of secrecy or limited availability from some of the interviewed companies. Companies documents and

websites were looked at prior to interviews for contextualising and better comprehending participants' responses. However, they were not used during the analysis of the data. Future research should make sure to establish a rigorous data triangulation process in order to increase the credibility of the findings.

The utilised research method justifies the number of case studies selected (five), which is acceptable for the purpose of expanding the theories underpinning this study. However, this number would not be sufficient for generalisability of the results given that the descriptive nature of this study, and the fact that a PhD project is a limited piece of research, did not aim in principle to provide generalisations. The generated framework will therefore need to be further verified and validated through accumulation of new case studies or, through testing in quantitative studies.

As earlier noted, there are differences even amongst countries with emerging economies. Acknowledging these, the list of DCs, the changes and the benefits identified in the framework, could be validated in the context of other emerging economies. Similarly, future research could validate the framework in a first-tier region, as this study was conducted in a second-tier region.

Given that this research was interested in understanding the change process undergone by case companies when implementing their programmes for CS, it would have greatly benefited from a longitudinal case study. This would have allowed to capture perceptions at two different points in time, enabling the researcher to conduct a more informed analysis of data. The current cross-sectional design portrays the picture of a specific moment in time, only informed by past experiences from interviewees. Therefore, future research could use a longitudinal approach with the aim of providing a richer picture of the adaptive process undergone by organisations, as well as a more detailed account of how changes in the organisational system, the DCs themselves, and the benefits perceived from relying on DCs, emerge and evolve.

Capturing schemas from staff (agents) at different hierarchical levels in case companies (systems) also faced limitations. Although the criteria communicated to gatekeepers for selecting participants allowed to include staff at lower hierarchical levels (those whose activities have been affected by the implementation of sustainability programmes), most of the participants belonged to middle management levels, with a few others belonging to senior management level. Therefore, the perceptions and schemas of those at the lower levels were not captured first hand, but only the perceptions that middle and upper levels have of them. This limits the complete representation of the schemas operating in each system (case company). Future research should ensure that staff at lower hierarchical levels are also included in the data collection, considering that a systems approach calls for a collection of schemas from agents at different hierarchical levels. This would also increase the understanding of emergence "from the bottom".

Another avenue for future research relates to the role of trade unions during the implementation of sustainability strategies. This study identified that trade unions can be a hindering or supporting factor for the successful implementation of sustainability interventions. Therefore, future research could further explore this role and how DCs could assist the relationship between the firm and the union.

Research looking solely into companies dealing with CS located in second-tier regions is extremely limited. Therefore, the final avenue for future research suggests to continue exploring the dynamics and realities operating in this type of regions, which even though might



be facing tougher contexts, they can also have a valuable role on the road to a region with enhanced sustainable conditions.

Finally, it must be noted that data was collected prior to the COVID-19 pandemic. Hence, the information provided by participants, the circumstances of each case company, their priorities and objectives in terms of sustainability may have changed.

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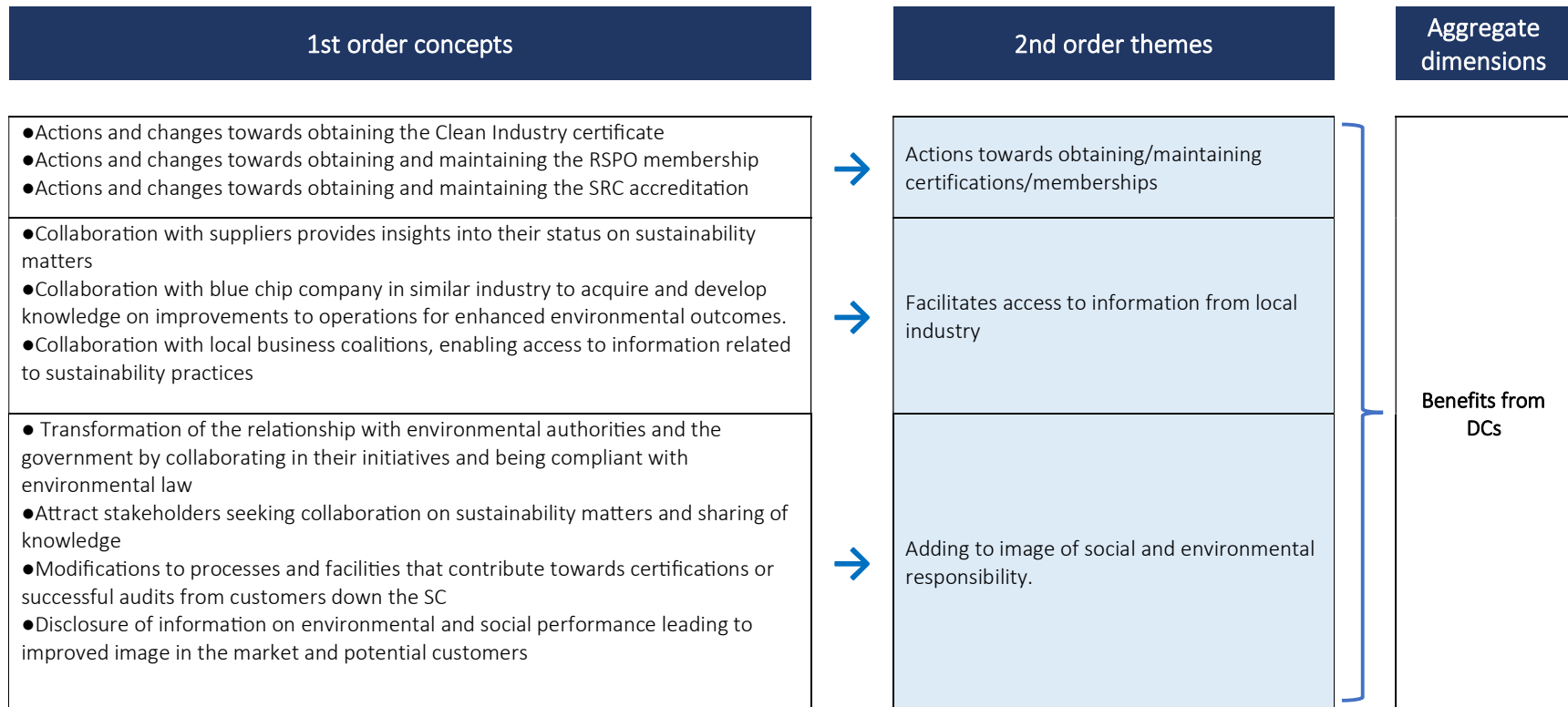
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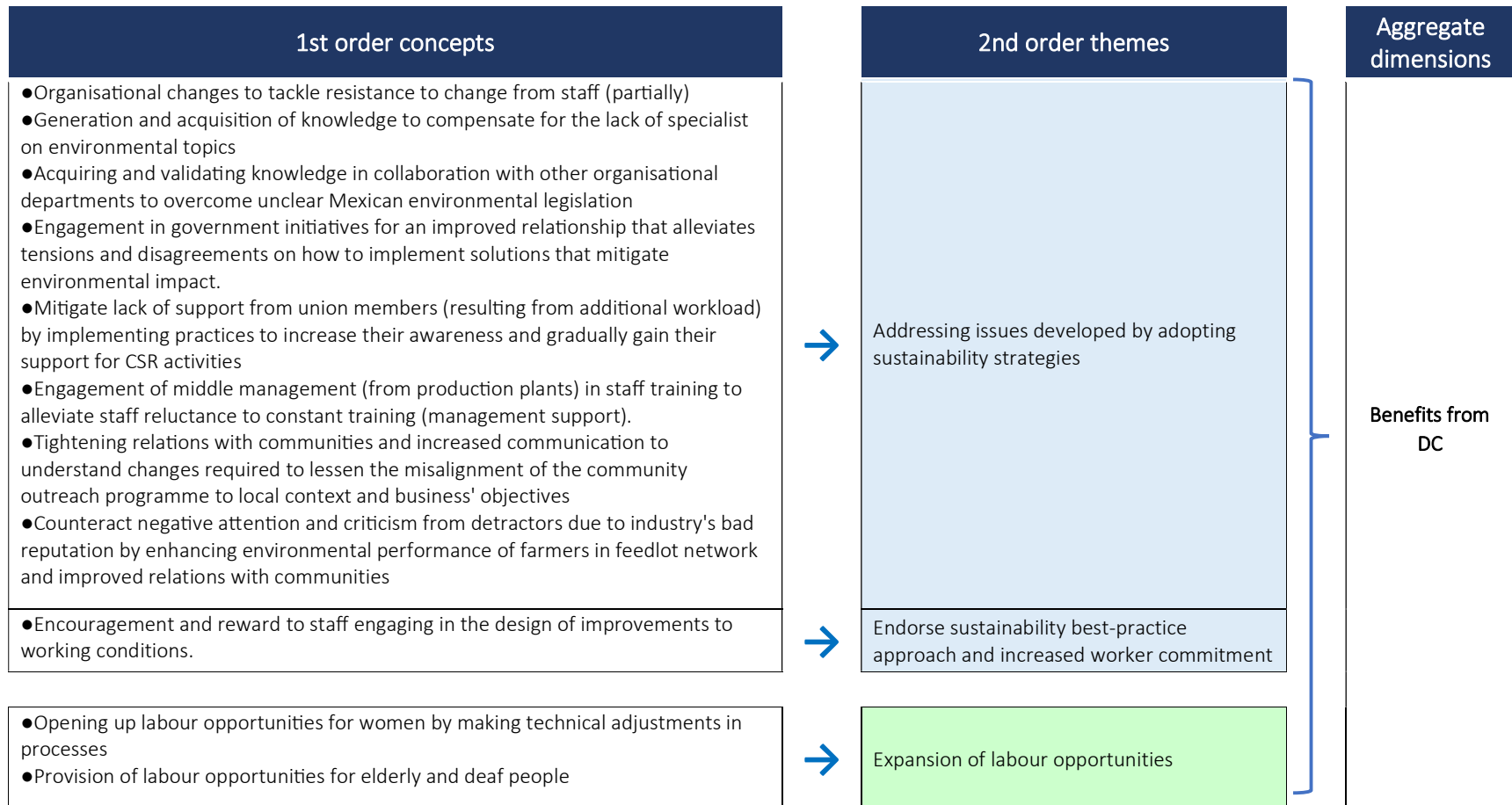
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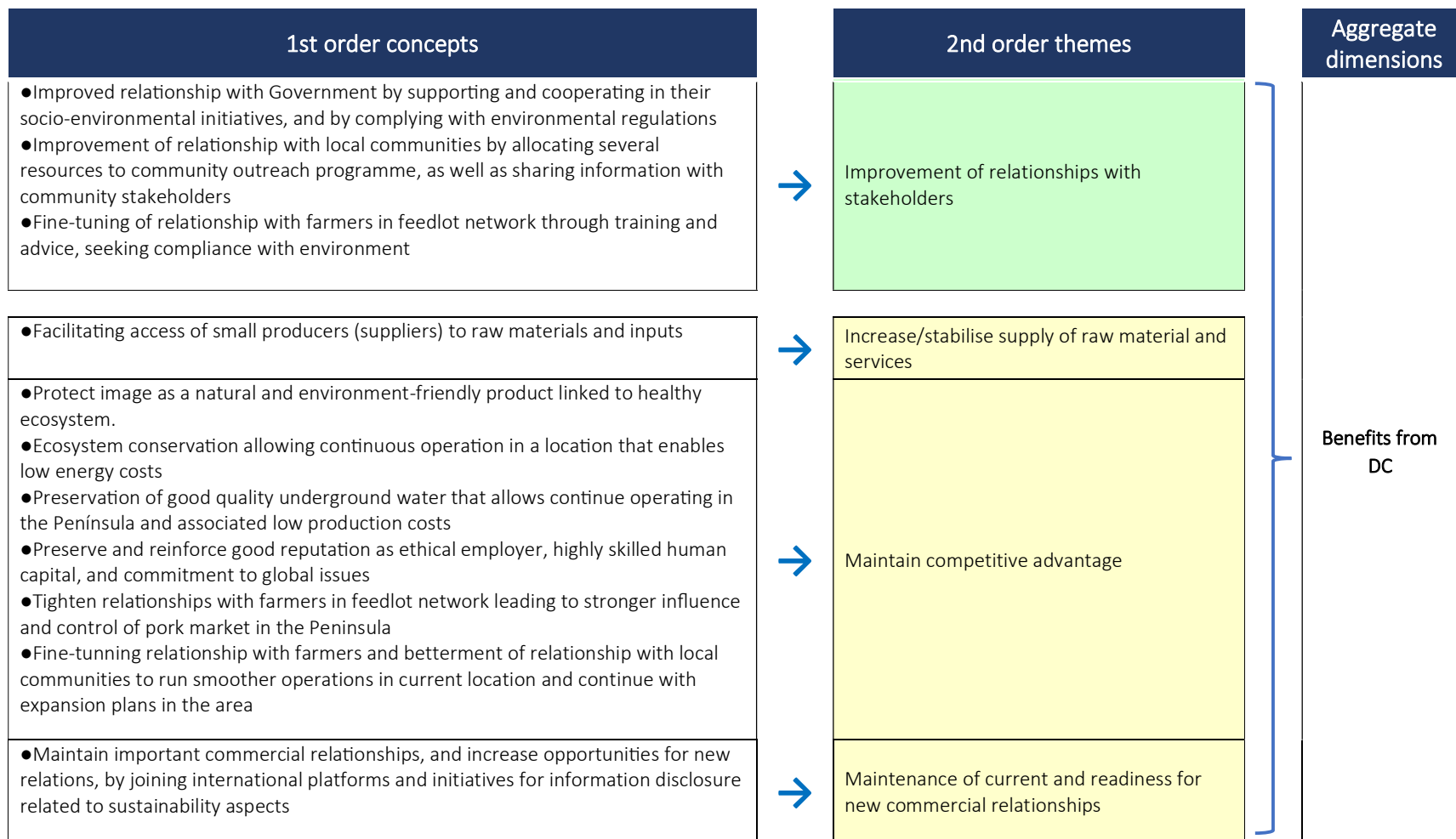


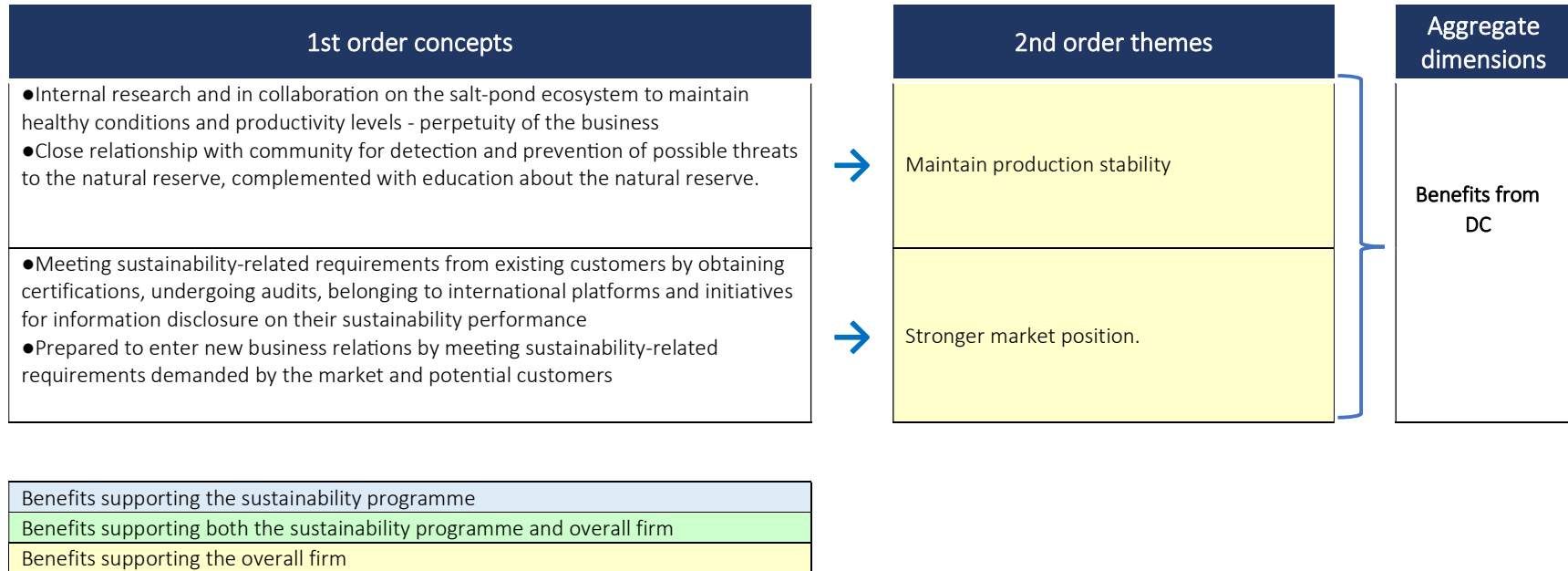
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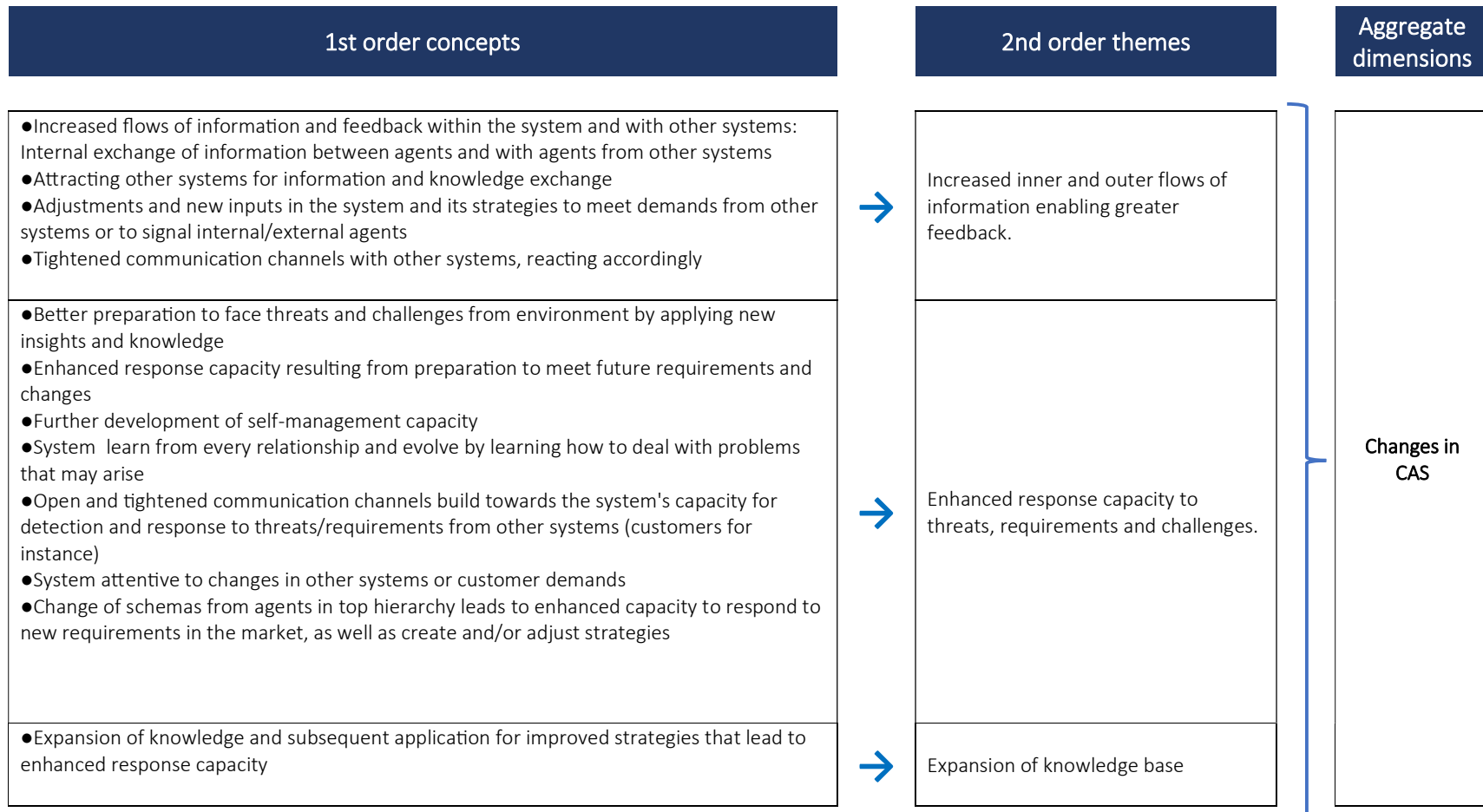
## APPENDIX 1: Illustration of data structure from thematic analysis

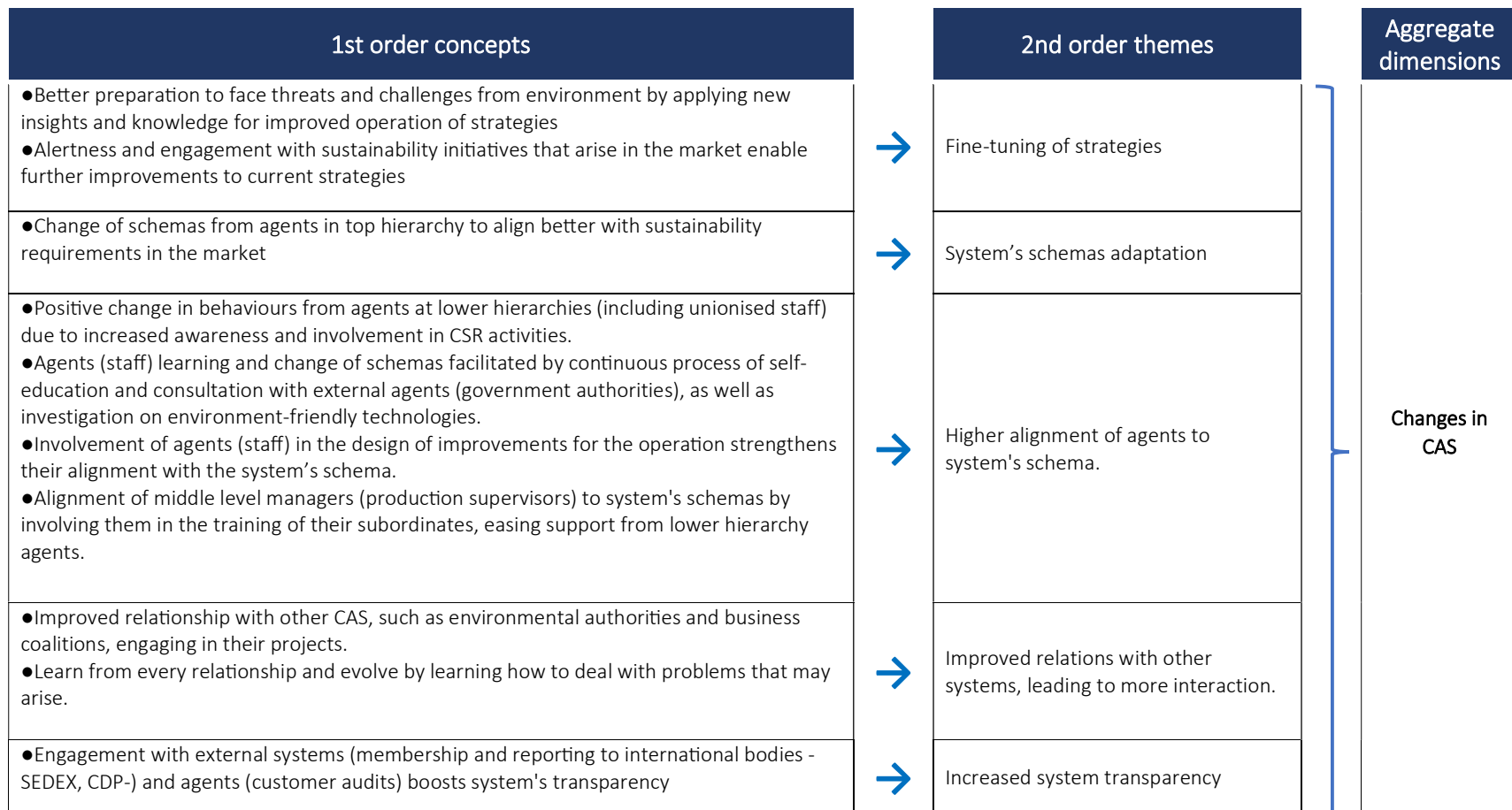




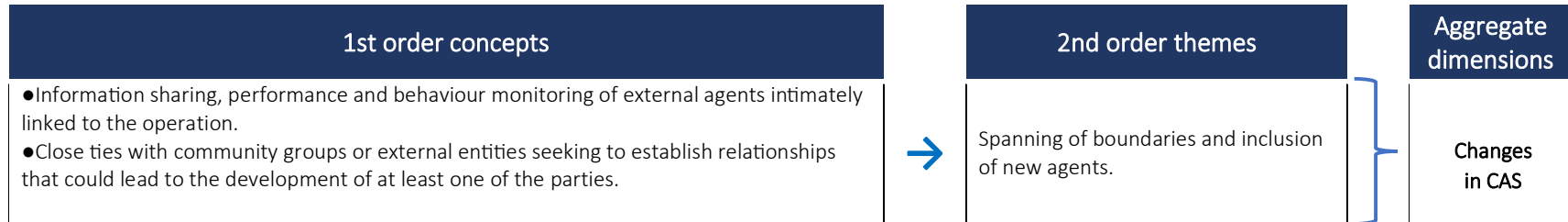


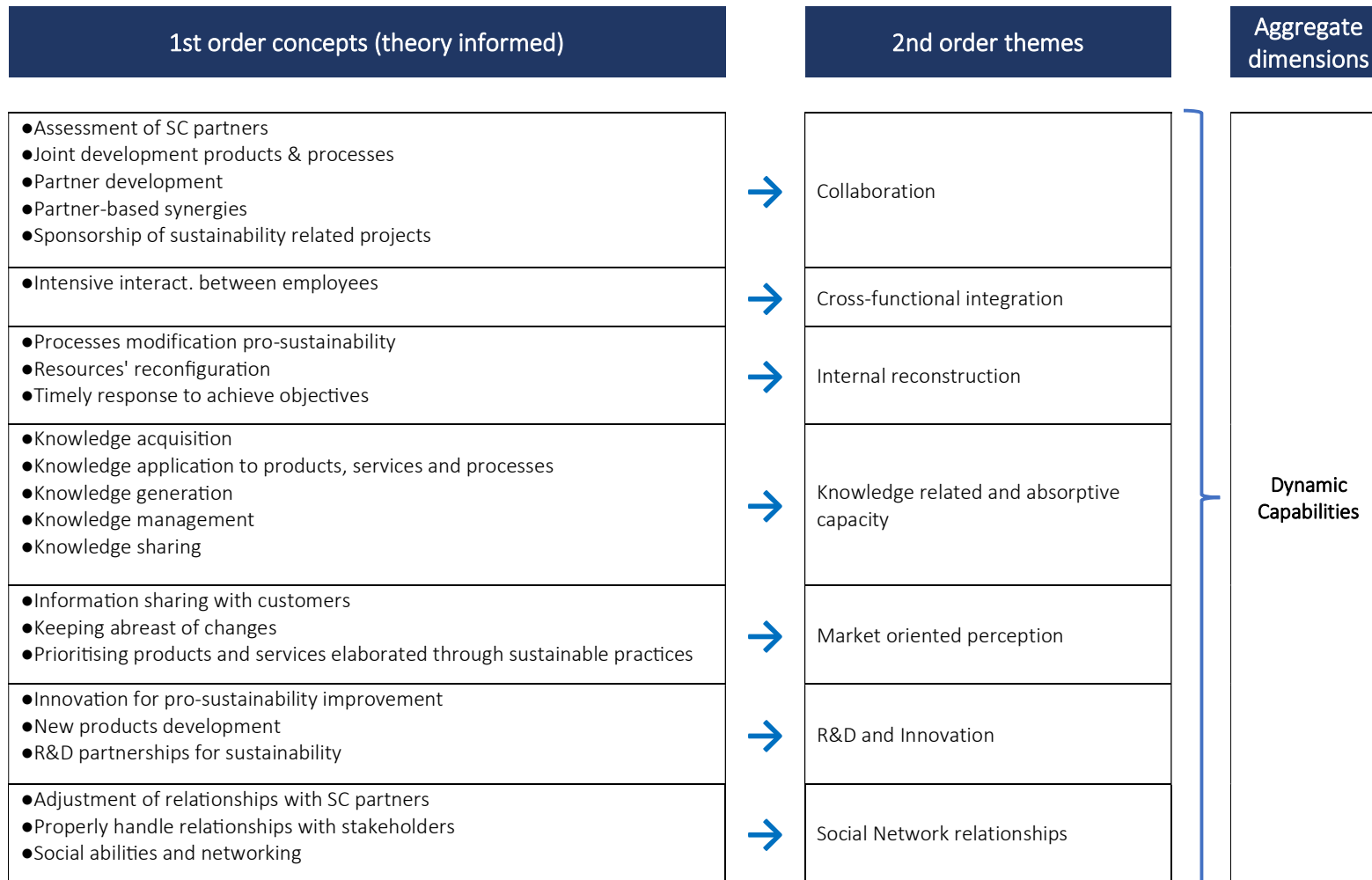












## APPENDIX 2: Representative quotes supporting 2<sup>nd</sup> order themes

\*N.B. quotes translated by the researcher

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Actions towards obtaining/maintaining certifications/memberships	<p>"The first practice was the implementation of an EMS, to have the control and to manage the operations to see how they impact the environment. This is linked to the search for an environmental certificate (Clean Industry)." [A1]</p> <p>"Every two years we undergo the Clean Industry audit. Accredited external personnel come and measure our environmental performance in all areas of air, water, soil, everything... We take about 4 days per plant to evaluate all of this... if you meet the criteria, they can tell you that your company complies 100% with the environmental regulations and then certify you." [B1]</p> <p>"An annual work plan is drawn up, which in fact is requested by the Socially Responsible Company organisation. We have a budget and through this I decide, it is up to me where I will implement this budget. In the plan I have already stipulated that this year we are focusing on staff welfare. Next year we are going to look at, I don't know, environment perhaps. This year, for instance, we are working on volunteering. It depends on what the FEYAC tells us about the events taking place, so I can decide where to allocate the money." [C4]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Facilitates access to information from local industry	<p>"...FEYAC is made up of several companies, and... we are part of FEYAC. Within FEYAC there is a group of companies that have obtained the Socially Responsible Company accreditation. So we report to this organisation about the activities we are conducting and we coordinate with them to carry out additional ones." [D1]</p> <p>"In the Coalition we do have more reports on how much progress we are making... for example, one report that was working quite well is the number of people trained on climate change, and on waste. Another one that we use is the number of tonnes of waste from household appliances... And there are activities that are more focused on improving society, rather than training or gaining knowledge." [B2]</p> <p>"...we have agreements with (name of Mexican blue-chip company from the construction industry) for example, since we are in the same industry but we do not compete in the region. We have links in social and environmental programmes, and also environmental quality programmes." [C1]</p> <p>"For instance, (name of Mexican blue-chip company from the construction industry) gives us advice on health and safety." [C3]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Adding to image of social and environmental responsibility.	<p>"We have done activities in communities, on the beaches because we are close to the port, we have done activities in Puerto Progreso supporting the city council. As I said, we are closely involved with city councils. In addition to create a good image for us, it builds stronger links with these authorities who then support us with permits or when we bid for certain constructions or specific clients." [C1]</p> <p>"So our actions also have to permeate to our partners in the feedlot network. We are in this process, starting to work with them in order to pass this scheme on to them. In fact, we are holding the first meetings... So we are starting to share the whole strategy... They just have to do it independently. We could say to the farmers for example... 'Well, we are going to share with you our work scheme, because in a way you are part of our value chain and you also have to be aligned to these processes.'" [E1]</p> <p>"...What's more, when we request permits from the municipality that call for a visit from the fire brigade, from civil protection to do a site assessment, all of that... there have been occasions when the fire brigade arrives to do the site assessment of safety conditions, they stay at the door and say: "Engineer, just sign here" and that's the end of it. They ask why are they going to inspect us if they know the level of safety measures we have. That's what we have gained. Many times we think, or most companies think about the social benefit of your clients having an image, and that's very true, I agree. I feel that that is 99% of the benefits when you do things right and sell your image to customers, but they forget that society, the government has also a good image of you. What is a good image of you? When the government, the authorities, their attitude is more understanding, way much more understanding." [B2]</p>
	Addressing issues developed by adopting sustainability strategies	<p>"Previously in Las Coloradas there was a manager with a tenure of 30 years I believe... his vision was completely clouded with respect to environmental practices. Despite being in an environmentally important region, it didn't really exist. So, the fact of implementing, controlling in a better way the environmental management system in the plant was very difficult. There were constant frictions because he was practically saying no... as a result (of the manager leaving) of this last year, we have had a lot of improvements and independently of that, in the last 6 years we have made many improvements, a lot of investment to improve facilities and make them more efficient and generate less environmental impact. The person who is here today has a very different mindset. He has worked in companies in the US for many years, and has a very strict philosophy regarding the management of resources, waste, and everything that results from their operations. So he is more aware of that and obviously there is more support for decisions in the plant regarding environmental issues". [A1]</p> <p>"We first analyse any policy or procedure ourselves, we confirm it, we call the authorities, we make requests for information so that they can tell us how things should be done, and once we are well documented is when my boss informs the director about new laws, how they affect us and why, and what has to be done to comply...Here in Yucatan it's a bit complicated to find people who have knowledge</p>

Aggregate dimensions	2nd order themes	Representative quotes
		<p>on the subject. So we try to constantly attend to very specific training sessions. Many times it is complicated even for the legal department to interpret them (new environmental regulations)." [B1]</p> <p>"We have a union, so any change that is made, and I'm not lying, you charge \$1 extra on the food, the union complains unbelievably. We have to take great care of the union relationship. So anything, even if it's for their benefit... the union complains. So we worked from home and that is helping us a lot, even with the general secretary of the union, who is the one with whom we practically have to take care of the relationship, to change the mindset a bit.</p> <p>(Now) there is an openness and flexibility, even with the general secretary of the union, who is the one with whom, if he and his union delegates wanted to, they could call for a work stoppage. So we have seen that there are environmental issues, that the use of plastic bottles has been banned, there is going to be a campaign..., training that we are going to deliver and all of this is communicated to the secretary and he says: 'I agree, it is good that these changes are happening', something that before (wouldn't happen) ...we cannot make changes without the union agreeing to them." [C4]</p> <p>"The Chief Financial&amp; Sustainability Officer, and the Sustainability Manager were the ones who received the strategy with the local diagnosis of our operations, and gradually, this rhythm of work has been established barely a year ago, and it has been permeating the communities...An external company (Chilean consultancy) was hired to carry out a survey and an evaluation. Like everything else, it's not 100% perfect....and now we are working with the effects of community development, but also with business growth. When the advisors come, it's like they don't have that work very well organised, because it's one thing to form a foundation, and give us you the baselines of working as a foundation and developing your activities as a foundation. So the work that was left here more or less has that flavour, you can feel that texture of work (as a foundation). And now we are currently analysing which of these actions and activities we can be customised so that they are more in line with the interests of sustainable development growth in the company." [E1]</p>
<b>Benefits from DCs</b>	Endorse sustainability best-practice approach and increased worker commitment	<p>"There are annual projects in which you can innovate, and we have people competing for projects that benefit the production area: ventilation schemes, dust collection... and that motivates people. And these are projects that you see started as a proposal and now you see them installed on all the (production) lines, the air extractor taking away the flour... And every year, when they are installed, the senior managers, the company owner, every year he gives them (an economic) contribution, so they innovate in the plant. It kind of engages people a lot and you see them happy to work." [D2]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Expansion of labour opportunities	<p>"We have a group of deaf in the plant, in the can cleaning area (biscuits are packed in cans), which is a very noisy area. And we are about to launch a line with purely elderly people, called repackaging lines. Do you know the fantasy assortment? It is impossible to pack it directly (through machinery) when it is coming out of the oven because you take one variety of biscuits out of the oven, you don't have all of them ready at the same time. So you take out one and put it away, take out another one, put it away. When you have all the varieties, you put a very long table and you put people on it, give them the cans, take the biscuits and arrange them, because you also have to arrange each biscuit in its specific place. It's not easy... we already have a lot of old people (in the city) who have no income, many who are abandoned, we are going to tackle this. And we have this line where they can help us." [D1]</p> <p>"Until a year ago we used to hire only men. We did hire women, but not as many as we have today, because most of our jobs require strength. That is, lifting the boxes, so it was very difficult, but we realised that what we have today is a lot of single mothers looking for a job. So what we wanted was for that workforce to join us. So we made 'skates', because today there are none in Merida, that allow you to lift boxes by stepping on them. This was designed so that women would no longer lift anything and we could hire them. So today they come to us because we are one of the few companies that hires women in that part of the job... we did have women, but we used to employ them for cleaning, to carry 1kg boxes, so we did have quite a few, but there was a lot of supply outside. You put out a job advertisement and out of 10, 8 were women, so we realised that the labour force was there but we couldn't take it because women don't have the same strength as men and because they can get injured more quickly. So the decision was made to design these devices." [B4]</p>



Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Improvement of relationships with stakeholders	<p>"We have had situations in the past years, where they (environmental authorities) come for an audit visit and we laugh at how they tell us: 'we need a document'. And we haven't given them the document and they've already ticked the box. Situations where we don't hand it in (the document), we forget, but we have it there. There are documents that we forget to show and they still say that we pass the audit... 'You are a compliant group', and I am talking about PROFEPA, who are the most demanding authorities... On one occasion there was a bad will, an instruction from Mexico City, from a Federal Secretary, who gave the instruction to a recently arrived PROFEPA delegate into Yucatan that he had to find something (negative) from the CEO, the owner. It was something personal... We didn't know about it... we have such a good relationship (with the authorities), that the same delegation warned us: 'this is happening...'. Unfortunately, 15 years ago, we had a very bad business image. Very bad in environmental matters, and the reason is what I was saying, as a company, there was no one responsible for the environmental part, nobody knew the environmental laws, they only knew that if PROFEPA showed up there would be problems, and it was a mystery... if they wanted to damage us, they were going to send PROFEPA. So everything was solved through the legal system.... Obviously there were authorities who were already very clear that this company was not compliant, it was problematic and conflictive." [B2]</p> <p>"I think that in truth we have had a lot of positivity with our programmes, because everyone is involved and sometimes we even make life easier for the municipal mayors in the communities. Sometimes we bring certain health, education, and environmental programmes, and they feel very proud of what we do because they say: 'not all companies do this. I have neighbouring companies that have been working here for 20 years and they don't give me anything', and we already collaborate with that part of contributing to the community for the benefit of the company. And we always emphasize to the authorities that (we do it) in collaboration with the municipality, with the collaboration of such and such." [E3-2]</p>
	Increase/stabilise supply of raw material and services	<p>"We work with local suppliers... We provide them with the rent or the places where they are going to work. We provide them with the improved seed, we support them financially with agrochemicals and we provide them with transport, so they sell us the seed. In other words, we have our soy or canola seed farms, and many Mennonites come to us and we give them all the financing so that they can work and sell us the seed. Obviously with the characteristics of our seed." [B2]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Maintain competitive advantage	<p>"I will tell you what is the most important thing, the most important effect and benefit that an industry like this has is a healthy environment. Our competitors produce salt, not sea salt, but good quality salt. To produce their salt, globally, the cost/price of salt is indexed to the cost of energy.... In seasons of high natural gas costs, salt price shoots up. When natural gas costs are low, the price of salt goes down. However, we, although our market price is given by the competition, our energy is provided by nature. The main energy we require is wind and sun, and so far they are free. In addition, we do not generate a carbon footprint..." [A3]</p> <p>"...Educate them from the time they are students (inhabitants of the community of Las Coloradas) so that they carry out activities that do not threaten the ecology. Because at the end of the day the main activity of the saline, which is the extraction of salt, has to be in perfect symbiosis with the ecology, because if there is an ecological imbalance we can alter the balance that exists in this ecosystem and stop producing salt or produce poor quality salt... I think the company's competitive advantage over other brands is the natural process, not using chemical substances that in the end become waste to be discharged into the environment. Here everything is carried out with natural resources such as the sun and the wind. [A2]</p> <p>"We have quite an ambitious target in terms of wastewater discharge reduction, the m<sup>3</sup> per tonne of production. Obviously the increase in discharge was going to be quite significant if we were to continue with the same pace as we were doing at the beginning. So we introduced new technologies, what we call clean technologies, processes where less water is consumed and less wastewater is discharged. These are refining and oil washing processes.</p> <p>...We are a region where the cost per m<sup>3</sup> of water is lower than in most of the country. In other words, our competitors are generally in the centre of the country and the cost of water is very expensive. Water rights are very limited, they (competitors) can't grow so easily, it costs them approximately 8 to 9 times the value of water than us. Obviously that could be an advantage because it is cheaper for us." [B2]</p> <p>"I think the first (important sustainable practice for the company) that we have is the care for the water... 90% of all operations require water, and here in the peninsula we have a very good aquifer so far. So we are asked to take good care of that part, because without water we cannot operate." [B1]</p> <p>"And another thing is the reputation of the company. Something very important that is also a competitive advantage for the company is its reputation in every sense. You can check our reputation, we are not a company that takes bribes, if we enter a tender, it is always straight.</p> <p>And something very important, our people. We have, I can show you here in the magazine, we have people with 20, 30, 40 and 50 years of seniority in the company who are committed to it, who are committed to the organisation for the same reason that the organisation also thinks of them. Look, here is the "Chemistry that binds us together" the game that I was telling you about, that everybody played.</p>

Aggregate dimensions	2nd order themes	Representative quotes
		<p>This game won a best practice award in Latin America, for being a different way of bringing organisational culture to the company.... Based on this game you learn the values, competencies and the different certificates that the organisation possesses.” [D1]</p> <p>“...I can leave work, go shopping somewhere in my uniform and people say: ‘look, he works at Company D!’ But I have never been worried about the brand. In fact, they have always made references, positive comments wherever I have gone, whether for energy conventions, whatever you want, and they always take this company as a reference for many (positive) things. And as a consequence of a well-made product, so it gives me the satisfaction of being in the right place.” [D2]</p> <p>“And specifically... we send the Communication on Progress report to the United Nations, which also helps you (the company) to be visible. You can find CoP Company D, and all the actions appear in the areas that we are asked to comply with, because those are the principles of the Global Compact.</p> <p>...There is also FEYAC, which is another group of companies that have the social responsibility label, and every so often we try to share the actions we have taken.</p> <p>...in the CoP it is more specific because they ask for numbers. For the recognition of seniority, how many were awarded? And you go through the history of all the years... how many schools have we taken the Green Company programme to?” [D4]</p> <p>“I know how many pigs come into the peninsula and where they come from. So I (Company E) have been a leader in disease protection. I bring pig farmers together and tell them what they should do if epidemic diarrhoea enters, which did not enter when epidemic diarrhoea arrived in America (back in 2014), it entered the USA and Mexico, but the only place it did not reach was Yucatan. Evidently then my farms were exempt. And we were the ones who had the most pork meat to sell, and we had a 2014 with extraordinary results. ...So for me there is value in being located in Yucatan. No one believed it 25 years ago when.... how could you grow pigs in a tropical climate? We have found... everything is solved by technology. We had to invest, yes.</p> <p>...We wean from a sow 32 offspring per sow per year. The national average is 20, 22. We do 30% more with the same facility, we do 30% more than other producers. Those are all benefits. It's not that we are very clever, I mean, we know how to do it, but Yucatan has a lot to do with this. So I (the company) have to be sustainable in Yucatan. Would this benefit me)? Yes, if tomorrow I have to go somewhere else to continue growing, I will suffer.” [E5]</p>

Aggregate dimensions	2nd order themes	Representative quotes
<b>Benefits from DCs</b>	Maintenance of current and readiness for new commercial relationships	<p>“There are reports that they (HR department) handle for monitoring, and apart from the assessment that our clients now make related to our employees, in other words, third party entities come to measure whether we are complying with human rights, whether we are not hiring children, everything related to this. So in a way it is an indicator that we are doing well in terms of social responsibility. ...The ecology area has indicators for energy consumption, water consumption, hazardous waste generation. They have this series of indicators that they themselves monitor at a certain time and we upload them to platforms, for example CDP, for climate change, in other words, we make them available to clients who request them at the time.</p> <p>...SMETA is the standard... SEDEX is the platform ... The standard that is met by suppliers or producers is the SMETA 4 pillars. There are globally accredited bodies that certify that you meet that standard, and whether you meet it or not, you have to submit the information to SEDEX ..., until you meet it.</p> <p>(The 4 pillars include) sustainability compliance, human rights compliance, business compliance - that you are not engaging in bribery, corruption with governments - and labour relations compliance - that you are paying a living wage, countless factors. And basically everything is aligned to the ETI code, the Ethical Trading Initiative....I'm directly responsible but, there are several areas involved. The Environmental Corporate Manager for the sustainability part, social security is looked after by someone else, and Human Resources looks at the labour relations part.” [B3]</p> <p>“And specifically... we send the Communication on Progress report to the United Nations, which also helps you (the company) to be visible. You can find CoP Company D, and all the actions appear in the areas that we are asked to comply with, because those are the principles of the Global Compact....in the CoP it is more specific because they ask for numbers. For the recognition of seniority, how many were awarded? And you go through the history of all the years... how many schools have we taken the Green Company programme to?” [D4]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Stronger market position.	<p>"Nowadays we have heard a lot that for example in Europe, certifications, or having social responsibility or something like that, social responsibility practices, also helps you, at least there it's like voluntary social responsibility and things like that, they help you a lot. And for certain places and for exporting, they ask a lot for certifications and badges and all of that. So I think that it is a competitive advantage today because not everyone has it. Not everyone has a management system... they are investments that have to be made to improve the company as well. So not everyone has that capacity. Not today, and even less so in the southeast. There are very few of us that have all the certifications, and the badge..." [D4]</p> <p>"... Walmart. Its quality standards, which include labour and environmental practices, especially the issue of risk and in recent years the issue of climate change... in these aspects Walmart is a benchmark and has very high standards that often go beyond national legislation. You can be complying with national legislation but if you want to continue selling to Walmart, you have to do extra work and practices beyond that, which also represent a cost, but many times it is also the prestige of selling your products to Walmart or manufacturing them.</p> <p>It's not just this customer. Practically all clients, we always receive inspection visits for quality and within the same is the review of some environmental issues." [A1]</p> <p>"And Walmart doesn't hire a random company. There are worldwide criteria, there are worldwide certifiers... The same ISO criteria is used for many of these certifiers. SQF are globally recognised certifiers, which certify verification units under their standards and which are hired by companies worldwide... We don't send information; they come and collect it. And really, they are not nice at all... trying to find out where you are wrong (during the audit) ... Generally, when you have the Clean Industry certificate it is because you are in compliance. Except in growth situations that's when you can see chaos, but generally you're in compliance. In fact, we did poorly now, with the growth situation and all of that. And by poorly I mean that we were in compliance with all the regulations, with all the procedures, but the procedures were not certified. Then they pushed us to have our environmental management system certified... they questioned our certification a lot. The system is not certified; the company is certified, the results, but not the system.</p> <p>...We have a lot of audits from big clients (list some of the biggest national supermarket chains and a Mexican bakery with international presence) ...</p> <p>...We sell oil. To Walmart we sell the bottles of oil, but to companies like (list global food producers with a presence in Mexico) we sell oil, fat to make their products....</p> <p>We have a customer... Company D is very strong (referring to audits to its suppliers)." [B2]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Benefits from DCs	Maintain production stability	<p>"...Educate them from the time they are students (inhabitants of the community of Las Coloradas) so that they carry out activities that do not threaten the ecology. Because at the end of the day the main activity of the saline, which is the extraction of salt, has to be in perfect symbiosis with the ecology, because if there is an ecological imbalance, we can alter the balance that exists in this ecosystem and stop producing salt or produce poor quality salt... We have been gathering research, there is not much literature on salt ponds, it is a rich environment to produce information and we have been working with in the fish and pond management areas... Both in biology and in the field." [A2]</p> <p>"The care for our own saline system, which allows feeding, resting and breeding of a great variety of migratory birds. The main beneficiary is the company itself by obtaining high quality brines that result in high quality salt and in turn, result in better production costs to be more competitive in the market and be a better business...The same research organisations have seen in our system the opportunity to study those habitats that if the salt industry were not there, and if the operation were not cared for, human activity would surely prevent these habitats from occurring....This is something that in practice, I can tell you that if you take care of the environment and its conditions, it will give you a good business. If you deplete it, you will lose the opportunity for good business." [A3]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	Increased inner and outer flows of information enabling greater feedback.	<p>“Any policy or procedure, we first analyse it ourselves, confirm it, call the authorities, get them to tell us how things should be done, and once we are well documented, my boss goes to the COO to inform him about new laws, how they affect us and why, and what has to be done to comply... after we inform the COO, he brings together several managers to meet with the ecology department and discuss the new regulation and how it impacts compliance, how it affects them. That's when we start analysing everything and the impact identification procedure comes in. Once the COO has all the legal, administrative and fiscal information from us, and operational information from the plants, that's when he goes up to the CEO to discuss the situation....</p> <p>...we also have a dissemination and training programme in the system, which disseminates environmental policies and procedures. And the training part is focused on operational and supervisory personnel, and for us for certain very specific aspects that we have to be aware of... we try to always go to very specific training sessions, which are often difficult even for the legal department to interpret.... We check, verify and confirm whether there are changes in the law, we give an interpretation and we send it to the lawyers beforehand so that they can give us their point of view and interpretation... With their reply, I include it in the summary that we give the COO, because... With these arguments we already have the legal backing that it is right...” [B1]</p> <p>“we were recently invited to participate in the group of... this is an event of the Pacific Alliance to seek the employability of young people. This Pacific Alliance consists of 4 countries: Chile, Peru, Colombia and Mexico. These 4 countries come together to look for ways to give young people the opportunity to gain experience in companies.” [D1]</p> <p>“Because the other companies approach this company because it has done practices that they don't have. So, they approach us to be able to do the same. For example, with the wetland system, several companies came to visit to see how it works because they would like to do something similar in their areas, in their companies. And I think that's what makes this company stand out, because it shares, it doesn't keep it for itself.</p> <p>...Then there are companies that come from the government and propose ideas to us, or companies that are from a third party but also have good ideas. They all approach us to share with us those ideas.” [D3]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	Enhanced response capacity to threats, requirements and challenges.	<p>"A specific case is the community outreach programme that you were telling me about... we started more or less 5 years ago when we developed our community outreach business model. We first worked with a Colombian firm, a specialist that also has a lot of experience in mining in South America, and we brought them in. And then we changed a little bit, not the direction because the path was the same, but we changed to a larger company. Today it is WSP, which is a Canadian company with a strong presence in Latin America in the area of social and environmental strategies. I would say that they are our main consultants. Last year we worked with them to develop the entire community relations model. We have a 5-year project, within this model we contemplated for example the integration of specialists or people who could contribute to this, and now in September, for example, we entered into an alliance with Save the Children in 10 of the communities... Save the Children brings to the game all its procedures, all its expertise and we will be working with them on two of our lines of action that were defined in our community outreach programme, which are education and health." [E5]</p> <p>"We have to take great care of the union relationship. So anything, even if it's for their benefit... the union complains. So we worked from home and that is helping us a lot, even with the general secretary of the union, who is the one with whom we practically have to take care of the relationship, to change the mindset a bit. (Now) there is an openness and flexibility, even with the general secretary of the union, who is the one with whom, if he and his union delegates wanted to, they could call for a work stoppage. So we have seen that there are environmental issues, that the use of plastic bottles has been banned, there is going to be a campaign..., training that we are going to deliver and all of this is communicated to the secretary and he says: 'I agree, it is good that these changes are happening', something that before (wouldn't happen) ...we cannot make changes without the union agreeing to them." [C4]</p> <p>"As a third practice, we have been working very closely with society, particularly with the community of Las Coloradas, where we have our direct zone of influence, with the leadership of the reserve, with the schools regarding assistance and creating a better infrastructure of services. Mainly now that we have the tourism boom, we need to provide infrastructure to offer new income alternatives to the community. Obviously this goes hand in hand with environmental education systems on the issue of rubbish and the practices that have been followed all their lives in the community, how to control it, and it is part of encouraging the population to also take responsibility for keeping the community clean, as this would attract more people. Provide services, environmental education campaign, beach cleaning campaign, waste recycling. This is in Coloradas and a little in Rio Lagartos." [A1]</p> <p>"That's when I was invited to join the company. At that time, what we did was to carry out an environmental diagnosis. We hired an auditing company, we reviewed all the areas, we enrolled in the PROFEPA Environmental Auditors</p>



Aggregate dimensions	2nd order themes	Representative quotes
		<p>programme for the Clean Industry certificate, we obtained a list of several non-compliances, this company is very old and was created without thinking about the regulations. The first thing we did after our plans, was a programme of training meetings ... The implementation started with the management board. Here the training, the awareness, the involvement, we didn't start with the staff, we started with the directors, all of them! on the instructions of the CEO. We had a fortnightly meeting with all the directors to be able to evaluate progress, all the investments that had to do with compliance with the standard. That was the starting point for how we would take the whole project down to all the administrative staff. They were trained, meetings were held with them, and subsequently a training programme was set up for all the company's personnel. Procedures were established that did not exist, internal rules, procedures for waste management, for emissions from control equipment, boilers, dust collector control equipment for dust emissions, for the management of equipment that went out of operation... Procedures were established that were approved by the Board of Directors, the COO, the CFO, the auditing director, the sales director, the human resources director, the directors were involved. In fact, nothing was approved without everybody's signature, and that's a big advantage...." [B2]</p>
Changes in CAS	Expansion of knowledge base	<p>"...Much of what is achieved is done through knowledge. There was a lot of knowledge sharing because we are linked to the auditors and to the agencies that are the specialists in this area, and while it is said that knowledge is invaluable, this expenditure that we are having is seen as an investment, we are basically buying the knowledge or the capacities that these people have to implement them in the organisation in favour of the strategies." [C1]</p> <p>"We visit operations, I myself was 8 months ago in Spain, in Zaragoza, visiting some farms that have wind and solar energy implementations, because we are in continuous search of improving our procedures." [E5]</p> <p>"However, they are constantly training, they are travelling, they are listening, they are looking at new ways to improve (wastewater) treatment. Although that part is not legislated, once you implement it you can operate for 20 more years, for us it is important to keep improving it. Maybe improve the retention time, improve the capacity of the plant, the technology if it needs to be changed...." [E4]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	Fine-tuning of strategies	<p>"We even have problems with fishermen who throw rubbish into the sea, and now it is trendy to talk about the presence of plastics in marine organisms, both fish and molluscs, and even in salt. Fortunately, we have just finished a study with the CICY (Yucatecan Centre for Scientific Research) where we are proving that there are no plastics in the product (sea salt)." [A2]</p> <p>"So far we haven't been told anything like: 'Hey, Ecology, what are you doing? the client is asking for this (requirement from its audit)!', every time we answer the questionnaire, from what the Quality Assurance Manager has told me, we get a good score. That has kept us competitive with that customer, and from what I understand it is a strong customer." [B1]</p> <p>"...Much of what is achieved is done through knowledge. There was a lot of knowledge sharing because we are linked to the auditors and to the agencies that are the specialists in this area... we are basically buying the knowledge or the capacities that these people have to implement them in the organisation in favour of the strategies." [C1]</p> <p>"SRC manages a series of indicators that you as a company have to comply with. We adhere very closely to those indicators that are required from us. There are several areas to cover community, environment, etc., which involve stakeholders amongst other things, policies, etc., and we base what we are doing as closely as possible on what SRC is asking from us, because at the end of the day, those indicators cover a lot, they helped us to realise that we were doing it, but we were doing it wrong. So with those indicators we started to give it formality and to do things as they should be, and then we based ourselves a lot on that." [C4]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	System's schemas adaptation	<p>"...This company is very old and was created without thinking about the regulations. The first thing we did after our plans, was a programme of training meetings ... The implementation started with the management board. Here the training, the awareness, the involvement, we didn't start with the staff, we started with the directors, all of them! on the instructions of the CEO... Procedures were established that were approved by the Board of Directors, the COO, the CFO, the auditing director, the sales director, the human resources director, the directors were involved. In fact, nothing was approved without everybody's signature, and that's a big advantage...." [B2]"Then there was a generational change, the old director left, ... and a new general manager came in, always from the family, with new ideas, younger. His daughters also took over certain management positions, much younger, and there was a change of mindset and they realised that there are many good things that we have, but there are also many things that need to be modified, including leadership, commitment... it is practically renewing the culture that we already had in terms of values and everything, ... changes came with that, with being a SRC." [C4]</p>
	Higher alignment of agents to system's schema.	<p>"(Now) there is an openness and flexibility, even with the general secretary of the union, who is the one with whom, if he and his union delegates wanted to, they could call for a work stoppage. So we have seen that there are environmental issues, that the use of plastic bottles has been banned, there is going to be a campaign..., training that we are going to deliver and all of this is communicated to the secretary and he says: 'I agree, it is good that these changes are happening', something that before (wouldn't happen) ...we cannot make changes without the union agreeing to them." [C4]</p> <p>"Mostly, I think they (production supervisors) are used to the bad habit of being told what to do. Now we are trying to change that idea so that they participate more in putting together the solution, so that we don't have to be behind them, but so that everyone knows what their task is and they do it. So now we are trying to change that chip in the supervisors, because the number one thing for them is to produce, so when you tell them that there are certifications and activities to take care of, but if there is production, that is their priority. So they don't feel part of the other ideas or the other activities, and that is what we are trying to change, that chip. They are being trained so that they can train their operators. Before, the Regulations department used to train everyone, but not now, what we are doing is that the supervisor learns what his operators should know..." [D3]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	Improved relations with other systems, leading to more interaction.	<p>"We have done activities in Puerto Progreso supporting the city council. As I said, we are closely involved with city councils. In addition to create a good image for us, it builds stronger links with these authorities who then support us with permits or when we bid for certain constructions or specific clients." [C1]</p> <p>"In the Coalition we do have more reports on how much progress we are making... for example, one report that was working quite well is the number of people trained on climate change, and on waste. Another one that we use is the number of tonnes of waste from household appliances... in the Coalition, it was formed because it has more defined targets in terms of emissions to the atmosphere. We have signed goodwill agreements with the governments of Quintana Roo, Yucatan and Campeche. There was an event in Cancun about 2 or 3 years ago, it had to do with biodiversity and the activities from different countries, because it was international, to protect biodiversity and all of that. We signed agreements as companies, we did it as a coalition and we invited about 50 other companies to sign the agreement. And there are activities that are more focused on improving society, rather than training or gaining knowledge." [B2]</p> <p>"... So we report to this organisation (FEYAC) about the activities we are conducting and we coordinate with them to carry out additional ones." [D1]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	Increased system transparency	<p>"We don't send information; they (Walmart's auditors) come and collect it. And really, they are not nice at all... trying to find out where you are wrong (during the audit) ... Generally, when you have the Clean Industry certificate it is because you are in compliance....We have a lot of audits from big clients (list some of the biggest national supermarket chains and a Mexican bakery with international presence) .....We sell oil. To Walmart we sell the bottles of oil, but to companies like (list global food producers with a presence in Mexico) we sell oil, fat to make their products....We have a customer... Company D is very strong (referring to audits to its suppliers)." [B2]</p> <p>"The strategy also includes reporting on the social actions that we have carried out with the municipal presidents and in this case with the municipal council, if the municipal president so wishes. At the moment we are preparing the six-monthly activity report, which is the first one that will be presented to the municipal president in the near future. So we are going to mention what activities have been carried out by strategic line, how many people have been impacted, and what benefits have been brought to the communities. And we will also present the programme of what we would like to implement in the next six months." [E3-1]</p> <p>"The ecology area has indicators for energy consumption, water consumption, hazardous waste generation. They have this series of indicators that they themselves monitor at a certain time and we upload them to platforms, for example CDP, for climate change, in other words, we make them available to clients who request them at the time....SMETA is the standard... SEDEX is the platform ... The standard that is met by suppliers or producers is the SMETA 4 pillars. There are globally accredited bodies that certify that you meet that standard, and whether you meet it or not, you have to submit the information to SEDEX ..., until you meet it. (The 4 pillars include) sustainability compliance, human rights compliance, business compliance - that you are not engaging in bribery, corruption with governments - and labour relations compliance - that you are paying a living wage, countless factors. And basically everything is aligned to the ETI code, the Ethical Trading Initiative." [B3]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Changes in CAS	Spanning of boundaries and inclusion of new agents.	<p>“we have been working very closely with society, particularly with the community of Las Coloradas, where we have our direct zone of influence... Mainly now that we have the tourism boom, we need to provide infrastructure to offer new income alternatives to the community. Obviously this goes hand in hand with environmental education systems on the issue of rubbish and the practices that have been followed all their lives in the community, how to control it, and it is part of encouraging the population to also take responsibility for keeping the community clean, as this would attract more people. Provide services, environmental education campaign, beach cleaning campaign, waste recycling...” [A1]</p> <p>“Tourists (tourist guide service providers) are being supported in standard 09, which is the federal standard for ecotourism. This is a course that has just been taught. They are in the final part of receiving English classes, and the company has established a relationship with SEFOTUR (Secretary of Tourism Development of the State of Yucatan) to deliver these courses, which raises the level of attention that can be given to a tourist and also cares for the environment.” [A4]</p> <p>“The fact that the information that the management has is the same information that reaches the people on the farm by operation, has been very positive for them because I don't know if they feel that you take them more into account, that there are no secrets, I don't know if they feel that there are no barriers, I don't know, but it has helped people to be even more participative because the information flows from top to bottom and the other way round. So it's no longer just waiting for it to reach me, but I can also participate, I can also raise my hand, I can also say. I think that this match between the people who operate and the people who manage has been the most positive part of the whole strategy.” [E4]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Dynamic Capabilities	Collaboration	<p>"If they don't comply, they don't work with me. At least legal (environmental) compliance. ...from the moment they sign the contract with me, they need to have it beforehand (legal environmental compliance). If there were to be a change in the law, then we would be in a different situation. I cannot lose my farmers ... now a modification to NOM-001 (Mexican Norm) is being studied, which we think will lead us closer to NOM-003, and that will require considerable investments in the farms, I still don't know how I'm going to deal with it, we are studying it. Because then, to the new ones, to whoever wants to come, these are my rules. 'Hey, but I'm already here, what do I do?' You have to do this... 'I don't have money, what do I do?', Well, first of all, let's see if there is any negotiation..." [E5]</p> <p>"...and now in September, for example, we entered into an alliance with Save the Children in 10 of the communities... Save the Children brings to the game all its procedures, all its expertise and we will be working with them on two of our lines of action that were defined in our community outreach programme, which are education and health." [E5]</p> <p>"It has started to be done at a basic level. Our fuel suppliers, evaluating their product, asking for laboratory tests of their product, to have them certified, in order to be able to evaluate how harmful or not their product is. Certain companies in the region that can be visited or within reach, have even been invited to join the Clean Industry or SRC certification programmes, and with this information has been shared both from them to us and from us to them in order to diagnose what situation they are currently in, what stage we could help them reach, and if their product complies with certain environmental and social standards that we are beginning to request from suppliers." [C1]</p> <p>"...we have agreements for example with (name of Mexican blue-chip company from the construction industry), because we are in the same industry, we do not compete in the region, we have links in social and environmental programmes, and also environmental quality programmes." [C1]</p> <p>"We work with local suppliers... We provide them with the rent or the places where they are going to work. We provide them with the improved seed, we support them financially with agrochemicals and we provide them with transport, so they sell us the seed. In other words, we have our soy or canola seed farms, and many Mennonites come to us and we give them all the financing so that they can work and sell us the seed. Obviously with the characteristics of our seed." [B2]</p> <p>"We participate in coalitions, today we are in a coalition with a local University, with (names of the companies that are part of</p>

Aggregate dimensions	2nd order themes	Representative quotes
		<p>the coalition), in which all the companies do activities to reduce emissions that have to do with climate change, it is called the Business Coalition against Climate Change. And we do activities, we do reforestation. We do an activity called recycleton, to collect electronics from society, clean beaches, cenotes, we do activities." [B2]</p> <p>"We also participate with other groups, we are founders of the Business Coalition against Climate Change, and we carry out various activities such as cleaning beaches, planting trees, collecting electronics and household appliances that are no longer useful to give them proper disposal... ...FEYAC is made up of several companies, and... we are part of FEYAC. Within FEYAC there is a group of companies that have obtained the SRC accreditation. So we report to this organisation about the activities we are conducting and we coordinate with them to carry out additional ones." [D1]</p> <p>"...we were recently invited to participate in the group of... this is an event of the Pacific Alliance to seek the employability of young people. This Pacific Alliance consists of 4 countries: Chile, Peru, Colombia and Mexico. These 4 countries come together to look for ways to give young people the opportunity to gain experience in companies." [D1]</p> <p>"The third programme, which we work on our own in coordination with the reserve authorities, is the coastal dune reinforcement and reforestation programme, along the 20, 22 km of coastline when it is needed, when we detect that it is important, because every 3 or 4 months we monitor the coastal erosion in that area because of the vulnerability that there could be towards our saline system." [A1]</p> <p>"Other activities would be to support ecological groups such as the protection of pink flamingos, turtle protection, and now we are starting to protect other species that are not so well known or popular, but that are nesting here and are endangered species (birds). We have a programme with the UNAM (National Autonomous University of Mexico) to protect them." [A2]</p> <p>"Tourists (tourist guide service providers) are being supported in standard 09, which is the federal standard for ecotourism. This is a course that has just been taught. They are in the final part of receiving English classes, and the company has established a relationship with SEFOTUR (Secretary of Tourism Development of the State of Yucatan) to deliver these courses, which raises the level of attention that can be given to a tourist and also cares for the environment." [A4]</p>



Aggregate dimensions	2nd order themes	Representative quotes
<b>Dynamic Capabilities</b>	Cross-functional integration	<p>“One thing I may have forgotten to mention is that the environmental system also includes the legal department. We check, verify and confirm whether there are changes in the law, we give an interpretation and we send it to the lawyers beforehand so that they can give us their point of view and interpretation... With their reply, I include it in the summary that we give the COO, because... With these arguments we already have the legal backing that it is right...” [B1]</p> <p>“...A rule of the general management is that nothing gets done outside routine procedures if it has not been approved by us (environmental department). If I don't sign off on any change in the company's processes, it doesn't get done. Rather, I have to sign to continue the process of whatever change there is. All of it. That's by rule.” [B2]</p> <p>“...How we need to invoice this new product under these standards (sustainable palm oil), ok? I looked at it with the people in charge of invoicing: 'no, we need the systems people to make these changes'. We get together with the systems people and the logistics people to look at changes to the invoicing ... 'look, what you are asking for can only be done in this way and the logistics people who are going to do it have to do it in this way' and we reach a consensus. Does it meet what we are asking for? I, as the leader, say if it does, well, go ahead. And that's the way we go. The weighbridge people, for example, when the certified product arrives, how are they going to identify it? So I go to the weighbridge people, 'who is responsible for weighbridge? All your weighbridge people must know that when it (the certified palm) arrives it is handled (in this way) ...' and the whole process. Even the production people... 'hey when you go into production you have to do such and such...', it's leading at every stage of the process until it gets to sales. And so the whole process is followed up.” [B3]</p>

<p><b>Dynamic Capabilities</b></p>	<p>Internal reconstruction</p>	<p>"We have a group of deaf in the plant, in the can cleaning area (biscuits are packed in cans), which is a very noisy area. And we are about to launch a line with purely elderly people, called repackaging lines. Do you know the fantasy assortment? It is impossible to pack it directly (through machinery) when it is coming out of the oven because you take one variety of biscuits) out of the oven, you don't have all of them ready at the same time. So you take out one and put it away, take out another one, put it away. When you have all the varieties, you put a very long table and you put people on it, give them the cans, take the biscuits and arrange them, because you also have to arrange each biscuit in its specific place. It's not easy... we already have a lot of old people (in the city) who have no income, many who are abandoned, we are going to tackle this. And we have this line where they can help us." [D1]</p> <p>"...How we need to invoice this new product under these standards (sustainable palm oil), ok? I looked at it with the people in charge of invoicing: 'no, we need the systems people to make these changes'. We get together with the systems people and the logistics people to look at changes to the invoicing ... 'look, what you are asking for can only be done in this way and the logistics people who are going to do it have to do it in this way' and we reach a consensus. Does it meet what we are asking for? I, as the leader, say if it does, well, go ahead. And that's the way we go. The weighbridge people, for example, when the certified product arrives, how are they going to identify it? So I go to the weighbridge people, 'who is responsible for weighbridge? All your weighbridge people must know that when it (the certified palm) arrives it is handled (in this way) ...' and the whole process. Even the production people... 'hey when you go into production you have to do such and such...', it's leading at every stage of the process until it gets to sales. And so the whole process is followed up." [B3]</p> <p>"So as a result of this last year we have had a lot of improvements, and independently of that in the last 6 years we have made many improvements, a lot of investment specially to improve facilities and make them more efficient and generate less environmental impact. Mainly our facilities and sanitary installations, treatment plants, osmosis plant because we reuse seawater, we desalinate seawater to be able to use it in our facilities, and we integrate the waste into our salt production process..." [A1]</p> <p>"Mostly, I think they (production supervisors) are used to the bad habit of being told what to do. Now we are trying to change that idea so that they participate more in putting together the solution, so that we don't have to be behind them, but so that everyone knows what their task is and they do it. So now we are trying to change that chip in the supervisors, because the number one thing for them is to produce, so when you tell them that there are certifications and activities to take care of, but if there is production, that is their priority. So they don't feel part of the other ideas or the other activities, and that is what we are trying to change, that chip. They are being trained so that they can train their operators. Before, the Regulations department used to train everyone, but not now, what we are doing is that the supervisor learns what his operators should know..." [D3]</p>
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"At the time when the result was handed over to them (Sustainability Manager and Chief Financial & Sustainability Officer), there was no community body. There were two people who attended to all the interaction of the operation. Obviously, the demand for all of this meant that they now have 4 Community Programmes Coordinators to divide the territory into 4 parts, and each territory has a certain number of communities to attend to. When it is decided to implement this, the context they recommend is to have local actors or community workers who are the people who are going to be sensitive to understanding the needs of the communities. They have to be the visible face for the community, they are the ones with whom the community has to identify, they have to adopt them to communicate problems and beneficial situations or requests. And this concept of visible faces, who are currently the Promoters, was established." [E1]

"We also depend a lot on the community and the community's problems. If, for example, in a community, we can say at this moment: "we are going to implement education and culture actions in these three months", it turns out that right now there are no classes to begin with. Two, it turns out that right now the problems they have are environmental, so we have to reinforce the area of health and the environment, or the problems they have are health problems. So what do we do? We are going to have to implement these programmes and we do have to readjust because we also depend on the community. One thing about our area is that it tends to be dynamic in that respect, because we can't bring something that the community doesn't need because it's going to be an action thrown away. So we do tend to adjust in that respect." [E3-1]

"We started from home. That's what we call it. We did a project focused on educating ourselves, the people we have. The main thing for us is that we can forge a different organisational culture from within. Because there was already what I was telling you 40 years ago, that the company looks for the benefit of the staff, but there was no reason or cause... 'look, we do this so that not only you are well, but also so that others are well'. So first we started from home, and for us the main thing is that the workers understand what social responsibility is and what it implies, and that all their actions are also connected to our clients, to our suppliers, in other words, everything they do or what we teach in our culture is going to be reflected in the environmental part." [C4]

"But we as a company, like all companies, did not have an environmental department, we simply paid external firms to carry out a diagnosis and based on that, activities were distributed and we went on complying with them. Fifteen years ago, we became aware of this, and at one point we added environmental compliance to the engineering department. We complied with all the environmental requests, PROFEPA visits, all of which was chaos, they had nothing to do with it, and an environmental department was created. That's when I was invited to join the company. At that time, what we did was to carry out an environmental diagnosis. We hired an auditing company, we reviewed all the areas, we enrolled in the PROFEPA Environmental Auditors programme for the Clean Industry certificate, we obtained a list of several non-compliances, this company is very old and was created without thinking about the regulations. The first thing we did after our plans, was a programme of training meetings ... The implementation started with the management board. Here the training, the awareness, the involvement, we

didn't start with the staff, we started with the directors, all of them! on the instructions of the CEO. We had a fortnightly meeting with all the directors to be able to evaluate progress, all the investments that had to do with compliance with the standard. That was the starting point for how we would take the whole project down to all the administrative staff. They were trained, meetings were held with them, and subsequently a training programme was set up for all the company's personnel. Procedures were established that did not exist, internal rules, procedures for waste management, for emissions from control equipment, boilers, dust collector control equipment for dust emissions, for the management of equipment that went out of operation... Procedures were established that were approved by the Board of Directors, the COO, the CFO, the auditing director, the sales director, the human resources director, the directors were involved. In fact, nothing was approved without everybody's signature, and that's a big advantage...." [B2]

"Previously in Las Coloradas there was a manager with a tenure of 30 years I believe... his vision was completely clouded with respect to environmental practices. Despite being in an environmentally important region, it didn't really exist. So, the fact of implementing, controlling in a better way the environmental management system in the plant was very difficult. There were constant frictions because he was practically saying no... as a result (of the manager leaving) of this last year, we have had a lot of improvements and independently of that, in the last 6 years we have made many improvements, a lot of investment to improve facilities and make them more efficient and generate less environmental impact." [A1]

<p><b>Dynamic Capabilities</b></p>	<p>Knowledge related and absorptive capacity</p>	<p>“We visit operations, I myself was 8 months ago in Spain, in Zaragoza, visiting some farms that have wind and solar energy implementations, because we are in continuous search of improving our procedures.” [E5]</p> <p>“We recently had a visit from, ... independently of the fact that we have already been to see this company in Chile, a Chilean pork, poultry and salmon company, now we invited them to come and they were here for a week and we took them to our communities, to our operations. We held a meeting.... I think it was an audience of about 80 people, because we also need our people to be aware of the management, and this company ... is very advanced in environmental issues. It has had many problems, it had a closed operation in the north of Chile, which was closed down by the community ... it is a company that we thought was very valuable. And we promote this interrelationship. Last week there was a Mexican company from the centre of the country that contacted me and said ... 'as part of the restructuring of the loans we are making, they are asking me for a sustainability plan, and I don't have the slightest idea what that is ... can I come and visit you? they came to visit us, we told them about our work, how we do it, why we do it... so we have a constant interrelationship with foreign companies, Mexican companies, to improve our practices.” [E5]</p> <p>“it is part of what we have to work on when planning together (with the operational staff) because I have the requirement, I have the regulations with me, I have all the technical part, but I don't have the operational part. So the day-to-day, the ups and downs, the characteristics of each operation are the responsibility of the people on the factory floor. So I tell them what I want, and they tell me how they can do it. Then I have to evaluate how they can do it depending on my technical perspective: 'hey, you know what? I'm telling you, you can't do it like that because you're going to have these side effects'. So I have to train them in some way, give them the technical knowledge that they don't have because it's not their everyday operation so that they can do or implement the actions without going out of line. Without going out of line with the regulations. Like technical advice really.” [E4]</p> <p>“...Much of what is achieved is done through knowledge. There was a lot of knowledge sharing because we are linked to the auditors and to the agencies that are the specialists in this area, and while it is said that knowledge is invaluable, this expenditure that we are having is seen as an investment, we are basically buying the knowledge or the capacities that these people have to implement them in the organisation in favour of the strategies.” [C1]</p> <p>“...Here in Yucatan it's a bit complicated to find people who have knowledge on the subject. So we try to constantly attend to very specific training sessions. Many times it is complicated even for the legal department to interpret them (new environmental regulations).” [B1]</p> <p>“Specifically for the environmental system... it is an internal system that we have implemented. The implementation works through the application of very specific policies for certain environmental aspects. We have policies on environmental contingencies, water use, waste management. So the implementation part is driven by policies, which are disseminated through</p>
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various means. There is an internal system here in the company that is managed by the people in the Methods and Procedures department, which contains all the policies and procedures that apply to the entire organisation. So that is one of the means of dissemination. When there is a change in a policy or when the time is approaching to check if there should be changes, the methods and procedures people themselves notify us by email. For example, if it expires in June, in March they may ask us to check if there will be any changes, and if there are, we proceed to do so. They are in charge of informing and sending everyone the updated policy information, and for any questions, contact the ecology department.” [B1]

“We have been gathering research, there is not much literature on salt ponds, it is a rich environment to produce information and we have been working with in the fish and pond management areas... Both in biology and in the field.” [A2]

“...currently with the Human Capital Manager, they see all the social responsibility matters, so they sometimes meet with other companies and get good ideas from there and they develop them... other companies approach this company because it has done practices that they don't have. So, they approach us to be able to do the same. For example, with the wetland system, several companies came to visit to see how it works because they would like to do something similar in their areas, in their companies. And I think that's what makes this company stand out, because it shares, it doesn't keep it for itself.” [D3]

Aggregate dimensions	2nd order themes	Representative quotes
Dynamic Capabilities	Market oriented perception	<p>“And the part of the Quality Assurance Manager, apart from reporting to the COO, also reports to sales management. Why? Because customers ask a lot for ethics and social responsibility audits. Every 15 days we are sending reports to customers.....They ask us for example how many emissions you have, what type of fuel you use, how much CO2 equivalent you have, what projects we have for climate change, very focused on emissions and climate change....This customer (Walmart) is very well known for having good environmental practices, and I think it's also focused on the fact that they have to comply with their emissions reduction. So what do they do? It is a programme called supplier development, so I think that has helped us to maintain our position because there are projects, we are working on that part and we have maintained our position.” [B1]</p> <p>"The ecology area has indicators for energy consumption, water consumption, hazardous waste generation. They have this series of indicators that they themselves monitor at a certain time and we upload them to platforms, for example CDP, for climate change, in other words, we make them available to clients who request them at the time....In the case of SEDEX through the four pillars: labour relations, health and safety, human rights and ethics, sustainability. In the case of SEDEX it is public, in the case of CDP it is restricted to clients who request it, the progress in the fulfilment of indicators. In addition, when clients come to audit us, it is a kind of measurement what they do, a kind of verification of the monitoring and measurement that the ecology department does in areas of sustainability.” [B3]</p> <p>“We are audited by Walmart. In their case, yes, because of the audit we received. We not only inform them but they come and verify it. “[D1]</p> <p>“We send it to the United Nations, we send the Communication for Progress (CoP), which also helps you to be visible.” [D4]</p> <p>“Every inspection or audit visit by our customers has a report in which we list if there are conformities or non-conformities for each of the checklist items... Based on that, we take the actions, give feedback and show the customer that this part has been fulfilled. They have focused a lot on the labour issue, not only Walmart but also other companies, but Walmart is a benchmark, especially on the issue of gender equality practices, discrimination, fair treatment of personnel, and that any person can have access to the job opportunities you offer, as long as they are competent.” [A1]</p> <p>“... and now it is trendy to talk about the presence of plastics in marine organisms, both fish and molluscs, and even in salt. Fortunately, we have just finished a study with the CICY (Yucatecan Centre for Scientific Research) where we are proving that there are no plastics in the product (sea salt).” [A2]</p>

Aggregate dimensions	2nd order themes	Representative quotes
Dynamic Capabilities	R&D and Innovation	<p>"There are annual projects in which you can innovate, and we have people competing for projects that benefit the production area: ventilation schemes, dust collection... and that motivates people. And these are projects that you see started as a proposal and now you see them installed on all the (production) lines, the air extractor taking away the flour... And every year, when they are installed, the senior managers, the company owner, every year he gives them (an economic) contribution, so they innovate in the plant. It kind of engages people a lot and you see them happy to work." [D2]</p> <p>"In the wastewater plant, after the process in which we separate the fat from the water, a product called soap is generated, which is the base for making washing soaps, so it is not wasted. It is sent to the soap plant.... in fact, not only is it sent to the other company to make soap, as this soap is rich in phosphorus it has certain nutrients. Pork and poultry companies that make animal feed buy it from us because it is already a source of these nutrients for their animal feed. So there is a double benefit." [B1]</p> <p>"For example, we have an oil... the oil, how is it produced? You boil the seed, crush the seed, and pass it through a solvent to extract the oil and then evaporate the solvent and the oil remains. And now the use of a new oil is being promoted. This oil no longer has a chemical reaction, the solvent is no longer used, but after cooking, you crush it by means of presses and the oil is extracted, so you no longer use the solvent, which can be risky for the environment. So this is an example of the fact that we need to know what you are going to develop in order to know what I am going to implement." [B1]</p> <p>"Until a year ago we used to hire only men. We did hire women, but not as many as we have today, because most of our jobs require strength. That is, lifting the boxes, so it was very difficult, but we realised that what we have today is a lot of single mothers looking for a job. So what we wanted was for that workforce to join us. So we made 'skates', because today there are none in Merida, that allow you to lift boxes by stepping on them. This was designed so that women would no longer lift anything and we could hire them. So today they come to us because we are one of the few companies that hires women in that part of the job..." [B4]</p> <p>"We have agreements with universities. In fact, in December an agreement was signed with UADY (Autonomous University of Yucatan), in fact, they are about to start working on one of our (wastewater treatment) systems. They will investigate it to give us a more innovative, more technical opinion on how to improve the system." [E4]</p>



Aggregate dimensions	2nd order themes	Representative quotes
Dynamic Capabilities	Social Network relationships	<p>“...Those who sell me flour or sugar, I go and audit them. I check their process, that it complies with the standards they offer me... Plastics, that they use friendly plastic, that is, ecological plastic, wrappers, look for wrappers, develop wrappers with the suppliers. I certify my suppliers when they are reliable suppliers, and they are certified by me, not by third parties.” [D2]</p> <p>“We do not participate in irregular practices with authorities, we are always very transparent. If CONAGUA (National Water Commission) comes, if PROFEPA comes, if the state comes, we invite them to come in because our processes are totally as we present them, we are not exposed to any sanction for hiding any information. In this part we are very clear that we have to be straightforward because that is what the position indicates, but also because the company has always been committed to this.” [D2]</p> <p>“And besides, we also have to consider that in our business model, we do not do all the fattening ourselves, it is done by third parties. So these third parties also have to comply with the environmental part of the contract, just as they have to comply with workplace safety and have to provide social security for their employees, and not hire minors, etc. etc. etc. All of this that we have in the contract also includes environmental compliance.” [E5]</p> <p>“Definitely local production has to grow and obviously our way of operating, which has guaranteed commercial success, is also closely related to the work in the communities, the quality of the work in the area and the climatic or environmental conditions that allow the operation to develop in a growing way. Therefore, the social licence becomes not just a social licence, but a way of life with interaction in the communities. If today there was one farm, there is the possibility that there will probably be two or three, and we have to work with the community so that this environment is favourable to the business, but at the same time that it is favourable to the business, it also grows with community development. That is why it was decided to intervene in the communities with this diagnosis, to understand their needs and try to guide a mutual growth of very specific interest. It is not only a tolerance of the operation, but also an identity of the community to work with the operation.” [E5]</p> <p>“Yes, in fact, even their (ejido farmers in feedlot network) language, maybe, because many of them are Mayan speakers, at the beginning it could be a kind of barrier to try to explain to them in technical terms something that is not in their everyday words, it's kind of complicated.” [E4]</p> <p>"We have done activities in communities, on the beaches because we are close to the port, we have done activities in Puerto Progreso supporting the city council. As I said, we are closely involved with city councils. In addition to create a good image for us, it builds stronger links with these authorities who then support us with permits or when we bid for certain constructions or specific clients." [C1]</p>

Aggregate dimensions	2nd order themes	Representative quotes
		<p>“Have negotiation skills with the authorities and with the people. Before doing something, you have to involve the population, negotiate with them, be patient. Try to keep the majority of people happy with the project to be carried out. With regard to the authorities, we have to deal with ... the municipality, and state and federal governments.” [A2]</p> <p>“Having the social skills to deal with different levels of education, different cultural, economic and educational status, because obviously you are dealing with operational staff from whom you cannot make demands because they are unionised, they have a boss (union leader) who is the only one who can tell them what to do, but empathy with them, knowledge, the desire to learn and know what the functions of each of the positions do, is also very important.” [A1]</p>

### APPENDIX 3: Data collection schedule

Case company	Participant and code	Location and modality	Date of interview	Interview length
A	Ecology Manager [A1]	Headquarters, Merida, Mexico. Face to face	14 <sup>th</sup> / June/ 2019	109 min
	Field and Harvest Manager [A2]	Las Coloradas plant, Mexico Face to face	12 <sup>th</sup> / June/ 2019	58 min
	Chief Operating Officer [A3]	Headquarters, Merida, Mexico. Face to face	14 <sup>th</sup> / June/ 2019	59 min
	Plant Manager Las Coloradas site [A4]	Las Coloradas plant, Mexico Face to face	12 <sup>th</sup> / June/ 2019	38 min
	Plant Manager Tizimin site [A5]	Tizimin plant, Mexico Face to face	12 <sup>th</sup> / June/ 2019	54 min
B	Ecology Corporate Coordinator [B1]	Corporate offices in the industrial park. Merida, Mexico. Face to face	19 <sup>th</sup> / June/ 2019	89 min
	Environmental Corporate Manager [B2]	Corporate offices in the industrial park. Merida, Mexico. Face to face	19 <sup>th</sup> / June/ 2019	135 min
	Quality Assurance Manager [B3]	Corporate offices in the industrial park. Merida, Mexico. Face to face	20 <sup>th</sup> / June/ 2019	66 min
	Human Resources Manager [B4]	Milling plant at Merida city centre. Mexico. Face to face	19 <sup>th</sup> / June/ 2019	43.5 min
C	Process and Environmental Management Coordinator [C1]	Lime production plant. Merida, Mexico. Face to face	21 <sup>st</sup> / June/ 2019	60.5 min
	Technical Director (Chief Operating Officer) [C2]	Headquarters, Merida, Mexico. Face to face	21 <sup>st</sup> / June/ 2019	61 min
	Plant Manager [C3]	Lime production plant. Merida, Mexico. Face to face	21 <sup>st</sup> / June/ 2019	53 min
	Human Resources Manager [C4]	Headquarters, Merida, Mexico. Face to face	21 <sup>st</sup> / June/ 2019	72.5 min
D	Human Capital Manager [D1]	Headquarters, Merida, Mexico. Face to face	28 <sup>th</sup> / June/ 2019	130 min

	Head of Regulations (industrial park plant) [D2]	Industrial park plant. Merida, Mexico. Face to face	1 <sup>st</sup> / July/ 2019	99 min
	Head of Regulations (Merida city plant) [D3]	Merida city plant. Merida, Mexico. Face to face	28 <sup>th</sup> / June/ 2019	59.5 min
	Head of Human Capital [D4]	Headquarters, Merida, Mexico. Face to face	28 <sup>th</sup> / June/ 2019	66 min
E	Head of Community Programmes [E1]	Headquarters, Merida, Mexico. Face to face	25 <sup>th</sup> / June/ 2019	76 min
	Community Programmes Coordinator [E2]	Headquarters, Merida, Mexico. Face to face	25 <sup>th</sup> / June/ 2019	78 min
	Community Programmes Promoter [E3-1, E3-2]	Headquarters, Merida, Mexico. Face to face	25 <sup>th</sup> / June/ 2019	92.5 min
	Farms Environmental Manager [E4]	Headquarters, Merida, Mexico. Face to face	26 <sup>th</sup> / June/ 2019	54 min
	Chief Financial & Sustainability Officer [E5]	Headquarters, Merida, Mexico. Face to face	31 <sup>st</sup> / July/ 2019	76 min

## APPENDIX 4: Interview guide

### INTRODUCTION:

- Present myself and the topic of research.
- Inform that interview will be about 1.5 hrs
- Inform about confidentiality
- What happens if participant do not know the answer to the question

### ICE BREAKER:

- Name of participant
- Job position
- Length of time in the company
- Length of time in the position
- Length of time working with sustainability/CSR (can include previous work experience)

### QUESTIONNAIRE:

MOTIVATIONS AND STRATEGIES
1. What do you understand as an “organisational sustainable practice”? What are the top 3 sustainable practices in your organisation and who are the main beneficiaries of these?
2. Are you aware of the strategy(ies) for sustainability in your organisation? Can you describe them? <i>Probing questions:</i> <ul style="list-style-type: none"> <li>• <i>Is there a strategy? Who is in charge of planning, decision making and tracking progress?</i></li> <li>• <i>Motivation/key drivers behind it</i></li> <li>• <i>Goals/ Objectives</i></li> </ul>
3. Do you know what approach is followed by the organisation for proposing and selecting the activities/lines of action part of the strategy for sustainability? <i>Probing questions:</i> <ul style="list-style-type: none"> <li>• <i>Stakeholder satisfaction <u>regardless</u> of current skills and resources VS satisfaction of requirements <u>based on experience and current</u> organisational resources</i></li> <li>• <i>Any criteria to filter out and assess potential impacts of activities?</i></li> </ul>
CAPABILITIES AND SKILLS
4. Can you describe how has the strategy been implemented? <i>Probing questions:</i> <ul style="list-style-type: none"> <li>• <i>Lead by a team or a Manager</i></li> <li>• <i>Different activities/measures undertaken across functional areas of the organisation. Example.</i></li> <li>• <i>Are people involved aware of the sustainability goals/objectives being pursued?</i></li> </ul>
5. What skills, actions and knowledge have proven to be useful (and required) from the person/team leading the strategy for sustainability and its implementation?
EVALUATION OF STRATEGIES FOR SUSTAINABILITY
6. Can you describe the process for assessing the outcomes of sustainability oriented practices?

<p><i>Probing questions:</i></p> <ul style="list-style-type: none"> <li>• <i>Leader/ team/ functional areas reporting on progress</i></li> <li>• <i>Assessment of outcomes against sustainability objectives/ goals</i></li> <li>• <i>Reporting to internal/external stakeholders</i></li> <li>• <i>Strategy re-adjustment?</i></li> </ul>
<p>7. <i>After providing participant with definition and example of competitive advantage...</i>  Would you consider that the organisation has maintained or developed a competitive advantage, or any benefits, from the sustainable practices undertaken? Why?  <i>Probing questions:</i></p> <ul style="list-style-type: none"> <li>• <i>Can you provide an example?</i></li> </ul>
<p>8. <i>Remind the participant of question 5 and some of their answer...</i>  Would you consider that the skills/knowledge exhibited by the people in charge of the strategy for sustainability have contributed to this competitive advantage/benefits? Why?  <i>Probing questions:</i></p> <ul style="list-style-type: none"> <li>• <i>Can you provide an example?</i></li> </ul>
<p>9. Would you consider that the organisation has been damaged in any way due to engagement in sustainable practices? Why?  <i>Probing questions:</i></p> <ul style="list-style-type: none"> <li>• <i>Can you provide an example?</i></li> <li>• <i>Why did the organisation continue involved in such a practice?</i></li> </ul>
<p>10. Would you say that undertaken sustainability practices are paying-off? Why?  <i>Probing questions:</i></p> <ul style="list-style-type: none"> <li>• <i>Economic pay-off? Paying-off with society?</i></li> <li>• <i>Can you provide an example?</i></li> </ul>
<b>DC FRAMEWORK REVIEW</b>
<p>11. <i>Show participant the list of DCs with the routines that comprise them...</i>  Do you consider that either the organisation, the member of staff, or the team leading the program for sustainability possess, or has shown, any of the following capabilities during the implementation?  <i>Probing questions if not clear why have they selected one of the DCs or routines:</i></p> <ul style="list-style-type: none"> <li>• <i>Can you expand on this?</i></li> </ul>