

# Becoming sustainable?

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# Becoming Sustainable?

Analyzing Industry and Government Responses  
to Climate Change and the Energy Transition



Melanie Feeney



# Becoming Sustainable? Analyzing Industry and Government Responses to Climate Change and the Energy Transition.

Melanie Jean Feeney



The research presented in this dissertation was conducted at the School of Business and Economics (SBE), Department of Educational Research and Development, Maastricht University.

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# Becoming Sustainable? Analyzing Industry and Government Responses to Climate Change and the Energy Transition.

## **DISSERTATION**

To obtain the degree of Doctor at Maastricht University,  
on the authority of the Rector Magnificus,  
Prof. dr. Pamela Habibović  
in accordance with the decision of the Board of Deans,  
to be defended in public  
on Wednesday 24 May 2023, at 16:00 hours

by

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## Summary

This dissertation aims to contribute to knowledge of the barriers organizations and individuals face when undertaking sustainability transitions and responding to climate change in the energy transition, as it is important for contextualizing and understanding the factors that also foster climate action. This dissertation explores the following overarching research question: 'How do organizations and individuals understand and respond to climate change?'

To answer this, this dissertation conducted four studies that sought to:

Study 1) identify the barriers different organizations face when collaborating and learning to respond to sustainability challenges,

Study 2) understand the different ways that energy companies (key contributors to climate change) frame climate change and how this relates to their climate actions,

Study 3) explore the ways that individuals working in the energy transition (a key solution to climate change) justify climate change inaction, and

Study 4) unpack how responding to climate change can alter, challenge, or confirm individual and organizational identities and the ways this can impact organizational sustainability transitions.

By conducting the above four studies, this dissertation presents key insights that contribute to answering this dissertation's research question and identifies several challenges and opportunities that organizations face in doing so.

Study 1 explores the role of learning in organizational responses to sustainability. By conducting a cross-disciplinary systematic review of the literature on learning for sustainability, this study explores how different disciplines conceptualize and operationalize learning for sustainability and identifies the common themes and challenges. The findings highlight the different ways that power relations influence learning and decision-making processes, and how entrenched traditional value structures and 'reflexive complicity' limit practitioners and researchers alike in finding meaningful sustainability solutions. The study concludes that shifting how we motivate business and management research on learning for sustainability, in a way that prioritizes sustainability outcomes over firm performance, could bring us a step closer to more meaningful responses to sustainability. Similarly, breaking patterns of 'reflexive complicity' by key

actors in business could assist in shifting towards more radical and long-term responses to sustainability in practice.

Study 2 explores how ten European energy companies have framed climate change from 2010-2019, the actions they've taken in response to climate change, and what this may signal for future climate change responses in the energy sector. Through analyzing 111 energy company sustainability reports, study 2 proposes a new framework (The Climate Framing Framework) that identifies four inter-related frames that energy companies use to make sense of, and respond to, climate change. The study illustrates the actions that align with these four dominant climate change frames and explores how energy company framing has either stagnated, evolved, or rewound over time. Finally, by exploring the triggers that stimulate changes in framing, this study draws attention to how the actions of government, civil society, and energy companies themselves can influence future climate change responses.

To explore the disconnect between an acknowledged need to act on climate change and limited climate progress, study 3 looks to the concept of reflexive complicity and climate denialism to unpack climate inaction across organizations in the energy transition. Using in-depth interviews with 34 diverse actors, study 3 shows how actors justify climate inaction by looking outwards and pointing to 'others' to shift responsibility and blame, looking inwards and engaging with issues of virtue and morality to avoid decision making, and staying inside the box to defend the status quo. All of which results in reflexive complicity and climate change inaction that set us down the path toward climate emergency.

Study 4 explores how radical organizational identity change in the energy sector influences individual organizational identification - the extent to which an individual's identity shares the same attributes of their organization - over time. Using in-depth interviews with 34 actors experiencing radical organizational identity change from the energy transition, this study presents five identity archetypes ('the early adopters', 'the committed critics', 'the transformers', 'the resisters', and 'the dreamers') that build on Bednar et al.'s (2020) theoretical concept of organizational identification trajectories. The findings illustrate the identification trajectories of these five identity archetypes and discuss the implications of these trajectories on the members themselves, other members of the organization, and the organization's ability to achieve their aspirational identity. Study 4 provides empirical support for propositions made by previous organizational identification research and introduces new insights regarding the significant role of threats to expertise for identification over time.

This dissertation concludes by drawing attention to two themes that arose when returning to the main research question of how individuals and organizations understand and respond to climate change. First, the individuals and organizations included in the studies are understanding climate change through the lens of their many and diverse stakeholders. The final chapter provides examples of the increasing number of stakeholder needs' that organizations contributing to the energy transition must consider when making sense of, and responding to, climate change. Concluding that managing multiple and conflicting stakeholder demands makes it particularly challenging for actors to make clear choices in how they will respond to climate change, as any decision will ultimately result in trade-offs between different stakeholders. The second theme to arise from this dissertation illustrates that, in light of increasingly complex stakeholder pressures, the most common response to climate change is to continue with business-as-usual responses that do not challenge the unsustainable systems and structures that enable the climate emergency. In the hopes of contributing to resolving this tendency for individuals and organizations to stick with business-as-usual responses that prioritize financial outcomes over sustainability outcomes, the final chapter provides clear avenues for future business and management research and makes several calls to action specific to several stakeholder groups in the energy transition.



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**CHAPTER 1**



# Introduction



“We have a single mission: to protect and hand on the planet to the next generation.”

*-François Hollande, Former President of France*

## 1.1 Motivation for the research

Climate change is considered one of the greatest challenges of our time (IPCC, 2022). Climate change is increasing the number and severity of natural disasters and extreme weather events around the world (Coronese et al., 2019), causing unfathomable damage to people’s livelihoods (Ripple et al., 2022), health (Limaye, 2021) and global wildlife populations (Ratnayake et al., 2019). Once a topic of heated debate, climate change is now accepted by most of the world’s governments, businesses, and civil society to be an existential threat to humanity that requires urgent action (United Nations, 2022). As climate change is caused by the release of greenhouse gas (GHG) emissions (e.g., CO<sub>2</sub>) into the atmosphere (Rockström et al., 2009), a growing coalition of countries, cities, businesses, and other institutions have committed to net zero carbon emissions by 2050 (United Nations, 2022). These net zero pledges naturally place substantial pressure on the organizations in high emitting industries to change their unsustainable practices and drastically reduce their carbon footprints.

The energy sector is one of the largest emitters of GHG, responsible for over 70% of the world’s emissions (Ritchie & Roser, 2020). As a result, and in response to climate change, the energy sector is currently undergoing a radical transition away from fossil fuels and towards a decarbonized energy system that is sourced largely by renewable energies – known as the energy transition (IRENA, 2022). The energy transition, which aims for a zero-carbon energy sector by 2030, requires a rapid uptake in renewable energies like wind, solar and green hydrogen, and drastic improvements in energy efficiencies (IRENA, 2022). For the organizations that have long been reliant on fossil fuels or developed expertise in their extraction, generation and distribution, climate change and reaching next-zero carbon ambitions presents an enormous challenge (Mori, 2021). This is because climate change is a complex or ‘wicked’ problem that requires more than just a change in technologies to be solved (Sun & Yang, 2016).

Complex or wicked problems are those that have little or no agreement on the definition of the problem stemming from multiple and often competing values and perspectives, no clear solution as there is a variety of possible solutions that each come with trade-offs, and no clear cause or authority from the issue having multiple causes, jurisdictions, or stakeholders (Rittel & Weber, 1973). For the energy sector, whilst there is a unified goal of reaching net zero by 2030 – and it is agreed that renewable energies will play a major role in achieving this - there is no ‘one size fits all’ approach to getting there (Cantarero,

2020). Each potential solution to climate change comes with tradeoffs, e.g., sacrificing profits, or creates unintended consequences, e.g., energy poverty for more vulnerable populations (Araújo, 2014). Energy companies are therefore increasingly required to collaborate with other organizations and actors to find solutions to the shared issue of climate change (Ouariachi, 2021). However, these collaborations involve inherent tensions caused by competing motivations, lack of trust and disciplinary specific language (Bechky, 2003; Edmondson & Nembhard, 2009; Roux et al., 2017).

In addition, once an organization has identified an approach for responding to climate change and meeting net-zero targets, they are then required to undergo radical change processes that challenge the organization's long-held values, beliefs, histories, assumptions, and structures (Amis et al., 2004; Kump, 2019). For example, some of the world's largest energy companies have been developing their expertise in fossil fuel extraction, generation, and distribution since the start of the 20<sup>th</sup> century, so transitioning to a company that is predominantly focused on renewable energies will require profound changes to their operations but also their values and beliefs about who they are as an organization. Challenging and changing the long-held assumptions and beliefs of an organization also has implications for the individuals who work in them. In response to radical changes, individuals are often required to learn new skills and expertise, let go of past skills and expertise (Nag et al., 2007; Biggart, 1977), and in many instances re-evaluate their own identity and how connected they feel to their organization (e.g., Anthony & Tripsas, 2016). As a result, radical organizational change is widely acknowledged to cause tensions between organizations and their members (Kump, 2019). Responding to climate change and transforming the energy sector therefore has implications both within and across organizations.

Given the diversity of challenges that multistakeholder initiatives, organizations, and individuals in the energy sector face in responding to climate change, it is perhaps no surprise that the International Renewable Energy Agency (IRENA) recently declared progress to reduce emissions as being "woefully inadequate" (2021, p.4). In fact, rather than the required reduction in CO<sub>2</sub> emissions released into the atmosphere, we continue to observe increases in yearly CO<sub>2</sub> emissions (International Energy Agency, 2022). Yet the need for addressing climate change becomes ever more urgent (IPCC, 2022). This dissertation is therefore motivated by the need to find solutions to climate change and aims to strengthen understanding of how sustainability transitions play out within and across organizations. This dissertation aims to contribute to knowledge of the barriers organizations and individuals face when responding to climate change and meeting net-zero targets, as it is important for contextualizing and understanding the factors that also foster climate action.

## 1.2 Research Questions

To strengthen understanding of how sustainability transitions play out within and across organizations, this dissertation explores the following overarching research question: ‘How do organizations and individuals understand and respond to climate change?’ To unpack this overarching research question, this dissertation explores several sub-questions throughout its four studies. As shown in Figure 1.1, the four studies are designed to build on each other.

Study 1 begins broadly by asking ‘How does learning help to achieve sustainability?’. To understand this in greater detail I also explore ‘What are the key barriers and enablers of learning for sustainability across disciplines?’ and ‘What does this mean for future business and management research and practice?’.

Study 2 narrows its focus to the energy transition by asking ‘How do energy companies frame their understanding of climate change and how does this framing relate to their climate change responses?’. This was broken down into the following sub-questions, ‘How do energy companies frame climate change?’, ‘How does energy company framing shape responses to climate change?’, and ‘How does energy company framing shift over time?’.

Study 3 continues to focus on the energy transition by asking ‘How do individuals contributing to the energy transition explain and justify organizational climate change inaction?’.

Study 4 also focuses on the energy transition and explores ‘How does radical organizational identity change in the energy sector influence members perceptions of their identification over time?’; and ‘What implications does this have for the members themselves, their relationship with others, and their organization’s ability to achieve their aspirational identity?’.

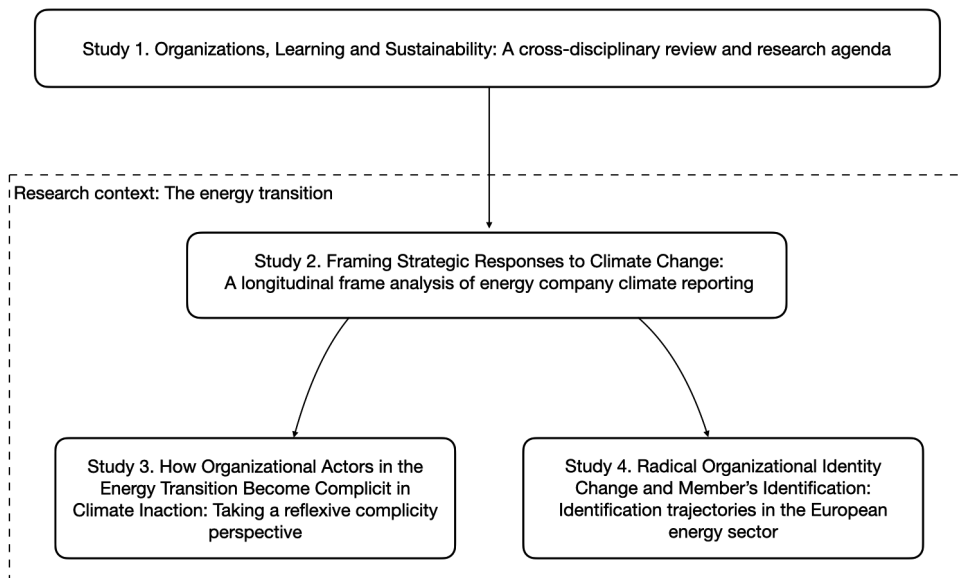


Figure 1.1 Overview of the Dissertation's Four Studies.

## 1.3 Key Concepts

This dissertation engages with several key literatures and concepts to answer the research questions specified above. These include 'learning' and 'sustainability', 'framing' and 'climate change', 'reflexive complicity' and 'climate denialism', and 'organizational identity'. The following section will briefly introduce these concepts, show why they are relevant for unpacking the research questions and illustrate the ways that my research contributes to their understanding.

### Learning and Sustainability

Study 1 starts by exploring the concepts of learning and sustainability. Learning has been identified as a key organizing process for overcoming the challenges that arise through collaborative action for sustainability (e.g., Osagie et al., 2020), and an organization's ability to learn has been directly linked to their ability to adapt and change (e.g., Edmondson & Nembhard, 2009); both of which are necessary for organizations responding to sustainability (Linnenluecke et al., 2012).

To explore the important role of learning in sustainability transitions, this dissertation adopts Probst and Büchel's (1997) definition of learning as when an individual or organization's "knowledge and value base changes, leading to improved problem-solving ability and capacity for action" (p.15). This definition was chosen as the emphasis on changing knowledge and values is particularly aligned with the requirements of orga-

nizations responding to sustainability issues like climate change. To position the focus of learning in the context of sustainability, this dissertation adopts Raworth's (2017) definition of sustainable development as "a future that can provide for every person's needs while safeguarding the living world on which we all depend" (p.39). Unlike other definitions of sustainable development, Raworth emphasizes the important balance between the social and environmental pillars of sustainability.

Substantial effort has been made by business and management scholars to understand the role of organizational learning for sustainability as both require "a challenge to mental models, fostering fundamental change, engaging in extensive collaborative activity and, in some cases, revisiting core assumptions about business and its purpose" (Molnar & Mulvill, 2003, p.168). Research has explored the learning processes that facilitate company sustainability outcomes and performance (e.g., Wicki & Hansen 2019; Oelze et al., 2016), the experiences and challenges of companies engaging in learning for sustainability (e.g., Molnar & Mulvill, 2003), and the internal and external drivers that influence sustainability learning processes (e.g., Müller & Siebenhüner, 2017). A recent review paper also looks specifically at the role of organizational learning in the context of CSR and proposes a conceptual framework to capture the macro-level learning processes that contribute to CSR development, including sources, processes and outcomes of CSR learning (Fortis et al., 2018). Whilst insightful for business and management scholars, the authors highlight the need to go beyond disciplinary silos and encourage researchers "to learn from each other by sharing knowledge, definitions and methodological approaches that have been already tested within their respective areas regarding the OL (organizational learning) process" (Fortis et al., 2018, p.294). Heeding this call, study 1 extends knowledge of learning for sustainability within the business and management literature by drawing on insights from broader disciplines.

## **Framing and climate change**

Frames are understood to be the first step in any strategic change or process of decision-making (Eisenhardt & Zbarack, 1992), where no action or behavior can be initiated without some form of framing or making sense of the situation (Goffman, 1974). With this in mind, understanding how energy companies frame climate change comes as a natural first step for empirically exploring this dissertation's research questions.

Framing and climate change responses in the energy sector is a growing area of academic interest (e.g., Schlichting, 2013; Hahn et al., 2014). Studies have sought to understand the frames adopted in political conversations around specific energy technologies like fracking (Nyberg et al., 2020; Metze, 2018), or the framing of intertemporal tensions in oil companies' climate change responses (Slawinski & Bansal, 2015). All of which found that how a company, or political group, frame climate change has implications for the



types of responses they enact, i.e., short-term responses (Slawinski & Bansal, 2015) or continued public investment in fossil fuels (Nyberg et al., 2020).

Study 2 builds on previous framing research in several ways. First, most studies have looked at a variety of sectors and actors when exploring corporate framing of and responses to climate change, which risks diluting the relevance of the studies' findings for the energy sector (e.g., Wright & Nyberg, 2017; Hahn et al., 2014). Similarly, of the studies that do examine framing of climate change in the energy sector, many have concluded their studies by 2015 or earlier (e.g., Schlichting, 2013; Slawinski & Bansal, 2015) which holds key new insights into energy company framing. Finally, previous research has paid limited attention to the relationship between climate change frames and actions adopted by energy companies (e.g., Schlichting, 2013; Hahn et al., 2014), a relationship that study 2 explores in greater detail.

### **Reflexive complicity and climate denialism**

Responding to sustainability issues like climate change requires individuals to engage in reflexive practice (e.g., Sol et al., 2018). Pollner (1991) defines reflexivity as questioning and challenging "basic assumptions, discourse and practices used in describing reality" (p.370). However, many of the actors in the energy sector acknowledge climate change is an issue, show an understanding of the systems and assumptions that contribute to it and express a desire to solve it but struggle to translate this desire into meaningful climate action. This phenomenon has recently been described in sociology literature as 'reflexive complicity'. Reflexive complicity is when one is aware of an issue or injustice, can observe the issue and claim to want to change it, but there are "no significant changes in practice...and little effort to engage in situational interventions that make a difference" (Sharp & Gold, 2020, p.619-620). Norgaard (2006) identified similar patterns of behavior in their work on climate denialism, finding that members of the public do not oppose the climate science itself, but rather struggle with translating that information into action. To understand the ways that actors in the energy sector explain and justify organizational climate inaction, Study 3. explores the concept of reflexive complicity as a form of climate denialism.

Thus far, the extant literature on reflexivity and reflexive complicity has been understood from the perspectives of social movements and public discourse (e.g., Beck et al., 2003; Young & Coutinho 2013; Bowden et al., 2021a). Through unpacking the justifications used by key actors in the energy transition for climate inaction, study 3 builds on the above reflexivity literature by exploring how reflexive complicity plays out in organizational contexts. Similarly, while Norgaard (2006), and more recently Bowden et al. (2019, 2021b), provide useful explanations for climate inaction by citizens, communities, and industry more broadly, there are limited empirical studies of climate inaction in

organizational contexts. Study 3 contributes to overcoming these gaps in the literature by demonstrating the different ways that energy sector actors explain and justify organizational climate inaction.

## **Organizational identity and identification**

For many organizations in the energy sector, responding to climate change requires a complete change in their strategy and operations. According to Gioia et al. (2013), any transformative change to an organization's strategy is unlikely to be achieved without also changing their identity. Study 4 engages with the organizational identity literature to understand how the radical change experienced by the energy sector is shaping organizational identity and the implications this has on both individuals and organizations.

Organizational identity is understood as the features of an organization that 1) are *central* to the organizations' character or "self-image", 2) make the organization *distinctive* from other similar organizations, and 3) have *continuity* over time (Albert & Whetten, 1985). However, an organization's identity exists as part of a dynamic relationship with those of its members, where an organization's identity provides the context for shaping individual self-conception – or identity – and individual identities of organizational members provide the building blocks for organizational identity (Fiol, 2002). Any change in identity at one of these levels, can therefore result in identity change occurring in the other (Gioia et al., 2013; Rindova et al., 2011). This relationship between an organization's identity and the identity of its members has also been described in the literature as 'organizational identification' - the extent to which an individual's identity shares "the same attributes as those in the perceived organizational identity" (Dutton et al., 1994, p.239). Individual identification can therefore range from high identification (highly aligned with the organization) to low identification (not aligned with the organization) (Ashforth et al., 2008). The extent to which an individual identifies with their organization can have meaningful implications for the organizations ability to achieve their aspirational identity and change in strategy (e.g., Ernst & Jensen Schleiter, 2021).

When identification is viewed over time, taking into consideration how a members perceived past and anticipated future organizational identification influences their present identification, Bednar et al. (2020) refer to this as an individual's identification trajectory. Research on organizational identification trajectories is limited, as until now they have only been explored conceptually. In Bednar et al.'s (2020) paper, the authors draw on existing organizational identity literature to present four potential organizational identification trajectories and make several propositions regarding the ways these identification trajectories can impact an individual's cognition, affect and behavior. Study 4 extends on the concept of organizational identification trajectories by providing

empirical support for the authors propositions and illuminating new insights on the implications of different identification trajectories on individuals and organizations.

## 1.4 Research Context and Methods

This dissertation utilizes a range of qualitative research methods to explore responses to sustainability challenges and climate change. The study's three empirical studies (chapters 3, 4 & 5) focus explicitly on the energy transitions in Europe. In the following section, I introduce the context of the European energy transition and present an overview of the methods used to answer this dissertation's research questions.

### Research context

#### *Global action on climate change*

The past decade has seen a substantial increase in global climate change conversations and efforts. In 2015, The Sustainable Development Goals were adopted by the United Nations as a global call to “end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity” (United Nations Development Programme (UNDP), 2022, p.1). The announcement of the SDGs reinforced global commitments to climate change as a priority issue going forward, with 12 of the 17 Goals involving direct action on climate change. A second Global Agreement, the Paris Climate Agreement was also adopted in 2015. The Paris Agreement is a legally binding international treaty that was signed by 196 countries and reaffirms commitments to keeping global warming to well below 2 degrees Celsius compared to pre-industrial levels (UNDP, 2022).

Coinciding with the above global commitments is increasing pressure from activists and civil society groups to take meaningful action on climate change. Most notable, are the social movements like Greta Thunberg's 'Fridays for Future', and the more controversial activist groups 'Extinction Rebellion' and 'Just Stop Oil'. These groups have increased public attention on the world's biggest polluters and contribute to the sense of urgency in finding meaningful responses to climate change. The growing need to act on climate change has also resulted in accelerating the transformation of the world's energy sector from fossil fuels to decarbonization.

The IRENA (2022) defines the energy transition as “a pathway toward transformation of the global energy sector from fossil-based to zero-carbon by the second half of this century. At its heart is the need to reduce energy-related CO<sub>2</sub> emissions to limit climate change.” (p.1). Given that the very nature of the energy transition is to limit climate change, it provides an ideal context to explore this dissertation's research aims of un-

understanding how organizations and individuals make sense of and respond to climate change.

### *European energy transition*

Building on an already strong need to transition the world's energy sector in response to climate change, Europe's energy system is also facing unprecedented crisis due to the Russian invasion of Ukraine. The result of which is extreme price hikes and gas shortages across Europe. In response to the energy crisis, the European Union has vowed to cut their reliance on Russian fossil fuels by 2027 partly by scaling up renewable energy (European Commission, 2022). Thus, accelerating an already ambitious plan to cut emissions and transition away from fossil fuels.

There are several key policies that have been introduced across Europe to assist in achieving the energy transition. The EU Energy Policy sets strict goals that member countries are responsible for enforcing and covers the diversification of Europe's energy sources, improving energy efficiency and cutting GHG emissions, and decarbonizing the economy in line with the Paris Climate Agreement (Jones, 2016). As part of the EU Energy Policy, the European Renewable Energy Directive II re-set their target for renewable energy consumption by 2030 to 32%. As well as the European Green Deal that strives to make Europe the first climate-neutral continent (European Commission, 2019). These policy introductions have a direct impact on energy company activities around climate change as companies are seen as integral to each member countries' strategy for successfully reaching their emissions targets. Finally, the above Green New Deal, in combination with similar initiatives in other parts of the world, has led to the rapid development and drastic reduction in costs of clean energy technologies like offshore wind and solar photovoltaic that are essential for achieving the energy transition.

### *Key stakeholders*

This dissertation incorporates perspectives from a variety of sectors and organizations to assist in answering the research questions. Perspectives include utilities and electricity companies, energy start-ups, government and regulatory bodies, NGOs, activist groups, and consultancy firms. Each of these organizations play an important role in contributing to the European energy transition. Utilities and electricity companies are essential for transitioning the energy system toward renewable energies and improving efficiencies in energy processes (e.g., Farla et al., 2012). Similarly, start-ups bring new technologies and innovations to market that can accelerate the transition away from fossil fuels (e.g., Colombelli & Quatraro, 2019). Government and regulatory bodies are responsible for creating market stability and speeding up the transition by introducing and enforcing energy policies that align with the future energy sector (e.g., Farla et al., 2012). Advisory and consultancy services assist government and industry to define their

decarbonization strategies and manage climate risk (e.g., Brasseur & Gallardo, 2016). NGO's, particularly those included in my dissertation, support small businesses and other sectors to stay abreast of changing policy and market conditions (e.g., Sisaye, 2021). Finally, activist groups apply pressure on governments and industry to make more ambitious moves in tackling climate change (e.g., Marris, 2019). By capturing the experiences and perspectives of each of these key energy transition stakeholders, this dissertation presents a more holistic understanding of how different actors are making sense of and responding to climate change.

## **Research methods**

This dissertation adopts qualitative and interpretive research methods to answer the four studies' research questions. Qualitative and interpretive methods are relevant for this dissertation for several reasons. First, qualitative methods are particularly relevant for research that is in the exploratory and meaning-making phase that comes with asking 'how' and 'why' questions (Elliot & Timulak, 2005; Mayring, 2014). Second, qualitative methods are increasingly used by scholars to explore today's wicked problems like those of climate change explored throughout my studies (Bansal et al., 2018). Third, transitions by their nature are dynamic and ongoing and therefore lend themselves more to qualitative research methods (Elliot & Timulak, 2005; Bansal et al., 2018). Finally, interpretation is central to qualitative methods as "qualitative data never speaks for itself and needs to be given meaning by the researcher" (Willig, 2017, p.276). In Table 1.1 below, I present the specific methods, justifications, data, and analysis used for each of the dissertation's four studies.

## **1.5 About this Dissertation**

This dissertation presents four studies that explore how organizations and individuals understand and respond to climate change. As shown in Figure 1.1 each of the four studies build from each other. Study 1 sets the foundations for my research by looking more broadly at the literature on learning for sustainability across disciplines, presenting future avenues for business and management research and shaping the subsequent three empirical studies. Study 2 signals the narrowing of my research focus to the energy transition and seeks to understand how energy company framing and responses to climate change have shifted over time. In addressing limitations presented in study 2, the final two studies (3 and 4) move away from relying on claims made by energy companies and capture the experiences of individual's participating in the energy transition themselves. Study 3 focuses on the ways in which actors explain and justify organizational climate inaction, and study 4 explores how radical organizational identity change influences members' perceptions of themselves, relationships with others, and

the organizations' ability to achieve radical change. The following section will provide a short overview of each of the following chapters and their corresponding studies.

## **Chapter 2 (Study 1) - Organizations, Learning, and Sustainability: A cross-disciplinary review and research agenda**

Study 1 explores the role of learning in organizational responses to sustainability. Learning has been identified as a key organizing process for overcoming the challenges that arise through organizational and collaborative action for sustainability. To understand the role of learning in organizational responses to sustainability, I conduct a cross-disciplinary systematic review of the literature on learning for sustainability and incorporate perspectives from diverse disciplines. My findings highlight the different ways that power relations influence learning and decision-making processes, and how entrenched traditional value structures and 'reflexive complicity' limit practitioners and researchers alike in finding meaningful sustainability solutions. Study 1 contributes to knowledge sharing across disciplines and deepening understanding of learning for sustainability in business and management research. In practice, my findings suggest that alternative ways of measuring the success of management, sustainability projects and companies could free up managers to invest in critical reflexive learning processes that align with longer-term and more radical responses to sustainability.

Table 1.1 Overview of Research Methodology and Design per Study

Study	Methods	Justification for approach	Data	Analysis
Study 1 – Organizations, Learning, and Sustainability	Cross-disciplinary Systematic Literature Review	A cross-disciplinary review methodology allows for a broad body of research spread across academic disciplines to be synthesized to inform future research and practice	105 conceptual and empirical peer-reviewed articles on learning and sustainability, published between 1993 and May 1, 2020.	The 105 articles are analyzed using a combination of deductive and inductive coding methods
Study 2 – Framing Strategic Responses to Climate Change	Longitudinal Qualitative Content Analysis (QCA)	Qualitative Content Analysis allows for a more contextual and circumstantial understanding of large bodies of text	111 sustainability reports from Europe's ten largest investor-owned energy companies from 2010-2019.	111 reports are analyzed using deductive and inductive approaches.
Study 3 – How organizational actors in the energy transition become complicit in climate inaction	In-depth Multistakeholder Interviews	Abductive qualitative methodology is best applied to research that starts by looking at a phenomenon, paradox, or real-world problem (i.e., climate change inaction)	Interviews with 34 actors from diverse sectors and industries in the European energy transition	Interviews are analyzed using an inductive theory-building approach
Study 4 – Radical Organizational Identity Change and Member's Identification	In-depth Multistakeholder Interviews	Interpretive qualitative methodology in following a history of using qualitative methods to understand organizational identity	Interviews with 34 actors from diverse sectors and industries in the European energy transition	Interviews are analyzed using an abductive approach that re-engaged with relevant literature

### **Chapter 3 (Study 2) - Framing strategic responses to climate change: A longitudinal frame analysis of energy company climate reporting**

Study 2 explores how European energy companies, some of the world's largest emitters of greenhouse gases, have understood and responded to climate change over time based on their annual sustainability and climate reports. Understanding how a company frames climate is thought to provide a good indicator for how effective a company will be in achieving positive climate change outcomes in the future. I therefore explore how ten European energy companies have framed climate change from 2010-2019, the actions they've taken in response to climate change, and what this may signal for future climate change responses in the energy sector. I propose a new framework (The Climate Framing Framework) that identifies the four inter-related frames energy companies use to make sense of, and respond to, climate change and illustrate the actions that align with these four dominant climate change frames over time. In doing so, study 2 contributes to the literature on framing by offering a more nuanced perspective of the ways companies utilise key climate change frames over time. In practice, my Climate Framing Framework (ClIFF) can act as a tool to stimulate reflection in managers by providing a structure to help identify their current approach to climate change and where they would like to be in the future. Finally, as leadership was found to be an influencing factor for shaping energy company climate response, I suggest that more attention could be paid to leadership's past career experiences of dealing with issues like climate change during hiring processes.

### **Chapter 4 (Study 3) - How organizational actors in the energy transition become complicit in climate inaction: Taking a reflexive complicity perspective**

Study 3 explores how 32 actors contributing to the European energy transition explain and justify organizational climate change inaction. There is an abundance of information that shows the urgency of acting on climate change and the pathways we must follow to do this. yet, we continue to see little or no progress towards meeting global climate goals. To explore this phenomenon, I use the concept of reflexive complicity to unpack climate inaction across organizations in the energy transition. I show how actors justify climate inaction by pointing to 'others' to shift responsibility and blame, engaging with issues of virtue and morality to avoid decision making, and staying inside the box to defend the status quo. All of which result in reflexive complicity and climate change inaction that set us down the path toward climate emergency. Study 3 contributes to the literature by applying the concepts of reflexive complicity and climate denialism, previously understood from the perspective of social movements and public discourse to an organizational context. In practice, my findings show how actors from across sectors struggle to take key decisions as they avoid imposing restrictions or discomfort onto other stakeholders. I suggest that actors may benefit from drawing attention to



this dilemma and discussing collaboratively how the burden of decision-making can be shared amongst actors.

## **Chapter 5 (Study 4) - Radical Organizational Identity Change and Member's Identification: Identification trajectories in the European energy sector**

Study 4 explores how radical organizational identity change in the energy sector influences individual organizational identification over time. Based on interviews with 32 actors contributing to the European energy transition, I formulate five identity archetypes: 1) the early adopters, 2) the committed critics, 3) the transformers, 4) the resisters, and 5) the dreamers. I then illustrate the identification trajectories of these five identity archetypes and the implications of these trajectories on the members themselves, other members of the organization, and the organization's ability to achieve their aspirational identity. In doing so, study 4 provides empirical support for propositions made by previous organizational identification research and introduces new insights regarding the significant role of threats to expertise for identification over time. Study 4 also highlights the importance of stable identification trajectories and new employee's identification trajectories in understanding the implications of radical organizational identity change. In practice, I show how organizational actors will respond differently to undergoing radical change processes and make recommendations for the ways management can manage and support these different responses to ensure they achieve their aspirational identities.

## **Chapter 6 – Conclusion**

Chapter 6 concludes the dissertation by outlining the dissertations' major findings and themes, limitations, and avenues for future research.

Note: This dissertation is a collection of closely related studies. Since each study is written to be read on its own and as they are geared towards audiences from different academic fields, repetition and overlap between the chapters is inevitable.

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**CHAPTER 2**



# Chapter 2. Organizations, learning and sustainability: A cross-disciplinary review and research agenda

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“Climate change is something that we cannot fix alone - it is the original collective action problem - it will not work unless almost all the large economies of the world act together.”

- Prof. Dr Abhijit Banerjee, Professor and Nobel Prize winner for Economics

## Abstract

This paper explores the role of learning in organizational responses to sustainability. Finding meaningful solutions to sustainability challenges requires companies and other actors to broaden their thinking, go beyond organizational boundaries and engage more with their stakeholders. However, broadening organizational perspective and collaborating with diverse stakeholders involves inherent political and process-related tensions. Learning has been identified as a key organizing process for overcoming the challenges that arise through collaborative action for sustainability. To understand the role of learning in organizational responses to sustainability, we conduct a cross-disciplinary systematic review of the literature on learning for sustainability and incorporate perspectives from diverse disciplines including business, management, environmental science, sociology, policy, urban planning, and development. The review explores how different disciplines conceptualize and operationalize learning for sustainability and identifies the common themes and challenges. Our findings highlight the different ways that power relations influence learning and decision-making processes, and how entrenched traditional value structures and ‘reflexive complicity’ limit practitioners and researchers alike in finding meaningful sustainability solutions. We conclude that shifting how we motivate business and management research on learning for sustainability, in a way that prioritizes sustainability outcomes over firm performance, could bring us a step closer to more meaningful responses to sustainability. Similarly, breaking patterns of ‘reflexive complicity’ by key actors in business could assist in shifting towards more radical and long-term responses to sustainability in practice.

**Keywords:** Sustainability; Learning & development; Multi-stakeholder initiatives

## 2.1 Introduction

Effects of climate change are being observed at an increasingly alarming rate across the world. Each year we see more severe flooding, droughts, bushfires and heatwaves, and recent studies show that unless we change our current practices these events will continue to worsen (IPCC, 2018). Finding meaningful solutions to sustainability challenges requires companies and other actors to broaden their thinking, go beyond organizational boundaries and engage more with their stakeholders (De Bakker et al., 2019; Williams et al., 2017). However, broadening organizational perspectives and collaborating with diverse stakeholders involves inherent political and process-related tensions stemming from a resistance to change, competing motivations, lack of trust, and disciplinary specific language (Bechky, 2003; Edmondson & Nembhard, 2009; Roux et al., 2017). Learning has been identified as a key organizing process for overcoming the challenges that arise in collaborative action for sustainability (Osagie et al., 2020; Roux et al., 2017; Oelze et al., 2016). Improving an organization's ability to learn has been directly linked to their ability to adapt and change (Edmondson & Moingeon, 1998; Edmondson & Nembhard, 2009); both of which are necessary for organizations responding to sustainability (Linnenluecke et al., 2012). Whilst there are a variety of definitions of learning used across the literature (e.g., Argyris & Schon, 1996; Crossan et al., 1999; Laasch & Gherardi, 2019), this review adopts Probst and Büchel's (1997) definition of learning as when an individual or organization's "knowledge and value base changes, leading to improved problem-solving ability and capacity for action" (p.15). In this article, we are therefore interested in how organizations from diverse sectors engage in learning for sustainability, and how insights from current research can benefit future business and management research.

Sustainability challenges are complex and chaotic problems with no clear solution or disciplinary boundary and thus require novel forms of organizing and collaborating (Snowden & Boone, 2007; Williams et al., 2017; Wright & Nyberg, 2017). Traditional responses to sustainability have largely focused on government regulation and taxation of the private sector (Sharma & Ruud, 2003; Brønn & Vidaver-Cohen, 2009), and investment in sustainable innovations, voluntary reporting and private regulation of corporate conduct by the private sector (De Bakker et al., 2019; Schaltegger & Wagner, 2011). Despite these attempts by government and business, progress toward sustainability is slow and we continue to see a tendency of actors operating in their disciplinary silos (Laasch et al., 2020). The Intergovernmental Panel on Climate Change (IPCC) (2018) and the United Nation's Sustainable Development Goals (SDGs) framework both stress the need for multi-level and cross-sectoral mitigation and adaptation strategies to achieve progress toward sustainable development (Scheyvens et al., 2016; United Nations, 2019). However, collaboration with diverse stakeholders is no easy task, as each

stakeholder comes with their own, often conflicting, interests for engaging in sustainability collaborations (Hörisch et al., 2014).

Learning has been identified as a key process for enabling organizations to collaborate and respond to sustainability. Firstly, learning processes such as open dialogue, reflection, shared visions and goals, and creating environments of trust can all contribute to more effective collaborations amongst diverse actors (Edmondson & Moingeon, 1998; Freeth & Caniglia, 2020). Secondly, knowledge acquisition has been identified as key for 1) adopting more sustainable practices, and 2) increasing awareness of other pressing sustainability issues within the organization's control (Hörisch et al., 2014). Learning is therefore not proposed here as an alternative to traditional responses, such as regulation or technological advancement, but rather as a key organizing process for improving the capacity of individuals, teams, organizations, and networks to achieve their sustainability goals.

Studies in business and management have explored the importance of learning for engaging individuals and organizations in the implementation of corporate social responsibility (CSR), and other sustainability initiatives (Haugh & Talwar, 2010; Prugsatz, 2010; Oelze et al., 2016; Siebenhüner & Arnold, 2007). In the environment, social sciences and policy disciplines learning has also been explored for its role in enhancing the collaborative and adaptive capacity of inter-organizational responses to sustainability (Rumore et al., 2016; Barth & Michelsen, 2013). Although there are similarities in how each discipline defines and values learning for sustainability, a lot remains unknown about how each discipline conceptualizes and operationalizes learning within the context of sustainability. We therefore conduct a cross-disciplinary systematic review of the literature to better understand the role of learning for sustainability.

This review builds on recent reviews within the business and management literature that have explored organizational learning and CSR (Fortis et al., 2018), responsible management learning and competences for corporate sustainability (Montiel et al., 2020; Dzhengiz & Niesten, 2020; Cullen, 2020; Laasch et al., 2020), and multi-stakeholder initiatives for sustainability (De Bakker et al., 2019). Despite the emergence of review studies on learning for sustainability *within* the business and management discipline, there is currently a lack of understanding about how the process of learning for sustainability is conceptualized and organized *across* different academic disciplines. To overcome this gap, this review moves beyond a siloed approach to reviewing the literature on learning for sustainability from individual disciplines and incorporates perspectives from diverse disciplines including business, ethics, management, human resource development (HRD), environmental science, public administration, political science,

health, engineering, agriculture, and development studies. The review is guided by the following research question and sub-questions:

How does learning help to achieve sustainability?

- How do different disciplines conceptualize and organize learning for sustainability?
- What are the key barriers and enablers of learning for sustainability across disciplines?
- What does this mean for future business and management research and practise?

Through applying a cross-disciplinary review methodology, our paper synthesizes a broad body of research spread across academic disciplines and offers a comprehensive review of learning for sustainability. By identifying what we know and what is still to be understood about learning for sustainability across disciplines we show in what ways business and management scholars can contribute to future academic debate. In doing so, our paper also contributes to developing shared understandings of the complexity of achieving sustainability across disciplines and thus places business and management scholars in a better position to engage in meaningful transdisciplinary research projects for sustainability. Similarly, our paper deepens understanding of organizing for sustainability in practice. Through identifying the challenges and enablers of learning across different sectors and organizations, our findings provide key insights for leadership seeking to achieve sustainability outcomes within their organization and broader networks.

The review is organized as follows; first we introduce the theoretical elements that are central to learning for sustainability and guide our methodology. We then present our findings on the central areas of learning for sustainability that are addressed across all disciplines and identify the critical areas that differ across fields. We highlight key areas for future business and management research and the implications for practice, before presenting the studies' limitations and concluding remarks.

## **2.2 Definitions and relevance of learning for sustainability in organizations**

### **Defining Sustainable Development and Learning**

The terms 'sustainability' and 'sustainable development' are often used interchangeably, however there are clear distinctions between the two (Salas-Zapata & Ortiz-Muñoz, 2019). The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2019) state that "sustainability is often thought of as a long-term goal (i.e., a more sustainable world), while sustainable development refers to the many processes and pathways to achieve it (i.e., sustainable agriculture and forestry...education and train-

ing, etc.)” (p. 3). In this paper, we mainly use the term ‘sustainability’ as we are interested in what factors contribute to long-term sustainability goals and outcomes. However, as our review focuses on the process of learning as a pathway for meeting sustainability goals and outcomes, we explore the concept of ‘sustainable development’ in greater detail below.

Sustainable development was defined in the United Nations 1987 Brundtland report as meeting “the needs of the present without compromising the ability of future generations to meet their needs” (p. 43). Many scholars have since argued that this definition is too human-centric and fails to capture the complexity of humanity’s relationship with nature (Hopwood et al., 2005; Salas-Zapata & Ortiz-Muñoz, 2019). More recent sustainable development research builds upon Rockström et al.’s (2009a) ‘Planetary Boundaries Framework for Human Development’ that identified ‘a safe operating space for humanity’ based on nine environmental thresholds. The framework challenges previous assumptions of economic growth by acknowledging that human development is not possible if certain environmental needs are not met. In 2015, the United Nation’s General Assembly officially launched their 17 interconnected Sustainable Development Goals (SDGs) that were proposed as a social and ecological blueprint for humanity’s journey to 2030 (United Nations, 2016). The goals were widely celebrated by the international community for their ambitious targets “to end poverty and hunger everywhere; to combat inequalities within and among countries; to build peaceful, just and inclusive societies; to protect human rights and promote gender equality and the empowerment of women and girls; and to ensure the lasting protection of the planet and its natural resources” by 2030 (United Nations, 2016, p.3). However, there have been some criticisms of the SDGs, in particular by Raworth (2014), who argues that whilst the SDGs do provide much to celebrate, they lean too heavily towards the social elements of sustainability and, in their current form, would not ensure that we stay within Rockström et al.’s (2009a; 2009b) nine environmental thresholds.

Raworth’s (2017) ‘Doughnut of Social and Planetary Boundaries’ framework arguably strikes a better balance between the social and ecological elements of sustainability. Building on Rockström et al.’s nine environmental boundaries, Raworth’s ‘doughnut’ introduces twelve social foundations, for example health, education, income and work, and peace and justice. Raworth (2017) draws attention to the minimum social standards that should be met when pursuing sustainability and rejects the notion of endless growth that places us under threat of exceeding the environmental thresholds of the planet. Raworth’s definition, “a future that can provide for every person’s needs while safeguarding the living world on which we all depend” (2017, p.39), instead emphasizes the need to ‘thrive in balance’, acknowledging that all economic and societal activities must exist within the Earth’s natural planetary boundaries.

Whilst there are differences in their approaches, the argument Rockström et al. (2009a; 2009b), the United Nations General Assembly (2016) and Raworth (2017) all have in common is that our current structures, norms, beliefs, and ways of operating are unsustainable. In order to be truly sustainable, we must understand the interconnectedness of the systems that we live within and challenge our underlying assumptions about what we value and how we organize as a civilization. Such a drastic shift in how we understand and organize our natural resources, societies and economy requires changes in our beliefs, values and structures (Hueting, 2010). In other words, we need to learn to think and act in different and more sustainable ways. This paper adopts Probst and Büchel's (1997) definition of learning, defined in the introduction, as it is not specific to any one discipline, thus fitting with the interdisciplinary nature of our review. It also emphasizes the importance of learning not just for knowledge acquisition but for stimulating changes in values and behaviors. Learning, as a vehicle for changing values and behavior, is therefore a key ingredient for achieving the type of meaningful sustainability outcomes called for by Rockström et al. (2009a), the United Nations (2016) and Raworth (2017). However, most research on learning for sustainability is in the context of schools and universities (e.g., Muff, 2012; Sharma & Hart, 2014), with limited understanding of how learning for sustainability occurs in organizational settings.

### **Learning for sustainability in organizations**

There is the common misconception that learning only occurs in settings like schools and universities, however learning also occurs in workplaces, through social interactions, and lived experiences (Jeong et al., 2018; Lam, 2000). Learning is both a process that unfolds over time, i.e., enrolling in a training program, and an outcome of gaining insights from prior actions, i.e., reflecting on past projects (Rashman et al., 2009). This study focuses on learning that occurs outside of formal education systems as organizations play an important role in achieving sustainable development (Battilana & Dorado, 2010; Bansal, 2003). For example, corporations are predominantly responsible for the world's global CO<sub>2</sub> emissions. Governments, NGO's and other societal actors are largely responsible for holding corporations accountable for this (Nyberg & Wright, 2016; Sharma & Ruud, 2003; Brønn & Vidaver-Cohen, 2009). Understanding the role of learning for facilitating sustainability actions from the above organizations therefore has the potential to greatly impact future sustainable development efforts.

To understand the role of learning for sustainability we need to appreciate that learning occurs at and across the individual level (Edmondson & Moingeon, 1998), team level (Koeslag-Kreunen et al., 2018), organizational level (Bechky, 2003), and inter-organizational and network levels (Rashman et al., 2009). Whilst many researchers consider multi-stakeholder and inter-organizational learning as key for tackling complex sustainability challenges, this cannot happen without engaged individuals (Siebenhüner &

Arnold, 2007; Barth & Michelsen, 2013), teams (Molnar & Mulvihill, 2003), and organizations that embed their new knowledge into daily processes, practices and values (Senge & Carstedt, 2001).

At the individual level, learning is an essential first step for adopting more sustainable organizational practices as it facilitates new knowledge and expertise of sustainability issues that can then be shared from the individual to the organization (Prugsamatz, 2010; Camps & Majocchi, 2010). Individuals also play an important role in the effectiveness of team learning through adopting attitudes and behaviors that facilitate learning such as adaptability and openness to learning and change processes (Kozlowski & Chao, 2012). At the team level, learning allows for groups to grasp complex sustainability concepts and share skills, expertise and knowledge to tackle specific sustainability challenges (Molnar & Mulvihill, 2003; Senge & Carstedt, 2001). Finally, through having a combination of knowledgeable, adaptive and engaged individuals and teams, organizations are better prepared to embed sustainability policies, processes and values throughout their organization and networks (Teare, 1997; Bell et al., 2012). This paper therefore draws on four levels of analysis when looking at learning for sustainability: individual, team, organization and inter-organizational networks.

Many of the elements identified as important for learning in organizations are also important for sustainable development, as both organizational learning and sustainability require “a challenge to mental models, fostering fundamental change, engaging in extensive collaborative activity and, in some cases, revisiting core assumptions about business and its purpose” (Molnar & Mulvill, 2003, p. 168). As a result, many business and management scholars have sought to understand the relationship between learning in organizations and sustainability. Learning for sustainability in organizations has been studied from a variety of lenses. Management scholars have explored the learning processes that facilitate company sustainability outcomes and performance (e.g., Wicki & Hansen 2019; Oelze et al., 2016), the experiences and challenges of companies engaging in learning for sustainability (e.g., Molnar & Mulvill, 2003), and the internal and external drivers that influence sustainability learning processes (e.g., Müller & Siebenhüner, 2017).

One recent review paper looked specifically at the role of organizational learning in the context of CSR (Fortis et al., 2018). The authors proposed a conceptual framework that captured the macro-level learning processes that contribute to CSR development, including sources, processes and outcomes of CSR learning. Whilst insightful for business and management scholars, the authors highlight the need to go beyond disciplinary silos and encourage researchers in interconnected disciplines “to learn from each other by sharing knowledge, definitions and methodological approaches that have been

already tested within their respective areas regarding the OL (organizational learning) process" (Fortis et al., 2018, p. 294). Heeding this call, our paper extends knowledge of learning for sustainability within the business and management literature by drawing on insights from broader disciplines.

The concept of learning for sustainability is certainly not limited to business and management literature; many other disciplines have also acknowledged its importance. In the environmental sciences there is an abundance of literature on the organized learning processes of natural resource management projects (e.g., Wossen et al., 2013) or in responding to changing climate conditions (e.g., Madsen et al., 2019). In development and planning studies, research has explored collaborative learning approaches for building resilient municipalities and cities (e.g., Storbjörk, 2010). Similarly, in agricultural studies researchers have looked at the importance of learning in the uptake of sustainable farming practices (e.g., Kiptot & Franzel, 2019). Finally, the political sciences and transition management literature acknowledges learning processes as key for moving towards sustainable development (Kemp et al., 2007). Within these diverse literature streams are key insights into the processes, barriers and enablers of learning for sustainability that are relevant to business and management research and practice. This paper will analyze the conceptualization and operationalization of learning for sustainability from diverse disciplinary perspectives both within and beyond the field of business and management, to develop clear avenues of future business and management research.

## 2.3 Methods

### Literature Search Procedure

The present review follows Petticrew and Roberts's (2006) five steps method for executing systematic reviews in the social sciences. First, formulate the research questions, second define the search terms and the database(s) to be used, third identify inclusion and exclusion criteria, fourth evaluate the scientific quality of the selected articles using predefined quality criteria, and fifth analyze each paper in depth to answer the research questions.

### Database and Literature Search Terms

We used the Web of Science scientific database offering a rich source of over 34,385 journals, books, proceedings, patents, and data sets from across multiple disciplines (Web of Science Group, 2019). Several search term combinations were used. We started with the term "sustainability" and developed several synonyms for sustainability to capture similar terms commonly used across disciplines, including "green human resource\*", "CSR", "climate change", "creating shared value", "circular economy", and "SDGs".



To obtain articles that focus on learning at multiple levels across organizations, we used each of the above terms in combination with the following learning terms, “individual learning”, “professional learning”, “employee learning”, “staff learning”, “team learning”, “group learning”, “organizational learning”, “cross-boundary learning”, “network learning”, “collaborative learning”, and “Human Resource Development AND Training”.

Following previous literature reviews, the inclusion criteria focused only on articles published in scientific peer-reviewed journals and included ‘online first’ and ‘pre-publication’ articles. All other scientific publications, including books, book chapters and conference proceedings were excluded. The search included articles published from 1993 as this was the year after the milestone Rio Earth Summit where global actors committed to a comprehensive action plan on the environment, society and development. Data collection concluded on May 1, 2020. Articles had to be published in English with a full-text version available. Our search strategy resulted in 1,565 publications.

### **Selection Process**

The titles, abstracts, and when necessary, the methods section of all publications obtained from the search terms described above were read and the following exclusion criteria were applied:

1. Only articles that used learning in the context of sustainability, as defined above by the authors, were included.
2. Only articles that referred to learning from a work or business perspective were included. This included individual learning that took place within an organization and learning that took place as part of an organized network of people.
3. Only theoretical and empirical articles were considered. All other papers including opinion and review articles were excluded.
4. Only articles where learning was a focus of the study were included. Articles where learning was only a finding of the study, e.g., by formulating lessons learned, were excluded.

After applying the inclusion and exclusion criteria, 114 articles were selected for further analysis. While reviewing the full-text versions of the remaining articles against the above inclusion criteria, a quality check was also applied to evaluate the scientific quality of the empirical studies described (Gast et al., 2017). The quality of articles was checked using the 11-Point quality criteria detailed in Table 2.1, drawn from Petticrew and Roberts (2006). Each criterion was evaluated on a 3-point scale: 0, 0.5, or 1 point. For

articles to be included in the review, they had to have a score of at least 9 across the 11 criteria. After this quality check, 105 articles remained that were eligible for inclusion; 9 articles did not meet the 11-Point quality criteria. Figure 2.1 outlines the process and records the number of articles at each stage of the search process.

**Table 2.1 11-Point quality criteria**

Category	Quality criteria
General	1. Is the research objective clear? 2. Is the chosen method capable of finding a clear answer to the research question?
Selection sample	3. Were enough data gathered to assure the validity of the conclusions? 4. Is the context of the research clear (country, setting)?
Method	5. Do the authors state the research methods used? 6. Do the authors give an argument for the methods chosen?
Data analysis and findings	7. Are the data analyzed in an adequate and precise way? 8. Are the results clearly presented? 9. Is it clear how the data was used to formulate the findings?
Conclusion	10. Have the authors addressed the research question? 11. Are the limitations of the study detailed by the authors?

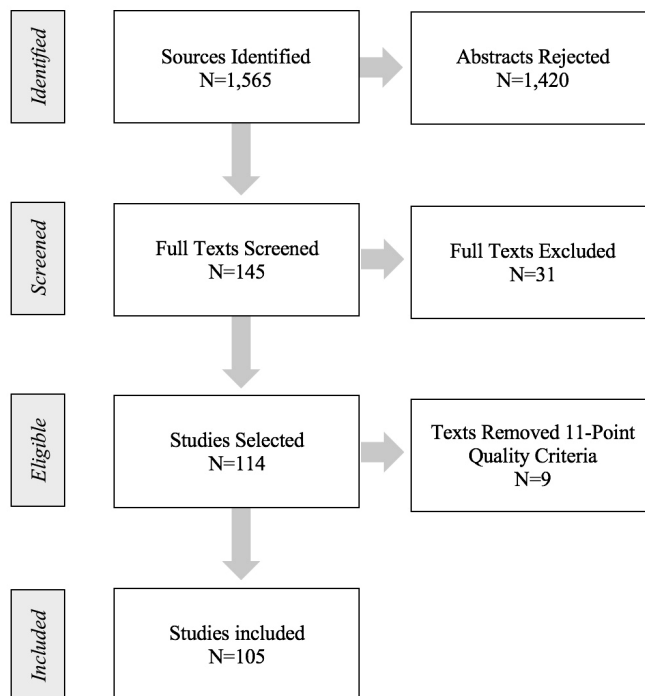


Figure 2.1 Flow chart of identified and included studies.

## Analysis

The 105 articles were read in-depth by the first author and analyzed using a combination of deductive and inductive coding methods. As it was a cross-disciplinary review study, the data analysis started by identifying the journal and discipline of each article. Disciplinary categories were determined by searching for the Journal via the Web of Science Journal Citation Reports. Articles were coded for the research topic, type of article (e.g., quantitative, qualitative), method used (e.g., questionnaire, interviews) and the focus and method of analysis. As the review was interested in learning within and across organizations, articles were then coded for the level of learning (e.g., individual, team), in line with Rashman et al. (2009). Similarly, following Senge and Sterman's (1992) seminal work on systems thinking and organizational learning, articles were also coded for the learning type (e.g., feedback, reflection). Barriers and enablers of learning were coded to understand the conditions in which learning is most effective across different disciplines and contexts. To capture the relevance of the learning insights for sustainability, the research context, motivation for learning and outcome of the study with regards to sustainability were also coded.

The first author proceeded to code a sample of 20 articles for the above themes. Through this process it became clear that an additional aspect was not captured in the analysis. Despite capturing the research context and motivation for learning with regards to sustainability, the sampling process revealed that motivation for learning had a stronger relationship with learning outcomes than was anticipated. Specifically, it became clear that motivation for engaging in sustainability projects could influence the type and level of learning adopted. We considered this in the second round of coding by capturing whether the paper was framing sustainability as an opportunity or something to be mitigated and adapted to. Once all authors had confirmed the new coding frame, the first author proceeded to analyze the full texts of all 105 articles. This resulted in five main themes which we detail in the following section. Table 2.2 offers a summary of the five themes, key findings and exemplar articles.

## 2.4 Findings

### Basic Characteristics of learning for sustainability research

Figure 2.2 shows that research on learning for sustainability has been growing in recent years. Sixty percent of all articles in our sample were published between 2016 and 2020. The rapid growth in publications during this time could align with the launch of the SDGs Global Framework on January 1, 2016, that has since been widely adopted by universities, governments and industry players across the world. Figure 2.2 also demonstrates that the majority of articles published on learning for sustainability come

from disciplines outside of business and management. Table 2.3 offers a more detailed break-down of the distribution of articles published in business and management, and sustainability sciences journals, showing that the most frequently published journals were *Sustainability*, with ten publications, and *Environmental Science and Policy* and *Journal of Cleaner Production*, both with eight publications. The higher rate of publications in *Sustainability* and *Journal of Cleaner Production* could be attributed to the fact that both are multidisciplinary journals that accept submissions from a broad spectrum of disciplines, including business and management. While the other journals are more disciplinary specific.

Table 2.3 also illustrates that most of the literature consists of qualitative studies, making up sixty-five percent of all articles. This focus on qualitative data is not surprising given that learning and sustainability are considered ambiguous concepts that can be defined and interpreted in multiple different ways (Barkemeyer et al., 2014; Hopwood et al., 2005; Ellström, 2010). It is therefore understandable that research on learning for sustainability is still in the exploratory and meaning-making phase that lends itself more to qualitative research methods (Elliot & Timulak, 2005; Mayring, 2014).

### **Instrumental vs. Reflexive Learning**

The literature showed that there were variations in the terminology used to conceptualize learning across all research disciplines, however the meanings were similar (van de Kerkhof & Wieczorek, 2004; Pallett & Chilvers, 2013; Pahl-Wostl, 2009). The first form of learning identified in the literature was when the objective was to fix a problem within existing structures and did not attempt to alter or challenge that existing structure (Restrepo et al., 2018). Several articles related this process to 'single-loop' learning (Wicki & Hansen, 2019; Pahl-Wostl, 2009; Restrepo et al., 2018), referring to Argyris and Schön's seminal works on organizational learning (Argyris, 1976; Argyris & Schön, 1974; 1978), whilst other articles referred to this process as 'instrumental' learning (Moyer et al., 2014; Lankester, 2013). The second form of learning was when fundamental world views and values were challenged and

Table 2.2 Summary of Findings

Theme	Key findings	Exemplar papers
1. Instrumental vs. reflexive learning	<ul style="list-style-type: none"> <li>- Reflexive learning key in sustainability contexts</li> <li>- Instrumental learning most frequently observed</li> <li>- Resourcing constraints and lack of structural support are key barriers for reflexive learning</li> </ul>	<p>Benson et al., 2016; Heikkilä &amp; Gerlak, 2019; Lee, 2019; Oelze et al., 2016; Willems et al., 2018; Yumagulova &amp; Vertinsky, 2019; Zeimers et al., 2019</p>
2. Beyond the organization	<ul style="list-style-type: none"> <li>- Diversity of perspectives in learning processes are essential</li> <li>- Outside of business and management, learning aimed at improving network or systems level outcomes</li> <li>- Within business and management, learning aimed at improving organizational or firm-level outcomes</li> </ul>	<p>Boyd &amp; Osbahr, 2010; Brummel et al., 2010; Lukman et al., 2009; Müller &amp; Slominsky, 2017; Oelze et al., 2016; Reddy et al., 2019; Stagl, 2007; Stubbs &amp; Lemon, 2001; Totin et al., 2018</p>
3. Short-term vs. long-term thinking	<ul style="list-style-type: none"> <li>- Long-term visions essential for embedding reflexive learning</li> <li>- Outside of business and management, longer-term time horizons observed (over a decade)</li> <li>- Within business and management, shorter-term time horizons observed (less than three years)</li> </ul>	<p>van de Kerkhof &amp; Wieczorek, 2004; Burchell &amp; Cook, 2008; Fisher et al., 2018; Kiptot &amp; Franzel, 2019; Lee &amp; van de Meene, 2012; Madsen et al., 2019; Zeimers et al., 2019; Zhang et al., 2018; Zhao et al., 2019;</p>
4. Power and participation	<ul style="list-style-type: none"> <li>- Most powerful actors shaped sustainability learning processes</li> <li>- Power came from greater access to resources, social power and hierarchy</li> <li>- Responses to power included rules and policies, delaying involvement of powerful actors, and awareness raising activities.</li> </ul>	<p>Ardichvili, 2013; Heikkilä &amp; Gerlak, 2019; Howlett et al., 2017; Müller &amp; Slominsky, 2017; Osagie et al., 2020; Pallett &amp; Chilvers, 2013; Storbjörk, 2010; Weissbrod &amp; Bocken, 2017</p>
5. Motivation for learning and action	<ul style="list-style-type: none"> <li>- Actors driven by competing, sometimes conflicting, motivations</li> <li>- Outside of business and management, initiatives motivated by environmental and/or social outcomes</li> <li>- Within the business and management, initiatives motivated by financial outcomes</li> <li>- Competing motivations impacted learning processes and outcomes due to mistrust.</li> </ul>	<p>Berthoin Antal &amp; Sobczak, 2014; Benson et al., 2016; Burchell &amp; Cook, 2008; De Giacomo et al., 2019; Halldórsson et al., 2018; Ingenbleek &amp; Dentoni, 2016; Lyra et al., 2016; Weissbrod &amp; Bocken, 2017; Wicki &amp; Hansen, 2019; Zhang et al., 2018; Zwetsloot, 2003</p>

NUMBER OF LEARNING FOR SUSTAINABILITY PUBLICATIONS OVER TIME

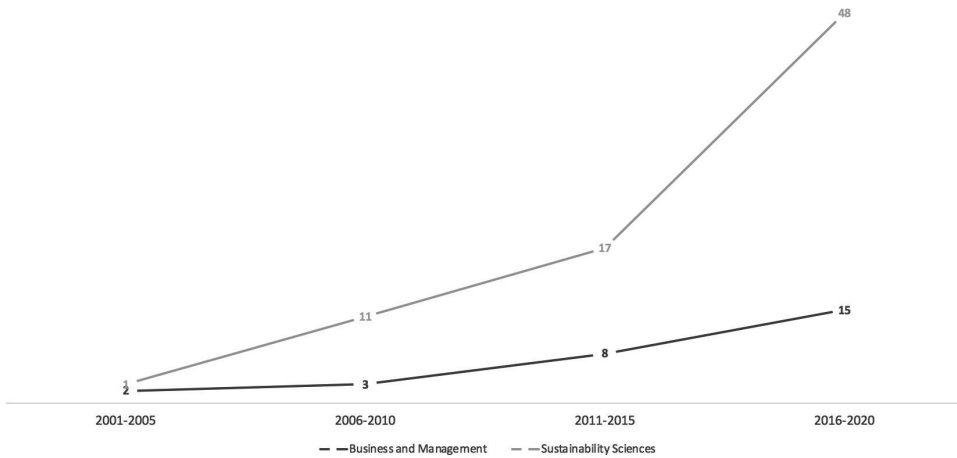


Figure 2.2 Number of Learning for Sustainability Publications Over Time

modified, not just behaviors, usually as a result of a particular experience and a process of reflection (Sol et al., 2018; Heikkila & Gerlak, 2019). This type of learning was described as both ‘double-loop’ learning, (Heikkila & Gerlak, 2019; Willems et al., 2018), again referring to Argyris and Schön, and ‘transformative’ learning (Pallett & Chilvers, 2013; Lankester, 2013). The third form of learning was ‘triple-loop’ learning, a concept inspired by Argyris and Schön’s earlier work on learning loops (Tosey et al., 2012), and is described as when processes are changed specifically to foster double-loop learning or learning how to learn within organizations (Totin et al., 2018; Heikkila & Gerlak, 2019). Boyd and Osbahr (2010) also referred to ‘multi-loop’ or ‘reflexive’ learning which was described by the authors as a combination of all previous forms of learning. One final observation on learning concepts that arose from the literature was the notion of ‘unlearning’. There were two distinct ways that ‘unlearning’ was described in the literature. Firstly, as a positive process whereby “firms eliminate old logic and make room for new ones” (Sinkula, 2002 as cited in Hasanudin et al., 2019, p. 1358; Oelze et al., 2016; Lozano, 2014). Secondly, as a negative phenomenon that occurs when “organizations seem to forget lessons learned” (Sánchez & Mitchell, 2017, p. 200).

Table 2.3 Academic Journals and Method Underlying Articles

Academic Journal	Articles	Theoretical	Quant.	Mixed	Qual.
1. Academy of Management Learning & Education	1				1
2. AMBIO	1				1
3. Advances in Developing Human Resources	2	1			1
4. Building Research & Information	1				1
5. Business & Society	1				1
6. Business Ethics, The Environment & Responsibility	1				1
7. Business Strategy & the Environment	3		1		2
8. Canadian Journal of Development Studies	1				1
9. Climate & Development	1				1
10. Climatic Change	3				3
11. Entrepreneurship and Sustainability Issues	1		1		
12. Environment & Planning A	1				1
13. Environment & Planning D: Politics and Space	1				1
14. Environmental Education Research	2			1	1
15. Environment, Development and Sustainability	1				1
16. Environmental Impact Assessment Review	1	1			
17. Environmental Innovation & Societal Transitions	2				2
18. Environmental Management	2				2
19. Environmental Science & Policy	8		1	2	5
20. European Sport Management Quarterly	1				1
21. Futures	2	1			1
22. Global Environmental Change	3	1		1	1
23. Global Environmental Politics	1				1
24. Human Resource Development Review	1	1			
25. Innovation: The European Journal of Social Science Research	1				1
26. International Journal of Agricultural Sustainability	1				1
27. International Journal of Climate Change Strategies and Management	1				1
28. International Journal of Lifelong Education	1				1
29. International Journal of Management Economics	1		1		
30. International Journal of Sustainable Development and World Ecology	2	1	1		

Table 2.3 Continue

Academic Journal	Articles	Theoretical	Quant.	Mixed	Qual.
31. Journal of Agricultural Science and Technology	1			1	
32. Journal of Business and Industrial Marketing	1				1
33. Journal of Business Ethics	2	1			1
34. Journal of Cleaner Production	8	2			6
35. Journal of Environmental Management	2			1	1
36. Journal of Environmental Planning and Management	4	1			3
37. Journal of Environmental Policy & Planning	2		1		1
38. Journal of European Public Policy	1				1
39. Journal of Management Development	1				1
40. Journal of Organizational Change Management	1	1			
41. Journal of Public Administration Research and Theory	1		1		
42. Journal of Purchasing & Supply Management	1		1		
43. Journal of Workplace Learning	1				1
44. Management Learning	1				1
45. Management & Organization Review	1		1		
46. Management Research Review	1		1		
47. Organization & Environment	3		1	1	1
48. Policy & Society	1				1
49. Policy Sciences	1				1
50. Public Health Reports	1				1
51. Risk, Hazards & Crisis in Public Policy	1				1
52. Safety Science	1				1
53. Sport in Society	1	1			
54. Sustainability	10	1	3	1	5
55. Sustainability Science	3				3
56. Sustainable Development	1	1			
57. Technological Forecasting & Social Change	1	1			
58. Waste Management and Research	1				1
59. Water (Switzerland)	2				2
	105	15	14	8	68



There was a shared understanding across all research disciplines that multi-loop or reflexive learning is required in the context of sustainability (Sol et al., 2018; Boyd & Osbahr, 2010; Totin et al., 2018; Pallett & Chilvers, 2013; Pahl-Wostl, 2009). However, studies from the environmental sciences and urban planning found that instrumental learning was much more frequently observed as organizations preferred to stay within their current structures and practices (Benson et al., 2016; Willems et al., 2018). For example, Willems et al. (2018) looked at the Dutch Transport and Infrastructure Authority during a time of structural organizational renewal and found that despite attempts to shift organizational culture and practices (double and triple-loop learning) to meet the growing complexity of the environment, researchers instead observed a refinement of existing organizational practices (single-loop or instrumental learning).

Common reasons for staying within current structures, were institutional structures themselves not supporting more systematic or disruptive change (Heikkila & Gerlak, 2019; Halldórsson et al., 2018), and resourcing constraints (Burchell & Cook, 2008). A lack of institutional structural support was observed either through organizational cultures that did not support multi-loop or reflexive learning processes such as learning from failure (Wicki & Hansen, 2019; Heikkila & Gerlak, 2019) and organization-wide adoption of acquired knowledge and skills (Zeimers et al., 2019; Yumagulova & Vertinsky, 2019). Similarly, many studies identified a lack of time and social capital as barriers to achieving double or triple-loop learning for sustainability (Oelze et al., 2016; Lee, 2019; Sánchez & Mitchell, 2017). This was particularly apparent at the network level, where learning processes relied on contributions from multiple organizations and representatives (Halldórsson et al., 2018; Boyd & Osbahr, 2010).

## **Beyond the Organization**

Two ways of understanding the level at which learning took place came from the literature; 1) where the learning *process* took place, and 2) where learning *outcomes* aimed to add value. As an example, Boyd and Osbahr (2010) conducted a comparative study of four government organizations in the UK and sought to understand how each captured informal and formal learning across their networks to better respond to climate change. The study found that although each organization relied on the same networks and information (*processes*), their ability to capture the value from learning *outcomes* varied substantially across the four organizations dependent on factors relating to organizational culture and resourcing (Boyd & Osbahr, 2010).

Across all research disciplines, it was apparent that diverse perspectives were desirable in sustainability learning processes (Totin et al., 2018; Stubbs & Lemon, 2001; Berthoin Antal & Sobczak, 2014; Stagl, 2007). Despite the occasional focus on individual learning

(Lankester, 2013; Moyer et al., 2014; Rietig & Perkins, 2018), it was much more prominent for studies across all disciplines to look at learning from team (Kiptot & Franzel, 2019; Lozano, 2014), organizational (Zhang et al., 2018; Benn et al., 2013) and inter-organizational network (Bachofen et al., 2015; Lee, 2019; Fisher et al., 2018; Axelsson et al., 2013) levels. Research outside of business and management predominantly examined learning processes with the aim of improving *network* level outcomes and responses to sustainability (e.g., Müller & Slominsky, 2017; Lukman et al., 2009; Brummel et al., 2010). However, the business and management literature, with only a few exceptions (e.g., Ryan et al., 2012; Benn et al., 2013; Scully-Russ, 2015), predominantly examined learning with the aim of improving *organizational-* or *firm-level* outcomes and performance (e.g., Berthoin Antal & Sobczak, 2014; Zwetsloot, 2003; Oelze et al., 2016; Reddy et al., 2019).

The above findings suggest that research outside of business and management is understanding sustainability from a systems level perspective, evidenced by the aim of improving multiple actors' capacity to respond to sustainability. However, business and management scholars continue to view learning for sustainability through their own disciplinary silo; where acquiring new skills and knowledge is considered valuable but largely for its ability to improve firm performance.

### **Short-term vs. long-term thinking**

Given the complexity of sustainability, it is important to have a long-term vision for sustainability projects as it allows for embedding reflexive and multi-loop learning processes (Zhang et al., 2018). Many studies from research outside of business and management focused on projects with longer-term time horizons, often over a decade (Kiptot & Franzel, 2019; Fisher et al., 2018; Lee & van de Meene, 2012). Van de Kerkhof and Wieczorek (2004) argue that anything less than a 30-year vision for sustainability projects limits the creativity of solutions, as people remain confined by current political and social landscapes. In the business and management literature however, sustainability projects generally had a much smaller timeframe, often less than three years (Berthoin Antal & Sobczak, 2014; Burchell & Cook, 2008; Zeimers et al., 2019). Further, projects were often presented through the lens of cost-benefit (Zhao et al., 2019; Madsen et al., 2019) that are inherently dictated by annual performance reviews and measures. This short-term thinking by the business sector can be seen as a major challenge for embedding reflexive and multi-loop learning processes, and transitioning from small-scale, incremental sustainability responses to more radical and innovative solutions.

### **Power and participation**

The literature showed that power relations have great influence in shaping organizational culture around sustainability (Ardichvili, 2013), and it was often the most powerful actors in the learning process that shaped the outcomes of sustainability projects

(Howlett et al., 2017; Weissbrod & Bocken, 2017; Storbjörk, 2010; Muller & Slominski, 2017). The three main sources of power consisted of greater access to resources, social power, and hierarchy. In development and planning studies, the biggest and wealthiest cities had greater decision-making influence and received the most funding and support (Lee, 2019; Lee & van de Meene, 2012). In conservation and natural resource management studies, social power was demonstrated by the exclusion of marginalized indigenous actors in decision-making processes (Heikkila & Gerlak, 2019; Yumagulova & Vertinsky, 2019). Social power was also demonstrated in transdisciplinary research projects within the social sciences where it was found that researchers, due to their higher social and educational status, would often intimidate other actors and impact the group's ability to establish shared mental models and visions (Ely et al., 2020; Roux et al., 2017). In business and management studies, top leadership determined a project team's course of action and overall performance measures (Osagie et al., 2020; Weissbrod & Bocken, 2017; Pallett & Chilvers, 2013).

Responses to these power imbalances ranged from embedding rules and policies around participation and decision-making processes (Heikkila & Gerlak, 2019) to strategically timing when top leadership were brought in to review a project (Weissbrod & Bocken, 2017). Ardichvili (2013) drew specific attention to the role of HRD for managing power dynamics within organizational sustainability initiatives by HRD managers leading activities "focused on raising awareness of issues of power and power interrelationships between organizational players" (p. 470).

### **Motivation for learning and action**

The analysis suggests that actors from different sectors are driven by competing, sometimes conflicting, motivations when engaging in learning for sustainability. Initiatives examined in the literature outside of business and management were mostly motivated to engage in sustainability learning by achieving environmental or sustainability outcomes, i.e., preparing for climate change and other extreme events (Boyd & Osbahr, 2010; Zhang et al., 2018; Benson et al., 2016). However, initiatives from within the business and management literature were mostly motivated to engage in sustainability learning by minimizing risks and maximizing profits (Zhao et al., 2019; Weissbrod & Bocken, 2017; Zwetsloot, 2003). New or threatened government regulation (De Giacomo et al., 2019; Zwetsloot, 2003), increased pressure from stakeholders (Ingenbleek & Dentoni, 2016; Berthoin Antal & Sobczak, 2014) or market predictions (Wicki & Hansen, 2019; Wossen et al., 2013) were observed as the biggest 'triggers' for businesses engaging in learning for sustainability.

The literature revealed that a common outcome of competing motivations among participants in multi-stakeholder learning processes was mistrust (Lyra et al., 2016;

Burchell & Cook, 2008). Tension and mistrust were observed as a result of actors having competing motivations or aims for participating in sustainability initiatives, i.e., business stakeholders predominantly prioritizing financial outcomes and not-for-profits and government predominantly prioritizing environmental or social outcomes (Burchell & Cook, 2008; Lyra et al., 2016). Trust, and its role in facilitating dialogue, was found to have great influence over the effectiveness of learning processes, and even the success of entire sustainability initiatives (Halldórsson et al., 2018; Müller & Slominsky, 2017; Rietig & Perkins, 2018). Thus, illustrating the important role that motivation and trust can play in collaborative and multi-stakeholder sustainability initiatives.

## 2.5 Discussion and research agenda

In this section, we look specifically at learning for sustainability from a business and management perspective. We consider key insights obtained from other fields as a starting point for describing pressing challenges companies face when learning for sustainability. Broader implications of this work for future business and management research and practice are summarized into two key propositions. Table 2.4 summarizes our research agenda for future business and management research on learning for sustainability.

### Reflexivity in practice and research

Our findings suggest that achieving meaningful sustainability solutions requires time to embed sustainability values throughout teams, projects, organizations and networks. Specifically, sustainability requires time for reflective and reflexive learning. There are various definitions of reflective and reflexive learning, and whilst there are some similarities between the two concepts there are also clear distinctions (Cotter & Cullen, 2012). Reflection as a practice is the process whereby an individual reflects *back* on an experience or event (Roulston et al., 2008) and reflective learning is the act of objectively reflecting on our own actions or concepts of self (Cunliffe, 2004; Cotter & Cullen, 2012). The importance of reflection in learning for sustainability was raised consistently in the literature. Whilst this process of (self-)reflection is indeed an essential component for progressing toward sustainability, Cunliffe (2004) argues that we must take reflection a step further, to reflexive learning, and consider the broader social constructs that shape the realities in which we exist and act, in order to change them. Reflective learning is therefore considered a necessary step toward 'reflexive learning', and 'reflexive learning' a necessary step toward more radical and meaningful responses to sustainability. However, recent literature suggests that there is no guarantee that even reflexive learning will lead to positive outcomes for sustainability. Sharp and Threadgold (2020) introduced the notion of 'reflexive complicity' in their study on gender marginalization, stating that:

“reflexive complicity is performed when one knows about unequal social relations or forms of marginalization, can observe them and claim to want things to change, but there are no significant changes in practice by the individual and little effort to engage in situational interventions that make a difference” (p. 619-620).

Table 2.4 Summary Research Agenda

Theoretical focus	Phenomena	Research question
Critical reflexive learning	Relationships between reflexive complicity, critical reflexive learning and sustainability outcomes. (1)	<ul style="list-style-type: none"> <li>-How does reflexive complicity and critical reflexive learning shape sustainability outcomes?</li> <li>How can organizations and multi-stakeholder initiatives promote critical reflexive learning?</li> </ul>
	Complicity and motivation for reflexive learning (1,5)	<ul style="list-style-type: none"> <li>- How does motivation shape complicit versus critical engagement with reflexive learning for sustainability outcomes?</li> </ul>
	Time and reflexive learning (1,3)	<ul style="list-style-type: none"> <li>How does time in longer-term sustainability initiatives influence critical reflexive learning and sustainability outcomes?</li> <li>What incentivizes businesses to take a longer- rather than a shorter-term time horizon when developing their sustainability initiatives?</li> </ul>
	Reflexive complicity (1,5)	<ul style="list-style-type: none"> <li>- When and how is reflexive complicity being observed in business and management sustainability activities?</li> </ul>
Power and value	Complexity of power relations in collaboration processes (2,4)	<ul style="list-style-type: none"> <li>- How does power influence learning processes and outcomes in multi-stakeholder and/or transdisciplinary sustainability projects?</li> </ul>
	Education and training activities for raising awareness of power dynamics in sustainability initiatives (4)	<ul style="list-style-type: none"> <li>- What education and training activities are most effective for raising employee awareness of power imbalances in corporate sustainability initiatives?</li> </ul>
	Relationships between entrenched power structures, decision-making, and learning processes (4)	<ul style="list-style-type: none"> <li>- How do decision-making practices shape learning processes in sustainability projects?</li> </ul>
	The passive participants in learning and decision-making processes (2,4)	<ul style="list-style-type: none"> <li>- What are the determinants of active versus passive engagement in sustainability initiatives?</li> </ul>
	Relationships between value, single/double/triple-loop and reflexive learning, and responses to sustainability (1,4)	<ul style="list-style-type: none"> <li>What will enable businesses to engage diverse voices from within and across organizational boundaries in their sustainability initiatives and decision-making?</li> <li>- How do diverse perspectives on value, and different types of learning, shape responses to sustainability?</li> </ul>

After each phenomenon proposed for future research, numbers are listed in parentheses that relate to the themes from the literature review findings, as presented in Table 2.2.

The term 'reflexive complicity' could explain the dilemma we observe in business, where the issue of sustainability is acknowledged, and there are claims of wanting to change to address it, but we continue to see a lack of meaningful actions to address the issues. This dilemma suggests that it is not just reflexivity itself that is important for achieving meaningful sustainability outcomes, but our motivations for engaging in reflexivity are equally important. If the motivation for businesses engaging in sustainability is to identify threats, appease stakeholders and maintain the status quo rather than find meaningful sustainability solutions, then reflexivity will likely result in business-as-usual responses. On the contrary, reflexivity that is motivated by achieving meaningful sustainability solutions could arguably lead to more radical responses. In Cunliffe's more recent work (2016), she refers to critical reflexive learning and describes the process as "examining our own assumptions, decisions, actions, interactions, and the assumptions underpinning organizational policies and practices and the intended and potentially unintended impact" of them (p. 741). This combination of self- and critical- reflexivity aligns with our understanding of what is required for more meaningful responses to sustainability; thereby challenging the existing structures, policies and practices that support unsustainable behaviors and actions from individuals and organizations. Critical reflexivity around company sustainability values and motivations, and the systems that these exist within, may help in overcoming reflexive complicity in company sustainability responses. The concept of 'reflexive complicity' itself could also benefit from further empirical investigation within the context of business sustainability to determine when and how the phenomenon is observed in practice.

Future business and management research could benefit by exploring the complex relationships between company motivations, reflexive complicity, critical reflexive learning and sustainability outcomes. As company motivations were also found in the literature to be a point of tension between actors in multi-stakeholder initiatives for sustainability, outcomes from further research on critical reflexive learning and motivations could be used to better prepare stakeholders for more trusting and fruitful collaborations in practice.

Findings from our review show that business and management research often focused on proving or exploring relationships between learning activities and performance or product innovation outcomes, rather than sustainability outcomes. In practice, it was found that businesses were slowed in their progress toward sustainability due to a business-as-usual lens on value, however the tendency for business and management scholars to motivate their research through outcomes of firm performance could be argued as the same dilemma. Motivating business and management research on learning for sustainability by the potential benefits to firm performance i.e., competitive advantage and product innovation, only reinforces the same business-as-usual value

structures that prioritize the firm over all else. This framing of the firm over all else perpetuates the idea that sustainability is a secondary consideration for businesses, after profits, and allows for slow and incremental responses to sustainability challenges. Cullen (2020) drew similar conclusions in his review of the responsible management literature stating that there was a “need for business schools to resolve the tension between capitalism and social/environmental responsibility” (p. 768). Our findings align with those of Cullen (2020), in suggesting that researchers, especially those operating in a business school context, may have the same tendencies toward reflexive complicity as practitioners.

We therefore join the growing body of researchers who are calling for more reflexive scholarship when it comes to sustainability (Ardichvili, 2013; Laasch et al., 2020; Schaefer et al., 2015; Shrivastava et al., 2013). We encourage researchers to engage in critical reflexivity and challenge the underlying assumptions and approaches that have traditionally been applied to research on learning for sustainability, which has largely adopted a causal approach to understanding relationships between sustainability, learning and firm performance. We argue that deeper and more critical reflection is needed on the actions required for meaningful sustainability outcomes and the societal or systemic structures that enable or limit these actions. For example, one fundamental concern that arose from the literature is the need for businesses to adopt longer-term time-horizons when developing their sustainability initiatives. Longitudinal studies with companies or multi-stakeholder initiatives that have adopted long-term strategies for sustainability could therefore be conducted to understand the evolution of learning processes that facilitate these strategies over time. Engaging in critical reflexive learning, as researchers, and allowing sustainability outcomes to motivate our research rather than firm performance could be a key component for a more radical transition towards sustainability.

### **Broadening our understanding of power and value**

Our review revealed that organizations are increasingly engaging in inter-organizational and network-level collaborations with diverse actors to tackle sustainability challenges. This increase in the diversity of actors collaborating on sustainability projects impacts the complexity of learning processes. The literature showed that for sustainability collaborations to be successful, all actors must feel comfortable and supported to speak up and participate in the group learning process as it is vital for establishing shared mental models, problem definitions and shared goals/visions. However, our review found that power imbalances directly impacted the level at which certain actors felt comfortable to participate and voice their opinions in collaborative learning processes.



The literature on power could help to explain why businesses that broaden the range of actors in their sustainability activities also experience greater complexity in learning processes (Brennan & Tennant, 2018). As an example, embedding sustainable practices across a company's supply chain often results in open dialogue and inquiry with community representatives in countries where the company's raw materials are sourced. Findings from the research outside of business and management revealed that engagements of this kind commonly saw participants who were from a vulnerable or marginalized population (Heikkila & Gerlak, 2019), did not speak the same 'language' as those leading the learning process (Lee & van de Meene, 2012) or were less educated (Roux et al., 2017). All of which were found to influence the power dynamics within group learning processes and reduce the level of participation and engagement required for meaningful sustainability action. To better understand the role of power in learning processes for sustainability, future business and management research could benefit by focusing on the increasingly complex ways that power influences learning processes and outcomes in collaborative sustainability projects. Building on research from Ardichvili (2013), future research could also explore the ways in which learning, through education and training activities, can be used to minimize the effects of power in sustainability initiatives. Understanding power in learning processes, and the role of learning processes for raising awareness of power relations, will be particularly important as we observe more networked and multi-stakeholder initiatives for sustainability. Similarly, we reiterate the need for more engaged, networked and international research collaborations on learning for sustainability. The complexity and far-reaching impacts of sustainability challenges requires a broadening of our thinking that goes beyond firm-level responses and disciplinary silos.

Our review also identified power as a factor influencing decision-making processes in sustainability projects. It showed that decision makers on sustainability projects were largely members of senior and executive management, and the sustainability responses they pursued were mostly instrumental. The literature on power and decision making could help to explain this relationship as a 'mobilization of bias', defined as "a set of predominant values, beliefs, rituals, and institutional procedures that operate systematically and consistently to the benefit of certain persons and groups at the expense of others" (Bachrach & Baratz, 1970 as cited in McCright & Dunlap, 2010, p. 106). Mobilization of bias means that the powerful actors, in this case senior management, are able to set the agenda for the sustainability issues that align with their interests and prevent actions on sustainability issues that challenge their interests (McCright & Dunlap, 2010).

Our review suggests that alternative ways of measuring the success of management, sustainability projects and companies could free up managers to invest in critical reflexive learning processes that align with longer-term and more radical responses to

sustainability. Future business and management research could therefore explore how we have traditionally understood value in companies and how this relates to critical reflexive learning. In addition, supportive research could explore the types of learning observed in companies that successfully foster more radical responses to sustainability and the value structures that helped to support these processes. This calls for exploring how organizations can change entrenched power structures in decision-making. To conclude, establishing a broader understanding of how businesses can value and engage diverse voices in their sustainability initiatives and decision-making could offer a fruitful avenue for future research on sustainability.

### **Limitations**

Several limitations to this research need to be noted. First, data used for this review were limited to English language journal publications and did not include books, book chapters or conference proceedings. Given the global nature of sustainability, and the fact that current research is dominated by European and North American perspectives, future studies should also engage with researchers and study participants from diverse cultural backgrounds who are embedded in areas most affected by sustainability issues. We propose this could be done in two ways; 1) expanding future review studies to include articles published in languages other than English, and 2) conducting empirical studies on learning for sustainability that aim to capture insights from under-represented populations. Second, there is a potential bias in the key-search terms used for data collection. To narrow the search down, a decision was made to use terms related to the level where learning took place, i.e., 'team', 'organization', 'network' learning. After reviewing the literature, it became clear that there were other forms of learning descriptors that could have broadened the articles reviewed, for example types of learning i.e., 'social' learning, 'participatory' learning, 'transformational' learning. Despite our review still capturing literature on these learning types, extensions of this review could re-examine the key-search terms used to ensure the breadth of learning types are captured from across all research disciplines. Finally, in the space of just five years (2016-2020) there was a 60% increase in publications on learning for sustainability across disciplines. Whilst this is not a limitation to our study, this trend in publication growth signifies the rapidly evolving nature of learning for sustainability as a field of study. To capture future insights and understandings of learning for sustainability, it could be advantageous to conduct similar cross-disciplinary literature reviews on learning for sustainability on a regular basis.

## 2.6 Concluding remarks

Current research has focused on disciplinary-specific approaches to learning for sustainability. Our review aligns with calls from prior research for cross-disciplinary and multi-stakeholder approaches to sustainability. It offers a deepened understanding of the challenges organizations and multi-stakeholder initiatives face when learning for sustainability, including entrenched power relations, and traditional decision-making and value structures. We introduce 'reflexive complicity' as a conceptual lens for understanding the slow progress we see in societal responses to sustainability challenges. We argue that to overcome these challenges, and realize meaningful sustainability outcomes, more critical reflexive learning is needed on what motivates engagement with sustainability from academia and practice. Shifting how we motivate business and management research on learning for sustainability, in a way that prioritizes sustainability outcomes over firm performance, could allow for more engaged and transdisciplinary research collaborations and bring us a step closer to understanding how to embed critical reflexive learning processes into businesses. Similarly, breaking patterns of reflexive complicity from key actors in businesses could also see a shift towards more radical and long-term responses to sustainability in practice.

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**CHAPTER 3**

**3**  
**EMBARGOED**

# Chapter 3. Framing strategic responses to climate change: A longitudinal frame analysis of energy company climate reporting

Feeney, M., Gijssels, H., Mertens, P., & Grohnert, T. (2023). Framing strategic response to climate change: A longitudinal frame analysis of energy company climate reporting. *Academy of Management Annual Meeting, Boston, USA, August 2023.*

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**CHAPTER 4**

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# Chapter 4. How organizational actors in the energy transition become complicit in climate inaction: Taking a reflexive complicity perspective

Feeney, M., Gijssels, M., Mertens, P., & Grohnert, T. (2023). Reflexive Complicity as a form of climate denial: How organizational actors in the energy transition become complicit in climate inaction. *39th EGOS Colloquium, Cagliari, Italy, July 2023. (Under review).*

**CHAPTER 5**

**5**  
**EMBARGOED**

# Chapter 5. Radical organizational identity change and member's identification: Identification trajectories in the European energy sector

Feeney, M., Gijzeners, V., Martens, P., & Grohnert, T. (2023). Radical Organizational Identity Change and Member's Identification: Identification Trajectories in the European Energy Sector. *Academy of Management Annual Meeting, Boston, USA, August 2023.*



**CHAPTER 6**



## Chapter 6. Conclusion



“We can’t save the world by playing by the rules, because the rules have to be changed. Everything needs to change, and it has to start today.”

- Greta Thunberg, *Climate Activist*

## 6.1 Overview of this Dissertation

Climate change is considered an existential threat to humanity (United Nations, 2022). While there are significant implications for the natural world from climate change, like biodiversity loss, threatened species and ocean acidification (Rockström et al., 2009), the planet will likely adapt and survive to the human-induced damages and climatic changes we are observing. As demonstrated by the ‘rewilding’ of the long-desolate landscapes where the Chernobyl nuclear disaster took place in 1986 (United Nations Environment Programme, 2020). The flourishing return of wildlife to the Chernobyl site is just one example to show that the planet can adapt and survive in even the most extreme conditions, but the same may not be true for humans. There is a general agreement that to maintain a safe and livable planet, we should not exceed 1.5 degrees Celsius of global warming above pre-industrial levels (United Nations, 2022). However, even with the current climate policies in place around the world, we may still be on track to reach 2.7 degrees Celsius above pre-industrial levels by the turn of the century (Climate Action Tracker, 2022). This is largely due to our reliance on energy sourced primarily by fossil fuels (Ritchie & Roser, 2020) for advancing human development (Ouedraogo, 2013). Society therefore finds itself in an interesting conundrum where in a quest to improve living standards and quality of life, we are developing ourselves toward potential extinction.

When put that simply, that we as society are largely responsible for our own potential extinction, one can’t help but wonder how we can know all that we do and continue making choices that lead us down a path toward self-destruction. For a long time, the explanation for this was a simple one - we didn’t know the reality of the situation. This could be viewed either as a result of not having enough information to spark public concern – known as the information deficit model (Bulkeley, 2000), or people in powerful positions who benefit from our unsustainable ways suppressing information about the severity and likelihood of climate change and the role of fossil fuels in contributing to this (McCright & Dunlap, 2003). For example, reports that show Exxon Mobil had conducted their own research on climate change decades ago and rather than act on it, instead funded research that would intentionally mislead and create uncertainty around the climate science that they knew to be true (Supran et al., 2023). Whilst power imbalances and traditional value structures of prioritizing profits still exist today as a key challenge for responding to climate change, as illustrated through various chapters of

my dissertation, society has also experienced a shift in thinking where climate change is now gaining the attention and urgency that it deserves. This is evident in the increased calls for action by civil society, governments, and corporations.

Civil society groups like 'Fridays for Future', 'Extinction Rebellion', and 'Just Stop Oil' have propelled climate change onto our TV's and smartphones with their, often controversial, demonstrations. Whether one agrees with the group's tactics or not, their actions have increased global public engagement and debate over climate change. At the same time, there has been an ever-increasing stream of news headlines and images that show the catastrophic impacts of climate change around the world. For example, the devastating floods across Pakistan that showed millions of people losing their homes, livelihoods and loved ones (Goldbaum & ur-Rehman 2022), or the severe drought across parts of Europe whereby dried up rivers and dams exposed ancient artefacts (Whiting, 2022). All of which paint a clear picture of climate emergency and capture the attention of global populations, who in turn place mounting pressure on governments and corporations to act. In response, there have been increasingly bold commitments to act on climate change, with some of the biggest and most influential governments and corporations committing to net zero carbon emissions by 2050, if not earlier (United Nations, 2022). While this is incredibly positive to see, fears remain that we will not meet the moment and find meaningful solutions to climate change in the needed timeframe. Because despite all we know, progress toward climate change remains slow (United Nations Framework Convention on Climate Change, 2022). This signals the complexity of undergoing sustainability transitions and suggests that it takes more than just a desire to act to find meaningful solutions to complex sustainability issues.

To understand more about the challenges – and opportunities – that corporations and governments face when making sustainability transitions, I asked the overarching research question of 'how do organizations and individuals understand and respond to climate change?'. To answer this, I conducted four studies that sought to:

- 1) identify the barriers different organizations face when collaborating and learning to respond to sustainability challenges,
- 2) understand the different ways that energy companies (key contributors to climate change) frame climate change and how this relates to their climate actions,
- 3) explore the ways that individuals working in the energy transition (a key solution to climate change) justify climate change inaction, and

4) unpack how responding to climate change can alter, challenge, or confirm individual and organizational identities and the ways this can impact organizational sustainability transitions.

By conducting the above four studies, I found several key insights that contribute to answering my dissertation's research question of how organizations and individuals understand and respond to climate change. I also identify several challenges and opportunities that organizations face in doing so. The findings of each study are summarized below and when relevant connections are made between the four studies' findings.

Study 1 explored the role of learning in organizational responses to sustainability by conducting a cross-disciplinary review of the literature. The findings of this study draw attention to the critical role of cross-sector collaborations for finding meaningful solutions to sustainability challenges due to their ability to bring together diverse perspectives and resources. The findings also identify several key aspects that hinder effective sustainability collaborations, including actors being driven by different, sometimes conflicting, motivations and more powerful actors dominating learning and decision-making processes. Unlike other disciplines and sectors, business and management researchers and practitioners have the tendency to prioritize firm performance over sustainability outcomes. I relate this to McCright and Dunlap's (2010) concept of mobilization of bias, whereby the more powerful actors set the agenda for the sustainability issues that align with their interests and prevent actions on sustainability issues that challenge their interests. As the more powerful actors in business and management have the tendency to prioritize firm performance over sustainability outcomes, the result is a continuation of business-as-usual rather than meaningful action on sustainability issues like climate change. I suggest that engagement with critical reflexivity and the related challenging of existing and unsustainable systems is necessary for responding to climate change, however changes to these systems will only eventuate when the actors responsible for defining them allow it. If business and management researchers and practitioners continue to hold onto traditional value structures that prioritize short-term profits over sustainability outcomes, business as usual responses to sustainability challenges will continue to be the norm. In borrowing the concept from Sharp & Threadgold (2020), I describe this tendency to fall back on business-as-usual responses as 'reflexive complicity', whereby actors are aware of an issue, claim to want to make changes to address the issue, but then take no meaningful action to do so. The concept of reflexive complicity perfectly captures what I observed throughout the literature in study 1, where business and management researchers and practitioners claim to want to act on sustainability challenges – and for all intents and purposes truly want to make an impact – however due to a tendency to stick to existing structures and norms fail to produce meaningful actions.

Study 2 explored how ten European energy companies, some of the world's largest emitters of greenhouse gases, have understood and responded to climate change from 2010-2019 based on their annual sustainability and climate reports. I propose a new framework (The Climate Framing Framework) that identifies four inter-related frames ('business case', 'moral responsibility', 'disclosure' and 'technological') that energy companies in my sample use to make sense of and respond to climate change. I then illustrate the actions that align with these four dominant frames and how energy company framing evolves, stagnates or rewinds over time. My findings show that there was a shift toward disclosure frames by the end of the decade. I present this as an encouraging sign that international agreements like the Paris Climate Agreement and the SDGs, as well as growing public awareness and scrutiny of corporate actions, are being felt and responded to by energy companies. Despite the adoption of disclosure frames, I also observed a continuation of business case framing of climate change by most energy companies in my sample, whereby acting on climate change was valued for avoiding financial risks or capitalizing on future opportunities. To meet the ambitious carbon neutral by 2050 targets made by organizations across different industries and sectors, I propose that a shift from business case frames to moral responsibility frames - and the more radical actions that align with this - are required. Finally, leadership was also found to play a key role in shaping and determining energy company responses to climate change. As leaders are shaped by their past experiences and bring these experiences with them to their new role and company (Kim & Toh, 2019), I propose that more attention should be paid to hiring and recruitment processes that prioritize past career experiences in dealing with sustainability and climate change. Study 2. demonstrates the diversity of stakeholders that energy companies are required to consider when determining their climate change framing and responses, including civil society groups, policymakers, the natural environment, communities, and their shareholders and investors. This diversity of stakeholders explains the increase in disclosure frames by the end of the decade, as companies attempt to demonstrate the various ways that they are addressing diverse stakeholder concerns. However, the tendency for most of the energy companies I examined to also stick to business-case frames by the end of the decade suggests that responses to climate change are still largely dictated by the needs of shareholders and investors.

Study 3 explored how 34 actors contributing to the European energy transition explain and justify organizational climate change inaction. My findings show that actors in the energy transition are aware that action on climate change is needed, however despite clear intent to act on climate change, actors instead engage in creative justifications that result in reflexive complicity and inaction. In explaining climate inaction across the energy sector, actors regularly distanced themselves from other actors and shifted responsibility and/or blame away from themselves. This suggests that at a time when

collaboration is essential for finding meaningful solutions to climate change (detailed in study 1), many actors are instead observed to be distancing themselves from others. Study 3 also identifies the ways that actors slow or avoid decision-making for climate change to avoid the many trade-offs these decisions require. My findings show that many actors draw on issues of virtue and morality to avoid making trade-offs that result in restrictive measures and impose short-term discomfort on their stakeholders. These findings illustrate the ways that many actors across the energy sector grapple with finding solutions to climate change that satisfy the diverse perspectives involved. I suggest that actors may benefit from drawing attention to this dilemma and discussing collaboratively how the burden of decision-making can be shared amongst actors (i.e., governments and corporations). Resolving the tendency of actors to avoid trade-offs and shift responsibility and blame to others is essential for finding meaningful responses to climate change, as up until now they have allowed for the continuation of business-as-usual responses to climate change - a recurring theme of this dissertation.

Study 4 explored how radical organizational identity change in the energy sector influences individual organizational identification over time. Based on interviews with 34 actors contributing to the European energy transition, I formulate five identity archetypes: 1) the early adopters, 2) the committed critics, 3) the transformers, 4) the resisters, and 5) the dreamers. I then illustrate the identification trajectories of these five identity archetypes and the implications of these trajectories on the members themselves, other members of the organization, and the organization's ability to achieve their aspirational identity. My findings show that many of the participants expressed feeling positive about their organization's ability to meet Net Zero ambitions by, at the very minimum, 2050. However, to reach these ambitious targets, many organizations must undergo radical changes to their strategy and identity. For most, this transition to the new identity is a positive experience as it brings closer alignment between their own personal values (i.e., taking action on climate change) and those of their organization. This can be viewed as a very positive indication that there is growing 'grass-roots' level support from within organizations to take bold steps in solving climate change. However, my findings also show that for others, who are more aligned with the organization's past and have developed skills and expertise that were highly valued by the past organization, radical change can result in uncertainty, insecurity, and fear. If individuals in an organization do not align with the aspirational identity, they can actively work to slow or challenge the new identity and subsequent changes in strategy. What this suggests is that while I (and many others, e.g., Metcalf & Benn, 2013; Çop et al., 2021) have identified leadership as an essential component of embedding sustainability into organizations (detailed in study 2), the alignment of sustainability values between an organization and its members are equally important. This is supported by the literature on person-organizational fit, that draws similar conclusions about the importance of alignment between organizations



and their members for achieving cultural and strategic goals (e.g., Al Halbusi et al., 2021; Afsar & Badir, 2016). Through identifying archetypical responses to radical identity change in select European energy companies responding to climate change, it is hoped that my findings will signal to management the importance of employees aligning with their organization's aspirational identity and provide useful suggestions for identifying and managing the diversity of employee responses to radical organizational change.

## 6.2 Theoretical Contributions

This dissertation makes several theoretical contributions to the literatures on learning and sustainability, framing, reflexivity and organizational identity. Many of these contributions stem from the cross-disciplinary nature of my research whereby I capture insights from diverse disciplines (study 1), or apply concepts traditionally explored by other research disciplines to organizational contexts (study 3). This cross-disciplinary research approach is particularly relevant given the multiple perspectives required to respond to climate change and other sustainability issues. Table 6.1 provides a summary of the theoretical contributions made in this dissertation.

**Table 6.1 Summary of Theoretical Contributions**

Theory/ Literature	Main Contributions
Learning and Sustainability	<ul style="list-style-type: none"> <li>Knowledge sharing across disciplines</li> <li>Synthesize diverse literature streams and identifies future Business and Management research</li> <li>Highlight the tendency for business and management research to emphasise financial and performance outcomes over sustainability outcomes</li> </ul>
Framing	<ul style="list-style-type: none"> <li>Offer an in-depth and nuanced understanding of corporate engagement with climate change frames</li> <li>Demonstrate the non-linear ways that corporate framing shifts over time</li> <li>Suggest that framing may not always be a reliable predictor of action</li> </ul>
Reflexivity	<ul style="list-style-type: none"> <li>Apply the concept of reflexive complicity to an organizational context</li> <li>Demonstrate the relevance of reflexive complicity for understanding climate change inactions by organizations</li> </ul>
Organizational Identity	<ul style="list-style-type: none"> <li>Provide empirical evidence for Bednar et al.'s (2020) theoretical concept of identification trajectories</li> <li>Highlight the importance of exploring stable identification trajectories for understanding organizational identity change</li> <li>Highlight the importance of exploring new employee identification trajectories for understanding organizational identity change</li> <li>Identify the significance of threats to expertise in shaping identification trajectories</li> </ul>

## 6.3 Limitations and Future Research

There are several limitations and avenues for research based on the research design, methodological choices, and findings of this dissertation. The following section will explore these limitations in more detail and present avenues for future research.

The first limitation of this dissertation is the dominance of Western perspectives in exploring the research aims and questions. This dissertation was limited to literature that is dominated by European and North American academics (study 1) or by perspectives from actors within Europe (studies 2, 3 & 4). Given the global nature of climate change, future studies could also engage with researchers and study participants from diverse cultural backgrounds who are embedded in areas most affected by climate change. We propose this could be done in two ways; 1) expanding future review studies to include articles published in languages other than English, and 2) conducting empirical studies on organizational responses to climate change that aim to capture insights from under-represented populations.

Second, the dissertation's four studies each relied on one type of data to answer their research questions. Study 2 relied solely on energy company sustainability reports, which is common practice for research that aims to understand framing and sustainability actions (Vuontisjärvi, 2006; Hahn & Lulfs, 2014). However, sustainability reports can also be used as persuasive marketing tools that strategically present the positive actions a company is taking towards sustainability and draw attention away from the negative actions (Laufer, 2003). While I aimed to overcome this by capturing actors' own experiences and perspectives in studies 3 and 4, future research may wish to strengthen insights identified in all three of the empirical studies by triangulating the data with each other. Future research could therefore look to explore how the claims made by energy companies in their sustainability reports align with the perspectives and opinions of energy company actors. This will overcome any potential discrepancies between the actions a company *says* they do, and what they actually do.

Similarly, findings from study 3 highlight that by shifting responsibility and blame to others and focusing on issues of virtue and morality, actors become complicit in climate change inaction. However, these findings are based on anecdotal descriptions provided by the actors themselves. Future research could look to gain access into one or two organizations and complement interview data with observational approaches to explore how decision-making and climate denialism present in practice. Future research could also explore multi-stakeholder case studies to observe 'othering' behaviors between actors over time.

Study 4 has several limitations and promising areas for future research. One of the biggest limitations of this study is that it relies on perceptions of the self and others across time. Particularly, with regards to 'the resisters' as most of the data used to develop this archetype was based on members descriptions of others, rather than personal reflections. Longitudinal studies on organizational identification, where participants' personally measure and reflect on their identification at different temporal moments could help to overcome this in the future.

To understand the implications of transformational identity change on organizational members, study 4 assumed that all organizations are at the same stage in their radical identity change. However, while the energy sector is undergoing a moment of radical change, not all companies will be at the same stage of change. These different stages of transformation could have implications for the ways individuals perceive their identification over time. Future research could therefore capture the stage of radical change that each organization is currently at and compare the impacts of this to the different identification trajectories presented in my study.

The findings from study 4 also present promising areas for future research. Study 4 identifies the significance of threats to expertise in shaping organizational identification - an area that remains relatively understudied in organizational identity literature. Future research could therefore look explicitly at the interplay between threats to expertise and identity by narrowing the selection of participants who hold high levels of expertise in areas associated with the organization's past identity. The context of the energy transition could continue to offer fruitful ground for this research, as there is a growing number of experts in fossil fuel technologies whose skills will be increasingly irrelevant due to the transition toward a decarbonized future.

The archetypes presented in study 4 provide a promising first step to understanding the types of responses organizations could expect during times of radical change, however further research on the generalizability of these archetypes is required. Future research could therefore look to test the archetypes in contexts other than the energy sector or alternatively go more in-depth in one context. For example, an in-depth case study within a single organization undergoing radical identity change.

Finally, given the broad spectrum of disciplines and literature that engage with sustainability and climate change research, I was required to make decisions regarding the literature that I believed fit best with the insights coming from my data. However, there are of course a variety of literature streams that could have been used to explain or address the findings of my dissertation. For example, much of my research was interested in moments of change within organizations and the individuals who work in them.

While I chose to focus on the organizational learning, framing, reflexivity, and identity literatures (justifications for which are provided in each of my studies) to explore how climate change is understood and responded to, it could be argued that the literature on strategic management and change management could also be relevant to explore my research questions. Future research could look to explore whether these alternate literature streams offer other potentially valuable explanations for my findings.

## 6.4 Calls to Action

The findings of this dissertation inspire several calls to action relevant to a variety of stakeholders. Throughout the four studies presented in this dissertation, I identified implications for organizations, investors, multi-stakeholder sustainability collaborations, governments, and higher education. Table 6.2 below provides a detailed overview of the calls for action that I believe are necessary based on the findings of my dissertation. Full references for the resources provided can be found in the reference list at the end of this chapter

**Table 6.2 Calls to Action**

Actions	Steps	Resources
<p><b>Panel A. Organizational Level – Manager &amp; Leader Actions</b></p> <p>a) Embed sustainability KPIs into organizational decision-making processes and performance. Ensure that social and environment outcomes are on an equal footing with financial outcomes (study 1)</p> <p>b) Consider long and short-term time horizons when developing sustainability strategies and targets (study 1)</p>	<p>1) Most organizations will already have sustainability or ESG KPI's and measurement frameworks in place. If not, see the example resources provided to help identify the frameworks most relevant to the organization</p> <p>2) Identify the areas of the organization where the most impact can be had (e.g., for an energy company this would most likely be energy consumption by kWh or CO2 emissions reduction).</p> <p>3) Set clear and ambitious targets to achieve desired impact areas (e.g., 90% reduction in CO2 emissions based on 2010 levels by 2030)</p> <p>4) Set shorter-term targets to monitor and track progress (e.g., 30% reduction by 2025, 90% reduction by 2028).</p> <p>5) Add the target to criteria used for all major business decisions. Decision-makers must then identify whether making the decision will jeopardise the organization's ability to meet their desired sustainability target.</p> <p>6) Add the target to criteria for the relevant department head/s performance review and bonus schemes.</p>	<p>1) Global Reporting Initiative</p> <p>2) Carbon Disclosure Project</p> <p>3) Theory of Change Impact Tool</p>
<p>c) The ClIFF presented in study 2 can be used by management to facilitate critical reflexivity around current and future climate change responses</p>	<p>1) Familiarise management with the ClIFF framework. Based on the ClIFF, managers can identify where they currently lie on the framework and use this to stimulate internal discussions around whether this reflects their envisioned climate framing and responses. If not, managers can use examples provided by the ClIFF framework to brainstorm future climate responses.</p>	
<p>d) Embed sustainability and climate experience into leadership hiring and recruitment strategies (study 2)</p>	<p>1) Include experience in developing and executing sustainability and climate strategies into job requirements during advertising</p> <p>2) Include questions that require candidates to demonstrate their knowledge or experience in developing and executing sustainability and climate strategies during the interview phase</p> <p>3) Include criteria for experience in developing and executing sustainability and climate strategies into hiring decision-making frameworks</p> <p>4) Provide leadership with development opportunities and requirements in sustainability and climate strategy</p>	

**Table 6.2 Continue**

Actions	Steps	Resources
<p><b>Panel B. Market Level - Investor Actions</b></p> <p>a) Embed sustainability KPIs into investment decision-making processes. Ensure that social and environment outcomes are on an equal footing with financial outcomes (study 2). This will signal to businesses that to gain investment they must be prioritizing their sustainability performance as well as financial performance. Many investment firms already consider or prioritize sustainability KPIs in their decision-making. Examples are provided as resources</p>	<p>1) Investors to identify the sustainability KPIs that are most relevant to their investment portfolio's</p> <p>2) Add sustainability KPIs to criteria used for all major investment decisions.</p> <p>3) If existing investments do not meet the created KPIs, investors could consider working with these businesses to develop targets and strategies to meet their KPIs within a certain timeframe or risk losing investment.</p>	<p>1) Betterment</p> <p>2) Earthfolio</p> <p>3) OpenInvest</p> <p>4) Australian Ethical</p>
<p><b>Panel C. Multi-Stakeholder Level – Government, Industry and Academic Actions</b></p> <p>a) Multi-stakeholder initiatives can be used as spaces to collaboratively discuss the burden of decision-making for climate change and how this burden can be shared across actors and sectors, i.e., industry and government (study 3). Some useful guides for initiating and managing multistakeholder processes can be found as resources</p>	<p>1) Actors from either industry or government to identify key players in their domain i.e., other actors from government, industry, universities, who are working on similar sustainability or decarbonisation projects</p> <p>2) Actors can use the network to share challenges, ideas, and collaborative responses to shared issues</p>	<p>1) Learning for Sustainability. Guides to help initiate and manage multi-stakeholder processes</p>
<p><b>Panel D. Government Level – Policymaker Actions</b></p> <p>a) The frequent mentioning of regulations and policy as a key driver for action on climate change within the included energy companies can be seen as a strong indicator for the importance of clear and ambitious climate policies in accelerating the energy transition (study 2, 3 &amp; 4). Policymakers should therefore continue to push ambitious sustainability and climate policy.</p>	<p>1) Continue to work with diverse stakeholders to formulate ambitious and realistic policies that target polluting industries and activities.</p>	
<p><b>Panel E. Higher Education Level – Teacher Actions</b></p> <p>a) Design and deliver cross-disciplinary sustainability courses that aim to expose students to multiple perspectives and approaches to solving sustainability challenges (study 1). Many institutions already do this. Example toolkits for different approaches to cross- and transdisciplinary learning are provided as resources.</p>	<p>If no courses are available already</p> <p>1) Identify teachers across departments already coordinating sustainability courses</p> <p>2) Collaboratively design a course that represents each department's perspective</p> <p>3) Advocate for the course to be made available university-wide</p> <p>If courses already exist:</p> <p>1) Share details of the course with current and prospective students</p> <p>2) Audit the course if the content is unfamiliar</p>	<p>1) Enhance toolkits for cross- and transdisciplinary learning</p>

**Table 6.2 Continue**

Actions	Steps	Resources
<p><b>Panel F. Higher Education Level – Researcher Actions</b></p> <p>Introduce alternative metrics for evaluating success i.e., social impact and environmental impact KPI's, and embed into performance management (study 1)</p> <p>If conducting sustainability research, consider whether the research prioritizes sustainability outcomes or firm performance outcomes (study 1)</p>	<p>Identify criteria relevant to research (and teaching) activities that demonstrate the employees' broader contribution to sustainability topics (e.g, environmental, social, governance)</p> <p>Incorporate sustainability outcomes into research during the design phase.</p>	<p>See resources listed under Panel A.</p>

## 6.5 Returning to the Research Questions

To strengthen understanding of how sustainability transitions play out within and across organizations, this PhD dissertation set out to answer the broad question of ‘how do organizations and individuals understand and respond to climate change?’. To unpack this research question I conducted four studies, made up of one review study and three empirical studies. The review study built the foundations of this dissertation by exploring cross-disciplinary literature on learning for sustainability challenges more broadly. Building on the insights gained in the review study, I narrowed my research focus for the three empirical studies to the individuals and organizations contributing to the European energy transition. Given that the very nature of the energy transition is to limit climate change, it provided an ideal context to explore this dissertation’s research question and sub-questions. By analyzing ten European energy companies’ corporate sustainability and climate reports over a 10-year period, and conducting interviews with 34 diverse actors contributing to the European energy transition, I was able to gain an in-depth understanding of how individuals and organizations frame the issue of climate change and their responses to it, how individual actors justify organizational climate inaction, and the implications that radical organizational change can have on individuals working in organizations responding to climate change.

A summary of each individual studies’ findings can be found earlier in this chapter, however, there were two clear themes that arose when considering this dissertation’s main research question of how individuals and organizations understand and respond to climate change. First, the individuals and organizations included in my studies are understanding climate change through the lens of their many and diverse stakeholders. Study 2 illustrated the various factors that companies must consider when planning their sustainability and climate responses, for example, the needs of the communities where they operate, their impact on the natural environment, the needs of their shareholders and investors, mounting pressure from civil society groups, and growing government regulation. Managing diverse stakeholder needs was also raised in study 3 by numerous industry actors as well as several government actors, illustrating that this is a common tension felt by those contributing to the energy transition. Similarly, as shown in study 4, the ways that organizations choose to respond to climate change also has implications for their employees – another key stakeholder group – whereby strategies that move away from traditional areas of expertise and skill may create feelings of discomfort, insecurity, and fear in their employees. These examples demonstrate the increasing number of stakeholders needs that organizations contributing to the energy transition must consider when making sense of climate change and their role in responding to it. Managing multiple and conflicting stakeholder demands makes it particularly challenging for actors to make clear choices in how they will respond to



climate change, as any decision will ultimately result in trade-offs between different stakeholders.

This brings me to the second theme that arose throughout my research, which is that in light of the increasingly complex stakeholder pressures individuals and organizations in the energy transition face, the most common response to climate change is to continue with business-as-usual responses that do not challenge the unsustainable systems and structures that contribute to the climate emergency. Study 1 showed that across both business research and practice, there was a tendency to prioritize firm performance outcomes over sustainability outcomes. While study 2 showed that there was an increase in companies adopting disclosure frames for climate change, and striving for more transparency around their activities, most companies also adopted business case framing of climate change, where acting on climate change was valued for avoiding financial risk or capitalizing on new financial opportunities. Finally, study 3 showed that while many actors contributing to the energy transition engaged in reflexivity, they also justified climate inaction by pointing to other actors to shift responsibility and blame, engaging with issues of virtue and morality to avoid decision making, and staying inside the box to defend the status quo. All of which result in a continuation of business-as-usual responses to climate change. In the hopes of contributing to resolving this tendency for individuals and organizations to stick with business-as-usual responses that prioritize financial outcomes over sustainability outcomes, I provide clear avenues for future business and management research and make several calls to action specific to several stakeholder groups in the energy transition.

## 6.6 Final Remarks

This dissertation began by introducing the challenges that organizations and individuals face when responding to climate change due to the wickedness of the problem. Climate change is wicked because there are multiple ways that the problem can be understood, it requires many perspectives to solve, yet no one actor or groups feels entirely responsible for it, and all solutions come with inevitable trade-offs and unintended consequences. As shown above, these wicked characteristics presented consistently throughout the findings of my dissertation. This suggests that while three out of my four studies focused specifically on the energy transition and climate change, insights from my findings will be transferrable to other kinds of wicked problems too, for example the refugee crisis, food insecurity and global poverty. Much like climate change, each of these wicked problems cross country and regulatory boundaries and therefore require input and action from multiple stakeholders, as well as require individual actors and organizations to consider the needs of multiple stakeholders and to make difficult

trade-offs between those stakeholders. As demonstrated by the two themes above, these were common challenges faced by the individuals and organizations examined throughout my research. It is therefore hoped that the relevance of my dissertation stretches beyond just the issues of climate change and to the many complex and wicked problems that society is faced with today.

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# 7

**CHAPTER 7**

# Chapter 7. Impact Statement



## Societal Relevance and Implications of this Dissertation

The motivation for conducting this research was to contribute to knowledge and understanding of the challenges different organizations, and the individuals who work in them, face when responding to societies' complex and wicked problems. This dissertation focused primarily on organizations and actors contributing to the energy transition, as it is one of societies' best hopes of solving climate change (IRENA, 2022). Climate change is considered one of the biggest threats currently facing humanity (United Nations, 2022). While there are some positive signs of action towards tackling climate change, like the increasing number of influential governments and corporations pledging to net zero carbon emissions by 2050 (United Nations, 2022), action on climate change must move faster if we want to stay within the proposed safe zone of a global temperature increase no more than 1.5 degrees above pre-industrial levels (United Nations Framework Convention on Climate Change, 2022). With the hopes of contributing to climate change actions, this dissertation asked, 'how do organizations and individuals understand and respond to climate change?'. In answering this question, and several sub-questions, the following two themes arose:

- 1) the individuals and organizations included in this research are understanding climate change through the lens of their many and diverse stakeholders.
- 2) considering the increasingly complex stakeholder pressures individuals and organizations in the energy transition face, the most common response to climate change was to continue with business-as-usual responses that do not challenge the unsustainable systems and structures that contribute to the climate emergency.

This dissertation makes several calls to action directed toward a diversity of stakeholders in the energy transition. The following sections will highlight the implications of this dissertation's findings for key stakeholder groups and make suggestions for the actions these stakeholders can take based on these implications. For a more detailed description of how actors can implement the suggested actions described below, readers can refer to Table 6.2 in the conclusion chapter of this dissertation.

### Managers and Leaders

The findings of this dissertation suggest that alternative ways of measuring the success of managers and projects within organizations is an essential step for identifying and implementing more meaningful sustainability responses. This is based on findings that suggest the more powerful actors in organizations, in this case senior management, can set the agenda for the sustainability issues that align with their interests and prevent actions on sustainability issues that challenge their interests (McCright & Dunlap, 2010).



If senior management are only being reviewed for their ability to maximize financial profits and minimize financial risks, then they will continue to make decisions that prioritize financial outcomes over all else. It is therefore suggested that sustainability KPI's, where social and environment outcomes are on an equal footing with financial outcomes, should be embedded into organizational decision-making processes and performance reviews. These sustainability KPI's can be used as part of an organization's criteria for making major business decisions (e.g., future development projects or acquisitions), conducting performance reviews and bonus schemes, and for future hiring and recruitment decisions.

Study 2 of this dissertation explored how ten European energy companies understood and responded to climate change from 2010-2019. As a result, The Climate Framing Framework (CliFF) was developed to illustrate how energy companies have the tendency to understand climate change through four lenses: 1) 'the business-case', 2) as a 'moral responsibility', 3) as requiring 'disclosure', and 4) as requiring 'technological' solutions to solve. The CliFF provides the structure and language for companies to stimulate reflection of how they are currently approaching climate change and how they would like to approach it in the future. More information on the CliFF, and the actions that align with each of the four lenses described above can be found in chapter 3 of this dissertation.

Study 4 of this dissertation explored how radical organizational identity change - which occurs when organizations drastically change their strategy (Clark et al., 2010) - impacts the individuals working in organizations that are transitioning to net zero carbon emissions. Based on interviews with 34 actors contributing to the European energy transition, five employee identity archetypes are presented: 1) the early adopters, 2) the committed critics, 3) the transformers, 4) the resisters, and 5) the dreamers. The findings show that for most employees, this transition to net zero is a positive experience as it brings closer alignment between their own personal values (i.e., action on climate change) and those of their organization. This can be viewed as a very positive indication that there is growing 'grass-roots' level support from within organizations to take bold steps in solving climate change. However, my findings also show that for others, who are more aligned with the organization's past and have developed skills and expertise that were highly valued by the past organization, radical change can result in uncertainty, insecurity, and fear. If individuals in an organization do not align with the new organization, they can actively work to slow or challenge the change process. It is suggested that the five identity archetypes presented in study 4 can be used by management to identify different employees' responses to radical change and plan different levels of support and opportunities based on these, for example, engaging employees in re-skilling programmes. More information on the 5 identity archetypes and their implications to management can be found in chapter 5 of this dissertation.

## Investors

Findings from study 2 of this dissertation demonstrate the diversity of stakeholders that energy companies are required to consider when determining how they make sense of and respond to climate change, including civil society groups, policymakers, the natural environment, communities, and their shareholders and investors. However, the tendency for most of the examined energy companies to stick to the business-case for understanding and responding to climate change suggests that the needs of investors and shareholders are prioritized over others. This draws attention to the importance of climate, sustainability and ESG investing in signalling to companies that climate and sustainability outcomes are of equal importance to financial outcomes. This could be achieved by embedding sustainability KPI's into investment decision-making processes with the hope that this signals to businesses that to gain investment they must prioritize sustainability performance as well as financial performance. Examples of existing sustainable investment funds can be found in chapter 6 of this dissertation.

## Multistakeholder Sustainability Initiatives

This dissertation deepens understanding of the perspectives taken by diverse actors operating in the energy transition and the tensions they are faced with when responding to climate change. This can assist in creating more shared understanding amongst actors who may benefit from collaborating on sustainability issues like climate change. For example, multistakeholder sustainability initiatives could be used as spaces to collaboratively discuss the burden of decision-making for climate change and how this burden could be shared across different actors and sectors, i.e., industry and government. Actors could use these networks to share challenges, ideas, and collaborative responses to shared sustainability issues.

## Policymakers

In examining ten European energy companies' sustainability reports as part of study 2, it was observed that energy companies are paying increased attention to international agreements like the Paris Climate Agreement and the SDGs, government regulation, as well as growing public awareness and scrutiny of corporate actions. The clear adoption of the SDGs by all ten companies and the increased rhetoric around public perceptions of energy companies, demonstrates the increasing influence these factors have on energy companies and the important role government and civil society actors play in shaping the clean energy transition. It is therefore suggested that policymakers continue to work with diverse stakeholders to formulate ambitious policies that target polluting industries and activities.

## Research and Teaching

A key insight to come from study 1 of this dissertation was the tendency for business and management scholars to prioritize firm performance over sustainability outcomes in their sustainability research. It is therefore suggested that business and management researchers incorporate sustainability outcomes into their research during the design phase. It is also important to consider diverse disciplinary backgrounds when it comes to sustainability (United Nations, 2019) which is important not just for research but also for teaching. Teachers in higher education could seek to design and deliver cross-disciplinary sustainability courses that aim to expose students to multiple perspectives and approaches to solving sustainability challenges. If cross-disciplinary sustainability courses already exist within the institution, teachers can instead become advocates for current and prospective students enrolling in these courses. Finally, to motivate researchers and teachers to actively engage with sustainability topics and issues, criteria relevant to research and teaching activities could be introduced that demonstrate the employees' broader contribution to sustainability topics (e.g., environmental, social, governance, cultural).

## Contributions to Scientific Research

This dissertation also makes several contributions to the scientific research on sustainability and climate change. This dissertation responds to criticisms that most research exploring sustainability challenges remain within disciplinary silos (Laasch et al., 2020), for example, business researchers conducting research on sustainability through the lens of business, and sociologists conducting research through the lens of sociology. However, many researchers and governing groups now argue the importance of considering diverse perspectives when conducting research on sustainability issues like climate change (Scheyvens et al., 2016; United Nations, 2019), as the issues themselves require diverse perspectives to be solved. My dissertation responds to these criticisms in several ways. First, study 1 conducts a cross-disciplinary literature review of learning and sustainability that takes lessons learnt from other diverse disciplines (e.g., environmental studies, policy, sociology, urban planning) to understand the ways that business and management research and practice on sustainability could be advanced. Second, study 3 applies the concept of reflexive complicity, traditionally explored in sociology, to an organizational context. Third, studies 3 and 4 incorporate perspectives from a diversity of actors contributing to the energy transition, including representatives from industry, government, and civil society groups. This dissertation therefore contributes to knowledge sharing across sectors and scientific disciplines and the deepening of concepts traditionally explored within one field.

## Sharing Insights

Findings of this dissertation have been shared at academic conferences, including the Academy of Management (AOM) Annual Meeting and the European Group for Organization Studies (EGOS), as well to audiences of diverse students and academics at Massachusetts Institute for Technology (MIT), Johns Hopkins University (JHU) Carey Business School, Maastricht University (UM) School of Business and Economics and The United Nations University – Maastricht Economic and Social Research Institute (UNU-Merit). Results of this dissertation will also be shared with the 34 actors who participated in the studies, as well as the academic networks of the author and her three supervisors. It is hoped that by doing so, the practical implications and scientific insights gained through this research can be shared with those contributing to sustainability research and practice and broaden the impact of the dissertation's findings.

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## Appendices

### Appendix A: Interview Guideline

#### Introduction (5mins):

- Introduce myself and provide a short summary of the research aims i.e., to understand how energy companies are responding to climate change.
- Practical purpose – why is this research useful for them?
- Discuss participation, confidentiality, how the interview data will be used/stored and gain approval to record the interview.

#### **START RECORDING!**

#### Warm up (15mins)

- Work experience and background
- Current role/department/company
- Day-to-day activities and responsibilities
- How has your work changed over the past 5years?
  - o What has led to these changes? (look/probe eventually for the links to climate change)

*(Create a timeline of key shifts in thinking/activities)*

#### Key shifts and changes (15mins)

- (Go back to most recent or relevant shift that they mentioned in the timeline). What was it in your view that led to this shift in thinking or activity?
  - o What triggered the shift?
  - o Who was involved?

o What steps did they take to make sense of the situation? (i.e., engage a consultant, speak to their stakeholders, research policy implications)

o Were any changes implemented as a result of the steps you've described?

- If yes, what changed?

- If no, why not?

- (Keep an eye out for tensions that arise i.e., economic vs environmental factors, long-term vs short-term strategies, leadership support, structural support)

### **Meeting future climate goals (10mins)**

- Could you briefly describe the company's strategy and goals around climate change? i.e., carbon neutral by 2050...invest in RE, divest in FF

- How confident are you in the company's ability to meet their climate goals?

- Are there any goals or targets that you think will be harder to meet than others?

- If the company was to meet their climate goals, what do you think would have contributed most to their success?

- If the company was to *not* meet their climate goals, what do you think would have contributed most to their failure?

### **Personal values and beliefs around climate change (10mins)**

- How do you personally feel about climate change as an issue? (Important? Urgent? Concerning? Etc.)

o Is there anything that worries you about societies' ability to solve the climate issue?

o Is there anything that gives you hope about societies' ability to solve the climate issue?

- Do you feel that your personal views on climate change align with those of the company?



- o If yes, how do they align?

- o If no, how are they different?

- In your ideal world, what would the future of the energy sector look like?

**Warm down (5mins)**

- Other things you would like to mention that we haven't discussed so far?

- Any questions?

- Any other people they could connect me with?

- Thank them for their time and give a bit of a timeline for results

**SAVE RECORDING!**

## Appendix B: About the Author

Melanie Feeny is a PhD Candidate at the School of Business and Economics and the Maastricht Sustainability Institute at Maastricht University, The Netherlands. Melanie's PhD is funded by the Sustainable Development Research Theme and explores the different ways that organizations in the energy transition adapt and respond to climate change.

Melanie's teaching focuses on sustainability, social entrepreneurship, strategy and innovation, and workplace learning and development. She has also led undergraduate and postgraduate intensive courses on engaged entrepreneurship in Broken Hill, NSW and Hanoi, Vietnam.



Prior to Melanie's PhD she was employed as the Remote and Rural Enterprise Manager at The University of Sydney Business School, where she led two-way participatory learning exchanges between students and remote, rural and Indigenous enterprises across Australia and Southeast Asia. Melanie has also worked as a consultant on government and industry projects focused on impact measurement and strategy, strategic planning, and renewable energy enterprise opportunities.

## Appendix C: Curriculum Vitae

### Melanie Feeney

PhD Candidate

School of Business and Economics (SBE) | Maastricht Sustainability Institute (MSI)

Maastricht University, The Netherlands

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Email: melanie.feeney@maastrichtuniversity.nl / melaniefeeney89@gmail.com

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### Education

**Doctor of Philosophy (PhD)** – School of Economics & Business, Maastricht University, The Netherlands, 2019 – 2023

Thesis: Becoming Sustainable? Analyzing Industry and Government Responses to Climate Change and the Energy Transition

Supervisors: Professor Wim Gijssels, SBE, Maastricht University

Professor Pim Martens, MSI, Maastricht University

Dr Therese Grohnert, SBE, Maastricht University

Funding: Sustainable Development Research Theme, Maastricht University

Research: Harvard Business School, February – April 2022

visits: Johns Hopkins Carey Business School, April – May 2022

**Master of Sustainability (Distinction average WAM 8)** - University of Sydney, 2013-2014

Specialisation: Sustainable Business

Thesis: North West Land Trust – Rural properties renewable energy exploration and capacity building opportunities

Grade: High Distinction – 87

**Bachelor of Public Health** – Griffith University, Australia, 2008-2010

Specialisation: Health Promotion

Thesis: Voxbox Program Evaluation: Using rap/hip-hop as an innovative health promotion intervention for Alcohol Tobacco and Other Drugs (ATODS) use in youth

Grade: High Distinction – 85

### Academic Employment

**PhD Researcher/Course Coordinator, Maastricht University** April 2019 – present

Employed full-time as part of the Sustainable Development Research Theme at the School of Business and Economics. My research explores how different actors in the energy sector respond to climate change and other sustainability issues. Highlights include:

- Designing, conducting, and publishing academic articles focused on sustainable development, the energy transition, and organizational change
- Presenting research at academic conferences and workshops
- Coordinating and teaching undergraduate and postgraduate courses at the School of Business and Economics

- Supervising 8 master's thesis students to completion

**Education Development Officer, Maastricht University** June 2017 – May 2019

Employed full-time to design, evaluate, and improve course offerings within the Center for European Studies at Maastricht University. Highlights include:

- Engaging with students and academic staff to design and improve university courses and programs
- Sitting on the Board of Examiners to assess issues relating to student's academic performance

**Remote and Rural Enterprise (RARE) Manager, University of Sydney** 2015- June 2017

Employed full-time managing the Remote and Rural Enterprise (RARE) Program, supporting two-way Participatory Action Research projects between University of Sydney students and sustainable, social, and Indigenous enterprises across Australia and Southeast Asia. Highlights include:

- Identifying and scoping action research projects focused on sustainable development
- Conducting action research projects in remote, rural and Indigenous Australia
- Developing and maintaining relationships with sustainable, social, and Indigenous enterprises and communities across Australia and Southeast Asia
- Managing program budgets, scholarships, and grant applications/acquittals
- Liaising with local media sources to promote project outcomes
- Developing impact reports and annual reports

**Sessional Lecturer, University of Sydney Business School** 2016 – Mar 2017

Employed as course-coordinator/lecturer of the postgraduate unit Engaged Entrepreneurship, a cross-disciplinary course that allowed students from the business, architecture, engineering, and science faculties to work on sustainable development projects with real-life enterprises and communities. Within this role, I coordinated two cross-faculty two-week fieldwork intensive courses, one based in Hanoi, Vietnam and the other in Broken Hill, Australia.

**Consultant/Researcher, University of Sydney Business School** 2013 – 2015

Consultant and researcher within the Entrepreneurship and Innovation Program focused on sustainability, social justice and economic development. Highlights include:

- *StrategicFrame approach to impact measurement*: Facilitating workshops on social impact measurement and developing a facilitator's guide to enable sustainable, social and Indigenous enterprises to better understand the impacts of their activities.
- *Carbon Sequestration Feasibility Study* (NSW Aboriginal Land Council): Conducting an exploratory participatory action research study of carbon farming opportunities on two parcels of Aboriginal land in NSW.

- *Rural Properties Renewable Energy Project* (NSW Aboriginal Land Council): Conducting an exploratory participatory action research study of wind, solar and/or biofuel opportunities on two parcels of Aboriginal land in regional NSW.
- *Industry Review and Strategic Planning for Australian Disability Enterprise*: Providing research consultancy services to support strategic planning, execution, and communication of outcomes across all Challenge Community Services.

## Academic publications

### Journal Articles

1. **Feeney, M.**, Grohnert, T., Gijsselaers, W. & Martens, P. (2023). Organizations, Learning and Sustainability: A cross-disciplinary review and research agenda - *Journal of Business Ethics*, 184, 217-235.

### Manuscripts Under Review

2. **Feeney, M.**, Gijsselaers, W., Martens, P., & Grohnert, T. (2023). Framing strategic responses to climate change: A longitudinal frame analysis of energy company climate reporting.

### Referred Conferences Papers/Proceedings/Workshops

1. **Feeney, M.**, Gijsselaers, W., Martens, P. & Grohnert, T. (202). Strategic responses to climate change: A longitudinal analysis of energy company climate reporting. *Academy of Management Annual Meeting, Boston, USA, August 2023*
2. **Feeney, M.**, Gijsselaers, W., Martens, P. & Grohnert, T. (2021). Transitioning from business-as-usual to true sustainability: A frame analysis of energy sector reporting. *Academy of Management - Social Issues in Management (AOM-SIM) PhD Paper Development Workshop, October 2021*
3. **Feeney, M.**, Grohnert, T., Gijsselaers, W. & Martens, P. (2020). Organizations, Learning and Sustainability: A cross-disciplinary review and research agenda. *Academy of Management Annual Meeting, Vancouver, Canada, August 2020*
4. **Feeney, M.**, Grohnert, T., Gijsselaers, W. & Martens, P. (2020). Organizations, Learning and Sustainability: A cross-disciplinary review and research agenda. *36th EGOS Colloquium, Hamburg, Germany, July 2020*

### Invited Lectures/Presentations

1. Johns Hopkins Carey Business School. (April, 2022). *How businesses make sense of climate change: Framing and actions.*
2. Massachusetts Institute of Technology (MIT), College of Engineering, NEET Climate & Sustainability Systems Thread. (April, 2022). *A business perspective on the energy transition.*
3. The United Nations University – Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT). (September, 2019). *Multistakeholder sustainability initiatives: Challenges and opportunities.*

### **Practitioner Reports**

1. **Feeney M** and Seymour R (2015) 'Challenge Community Services Strategic Analysis'. Report for the CEO and Board of Challenge Community Services.
2. **Feeney M** (2014) 'North West Land Trust: Rural properties renewable energy exploration and capacity building opportunities'. Report for NSW Aboriginal Land Council (NSWALC)
3. Odeh I, Gilligan J and **Feeney M** (2014) 'Carbon Sequestration Feasibility Study: New South Wales Aboriginal Land Council – North West Region'. Report for NSWALC.
4. **Feeney M**, Lawlor S and Moore C (2013) 'Broken Hill Projects 2013: The University of Sydney Architecture and Enterprise. Projects for Broken Hill'. Report for Broken Hill City Council.

### **Academic Community**

Reviewer for the following conferences:

- Academy of Management conference

Discussant for the following PhD committees:

- AOM-ONE Sustainability PhD Community

Academic committees:

- PhD Representative on the Maastricht University School of Business and Economics PhD committee

### **Teaching experience**

#### **Course (co-)Coordinator/Lecturer**

Postgraduate courses

- 2021 - 2022 Supporting Learning at the Workplace, Maastricht University  
 2016 - 2017 Entrepreneurship Special Project: Broken Hill, University of Sydney

Undergraduate courses

- 2021 Managing Learning and Development at the Workplace, Maastricht University  
 2017 Entrepreneurship Special Project: Vietnam, University of Sydney

#### **Tutor**

Postgraduate courses

- 2019 - 2020 Supporting Learning at the Workplace, Maastricht University  
 2014 - 2016 Entrepreneurship Special Project: Broken Hill, University of Sydney  
 2014 - 2016 Strategy, Innovation and Entrepreneurship, University of Sydney  
 2014 - 2015 Sustainability: Business and Leadership, University of Sydney

Undergraduate courses

- 2019 - 2020 Managing Learning and Development at the Workplace, Maastricht University  
 2019 - 2022 Management Development: Coaching Trajectory, Maastricht University  
 2015 - 2016 Managing Organizational Sustainability, University of Sydney

Overall teaching score for all Maastricht University courses: 9.3 out of 10.



Melanie Feeney