LUND UNIVERSITY
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Strategic processes towards sustainable development in large, international companies

A cross-case analysis using the Framework for Strategic Sustainable Development (FSSD)

by

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June 2021

Master's Programme in Management (M.Sc.)

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Examiner:

"If you look at where the world is going, sustainability is no longer a discussion on whether it's a couple of nice people in the company that do sustainability. But it really is something that is changing society"[1]

[1] Interviewee 4, Case Company OR1

Abstract

The discussion of human activities exploiting natural resources and their environmental impact has gained more traction throughout the past decade. Especially the role corporations play in these developments has caused a shift within corporate strategic considerations. As a result, today, many companies assume increasing responsibility to improve their sustainability performance. Large, international corporations have a unique position to make significant contributions to global efforts towards sustainable development. However, in order to develop a successful sustainability strategy, companies must first understand the magnitude of the challenge of strategic sustainable innovation. We therefore set out to contribute to a more holistic understanding by identifying the key features of ongoing strategic sustainable innovation processes in large, international companies. Using the Framework for Strategic Sustainable Development (FSSD), we conduct a cross-case analysis through document reviews of, and semi-structured interviews with three large, international companies. Our findings suggest that companies need to consider three key success factors when developing a comprehensive sustainability strategy: (1) building strong communication channels throughout the organization and within the system, (2) creating a flexible and agile decision making process by applying backcasting from an overarching principle-based vision, and (3) developing a holistic strategy covering all aspects of sustainability while focusing on core operations of the business.

Keywords: sustainability, strategy, management, strategic sustainable innovation, sustainable development, FSSD, circular business, systems thinking

Acknowledgements

We would like to express our gratitude to the companies and especially to the sustainability managers who made this thesis research possible by granting us access to their experiences, insights and knowledge.

We would also like to thank our supervisor Anna Thomasson and our fellow students for their support and valuable feedback during the process of writing this thesis.

Finally, we would like to express our gratitude to our friends and families for their continuous support and encouragement throughout our academic journey.

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1 Introduction

Our modern and digitized world makes it impossible to avoid changes in a business environment and requires the ability to adapt and adjust one's way of thinking and address those changes in both strategic and operational corporate processes. In recent years, the notion of a VUCA, a vulnerable, uncertain, complex and ambiguous world, has been gaining popularity as a term to describe the increasing inability to grasp the complex and dynamic nature of the world which is considered to be uncertain, complex and on the verge of crazy (Fällström, 2017). Early on, Max Weber (1915/2009, p. 351) has argued that "the various value spheres of the world stand in irreconcilable conflict with each other". Perhaps quite drastically stated, it has certainly become increasingly pivotal for corporations to understand how to balance the different influencing factors of their business environment as well as the impact of business practices themselves. Human activities threatening sustainability are interconnected and multifaceted on a social, economic and ecological level: Climate change, biodiversity loss, degradation of the oceans and deforestation, resource depletion, social inequalities and human rights abuses to name a few.

In 2015, Agenda 2030 for Sustainable Development together with its Sustainable Development Goals (SDGs) was adopted by the United Nations. The Agenda lays out an ambitious set of goals for all UN member states that aims at achieving sustainable development through actions that target the economic, environmental and social dimensions of our societies (UN, 2021). Agenda 2030 puts sustainability at the forefront of the political discourse, and serves as a reminder that corporations also need to become more aware of their role in promoting sustainable innovation. So far, many corporations reacted to these changes by adapting their strategies towards Corporate Social Responsibility (CSR), environmental management and sustainability reporting.

Among the numerous challenges that companies face due to an increasingly VUCA world, the discourse about the social and environmental consequences of corporate practices has become a highly debated public and political issue, in that businesses have more and more taken over

responsibility to address and tackle it in manifold ways (Scherer et al., 2013). However, the highly intertwined relationship of sustainability and its implications with numerous stakeholders and parties makes it difficult to assign responsibility and identify a central issue or even a root cause (Ferraro et al., 2015). For instance, the political and social discussion about sustainability in various contexts often includes competitive, economic, innovation, environmental, and stakeholder related aspects. Sustainability as such can therefore be characterized as a wicked problem. Firstly described by Rittel and Webber (1973), wicked problems, unlike 'tame' problems, cannot be conclusively solved, but only resolved as there are no objective criteria to measure the appropriateness of an assigned solution. Moreover, Rittel and Webber (1973) state that solutions to a wicked problem are evaluated in a social fabric where "many parties are equally equipped, interested, and/or entitled to judge [them]" (Rittel and Webber, 1973, p. 163). The ambiguity of wicked problems further aggravates the challenge to define a problem and establish a strategy in ways that allow an adequate solution to the problem while satisfying stakeholder demands as well as the economic needs of the corporation.

1.1 Research purpose

Corporate responses to the wicked nature of sustainability issues are limited by the fact that businesses are strategic, unitary actors whose key objectives usually are of an economic nature (Bundy et al., 2013). As a result, corporations need time to adapt their sustainability strategies without major financial losses. Moreover, cooperation on the issue requires coordination in several divisions and stages along an organization's supply chain, compliance with government regulations as well as the satisfaction of stakeholder needs and shareholder demands. Sustainability being complex and multilayered in its nature thus exacerbates the process of corporation's efforts to translate it into corporate responses and practices. Doing so necessitates the dedication to a purposeful strategy facing an uncertain environment.

Today, many companies still struggle to truly integrate a comprehensive sustainability strategy into their business because the sustainability process is inherently complex and wicked as argued above. However, sustainability should not be an issue limited to sectors that traditionally have high innovation rates and low environmental impacts. In light of ongoing

global warming and related environmental and social catastrophes, the urgency of solving contemporary sustainability related issues has never been higher. Therefore, making sustainability an issue that needs to be realised by all sectors is pivotal, especially for companies in sectors with lower innovation rates or historically negative sustainability performances. Given the important role that corporations play in the development of sustainable societies, it is thus of utmost importance to develop and implement comprehensive strategies that guide them towards sustainable innovation. Therefore, in order to contribute to an improved understanding of corporate sustainable development, the purpose of this study is to take a holistic perspective on factors that influence the strategic process. Furthermore, we provide a detailed discussion of the usefulness and limitations of the FSSD as a strategic tool to achieve strategic sustainable innovation.

1.2 Objectives and research question

This paper sets out to explore sustainability related strategic processes at large, international corporations in order to understand how companies can deal with the VUCA and wicked nature of the sustainability challenge. The goal is not to evaluate sustainability related performance or outcomes. Instead, we aim to provide holistic insights into the motivations, challenges, and strategic processes to fulfill corporate sustainability ambitions.

To structure this highly complex topic and to make it tangible, we use the Framework for Strategic Sustainable Development (FSSD), a framework that assists companies and organizations in developing their strategic processes towards sustainability with a 4-step procedure. This approach ensures a holistic understanding of the processes companies undergo in the pursuit of their current sustainability strategies. The insights presented in this paper will provide a better understanding of the key features behind the successful implementation of sustainability strategies and prove valuable for companies that currently struggle to adopt strategies for their organisations' sustainable innovation. Furthermore, the paper will showcase the suitability of the FSSD as a strategic tool by answering the following two research questions:

- What are the key features of ongoing strategic sustainable innovation processes at large, international companies?
- How do processes of strategic sustainable innovation at large, international companies align with the FSSD?

In order to answer these research questions, we present a cross-case analysis of three large, international companies, which operate in the car manufacturing and oil refining industry.

This paper argues that in its core, an organisation's strategic process needs to assure that all prevalent sustainability issues are adequately captured and being integrated across all relevant organisational levels and systems. While we are aware of the broad scope of this study, we argue that in order to understand the complex systems that today's businesses operate in, it is pivotal to take a holistic approach since it paints a more comprehensive picture of reality. In this paper, the term 'strategic sustainable innovation' is not ascribed to technological innovation, as this would contradict the holistic approach that we have intended for this paper. Instead we view innovation as a process that captures more than just the technological side of development. We use Kline's and Rosenberg's (1986) account of innovation in which they argue that "the process of innovation must be viewed as a series of changes in a complete system not only of hardware, but also of market environment, production facilities and knowledge, and the social contexts of the innovation organization" (Kline & Rosenberg, 1986, pp. 275).

We believe that this account of innovation is compatible with the VUCA and wicked nature of the sustainability challenge and as a result, we use the terms 'strategic sustainable innovation' and 'sustainable development' interchangeably.

2 Theoretical Framework

Sustainability management has been a popular topic among management scholars, long before major international initiatives like the Paris Climate Agreement or the UN Agenda 2030 with its Sustainable Development Goals were passed in 2015 (e.g. Starik & Rands, 1995; Robèrt, 2000; Porter & Kramer, 2006; Andersen, 2007). Before moving into a more detailed discussion of the relevant topics covered in sustainability management literature, a definition of corporate sustainability needs to be introduced. Sustainable development refers to a "development that meets the needs of the present without compromising future generations' ability to fulfill their own needs" (WCED, 1987). This definition, called the Brundtland definition, is arguably the most popular definition to conceptualize sustainable development and has been widely used in the past (e.g. Starik & Rands, 1995; Porter & Kramer, 2006; Hansen, Grosse-Dunker & Reichwald, 2009; Kashmanian, Wells & Keenan, 2011; Starik & Kanashiro, 2013; Engert & Baumgartner, 2016; Broman & Robèrt, 2017). The popularity of this definition is likely linked to its ability to provide sufficient room for taking into account the complex nature of the sustainability issue, which spans through all aspects of our everyday lives (UN, 1992). In the context of an organization, sustainable development is referred to as corporate sustainability, which can be defined as "the adoption of business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future" (IISD et al. 1992).

2.1 Three dimensions of sustainability

Furthermore, according to Baumgartner and Ebner (2010), corporate sustainability is characterized by three interdependent dimensions concerning economic, ecological and social aspects of sustainability. In order for a company to pursue a comprehensive sustainability strategy, it is pivotal to show commitment to all three of these dimensions, and to both

understand their complex interplay as well as their impact. In the following sections, we are going to outline these three sustainability dimensions in detail.

2.1.1 Economic dimension of sustainability

The economic dimension of sustainability is often regarded as the generic or financial perspective of sustainability (Baedeker et al., 2002). As a result, the economic dimension of sustainability puts special emphasis on the role sustainability can play in creating a competitive advantage because it can serve as a driver of innovation (Porter & Kramer, 2006; Nidumolu, Prahalad & Rangaswami, 2009). Furthermore, the business case for sustainability makes integrating sustainability into contemporary businesses even more important because it has become pivotal to their survival as a result of changing sustainability oriented market demands (Broman & Robèrt, 2017). Being successful in the economic pillar of sustainability can therefore foster both a company's sustainability performance and their competitive position through means of differentiation or simply by addressing changing stakeholder demands. The business case for integrating sustainability into day to day business has been made by several scholars and is largely undisputed (Nidomolu, Prahalad & Rangaswami, 2009; Schaltegger & Wagner, 2011; Starik & Kanashiro, 2013; Kashmanian, Wells & Keenan; 2011). However, the complexity of sustainability, not solely being an economic, but also an ecological and social issue, makes it difficult for many companies to introduce sustainability strategies, which cover all three dimensions of the issue. As a result, while the economic benefits of sustainability may seem compelling to some, the complexity of the sustainability issue and the associated costs of implementing needed changes can also explain why many companies believe that the gains in some cases cannot outweigh the costs (Nidumolu, Prahalad & Rangaswami, 2009). This confirms that the discussion of sustainability as a business case cannot be limited to its economic implications, but also needs to include ecological as well as social dimensions which are discussed in the following sections.

2.1.2 Ecological dimension of sustainability

According to Starik and Rands (1995) corporate ecological sustainability can be measured by the degree to which an organisation can perform its activities "[...] indefinitely without

negatively altering the limiting factors that permit the existence and flourishing of other groups of entities" (Starik and Rands, 1995, pp. 909). As a result, the ecological dimension of corporate sustainability takes into account the environmental impacts of an organization's business processes. In light of the ecological impact of companies and their use of (natural) resources, the notion of circularity, or circular economy has become particularly popular and subject to debate (e.g. Andersen, 2007; MacArthur, 2013; Stahel, 2016; Korhonen, Honkasalo, Seppälä, 2018; Geng, Sarkis & Bleischwitz, 2019). The general idea is to reduce the environmental impact of a product's lifecycle caused by resource use and resulting emissions into air, water and ground as well as to decrease waste disposal to landfill. It is argued that by doing so, the product life cycle can be turned from linear ('take-make-waste') to circular, where the product is recycled, or reused at the end of its previously intended lifespan (McArthurs, 2013). The idea of a circular economy and its potential environmental benefits have become so popular that the concept is promoted by the EU and various national governments, as well as large international corporations, i.a. through bans of certain materials that are harmful for circularity (e.g. styrofoam) or by incentivising circular behavior through tax breaks (Korhonen, Honkasalo, Seppälä, 2018).

2.1.3 Social dimension of sustainability

Finally, the aim of social sustainability of an organization can be described as the ambition "[...] to positively influence all present and future relationships with stakeholders" (Ebner, 2007, p. 3). Freeman (1984, p. 25) describes stakeholders as "those groups and individuals who can affect or be affected" by an organization's actions connected to value creation and trade. In this context, a challenge for social sustainability management is to identify which stakeholders are involved in and affected by certain business activities, as business success heavily depends on its stakeholders' input and well-being. Therefore, it is important to harmonize stakeholder demands and, if necessary, to search for means to overcome trade-offs, to address (potential) conflicts and to install positive links between different stakeholder interests (Freeman et al., 2010). It is important to note that the unit of analysis should not be the company and its well-being itself, but rather the relationships between the organization and its stakeholders (Freeman et al., 2010).

As previously mentioned, the economic, ecological and social dimensions of sustainability, should not be viewed as distinct or separate from one another. For example, introducing circularity into product life cycles not only reduces the environmental impact of said product. This can also have an economic benefit, having the potential of being a cost-saving factor by reducing material and production costs (MacArthur, 2013). At the same time, efforts to ensure integrating social dimensions of sustainability in a business's operations can have positive impacts on employee or more generally stakeholder satisfaction and thereby positively impacting productivity, and public image, which are both pivotal for corporate success (Bin Shmailan, 2016; Chi & Gursoy, 2009).

Understanding sustainability as a complex challenge that spans throughout multiple, interconnected dimensions is a first step to developing strategies that aim at integrating sustainability into a business's operations. There are various shapes and forms, sustainability strategies can take, varying significantly across organizations.

2.2 Types of sustainability strategies

Baumgartner (2009) identifies four types of sustainability strategy that are currently implemented by businesses: introverted, extroverted, conservative and visionary strategies. According to him, *introverted* strategies are responsive to external pressures through legislation or other external standards relating to environmental and social dimensions. As a result, the actions taken in response to external pressures are primarily internally oriented to achieve legal compliance (Baumgartner, 2009). According to Baumgartner (2009), *extroverted* strategies focus on the external relationships i.e. public acceptance of a company's operations. These strategies usually focus on the company's image and how it is perceived by external stakeholders (Baumgartner, 2009). *Conservative* strategies focus on cost-minimization or the creation of a competitive advantage through eco-efficiency. As a result, these types of strategy usually have a strong internal focus (Baumgartner, 2009). Finally, Baumgartner (2009) argues that *visionary* strategies are used by businesses who have sustainability as a core agenda point and therefore, have it as a focus point in all business activities. Visionary strategies often combine aspects of the aforementioned strategy types. They can have an outside-in focus, where a market perspective serves as a strategy forming

factor, or an inside-out focus, where the market perspective is complemented by a resource based view that aims at creating competitive advantage (Baumgartner, 2009).

Knowledge of the different types of strategies that companies can take in their pursuit of strategic sustainable innovation enables us to categorize their strategic contents. In the following section, we are going to introduce the Framework for Strategic Sustainable Development (FSSD) which provides insights into the processes organisations can follow to create a comprehensive strategy towards strategic sustainable innovation.

2.3 The Framework for Strategic Sustainable Development (FSSD)

With its first roots in the 1990s, the FSSD was developed by Broman and Robèrt (described in Broman & Robèrt, 2017) in order to support communities and organizations to understand and maneuver through the global challenge of sustainability. The FSSD is often considered to be a comprehensive framework for addressing the challenge of corporate sustainability in a strategic manner (Thorén & Vendel, 2018; Baumgartner & Rauter, 2017). As previously discussed, the successful implementation of effective sustainability strategies can contribute to reducing ecologically and socially negative impacts, strengthening the own company through identified innovation opportunities, reducing legal risks and can even have a positive impact on production costs. The FSSD therefore delivers a systematic approach to support "management of system boundaries and trade-offs, assessing sustainable potentials for various materials and practices before investments are made, and offers the possibility for more effective collaboration across disciplines and sectors, regions, value-chains and stakeholder groups" (Broman & Robèrt, 2017, p. 26). Moreover, the FSSD empowers the prevention of "damages, even from yet unknown problems, and [...] to guide selection, development and combination of supplementary methods, tools, and other forms of support which makes it possible to increase their utility for strategic sustainable development" (Broman & Robèrt, 2017, p. 27). The framework serves as a guide through the above described issues and can be broken down into four main steps, which are briefly introduced in the following sections.

Firstly, the FSSD emphasises the need for an understanding of sustainability as a pivotal component of contemporary businesses and illustrates this by using a funnel metaphor (see Fig. 2.1). The metaphor shows that the contemporary developments relating to societal and environmental pressures inevitably lead to the necessity of adapting towards strategic sustainable innovation due to scarcity of resources and the danger of landing in a 'dead end'. The above described pressures increasingly facilitate a sustainability driven market environment, which makes strategic sustainable innovation a process not just beneficial for the good of the environment, but also for the sake of business survival.

Secondly, the FSSD is structured in five interdependent levels (see Fig. 2.2) to illustrate the correlation between different sustainability related phenomena in a simultaneous and non-sequential order (Robèrt, 2000; Ny et al., 2006):

1. On the *system level*, the relationship between business practices and socio-ecological systems is explained. In particular, it sets out principles for the global system's functioning as a whole, which includes all known information about human society within the context and boundaries of the Earth's planetary system (Broman and Robèrt, 2017). In a specific business context, the dependence on global and regional networks and support systems, value chains and the organization being impacted by current unsustainable practices have to be considered (Broman & Robèrt, 2017).
2. The *success level* aims at defining a sustainability oriented vision, core purpose, values and end-goals in general.
3. The *strategic level* focuses on guidelines, which explain how a principle-framed vision can be approached strategically through backcasting.
4. The *actions level* includes a strategic plan with concrete actions for realising specific the previously established success factors.
5. Finally, the *tools level* focuses on methods and tools that can support the decision making process and the monitoring of the same.

Thirdly, the FSSD provides a set of sustainability principles which present a comprehensive account for environmental and social ambitions that need to be integrated into sustainability strategies. Broman and Robèrt's (2017) definition of sustainability principles has been created as a result of a more than 25-year-long discourse between various scientific experts and practitioners. With their sustainability principles, Broman and Robèrt (2017) provide a

definition that is generally applicable, but at the same time still concrete enough to guide the sustainability process.[2]

Finally, the FSSD proposes the use of a so-called ABCD-procedure for the strategic implementation of the framework. The ABCD-procedure is a four step procedure which comprises of:

- A: an analysis of the sustainability challenge and the opportunities linked to it and the creation of a vision
- B: an assessment of the organizations contemporary standing in relation to the vision established in A
- C: use of creativity methods with a group of diverse people
- D: application of strategic guidelines which were established in C

The procedure is used as a linear, yet iterative process to assist companies by suggesting an agile planning process using backcasting which deals with strategy development starting from a defined vision, and then asking which steps and measures to take today in order to get there (Robinson, 1990).

[2] We will provide an exact definition of Broman and Robèrt's sustainability principles in our findings section, where we discuss their presence in the corporate sustainability strategies of our case study subjects.

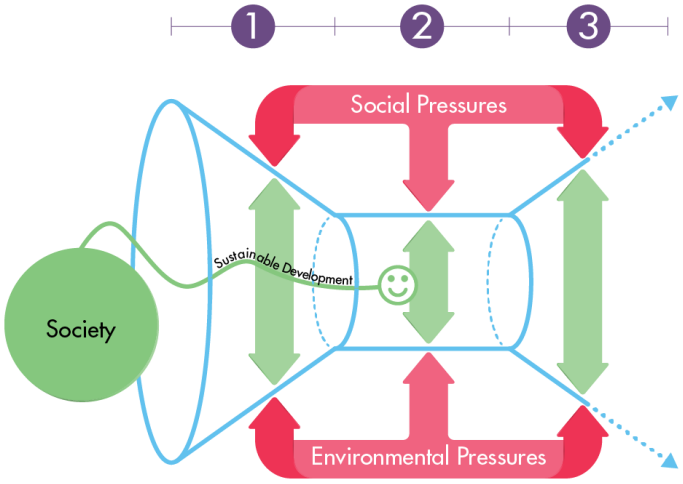

Figure 2.1 The Funnel Metaphor (based on Broman & Robèrt, 2017) [4]

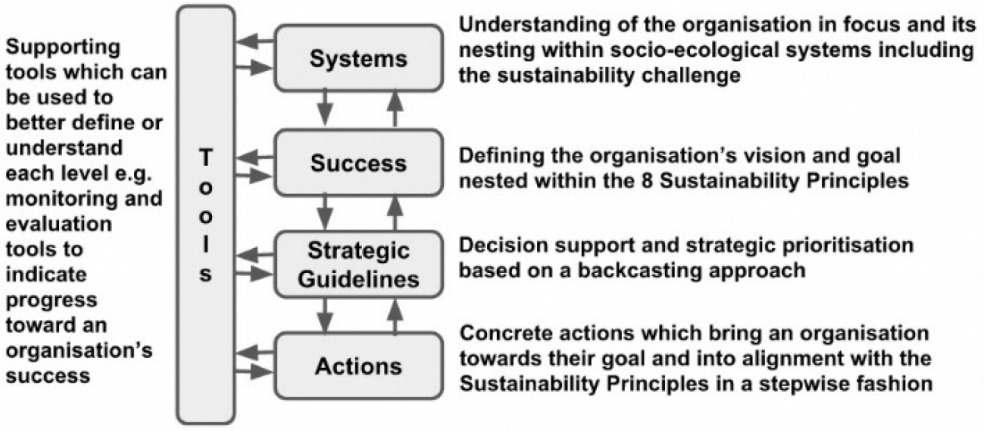

Figure 2.2 The five levels of the FSSD (based on Broman & Robèrt, 2017) [3]

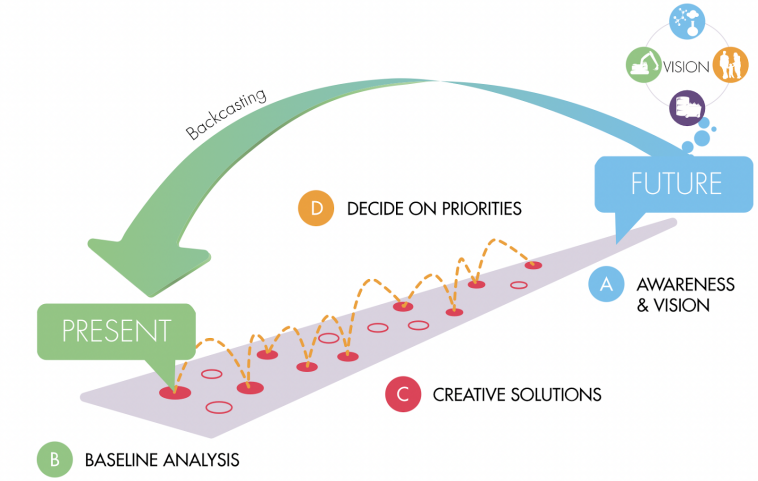

Figure 2.3 ABCD-procedure in strategic planning (based on Broman & Robèrt, 2017)[5]

[3] Retrieved from Kianian et. al. (2018).
[4] Retrieved from: The Natural Step Germany (2020), Available online: https://www.thenaturalstep.de/imprint/ [Accessed June 3, 2021]
[5] Retrieved from: The Natural Step Germany (2020), Available online: https://www.thenaturalstep.de/imprint/ [Accessed June 3, 2021]

3 Methodology

The aim of this study is to explore the key features of ongoing strategic sustainable innovation processes at large, international companies and to assess whether these processes align with the FSSD. We build our study on a cross-case analysis among three listed, international companies.

Most research on strategic sustainable innovation has primarily been based on theoretical discussions and to the best of our knowledge, detailed case study research, which includes interviews with company representatives to examine strategic sustainability processes, are limited. Bos-Brouwers (2010) has conducted a case study on corporate sustainability and innovation in small and medium sized enterprises (SMEs), where she examined the factors that play an important role in the realisation of sustainable innovation. Her findings imply that sustainable innovation in SMEs are often directed at improvements of technological processes and the lowering of production costs. Furthermore, Baumgartner (2009) conducted case study research to examine the role of organisational culture and leadership as driving factors for the development of sustainable corporations. He found that unless sustainable development is not an integral part to the leadership's mindset, it will most likely not be integrated deeply into the organisation's operations. Therefore, to be successful, sustainability needs to become a deeply integrated part of organisational culture and all business operations to be successfully implemented into action.

Both studies provide valuable insights into the required preconditions for strategic success. Furthermore, they showcase that cross-case analyses prove to be an effective analytical tool for studying strategic sustainable innovation. Nonetheless, we find that the complexity and wickedness of the sustainability challenge are not covered sufficiently by above described studies and that the study of strategic sustainable innovation requires an approach taking these qualities into account. For this reason, our study makes use of the FSSD, which serves as an adequate framework since its comprehensiveness aids a holistic approach to creating strategies for sustainable development. The FSSD does not only focus on one sustainability

dimension or disconnected aspects, but rather emphasises the importance of capturing the complex interplay of all dimensions of sustainability (Broman & Robèrt, 2017). By using the FSSD as a template that we test against our case companies' strategic processes, we will furthermore showcase the relevance and limitations of the FSSD as a strategic tool.

3.1 Case selection

For the purpose of our study, we have selected three large, well established, international companies from the oil refinery and car manufacturing industry that recently shifted their focus towards more sustainability oriented strategies. In terms of employee numbers, the oil refining company is the smallest with about 5000 employees, while both car manufacturing companies have much larger employee counts with roughly 100.000 and 300.000 respectively. All three companies and the respective sustainability managers who were our interview subjects, demanded their company names not to be disclosed in this study. Therefore, we will henceforth refer to the companies as C1 for the larger of the two car manufacturing companies and C2 for the car manufacturing company with roughly 100.000 global employees. The oil-refining company will henceforth be referred to as OR1. Table 3.1 provides a brief overview of our case study subjects' core strategic sustainability objectives.

At this point, one may wonder why we chose companies from sectors that historically have been on the very opposite side of the sustainability spectrum. The answer to that is the matter of fact that our chosen case studies have all implemented serious sustainability strategies during the past 10 years. This significantly shifted their business's sustainability performance to the greener side of the spectrum. All three companies are ranked in the Dow Jones Sustainability Index (DJSI), which is one of the most prestigious sustainability ranking systems that measures and evaluates corporate environmental, social and governance initiatives (ESGs). To be included into the DJSI, companies must undergo a competitive benchmarking assessment of their sustainability performance and only a selected few companies pass the stringent assessment and are included into the DJSI (Jäger, 2017).

Furthermore, we chose these companies because we believe that the strategic decision making processes and fundamental changes of their business operations provide an interesting case

for the study of strategic sustainable innovation and related structural change processes. In order to undergo or initiate significant transformations towards sustainability despite a long history of rather unsustainable operations, breaking through long established structures and processes requires vigorous strategic commitments to change. Therefore, we believe that gaining insights from companies that have managed to overcome these structural hurdles can also serve as a motivation for companies that currently struggle with the implementation of strategic sustainable innovations.

Table 3.1 Brief overview of case study subjects' core strategic sustainability objectives

C1	- CO2 neutrality by 2039 - Aim to sell more than 50% of all cars sold as electric or Plug-in-hybrid cars by 2030 - Get as close to being a circular business as possible
C2	- CO2 neutrality by 2040 - Aim to become a pure electric car company by 2030 - Reduce carbon footprint of their vehicles by 40% until 2025 - Become a circular business by 2040
OR1	- CO2 neutrality by 2035 - Aim to reduce customers' greenhouse emissions by at least 20 million tons annually by 2030 - Aim to become leading provider of circular business solutions - While, OR1 is still a crude oil refining company it is currently also the largest manufacturer of renewables based fuels and produces plastics out of renewable or recycled materials

3.2 Data collection

Our study is based on a qualitative, deductive approach with the aim to gain a comprehensive understanding of the strategic processes in our case companies. Therefore, we conduct a cross-case analysis which is based on our theoretical framework. The data supporting that purpose is collected through a document review and the conduction of semi-structured

interviews. Rather than focusing on outcomes or specific variables, our study has the purpose to explore the processes and contexts of strategic sustainable innovation.

3.2.1 Document Review

As we argue for a rather holistic and systemic approach to examine strategic sustainable innovation in businesses, the interviews were triangulated with a comprehensive review of existing literature and publicly available documents such as sustainability reports produced by the companies as well as press releases. Since the companies at the centre of our case study are all well established, large and international companies, their sustainability reporting is quite extensive and provides detailed accounts of their strategic ambitions. The sustainability reports further provide details about the whereabouts of the companies in the strategic process and about their corporate goals and ambitions. Moreover, they paint a very extensive picture of the various activities which are either in the process of implementation or in a planning stage.

3.2.2 Semi-structured interviews

Since business is a largely social phenomenon, we further involved four semi-structured interviews to complement our findings from the document review. The interviews were all conducted through an online video conferencing tool, recorded and then transcribed. The interview subjects of our study are all mid-level sustainability managers who lead the development of sustainability related strategies, and who monitor and directly report the sustainability progress to the management board. Our conversations with them did not evolve around the strategies themselves, since these are covered in our case study subjects' sustainability reports. Instead, our interviews aimed at investigating drivers and obstacles to the strategic sustainability process, and to get deeper personal insights into the processes leading to strategies and to their implementation. As a result, we developed an interview guide consisting of 35 questions which is based on the FSSD five-level model. As a result, we were aiming to investigate (1) systemic relationships, (2) sustainability oriented values and vision, (3) the company's strategic guidelines, (4) concrete actions aiming at reaching strategic goals and (5) the tools that are used to monitor the process. However, we intended

our questions to be guided by the conversation instead of the other way around (Seidman, 2006). That is why we developed rather open questions with the opportunity to pursue further with more in-depth follow-up questions eliciting more detailed information from the participants.

By having interviewees tell their own experiences, we were able to gain insights into the prevalent mindsets, drivers and motives on different organizational levels as well as interpersonal relationships which play a significant role in an organization's strategic process. The open-ended, semi-structured style further allowed us to explore the broad problem area and to explore a wide range of factors that are central to it.

3.3 Data analysis

The document review process formed the first step of our data analysis to provide us with the background needed to comprehend the overall strategic ambitions of our case study subjects. However, since our study focuses primarily on strategic processes, the data analysis process paid a stronger focus to the data collected through our semi-structured interviews.

The qualitative data collected through our document review and our semi-structured interviews with sustainability managers from C1, C2 and OR1 has been categorized through themes that were identified in our theoretical framework. More specifically, the data was examined and categorized by using the FSSD as an analytical tool to investigate the strategic processes in our case companies. This deductive approach to our data analysis resulted in 14 sub-categories which we grouped into four main categories, namely 'drivers of sustainability', 'role of systems thinking', 'sustainability principles', and 'challenges to sustainability'. The various subcategories and the respective data sources have been listed below in Table 3.2.

Table 3.2 Data Categorization

Category	**Sub-category**	**Data sources**
Drivers of sustainability	- Legislation - Competition - Customers - Shareholders - Role of Covid	Sustainability reports & semi-structured interviews (C1, C2, OR1)
Role of systems thinking	- Triple bottom line of sustainability - Circular economy - Stakeholder Involvement - Backcasting	Sustainability reports & semi-structured interviews (C1, C2, OR1)
Sustainability principles	- Ecological - Social	Code of conduct C2, OR1, integrity code C1, semi-structured interviews (C1, C2, OR1)
Challenges to sustainability	- Bottom-up communication - Top-down communication - External communication	Semi-structured interviews (C1, C2, OR1)

3.4 Limitations

The conducted research is not free from uncertainties and possible limitations. Since our qualitative analysis consists of a small sample population of three companies, our results may only provide limited generalizability. Furthermore, the case study subjects all already have established organisational structures to deal with the sustainability challenge, i.e. they have designated divisions to deal with the strategic challenges of sustainable innovation and monitoring the processes involved. This requires significant human resources and financial assets, which likely are not at the disposal of most small to medium-sized companies.

However, we believe that our choice to focus on only three companies will provide an analytical depth that otherwise would not be possible. Finally, while the greater size and established position of our case study companies ease their access to human resources and financing, these traits also result in much more complex business structures. Since our holistic approach makes these complexities a central focus point of our study, the results will also provide useful insights for smaller and medium sized companies who are potentially on their way to becoming larger companies.

We acknowledge that conducting only four interviews may seem to not suffice for reliability and validity. However, since the focus of this study lies on the strategic process, talking to managers leading that process provided us with comprehensive insights that sufficed our purpose.

We are also aware of the biases the method of an interview carries (Sekaran & Bougie, 2016):

1. *Social desirability bias* or *social acceptability bias.* Due to the high profile of our case companies and the strict control of published information, our interviewees may be inhibited from answering openly and honestly. Moreover, the (virtual) face-to-face setup could lead to our interviewees choosing their answers to be liked or accepted, particularly in cases of sensitive questions or questions on controversial topics.

2. *Confirmation bias.* We are aware of the risk of asking our questions in a direction that confirms our expected outcomes and, or even disregards aspects that might contradict our expected outcomes.

3. *Question-order bias*. The order of our questions may also have an impact on our interviewees' responses. Among other things there is the possibility that they will adjust later answers in accordance with previously given responses.

We believe that the risk of falling subject to a social desirability bias is mitigated by the fact that the identities of our interviewees and case study subjects are not disclosed. Moreover, following the recommendations made by Sekaran & Bougie (2016) to mitigate interview biases, we started by asking broad questions and then continued to narrow them down to specific areas and follow-up questions. Furthermore, we attempted to avoid confirmation bias by both being present in our four interviews. We further discussed our interviews right after having conducted them in order to reduce the risk of subjectivity. We further revised our interview guide after the first interview in order to get more standardized and objective questions to make them applicable to our following interviews. Finally, the question-order bias was mitigated by letting the interviewee guide the conversation rather than following a strict question-order. While we had prepared an interview guide with a specific

question-order, the answers often covered topics which were intended to be investigated through other questions as a result of the broad nature of some questions.

4 Findings

Having analyzed the collected data based on the established categories (summarized in Table 3.2) allows us to structure our findings accordingly. In the following section, we assess our findings through the lens of the FSSD, identifying drivers and challenges, values and shared principles, and most importantly the role of systems thinking within the strategic decision making process towards sustainable innovation in our case companies. Our key findings are summarized in Table 4.1.

4.1 Drivers of the sustainability process

4.1.1 Government legislation

It has not been long that companies have been made complicit in securing the protection of biodiversity or human rights. Up until the enactment of the Paris Agreement and Agenda 2030 with its Sustainable Development Goals in 2015, companies had not been legislatively held accountable for their sustainability impact. Our interviewees identify government legislation as one of the main drivers for pursuing a well-developed sustainability strategy, since "[...] we can see that if we don't actually shift, we will be penalized" (Interviewee 2, C2). It became evident that this engagement is particularly monetarily motivated as

> *otherwise this is just going to be a massively expensive decision for us, but we won't be able to make it profitable. So, the world needs to change because otherwise we're in big trouble (Interviewee 4, OR1).*

Nonetheless, we found that the companies we interviewed have come to accept political responsibility, rather than only engaging in sustainability practices in compliance or manipulation to evade sanctions and create an image of legitimacy (Scherer et al., 2013).

Table 4.1 Summary of Findings

Features	*Description of Features*	*Identified in*
Strategic Drivers		
Legislation	- Companies have been made complicit in sustainability issues with the Paris Agreement and Agenda 2030 (2015) - Corporations do not only seek to comply with legislation, but proactively push the legislative framework for change	*C1, C2, OR1* *C1, C2, OR1*
Competitors	- Competitors are pushing the standards by innovation - Problem: insincere engagement of competitors who buy CO2 certificates instead of truly being sustainable	*C1, C2* *C2*
Customers	- Customer perceptions and needs change as technologies advance - Usage of tools such as brand monitoring and media analyses to capture customer preference	*C1, C2, OR1* *C1, OR1*
Shareholders	- Investors heavily influence the strategic process as their perception has shifted to sustainability being a long-term investment rather than a cost factor	*C1, C2, OR1*
COVID-19	- Proved to be a huge opportunity for our companies to work towards their ambition of CO2 neutrality by reducing travel emissions - Problem: has a negative impact on communicating sustainability strategy to all levels of the company	*C1, C2* *C2*
Systems Thinking		
Triple Bottom Line of Sustainability	- Great understanding of the interconnectedness of the ecological, social and economic aspect of sustainability - Overall, ecological aspect is still most prevalent (reducing CO2 emissions, renewable energy) - No clear definition of sustainability, but principle-based vision	*C1, C2, OR1* *C1, C2, OR1* *C1, C2, OR1*
Circular Economy	- Transformation to circular businesses - Challenge: transformation of the entire business model - One company views its responsibility in contributing to a circular economy, instead of just becoming a circular business	*C1, C2, OR1* *C2* *OR1*
Stakeholder Involvement	- Involvement of all stakeholders along the supply chain during the strategic process - Review sessions; expert advisors; collaboration with NGOs, governments, investors and competitors	*C1, OR1* *C1, C2, OR1*
Backcasting	- Flexible and agile strategic process - use of backcasting from a principle-based vision	*C1, C2, OR1*

	- Iterative reassessment of being on the right track (e.g. materiality matrices)	*C1, C2, OR1*

Sustainability Principles

Ecological	- The sustainability strategies contribute towards "reducing the concentrations of substances extracted from the Earth's crust, towards reducing concentrations of substances produced by society and towards reducing degradation by physical means" (Broman & Robèrt, 2017, p.23)	*C1, C2, OR1*
Social	- The companies ensure a work environment which facilitates "access to health, influence, competence, impartiality and meaning making" by their employees (Broman & Robèrt, 2017, p.23)	*C1, C2, OR1*

Challenges

Internal Communication bottom-up	- Notion of challenge to communicate some sustainability strategies with the management board - Challenge to pass sustainability strategies that are not easily turned into a financial profit - Challenge to introduce strategies that will not result in direct short-term profits	*C1, C2, OR1* *OR1* *C1*
→ Solution	- Introduce sustainability as a non-financial remuneration component for all management board and senior management members - Data driven approach to communicating sustainability strategies, e.g. by highlighting ease of access to capital markets	*C1, C2, OR1* *C1, C2, OR1*
Internal Communication top-down	- Notion of challenge to communicate sustainability with all members of the organisation - Conflicting opinions over sustainability as a relevant topic in day-to-day work of employees who are not involved in the strategic process	*C1, C2, OR1* *C1, C2*
→ Solution	- Use of the company intranet as communication channel of strategic sustainability initiatives - Facilitate an open dialogue with employees through sustainability workshops and seminars	*C1, C2, OR1* *C1, C2, OR1*
Enforcing Supplier Commitment	- Notion that all suppliers need to be included in the sustainability process → creating a trigger effect, which can improve the sustainability performance of an entire industry, rather than just a single company - In many cases suppliers already have their own sustainability goals or reaching a commitment from suppliers to sustainability goals is just a matter of requiring it from them - However, in many cases suppliers do not have the capacities to follow up on sustainability commitments due to lacking access to innovation → in such cases a cooperation is needed to assist suppliers to build the required sustainability capacities	*C1, C2, OR1* *C1, C2* *C2, OR1*

In line with the theory of corporate responsibilization, our case companies highlighted that they understand their role as to make sure they contribute to a changing business environment as well (Interviewee 4, OR1) and that they avoid being interpreted as doing only the bare minimum towards meeting the targets and the legislations (Interviewee 2, C2). Moreover, one of our case companies (OR1) has constantly been ahead of the legislative environment, making early investments and therefore pushing for change in the business environment.

Interestingly, when regulations were yet to be developed in the early 2000s, OR1, that is working with fossil fuels, had already started to think about the next step, anticipating where the world will be going in the future. With the 2009 United Nations Climate Conference in Copenhagen, the company expected a huge change towards more restrictive targets on limiting emissions which eventually failed. However, OR 1's mindset had already shifted to their advantage for the reason that:

> *when [OR1] made those big decisions nobody else did. Some of the big oil companies made some efforts, but then they sold their solar things and whatnot, so that didn't grow. [...] And now the climate thing is back, and it is still even just getting stronger. So, for me this is now an actual turning point, but it doesn't mean that there wasn't another turning point 10 years ago, and that's when [OR1] started turning. [...] People have been criticizing us in the past for making this massive part of our business already on renewables. But now everybody else is trying to see how we can get there* (Interviewee 4, OR1).

4.1.2 Competitors

The FSSD uses the funnel metaphor to visualise the scarcity of our world's resources and how businesses can benefit from proactively moving towards sustainability themselves in relation to their competitors. According to Broman & Robèrt (2017) the walls of the funnel metaphor illustrate sudden changes in legislation, regulation and taxation, resource availability and costs, as well as shifting stakeholder preferences and the risk of losing out to competitors who are more adept at maneuvering the paradigm shift. Interviewee 1 from C1 confirms this notion by stating that

> *[...] our competitors are also active. If you look at our direct competitors, they are also putting us under pressure. And we have also decided not to always be just the followers, but to get in front of the wave.*

However, achieving an image of positive sustainability performance is not always reached through sincere sustainability measures, but often through CO2 certificates that companies buy and that, as Interviewee 2 (C2) states:

> *[...] is really frustrating because they actually claim to be sustainable even though they have not changed their strategy at all. They even get media attention for it, saying, 'look, this company is carbon neutral.' And then they haven't really reduced emissions, they've just bought their way out.*

Nonetheless, all our interviewees share the opinion that it is their responsibility "to do it in a credible way that is actually scientifically working and is meeting the highest standard instead of just taking the easy way out" (Interviewee 2, C2).

4.1.3 Customers and public perception

Staying ahead of the competition as a main business concern requires continuous improvement of technologies and products that meet customer needs and preferences. As the world changes, shifts in customer perceptions also need to be reflected in the alignment of companies' sustainability strategy. In order to do so, our case companies utilize tools such as Brand Monitoring carried out by the marketing department. Also, media analyses and ESG ratings are becoming increasingly important (Interviewee 3, C1). The main concern here is to stay connected with the target customer and to make sustainable products desirable goods which is why

> *We also have a very strong public affairs focus and we always keep saying that they're like the eyes and the ears on the ground. Bringing in information on what is happening in different parts of the world and feeding it into the strategy process (Interviewee 4, OR1).*

Moreover, especially C1 and C2 need to tailor their product portfolio according to their customers needs and expectations. They have committed to reflect both their customers' individual needs and preferences, acknowledging cultural differences in different markets as well as other factors of diversity such as special requirements for customers with impaired mobility. It can be argued that the companies do not only strive for more inclusion and diversity in the workplace, but that they are becoming more inclusive along the value chain as well.

Another reason for them to engage in sustainable measures is that the awareness towards sustainability is at an all time high and rising steadily, especially among young people. Therefore it becomes imperative for companies to actually act on sustainability as Interviewee 2 (C2) states:

> *We have much easier access to customers in case we're actually having a sustainable purpose and are living by this purpose. I don't think smart young people would like to buy from us unless we try to do this.*

4.1.4 Shareholders/Investors

Today, strong pressure is also coming from investors and financial institutions that are involved in the approval of strategic decisions. The perception of sustainability has shifted from being considered a pure cost factor to being an opportunity and a long-term investment. It can be observed that financial institutions are shifting in a way that firms can profit from better financing agreements if they make the shift and can prove that they are more sustainable (Interviewee 2, C2). Even more than that, our case companies' strategic direction is dependent on their shareholders approval

> *[...] who are clearly telling [them] 'if you don't do this, we won't approve the actions of the Supervisory Board.' So there are really clear messages in this direction* (Interviewee 3, C1).

Quite tellingly, Interviewee 4 from OR1 describes their relationship with potential and existing investors:

> *I say that our best friend is our Head of Investor Relations because a lot of my time is spent on talking to investors. They have a lot of interest in understanding what we do. So, there's been a massive change in how that part of the world is also looking at companies. So, if you want to build a strategy that is exciting and convincing to investors, then you must make sure that you also include sustainability in it.*

Our interviewees emphasize that this shift in investors' perception creates leverage for their sustainability strategy work which had found little hearing in the management board before the Paris Agreement and Agenda 2030. Having important investors saying that they "would pull out of funds from companies that do not have a credible climate approach" (Interviewee 4, OR1), moved the necessity of a more comprehensive sustainability strategy on CFO's and board members' agenda and created an understanding "that the world is going in a sustainable direction and that they needed to listen" (Interviewee 4, OR1).

4.1.5 Impact of COVID-19

The COVID-19 pandemic and its business implications further aggregated the wickedness and uncertainty our case companies find themselves in. However, Interviewee 2 from C2 assigned a facilitating role to the pandemic for the reason that business travels have been strictly limited and as a result the company's business travel emissions have been decreased. "[...] that is both saving CO2 and saving costs. And that is a rather easy thing to do. Because that was actually one of the initiatives that we tried to push for before, but COVID actually helped us a bit with" (Interviewee 2, C2).

Nonetheless, our interviewees argue that the pandemic also had an impact on their ability to connect with people throughout the organization as they had to react to regulatory changes in very little time. The COVID pandemic is a telling example of the VUCA and disruptive environment today's companies have to maneuver through. It became therefore even more imperative for them to develop an agile and emergence-based strategic process to be able to react to external shocks without the risk of major financial losses.

4.1.6 Ambitions

Based on the above mentioned drivers, companies develop ambitions which are later translated into their strategy. Our collected data indicates that all three case companies set themselves very high ambitions in an overarching sustainability vision, as to systematically become CO2 neutral in the near future[6]. Further, in their respective areas they set the target to "be number one, [because] it doesn't make sense, not to say we want to be the most sustainable mobility solutions provider" (Interviewee 1, C1). All case companies conduct frequent review sessions where they follow-up on their targets and ambitions and adjust their approach as needed. For instance, company C1 conducts frequent review sessions where they look at their ambitions for every single theme included in their sustainability strategy. Each theme then will be assigned to one of three clusters: "be compliant", "be in the midfield", and "be number one". The decision where and how high to set the ambition is then based on expected capabilities, the management board's expectations and other stakeholders' interests (Interviewee 1, C1).

It became evident that the companies' target horizons are constantly challenged and that there is an overarching commitment to be "number one" in the business's core areas, such as Traffic Safety for car manufacturer C1. All of our interviewees even actively questioned their company's target horizon to become CO2 neutral by 2039/2040/2035, as to whether that is still soon enough or whether they need to resharpen that ambition moving forward in the light of stakeholder expectations and needs, financial goals and emerging government legislation. However, it is highlighted that instead of being paralyzed by possible future regulation they "rather see this as a huge opportunity where if [they] actually act and if others act, [they] might come up with better and better solutions" (Interviewee 2, C2). This allows our case companies to resharpen their ambition and their placement in the market in comparison with the competitors while contributing to a more sustainable future.

[6] Case company C1 set a target for CO2 neutrality for 2039, case company C2 for 2040, and case company OR1 for 2035 (see Sustainability Reports).

4.2 The strategic process and the role of systems thinking

4.2.1 Definition of sustainability

During the interviews, it became evident that all interviewees share a common understanding of sustainability as a greater construct consisting of the three interrelated and interdependent dimensions of ecological, social and economic sustainability or "people, planet, profit" (Interviewee 3, C1). However, when asked about the meaning of sustainability, none of the interviewees had a specific definition that they work or live by, but that "[...] sustainability can be more or less anything" (Interviewee 2, C2). Also, their corporate purposes are rather open and more principle-based as for instance formulated by OR1, 'we want to create a healthier planet for our children by creating responsible choices every day'. Nonetheless, it was emphasized that all three pillars need to be harmonized for a successful sustainability strategy to be developed:

> *Without functioning governance, with corresponding effects or actions, it doesn't work at all. So, if the governance is not anchored and our boards are not involved, then we can pedal all we want at the bottom and it won't work. [...] We are a stock corporation, and we can take up environmental issues, but if we don't work economically, then none of this will do us any good. That's why it's only possible in a balanced triad* (Interviewee 1, C1).

All three companies have divided the three dimensions of sustainability into their own areas of responsibility by having teams specializing on the different topics. As Interviewee 4 from OR1 explains, they see the need for the different themes to be separated, as otherwise quite often people would forget that for instance human rights are just as important as the environmental aspect of sustainability. It is further highlighted that there seems to be a shift of focus on action away from the planet to the people, as the environmental and economic aspects are already deeply integrated and, as Interviewee 4 (OR1) emphasizes,

> *they need to happen anyways, and they need to be on a very good level. So, we wanted to focus on those things where you can still prioritize, such as forced labor,*

vulnerable groups, but also on diversity, inclusion, and equality, because all these things are growing.

4.2.2 Systems and the circular economy

The world's natural resources are finite, yet economic activity is expected to increase sharply by 2050 (FAO, 2017). This means there are huge incentives for our case companies to revisit existing structures of production and consumption processes utilizing resources. Therefore, as described earlier, sustainability is a wicked problem and a systemic challenge. Our findings show that these 'systemic' problems can thus only be solved properly if our case study subjects recognize how all these factors interplay to generate certain developments and patterns of behavior. Thus, if they do not comprehend the issue, they are unable to achieve an appropriate solution.

Systems thinking hereby serves a twofold purpose. It is a means to assist our case companies in identifying root causes and implementing better solutions, and it provides the lens or framework for their conceptual understanding (MacArthur, 2013). Furthermore, it assists them on their transformation to a circular business or even to a circular economy as a whole. Wavell (2020) describes circular economy as a concept that emphasises the need for designing, making, and using things while taking the scarcity of resources and our planetary boundaries into account.

Circularity is considered in many of the activities of our case companies. C2, for example, views its remanufacturing process as an important way to manage resources by developing sites that do not send waste to landfills while minimizing the amount of waste material and increasing the amount of material for recycling and reuse (C2, Sustainability Report, 2020). There is agreement among our case companies that the linear view of economic processes in the world is outdated and that one must truly understand the relationships within the system in order to capture the entire system. Interviewee 2 (C2) points out that the company is not only focused on creating circularity within its business processes, but that it is also "trying to take responsibility for what suppliers do and then what [its] customers do". The movement toward a circular economy is an example of how sustainability is understood as a business opportunity that makes a company more resilient and successful in the future, as well as a

contribution to society as a whole. Company OR1 emphasizes that moving to a "circular bioeconomy" is no longer an option, but that it is

> *the best approach not only for the company itself, but also for people, society and the economy - not to mention the planet as a whole. Not only to get us through this pandemic, but also to address the climate crisis and the global plastic waste challenge in the longer term (CEO, OR1).*

4.2.3 Stakeholder involvement in the strategic process

According to the systems thinking approach, companies must consider the various stakeholders along the value chain when making strategic decisions. Our case companies have chosen to do so by actively involving their employees, suppliers, NGOs and external experts in the strategic process.

As the business environment is changing, organizations' ways of working have to change, too. All case study subjects emphasized that this transformation and its success is driven by the people working with and living up to the newly set standards. Further they argue that their employees' mindset is changing. Some interviewees are more critical by highlighting that it is a "debt to both be collected and brought" (Interviewee 3, C1), meaning that they "can't always tell everyone everything", but that their employees need to familiarize themselves with those topics on their own. Interviewee 1 (C1) perceives a growing feedback by their employees on their communication channels who react critically to strategic sustainability measures and in return integrates their feedback "because it gives us another chance to say, 'Okay, well, maybe the view that we didn't see is right', because at some point you're walking around in a tunnel". Interviewee 3 (C1) considers it a great achievement of their organization to have everyone understand the importance of sustainable business practices above their personal fears and restlessness:

> *At the end of the day, I think there is not one single way or single answer to it. But all of it comes together [...] and it does make business sense, because I don't believe we would stay in business unless we do this. And on top of that, we happen to try to save*

the climate or help save the climate, which is a positive benefit of it (Interviewee 2, C2).

Besides their employees, the companies are also working with existing suppliers to further develop sustainability practices in the respective region (Interviewee 4, OR1). Through regular materiality assessments (see Fig. 4.1) they aim to understand the most relevant sustainability issues at hand, reflecting various stakeholders' needs which in turn assists them to communicate the dependence of the strategic process on sustainability to the decision makers:

We had talked to investors, customers, NGOs, and policymakers. So, it provides a good understanding of what is expected of us, and makes it easier to communicate to our management board what needs to be visible in our strategic planning (Interviewee 4, OR1).

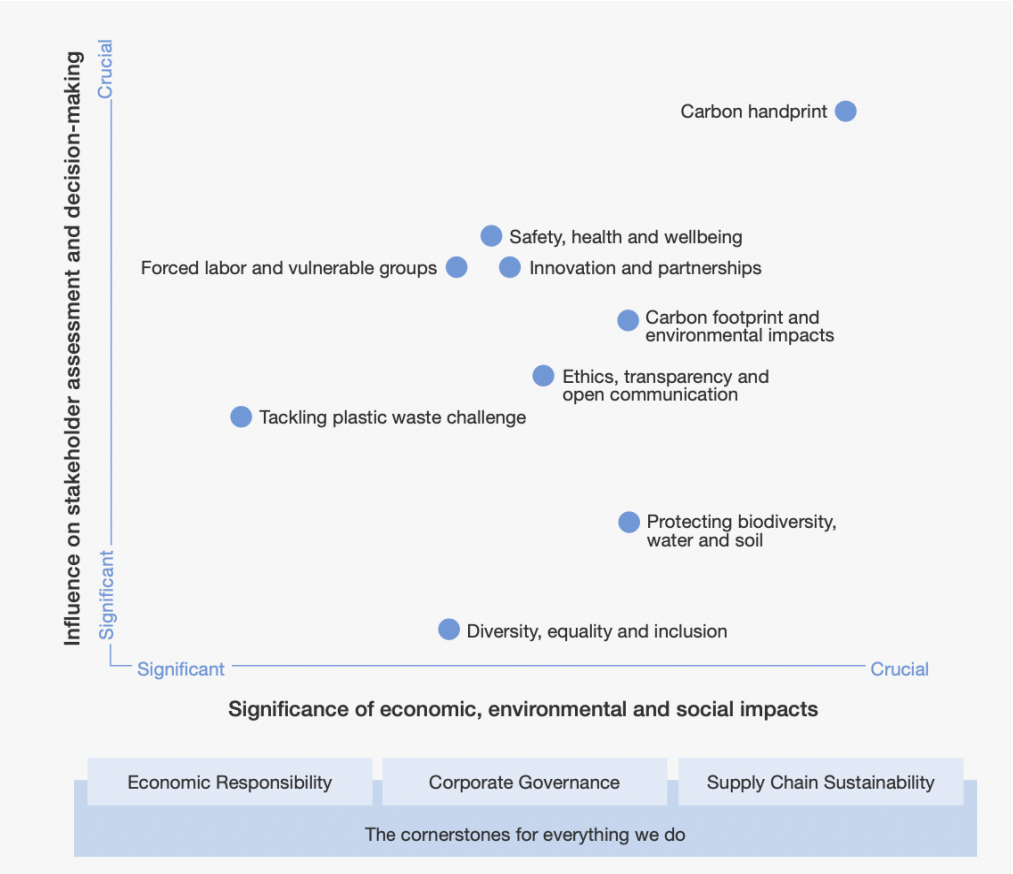

Figure 4.1: Example of a Materiality Matrix (OR1, Sustainability Report 2020)

4.2.4 Use of backcasting and the ABCD-procedure

When talking about the strategic process, all interviewees stressed the importance of agility and flexibility in their decision making process. They understand strategy as a link between the firm and its environment and have an innate awareness that their vision and the company's purpose can only be reached through an ability to react to outside changes, as tellingly described by Interviewee 3 (C1):

> *There is no fixed ambition which will remain valid for the next ten years, because that doesn't work. The world won't stay still for ten years, but will keep on spinning. Also our understanding of sustainability and our sustainability aspirations will likely be changing. So we can't be static, but have to look at what's happening in the world, and whether the focus of our strategy is still the right one.*

In line with the ABCD planning procedure, interviewees from C1 and OR1 highlighted that they work with a defined basic process and a constantly changing project focus which is reassessed regularly during semiannual review processes and materiality analyses (see fig. 4.1), and chosen based on "[their] relevance to [the] business, stakeholders, and estimated magnitude of their impacts" (OR1, Sustainability Report 2020).

The aforementioned characteristics of our case companies' strategic processes build an integral part to the backcasting approach. The implications they have on the strategic process will be further discussed in Chapter 5.2.2.

4.3 FSSD sustainability principles & corporate sustainability strategies

We know from our interviewees that their companies' sustainability strategies were not knowingly built within the Framework for Strategic Sustainable Development and that they were not familiar with the sustainability principles proposed by Broman & Robèrt (2017). However, using the FSSD as an analytical frame shows that their strategic sustainability ambitions and their corporate values correspond with the FSSD principles. The FSSD

sustainability principles are divided into an environmental and a social component and Broman & Robèrt (2017, pp. 23) define them as follows:

> *"In a sustainable society, nature is not subject to systematically increasing...*
> - *concentration of substances extracted from the Earth's crust.*
> - *concentration of substances produced by society.*
> - *degradation by physical means.*
>
> *And people are not subject to structural obstacles to...*
> - *Health,*
> - *Influence,*
> - *Competence,*
> - *Impartiality,*
> - *And meaning making."*

Broman and Robèrt (2017) argue that the definition of the sustainability principles enables the FSSD user to operationalize them through the addition of the phrase "not contributing to...". As a result, we get a guide for sustainability-oriented decisions and behavior:

> *"Organizations should not contribute to systematically increasing...*
> - *Concentration of substances extracted from the Earth's crust.*
> - *Concentration of substances produced by society.*
> - *Degradation by physical means.*
>
> *And they should not contribute to creating obstacles to people's...*
> - *Health*
> - *Influence*
> - *Competence*
> - *Impartiality*
> - *And meaning making."*

Based on these criteria, we can assess to what extent the sustainability strategies, and the processes towards them are in line with the FSSD sustainability principles.

Our three case study subjects have introduced strategies to either reducing their CO2 emissions or even becoming completely CO2 neutral businesses in the near future. Furthermore, all three of our case study subjects attempt to reduce the concentration of

substances extracted from the Earth's crust by following up on their ambitions to become circular businesses or contributors to the circular economy, as in the case of OR1. They furthermore encourage, or even commit their suppliers and partners to joining their sustainability ambitions of becoming CO2 neutral businesses. In doing so, they actively work towards reducing the concentrations of substances extracted from the Earth's crust, towards reducing concentrations of substances produced by society and towards reducing degradation by physical means. As a result, their strategic ambitions are in line with the environment related FSSD sustainability principles.

The Code of Conduct Documents of C2 and OR1, and the Integrity Code of C1 provide insights into the corporate values and principles that can be assessed against the social dimension of the FSSD sustainability principles. We find that all FSSD sustainability principles are represented in these documents. While we cannot assess the performance of our case study subjects in relation to these principles, we can assess the strategic ambitions the companies have regarding social wellbeing.

All three case study subjects show a commitment to ensuring a safe work environment that maintains physical and mental health alike. Compared to C2 and OR1, C1 provides a more detailed account on how they plan to achieve this. C1 aims at reaching that commitment by providing all the required safety equipment, following workplace safety standards and by promoting health by offering programs in the areas of occupational safety and medicine, health promotion in the workplace, ergonomics, reintegration and counseling services.

The FSSD principle "influence" refers to the fact that people are given the opportunity to actively participate in the social system (Broman & Robèrt, 2017). In this regard, OR1 states in its Code of Conduct that it values maintaining open discussions and dialogues with all its stakeholders.
The FSSD principle "competence" refers to the fact that people are given the opportunity to learn and develop their competences (Broman & Robèrt, 2017). While this principle does not come through in the above-described documents, it is evident from our interviews that the continuous development of employees in sustainability matters is promoted in all three companies by means of workshops, seminars, and open discussions. All of the above contribute to the growing competence of their employees.

The FSSD principle “impartiality” refers to the fact that people are safeguarded from discrimination or unfair treatment (Broman & Robert, 2017). We find this principle met in our case study subjects through commitments to Human Rights, and/or non-discrimination.
Finally, the FSSD principle “meaning making” refers to the fact that people are provided with the ability to create individual meaning, e.g. through the expression of culture (Broman & Robèrt, 2017). We also find this principle met by the same commitments that were discussed for the “impartiality” principle. We furthermore, find all of the above discussed social principles present in our case companies’ sustainability strategies, which also include aspects such as producing cars in line with the highest safety standards, the respect of human rights throughout the supply chain and the cooperation with external stakeholders, just to name a few.

According to Broman & Robèrt (2017), fulfilling the conditions of the sustainability principles is essential to creating a principle-based definition of sustainability. The benefit of aligning strategic processes with tangible sustainability principles is that they offer reference points that guide strategic actions whereas most definitions of sustainability only describe an ideal state, which is difficult or even impossible to achieve (Broman & Robèrt, 2017).

4.4 The challenge of communicating strategic sustainable innovation

Developing and implementing a comprehensive, successful sustainability strategy is obviously not free from challenges. Among challenges like dealing with a global pandemic and choosing focus areas while considering the circularity of the system are only some of them. Nevertheless, according to our interviewees, the most prevalent and crucial challenge within the strategic process is to communicate it throughout the organization and to “get everyone on board” (Interviewee 1, C1). In the following sections, we identify three directions of communication that companies need to consider in their strategic process: Firstly, communicating the sustainability strategy internally - bottom-up to the management board as well as throughout the entire organization, and finally, communicating the strategy externally and enforcing suppliers’ commitment to sustainability.

At this point, it is important to remember that all three case study subjects have allocated significant resources to the development and implementation of sustainability strategies. As a result, they have established sustainability departments or divisions, who dedicate their work solely to advancing their companies' sustainability agenda. Therefore, most of the initial work on sustainability related strategy does not occur in management board meetings, but within the sustainability departments headed by our interviewees. The reason why this is important to emphasize is, because this structure also results in one of the biggest challenges that was highlighted during our interviews - the challenge to communicate sustainability in all directions of the organization.

4.4.1 Communication with the management board

As we discussed earlier in our theoretical framework, sustainability is a challenge that is composed of three different dimensions: the economic, ecological, and social dimension. As we argued at an earlier point of this paper, these dimensions must be addressed holistically, because they are inherently related and connected to one another. However, to make this connection visible proves difficult to put into practice in some cases.

Even though all our interviewees stated that throughout the past years, it has become easier to put sustainability topics on the corporate agenda and have them approved by the management board, it still seems to be a challenge today. In response to our question why that was the case, interviewee 4 from OR1 responded that it proved difficult to motivate the board to pass sustainability related measures which are not easily turned into a financial profit. She particularly emphasized that for example the inclusion of human rights and biodiversity are difficult subjects, because they require far-reaching measures, with no direct returns on investment. On the other hand, she also stated that motivating climate related measures, like the reduction of CO2 emissions has become much easier to pass through the management board. This is because nowadays one can calculate the cost of pollution. As a result of the European Union Emissions Trading System (EU ETS), all EU manufacturers need to provide CO2 certificates for each ton of CO2 they emit. The fact that certificates can be traded, and the resulting market dynamics of supply and demand, result in a price for CO2 certificates and consequently a price for CO2 emissions.

Another reason, sustainability strategies are sometimes difficult to get through the management board was stated by interviewee 3 from C1. Even though sustainability can be a cost saving factor, it is rather a long-term investment. This is because today, the investment costs connected to building new manufacturing facilities, just to reduce CO2 emissions, is way more expensive than simply compensating CO2 emissions through ETS certificates. She explained that today sustainability is not creating any profits at all and that it is a very costly long-term investment. Also, the investments currently put into the development of electric cars are not based on the current market for electric cars, but rather on predictions of future trends. Therefore, in the case of C1 and C2 the current expenses put into developing more sustainable products and manufacturing processes, are by far not covered by current profits from sales or resulting cost-savings alone. However, the case that strategic sustainable innovation can turn a profit is proven by our third case study company. Compared to C1 and C2 - OR1 has introduced strategic measures to shift their focus on sustainable innovation about 10 years earlier. OR1 has taken first steps to shift their strategic focus to sustainability-oriented innovation before 2007, so that nowadays about 94% of OR1's profits come from renewables.

In order to counter the above challenge, C1, C2 and OR1 have all introduced several measures to counter the hurdle of bottom-up communication between the sustainability focused mid-level management and the management board. Firstly, sustainability has become a non-financial remuneration component of management board and senior management members. Making sustainability a non-financial remuneration component creates a direct link between sustainability performance and the salary of top management in C1, C2 and OR1. Secondly, all our interviewees emphasized that in most cases their proposals to the management board are data driven. For example, Interviewee 2 from C2 said that

> *[…] When we manage to get through to the management team and describe why this sustainability strategy is the right way to go, it is usually because we are data driven. We manage to explain to them the activities that need to be done, and the effects that they will have and prove them through data.*

Besides being data driven, another approach to addressing the need for measures towards strategic sustainable innovation was provided by Interviewee 4 from OR1:

> *I think the best tool for me was to show that Black Rock, the world's biggest investor, had just come out with their CEO letter that states that they are pulling out of funds from companies that don't have a credible climate approach. And then you know that when Black Rock speaks, there are very few CFO's and board members that don't listen.*

These two approaches to conveying the need for measures towards strategic sustainable innovation to the management board make two things clear. Firstly, corporate decision making relating to strategic sustainable innovation is still to a large extent driven by the narrative of 'sustainability as a business case'. Secondly, even in instances where the business case cannot be made by means of cost saving calculations or direct profits, with increasing interest in the sustainability issue by large investment firms, sustainability has arrived at the center of the financial/capital market. The sustainability performance of companies and the fact that they are measured by ESG criteria on indices like for instance the DJSI, has become more and more important for securing investments by companies like Black Rock. This circumstance changes the characteristic of strategic sustainable innovation as a long-term investment to an issue that can have direct, short-term financial implications.

4.4.2 Communication throughout the entire organisation

While the communication of the sustainability departments or division with the management board is essential for passing measures that lead to strategic sustainable innovation, the implementation of these measures and the actual sustainability performance is mostly dependent on the integration of the sustainability process across the entire company. However, through our interviews with C1, C2 and OR1, it became clear that communicating sustainability top-down with the rest of the organization, poses another major challenge to the strategic process. The challenge here seems to be that contrary to our interviewees, most employees at C1, C2 and OR1 do not have sustainability as a key concern in their daily work lives. Nonetheless, as we have discussed at an earlier stage, sustainability needs to be integrated across the entire value chain and this includes its integration into every aspect of

the organisational operations. Interviewee 2 from C2 put it as follows:

> *The challenge is that we would like every engineer to know more or less how he can contribute to deliver on our sustainability strategy and to know what the role is, they can play in it.*

Interviewee 3 from C1 furthermore stated that

> *[…] We often receive feedback from colleagues that it is difficult to understand how to transfer our sustainability ambitions into their daily work. Especially in legal and compliance consulting, we often need to emphasize not just to focus on legal compliance, but also to look at aspects that go beyond that. Like for instance societal expectations.*

A common feature among the three companies has been their use of the intranet as a communication tool of sustainability issues and sustainability strategy with the entire organization. All our interviewees emphasized that the intranet was frequently used by them to post articles or sustainability related news regarding the company's approach to sustainability. However, these posts also reveal another challenge that arises from communicating sustainability strategies with the entire company. We learned from another interviewee at C1 that while there usually is great engagement in the comment sections of their posts, skepticism or even criticism emerges from these discussions. Since employees play such a central role in every company's strategic sustainable innovation, C1, C2 and OR1 have also found several ways to address these challenges.

Firstly, a large portion of the work done by the sustainability managers we interviewed for the purpose of this study consists of participating in team meetings across different company divisions to explain the need for sustainable development within the company and how it can be achieved. A sustainability manager from OR1, who has formerly worked as a lobbyist, compared this activity to her previous career reminding us:

> *I'm a former lobbyist, and lobbying can also happen internally by explaining again and again that we've made this [sustainability] commitment and to make it happen we*

need to change our processes.

Secondly, all the companies organize workshops to educate employees about the sustainability challenge and to communicate the role they play in the process of the company's sustainable development with them. For example, only last year, C1 conducted a compulsory sustainability training for the entire staff of 300.000 employees worldwide. The training was conducted to explain the sustainability topics of the company to all employees and to explain how they address them and what the motivations behind them are. Furthermore, C1 sends out sustainability newsletters that are sent to the colleagues where they present external interviews with experts.

Thirdly, it was emphasized by an interviewee from C2 that the sustainability strategy is usually broken down into tangible components which serve as guiding principles with concrete areas of responsibility for each different team within the organization. Finally, it is not just important to communicate the sustainability ambitions internally, but also to ensure that each employee feels like they are an integral part of it. Here the challenge for companies is to not overlook their employees' active participation in the strategic process and to create a fit between their ideas and the company's investment criteria. It is a valuable contribution to strategic planning to "be able to show people [employees] that they have identified issues that have not been solved before and that they have contributed to solving these issues" with their input (Interviewee 4, OR1). This shows that employees do not only play a pivotal role in implementing sustainability strategies but that they can also contribute to the formation of strategic sustainable innovation through strategic inputs.

4.4.3 Ensuring supplier commitment to sustainability

We previously described the systems approach of our three case study subjects in their sustainability strategy. It comprises C1, C2 and OR1 to not only change towards sustainability internally, but also to invite external stakeholders, in particular their suppliers, to join them in their sustainability ambitions. All three companies realized that the impact of their sustainability ambitions can be amplified when they ensure that every stakeholder involved in the value chain of their products would also commit to their sustainability ambitions. C2 conducted a study regarding the emissions produced by their suppliers. Even though the study

only involved the 90 largest suppliers (of their total of 7000) they found that these 90 suppliers were contributing to 17% of global emissions. As a result of this study, C2 realized that involving the suppliers in their sustainability strategy "can create trigger effects" which will result in an overall bigger sustainability impact.

In many cases our case study subjects found that convincing their suppliers to commit to their ambitions regarding CO2 neutral production was easier than expected. Many suppliers either already had previously established sustainability strategies that already entailed commitments to CO2 neutral production, or they were quick to sign to such commitments as a result of the changed requirements introduced by our case study subjects. For example, in the case of C1, 75% of their suppliers already signed said commitments at this time. While for some suppliers, this did not seem to be a big challenge, because they already committed to the goal of CO2 neutral production, for others, sustainability commitments are more difficult to realize. In some cases, this is because the suppliers are located in regions, where the access to sustainably produced energy is significantly limited. Interviewee 4 from OR1 furthermore stated that in other cases, suppliers are just too small to have the capacities to develop more sustainable products. Interviewee 2 from C2 and Interviewee 4 from OR1 both stated that in these cases it is pivotal to help each other out in developing needed capabilities towards greater sustainability. "In those cases, we often need to help them [the suppliers] develop their sustainability performance before they can become our suppliers" (Interviewee 4, OR1).

These findings show that large international companies can have a significant impact on suppliers of an entire industry. The implications and contribution of including suppliers in their sustainability strategy proves the case for approaching sustainable development in a systems way. It furthermore shows that in many cases suppliers can be persuaded to commit to sustainable development merely through changing expectations and demands from their largest clients. If this is however not possible, companies can still contribute to assisting their suppliers in sustainable development through the exchange of their know-how of sustainable development.

5 Discussion

In this chapter, we are going to discuss the above laid-out findings and answer our research questions:

- What are the key features of ongoing strategic sustainable innovation processes at large, international companies?
- How do processes of strategic sustainable innovation at large, international companies align with the FSSD?

5.1 Key features of strategic sustainable innovation in large, international companies - comparing the cases

Our findings show that there are quite significant similarities between the strategic approaches and challenges that our three case companies encounter during their sustainable development journey. While this may not come as a surprise when comparing two companies from the same sector, as in the case with C1 and C2, it does come as a surprise to see that the strategic sustainability ambitions, approaches and challenges of OR1 in many ways align with the experiences of C1 and C2. In the following section of this paper, we will discuss the commonalities among our case study subjects in their strategic sustainable innovation.

First, C1, C2 and OR1 all experience sustainability driving forces that largely can be grouped in the economic dimension discussed earlier in the theoretical framework. The changes in sustainability-oriented legislation, the heightened pressures from the public and the competitive environment, as well as the increased importance of sustainability performance in the world of finance have proven to be major sustainability driving forces among our three case study subjects. As identified by Broman and Robèrt (2017), these changes represent a

shift in the market demands for sustainability. While we see that the previously described cost factors linked to negligence towards sustainability serve as an important driver for companies, there are also incentivizing factors which our case study subjects were able to foster through implementing successful sustainability strategies. The (expected) outcomes of our case study subjects' sustainability strategies are in line with Whelan and Fink (2016), who argue that there is a significant business case for sustainability. According to Whelan and Fink (2016), sustainability strategies promote stakeholder engagement which in turn creates a heightened awareness of economic, social, environmental, and regulatory changes that may arise. We find this confirmed in our findings which show that our case study subjects are in constant exchange with all their stakeholders, from employees, to customers, legislators, suppliers, NGOs and experts to develop their sustainability strategy. This continuous exchange provides them with a greater understanding of their environment and thereby creates a competitive advantage for them (Whelan & Fink, 2016).

Other business case factors which can result from sustainability strategy are the fostering of innovation, the building of customer loyalty, the creation of a more attractive work environment and finally, financial performance (Whelan & Fink, 2016). Since this paper does not focus on the outcomes of sustainability strategy, but rather on the strategic process itself, our findings provide limited insights whether these strategic outcomes have been achieved by our case study subjects or not. However, we can confirm that all these aspects were described by our interviewees as playing an important role in motivating the management board to pass certain sustainability related decisions.

It is likely that these driving forces explain why all three companies have similar strategic sustainability goals. They all set a strong focus on achieving CO2 neutrality, and becoming circular businesses. While these goals address their business operation, i.e. manufacturing processes, they also choose strategic goals to adapt their business models in terms of their product offerings. Both C1 and C2 aim at shifting their production entirely towards the manufacturing of electric and hydrogen powered vehicles. OR1, on the other hand aims at maintaining their role as leading provider of sustainable, biofuel manufacturer and producer of sustainable plastics. Furthermore, all three have integrated human rights and social issues into their strategies. Our findings lay out how our three case study subjects align their strategic ambitions with the sustainability principles of the FSSD. Their environmentally

oriented strategic commitments as well as their commitment to creating an inclusive, productive and safe work environment show that while sustainability can be divided into three dimensions, these dimensions are interdependent (Baumgartner & Ebner, 2010). Even though the primary driver of, or incentive for sustainable development can be found in the economic dimension, the social and environmental dimensions of sustainable development function as an enabler to reach the economic benefits of sustainability.

Following the different types of sustainability strategies discussed in our theoretical framework, we find that in order to fully integrate a sustainability strategy across all systems, stakeholders and the entire value chain, companies need to implement visionary sustainability strategies. C1, C2, and OR1 all made sustainability a central issue of their corporate strategy. They all created divisions who focus on further developing and monitoring the process of strategic sustainable innovation in their organization. Furthermore, they integrated sustainability into all aspects of their operations: They made decisions which drastically changed their business model from being a combustion engine car manufacturer to becoming an electric car manufacturer or from being a crude oil refinery to being a company that heavily focuses on alternatives to crude oil products and now has become one of the largest sustainable fuels and plastics producer. Additionally, they decided to not only implement sustainability-oriented changes within their own company, but also took their sustainability to all other stakeholders, to their suppliers, forcing them to also commit to sustainability goals like CO2 neutral production. We find Baumgartner's (2009) account of visionary sustainability strategies confirmed in our findings, because C1, C2, and OR1 also integrate aspects of introverted, extroverted, and conservative strategies.

Firstly, in introverted strategies external pressures like legal compliance or changes in market demands serve as major drivers of sustainability (Baumgartner, 2009). While we found external pressures also to play a major role for our case study subjects, we found that rather than just working towards legal compliance C1, C2 and OR1 pushed their sustainability ambitions beyond legal requirements. They even put into question whether the current legal requirements go far enough and therefore involve themselves in the legislative process as consultants.

Secondly, extroverted strategies focus on the outward image of the company and aim at creating a sense of public acceptance (Baumgartner, 2009). Our findings show that assessing and reporting their sustainability related progress is a pivotal aspect of our interviewees' daily work, and all three companies have extensive sustainability reports where every sustainability related step is communicated to the public. This shows that C1, C2, and OR1 are strongly concerned about their public image, and very aware of how their sustainability process can contribute to that.

Finally, the creation of a competitive advantage through sustainability strategies, as emphasized by conservative strategies was particularly visible in OR1. Since OR1 was one of the first oil refining companies to shift their focus on renewables in the early 2000s, they managed to secure their position as the world's largest sustainable fuel manufacturer. This has created a competitive advantage which plays a role in why renewables contribute to such a large extent to their profit. In the cases of C1 and C2, it is probably too early to judge whether their sustainability strategies result in competitive advantages, and since most major car manufacturing companies currently undergo similar ambitions in increasing the role of electric cars, it is unlikely that this factor played a major role in their strategic process. However, C1 and C2 do already experience competitive advantages as a result of their strong focus on sustainability, when we consider that the capital markets currently significantly favor sustainable companies over non-sustainable companies. As a result, also C1 and C2 already have an advantage over companies with worse sustainability performance in terms of their access to external financing.

5.2 Strategic processes at large, international companies through the lense of the FSSD

Our study aims at applying the FSSD to the strategic processes of our companies for two reasons: Firstly, we used it as a tool to structure the analysis of documents and interviews according to the features of the FSSD and consequently evaluate if the strategic processes at large, international companies align with the framework. Secondly, this approach allowed us

to test the FSSD from the viewpoint of practical applicability, reasoning, logic and usability in the context of strategic processes towards sustainability (Broman & Robèrt, 2017).

In recent decades, the FSSD has received much attention for helping companies and organizations to better understand the global sustainability challenge, placing themselves in that context, and developing a strategy toward sustainability by gradually reducing their adverse influence on social and ecological systems (Broman & Robèrt, 2017). At the same time, they are advancing their own organization by taking advantage of innovation opportunities, developing new business models, entering new markets and gaining new market shares, as well as reducing risks and operating costs (Broman & Robèrt, 2017).

Our findings confirm that the FSSD provides a comprehensive structure that allows for key areas of action to be identified while it helps companies to coordinatively use their strengths in their respective industry. It should be highlighted that all three of the companies operate in traditionally unsustainable industries, but nonetheless they all have well developed comprehensive sustainability strategies which we will elaborate more on in the following sections. Although none of our interviewees were familiar with the FSSD, one can recognize the FSSD's key features, sustainability principles, and strategic planning characteristics in their companies' strategic sustainable development.

As a reminder, the FSSD comprises of the following main characteristics, as described by Broman and Robèrt (2017):

a) **The funnel metaphor** that aids the understanding of the sustainability challenge and the intrinsic benefits of competent proactivity.
b) A **five-level structuring** and inter-relational model that differentiates and illustrates the connections between phenomena that have an inherently different character.
c) A **principle-based definition** of sustainability that serves as a framework for backcasting in strategic development and re-engineering for sustainability.
d) An operational scheme for the creative design of strategic transitions towards sustainability, namely the **ABCD planning process**.

We are now going to discuss our most important findings through the lense of the FSSD which will lead to our suggestion for essential key success factors for strategic sustainable development at large, international companies:

1. Strong communication channels throughout the organization and within the system
2. A flexible and agile decision making process: Applying backcasting from an overarching principle-based vision
3. A holistic strategy covering all aspects of sustainability while focusing on core operations of the business

5.2.1 Communication in companies

Bearing in mind that people have different values and principles, it can become a challenge for organizations or groups within organizations to agree upon thorough descriptions of desirable distant futures and the corresponding strategies (Broman & Robèrt, 2017).

As a result, an internal or external perception that nothing can be agreed upon can potentially lead to a high risk of apathy and inaction within the company. That said, Broman and Robèrt (2017) acknowledge the importance of taking every part of the organization and their environment into account when developing and pursuing a strategy towards sustainability. However, we found that little to no attention is given to the absolute necessity of communicating a strategy for it to successfully penetrate the entire organization on all of its levels. All of our companies, regardless which sector they operate in, consider communication within the organization as the biggest challenge on their strategic journey. We identified three types or directions of communication.

Firstly, our interviewees stressed that communicating the urgence and business case of sustainability to the management board with ultimate decision-making power proves difficult oftentimes due to their reliance on data and financial aspects. Secondly, communicating an organization's sustainability strategy throughout all levels of the organization proves difficult, since sustainability is not on every employee's agenda. Our interviews and the reports show that the right way of communication and posing the right questions can be particularly helpful to ignite and trigger people's understanding and response towards the issue at hand.

We thus believe it is critical to learn to look beyond short-term gains and quick fixes, and instead engage in profound discussions that explore catalytic questions as well as innovative opportunities before decisive courses are set. The need to engage with wicked, systemic problems and to shape a sustainable future necessitates powerful questions which are capable of "traveling well" in networks while challenging the contemporary system (Vogt et al. 2003).

Peavey (1995) argues that strategic questioning is a different kind of communication, one that is not concerned with present reality, but instead explores, in a dynamic and creative way, how things might be in the future. It further enhances our ability to have effective conversations, particularly with people who have a worldview different from ours (Peavey 1995).

Accordingly, our interviewees highlighted that they actively seek to engage with their stakeholders in a non-confrontational manner which aids not having misunderstandings, defensiveness and resistance. One tool our case companies use is to establish a culture of collective meaning-making and to create informal and formal pathways and processes of questioning as they ongoingly and iteratively investigate their operating landscape (Vogt et al. 2003). Here, properly framing a question is essential as learning processes become indispensable facing today's sustainability challenges. We understand that in contrast to smaller companies or even startups, the ability to constantly engage with people and create allies with a shared sense of responsibility (Robèrt, 2002) might be limited due to stricter hierarchical structures at our case companies as well as due to their size. Our interviewees stress that when developing a strategy, they see people getting excited to come up with their ideas and actions – particularly if they do not only provide solutions for “fixing the problem”, but more so on “enhancing possibilities and opportunities” (Interviewee 1, C1). However, it is of utmost importance that room for those solutions to be heard and considered is created. Therefore, we suggest that the right questions need to be asked and an effective communication channel needs to be developed, before strategizing in order to release the greatest possible potential of all employees and stakeholders, and to stimulate creativity and collaboration (Simons, 2010).

In the scope of the FSSD, asking the right strategic questions for sustainable development and ensuring close communication and collaboration on all levels of the organization can be considered a strategic tool towards the achievement of a best-possible sustainability strategy.

Nevertheless, we find that the FSSD underestimates the importance of communication as a key success factor of strategy development, especially in large, international corporations. We feel the need to emphasize that communication has to be given a central role in a company's strategy work. Having a comprehensive strategy is one thing, but in order for it to be successful, it needs to be lived by the entire organization and therefore a great deal of the focus should move to ensuring that the company's values, principles and visions are lived by its people.

5.2.2 Backcasting from a principle-based vision

The transformation to a sustainable society is a complex challenge that requires, for example, "extensive coordinated collaboration across disciplines and sectors" (Broman & Robert, 2017, p. 19). With regard to a sustainability definition, the challenge is to make it operational and consistent and, as a result, to develop a systematic approach according to which companies can plan and act to fulfill their sustainability mission.

Broman and Robèrt (2017) argue that in order to achieve societal change in the magnitude and at the speed necessary for sustainability to be a realistic achievement, a thorough understanding of the nature, scale and urgency of the sustainability challenge needs to be created, as well as the business case for competent proactivity toward sustainability. They also argue that concrete methodological support is needed for such proactivity. Forecasting and backcasting are two prevalent concepts that support planning and decision making. While forecasting projects current reality onto a probable future, backcasting deals with strategy development starting from a defined vision, and then asking which steps and measures to take today in order to get there (Robinson, 1990). Our interviews indicated that the backcasting approach comes naturally to all of our case companies and that all of them have taken an approach of exploring steps on optional paths to their visions. Moreover, they do regular re-assessments of their current strategies, and evaluate whether they are still following an adequate path towards their vision. This in turn, can be considered a form of forecasting, which however, takes place within an overarching backcasting process (Ny, 2009; Broman et al., 2013).

Broman and Robèrt believe that it is important to build a vision based on principles rather than concrete actions, and not to tie it too tightly, as this would negatively impact the agility and flexibility of the strategy process (Broman & Robèrt, 2017). They further argue that technological and cultural development continuously change the concrete circumstances for companies in an unpredictable way. As a result, the 'optimal' vision and the path ahead are also subject to such changes. Therefore, one may be ill-advised to prematurely commit oneself to specific goals towards sustainability. What is considered an optimal final solution today may later prove to be outdated and inadequate. In this respect, a principle-based vision is more flexible than a scenario-based one because success can be achieved in many ways within the framework of the principles (Broman & Robèrt, 2017). Furthermore, researchers, such as Senge (2003), have observed that a principle-based vision can stimulate creativity.

In the context of our study, it can be observed that all companies follow a very broad and principle-based vision, such as OR1, whose vision is defined as "leading the way towards a sustainable future together". Despite this, all companies have set a target to achieve CO2 neutrality in the near future which is more in line with a scenario-based vision. However, our interviewees expressed doubts as to whether this vision could be achieved at all, or whether it might even be too unambitious (Interviewee 1, C1; Interviewee 2, C2). In this case, we believe, the vision is very tightly bound and runs the risk of swallowing up other opportunities in the direction of sustainability. However, we must concede that, particularly in the sectors we studied, the ecological sustainability aspect continues to play an overarching role and is ascribed overriding importance, especially in the eyes of the public and investors.

Based on our findings, we can confirm that the FSSD is a useful tool as it argues for backcasting from a principle-based vision as a strategic approach. Nonetheless, we believe that it can benefit from incorporating a more emergence-based planning methodology, especially with organizations finding themselves in a volatile, uncertain, complex, and ambiguous environment where they need to act and adapt quickly. As of today, the FSSD recommends an iterative yet linear planning process and stresses the necessity to re-iterate this approach to planning as time goes on and conditions change. One could contend that this may

work well for bigger organizations because of their more fixed hierarchical structures and long-term investment roadmaps. However, large international companies, and especially those in innovative industries such as automotive and renewable energy, need to be agile and responsive, if not proactive, to external changes. This is the only way they can secure their competitive advantage because, as one of our interviewees tellingly put it, "the world never stops spinning" (Interviewee 1, C1). Therefore, we believe that a more emergence-based approach may prove beneficial for larger companies, for example, when entering into unknown markets or facing strongly disruptive technologies and settings, e.g. during a global pandemic or when creating new products and services such as renewable energies or electric cars..

The FSSD sustainability principles allow companies to identify and evaluate sustainable options for various materials and processes before making investments. They are provided with the opportunity for more efficient interactions leading to partnerships across disciplines and sectors, regions, value chains, and stakeholder groups (Broman & Robèrt, 2017). However, we argue that this principle-based evaluation is not feasible for every single step in the strategy process, as it can paralyze the organization in situations where a rapid response is required, instead weighing different principles' importance against one another. For example, our case companies often find themselves at a fork in the road where they have to choose one direction or the other, for instance with the choice of SDG's to work with, which often poses a dilemma, as Interviewee 3 (C1) describes: "Many SDG's contradict each other or also result in dilemma situations as such. And the term 'dilemma' stands for the fact that in case of doubt you can't resolve it, i.e., you just have to decide for one or the other direction."

5.2.3 A holistic strategic approach - systems thinking in a circular economy

Donella Meadows (2008) describes systems thinking as a "way of thinking that gives us the freedom to identify the root causes of problems and see new opportunities" (p. 2). It is the capacity to comprehend how the components of an overall system interact with each other to

contribute to the entire system's behaviour. At the other end of the scale, where one would use reductionist thinking to complex problems, meaning that they apply linear cause-effect reasoning, one is likely to achieve outcomes that entail unintended effects. Meadows (2008) argues that we cannot truly comprehend these 'systemic' challenges until we develop an understanding of how all of these components interact to create specific dynamics and patterns, as we will not come to an appropriate solution, if we do not understand the issue. There are at least three mental models that need to be thrown overboard by companies: 1) Economic processes are linear; 2) There are infinite resources for the production of goods; and 3) The economy is the entire system rather than a subsystem of the ecosystem (Karash, 2018).

Systems thinking becomes even more important today as our world continues to become ever more deeply intertwined and as this change happens at an increasing pace. That is why businesses need to become increasingly system-wise and develop tools and strategies to cover all components within their respective system. Systems thinking also means being sensitive to the complex nature of the system; to understand that resources are finite and that our actions can have consequences of which we are unaware. In our case companies, systems thinking is used as a diagnostic tool to effectively address underlying issues that are closely analyzed before actions are taken based on hasty conclusions.

Moreover, systems thinking is used by our case companies to infer patterns of behaviour from observation of data and events, and as a result, to uncover structures and patterns to facilitate strategic action in order to adjust their actions and behavior if necessary. In doing so, however, it is necessary to understand that sustainability is a topic that is constantly evolving due to changes in legislation, customer demands and innovations, as is the world in which our companies operate. Only with this understanding can they approach the diversity of solutions necessary to understand and tame long-term, chronic problems, such as climate change and human rights violations. We interpret that our case companies have created a strong awareness of this volatility and constant change, as well as a willingness to acknowledge that they are in a tightly knit web of relationships, one in which many times, there are multiple solutions to a problem, as is usually the case for wicked problems. Our findings suggest that our case companies understood that they have to do exactly that, by developing a strategy concerning the three pillars of sustainability while being in constant exchange with all stakeholders.

The holistic approach of the FSSD provides a useful tool to cut through complex systemic layers, focusing on the interplay between processes, values, and players in the value chain and their exposure to a variety of issues. We conclude that a systems-based approach can build the capabilities needed to identify structure in today's nonlinear world and, in turn, support backcasting to enable sustainable transitions. The Framework for Strategic Sustainable Development also allows for more effective management of trade-offs in all three areas of sustainability - environmental, economic and social - on the path to sustainability. It offers decision-makers the opportunity to avoid any as yet unknown pressures, as it is designed from a preventive approach.

The FSSD, through its precise breakdown, enables organizations to manage system boundaries in a rational way using knowledge about the organization's activities. With the help of the sustainability principles, it is possible to evaluate which sustainability aspects can and should be prioritized, and the relevant system boundaries for the company can be defined. For example, last year OR1 decided to focus strongly on human rights and social issues, as these parts of the system have become more important to the company compared to environmental and financial issues, where the need for action has long been beyond question. However, as noted above, systems thinking also presents our companies with recurring dilemma-like choices, as action in one area inevitably has implications elsewhere. Our companies need to be particularly sensitive in this regard, as they interact within global value networks and their actions may have far-reaching consequences on their environment as well as on their resilience to external shocks.

We noticed that our case companies who all have a very comprehensive sustainability strategy, have divided the sustainability issue among different departments. For instance, did Interviewee 2 (C2) explain that his focus was exclusively on “reducing CO2” emissions in which he was very data driven and that he would “let the others talk about the other issues of sustainability”. On the one hand, we acknowledge that in a multinational car manufacturing corporation there needs to be a division of the sustainability topics in order to ensure that they are dealt with effectively and prioritized as they should. On the other hand, this poses the challenge of taking a too narrow focus within one’s system and consequently making informed choices about the number of chain reactions certain activities may have. Therefore, we again argue it is pivotal to ensure close communication between various parts of the

system and units dealing with the different pillars of sustainability, and to ensure that appropriate indicators are selected to measure the impact of choices on other parts of the system.

By understanding the implications of any trade-off, companies can thus mitigate its gravity or even benefit from it. Therefore, systems thinking provides an overarching scaffold that allows our case companies to make informed decisions on their sustainability journey which will further assist them to make full use of the FSSD, its guidelines and principles, and to choose wisely integrated indicators.

6 Conclusion

6.1 Theoretical and practical implications

This thesis has investigated how large, international companies from traditionally unsustainable sectors achieve sustainable innovation strategically. To do this, we conducted a qualitative cross-case analysis, examining documents and reports, and conducting semi-structured interviews with companies that have undergone a significant shift toward greater sustainability throughout their value chain in recent years. To structure this highly complex topic and to make it tangible, we used the Framework for Strategic Sustainable Development, a framework that assists companies and organizations in developing their strategic processes towards sustainability with a 4-step procedure. In our analysis, the framework serves a dual purpose: First, we used the FSSD to structure our findings and to draw comparisons between the three cases. Furthermore, the use of the FSSD allowed us to benchmark it against the actual processes, values and principles that contribute to strategy development in our case companies. As a result, we were able to examine the FSSD for its practicality, usability, and logic in relation to strategic processes in large, international companies and make suggestions for its improvement.

Our findings show that there are a multitude of drivers, motivating the development and pursuit of strategic sustainable innovation in our case companies. We observe that all of the drivers, namely government legislation, competitors, customers and public perception, and shareholders and investors are largely motivating financially. This shows that strategic sustainability processes at large, international companies are still mainly driven by the business case and/or the economic dimension of sustainability, rather than by moral, social or ecological obligations. However, despite that, our case companies have proven to take their strategic ambitions beyond the legislative sustainability requirements anticipating possible future regulations and market conditions.

Furthermore, our findings indicate that in order to develop and advance with a comprehensive sustainability strategy, it is essential to take a holistic systems approach that considers all dimensions of sustainability. This necessitates the thorough involvement of all stakeholders in the strategic process and can further be aided by the introduction of circular processes and the use of backcasting from a principle-based vision.

Although our case companies are not familiar with the FSSD, our study confirms that their strategic activities largely align with the FSSD. This accounts for the practical applicability, reasoning, logic and usability of the FSSD in the context of strategic processes towards sustainability in large, international corporations.

Nevertheless, in some areas we do see potential for further development of the FSSD. For one, the FSSD assumes a linear, recurring process of strategy development, which should be iterated as needed for strategy readjustment. We argue that especially in today's VUCA world, a process is needed that allows companies to react quickly to external shocks or disruptions in an agile way without jeopardizing the economic sustainability of the company. Therefore, we argue for a more emergence-based approach to strategy development. This also relates to the FSSD sustainability principles, which, while enabling organizations to identify areas for action, also risk paralyzing the business, as these principles can often lead to decision-making dilemmas. Therefore, we believe that it is necessary to provide companies with an approach to choose appropriate indicators for both the choice of action areas and the measurement of sustainability performance. It should further provide a framework to assess emerging trade-offs and thereby make action measurable according to the principles.

Furthermore, one of the main challenges of our case companies is not the strategic planning process itself, which, on the contrary, they developed in a very meticulous and precise way. We discovered that the biggest challenge for companies operating in today's world with its closely interconnected subsystems, is effective communication of the sustainability strategy in all directions. This includes internal bottom-up communication with the management board, top-down communication throughout the entire organization as well as external communication ensuring supplier commitment to sustainability requirements. While the FSSD briefly mentions communication, we find that it underestimates the magnitude of

communication as a central strategic challenge and offers too little insights in how to overcome it.

Due to the complex and wicked nature of sustainability as a global challenge, it is of utmost importance to understand the processes and key success factors of strategic sustainable innovation. This paper contributes to a more holistic understanding of corporate sustainable development and offers potentially useful insights for organisations aiming to transform their business towards sustainability strategically.

6.2 Future research avenues

Our work is limited to the strategic processes within listed, international companies with a mature sustainability strategy and an impressive transformation in terms of their sustainability performance. Therefore, there are potential research avenues that should be explored by further research. Future research should take a holistic approach to investigating the extent to which strategic processes on sustainable innovation differ or resemble each other between listed companies and SMEs. In this same vein, the drivers and challenges SMEs face on their sustainability journey could differ from our findings. Moreover, as our study was limited to three cases, the applicability and practicability of the FSSD is not conclusively clarified, which is why further investigation in different settings and for different types and sizes of companies is required. Finally, future research should focus on how organisations can facilitate strong communication channels throughout the organization and within the system. While this paper provided some insights in this regard by presenting the means by which our case companies attempt to achieve this, greater focus in this direction could yield valuable insights that would aid the process of strategic sustainable innovation.

References

Andersen, M.S. (2007). An introductory note on the environmental economics of the circular economy, *Sustainable Science*, vol. 2, pp. 133-140

Baedeker C., Haeuer P., Klemisch H. & Rohn, H. (2002). Handbuch zur Anwendung von SAFE – Sustainability Assessment for Enterprises, *Wuppertal Institut für Klima, Umwelt, Energie GmbH: Wuppertal*

Baumgartner, R.J. (2009). Organizational culture and leadership: Preconditions for the development of a sustainable corporation, *Sustainable Development*, vol. 17, pp. 102-113

Baumgartner, R.J. & Ebner, D. (2010). Corporate sustainable strategies: Sustainability profiles and maturity levels, *Sustainable Development*, vol. 18, pp. 76-89

Baumgartner, R.J., & Rauter, R. (2017). Strategic perspectives of corporate sustainability management to develop a sustainable organization, *Journal of Cleaner Production*, vol. 140, pp. 81-92

Bin Shmailan, A.S. (2016). The relationship between job satisfaction, job performance and employee engagement: An explorative study, *Business Management and Economics*, vol. 4, no. 1, pp. 1-8

Bos‐Brouwers, H.E.J. (2010). Corporate sustainability and innovation in SMEs: evidence of themes and activities in practice, *Business Strategy and the Environment*, vol. 19, no. 7, pp. 417-435

Broman, G., Franca, C.L. & Trygg, L. (2013). Sustainable Cities in a Backcasting Perspective, *Swedish District Heating Association.*

Broman, G.I. & Robèrt, K.H. (2017). A framework for strategic sustainable development, *Journal of Cleaner Production*, vol. 140, pp. 17-31

Bundy, J., Shropshire, C. & Buchholtz, A. K. (2013). Strategic cognition and issue salience: toward an explanation of firm responsiveness to stakeholder concerns, *Academy of Management Review*, vol. 38, pp. 352-76

Chi, C.G. & Gursoy, D. (2009). Employee satisfaction, customer satisfaction, and financial performance: An empirical examination, *International Journal of Hospitality Management*, vol. 28, pp. 245-253

Ebner, D., (2007). Assessing corporate social responsibility: CSR-SCAN. *Devonshire Hall, University of Leeds, United Kingdom*.

Engert, S. & Baumgartner, R.J. (2016). Corporate sustainability strategy - bridging the gap between formulation and implementation, *Journal of Cleaner Production*, vol. 113, 822-834

FAO. (2017). The future of food and agriculture - Trends and challenges, *RomeI*

Fallström, S. (2017). Leadership during change, *Kandidat. Jönköpings universitet*

Ferraro, F., Etzion, D. & Gehman, J. (2015). Tackling grand challenges pragmatically: robust action revisited, *Organization Studies*, vol. 36, pp. 363–90

Freeman, R.E. (1984). Strategic Management: A stakeholder approach, *Boston, MA: Pitman*

Freeman, R.E., De Colle, S., Harrison, J.S., Parmar, B.L, Purnell, L. & Wicks, A.C. (2010). Stakeholder theory: The state of the art, *Academy of Management Annals*, vol. 4, no. 1, pp. 403-445

Geng, Y., Sarkis, J., & Bleischwitz, R. (2019). How to globalize the circular economy, *Nature*, vol. 565, pp. 153-155

Hansen, E.G., Grosse-Dunker, F. & Reichwald, R. (2009). Sustainability innovation cube: A framework to evaluate sustainability-oriented innovations, *International Journal of Innovation Management*, vol. 13. pp. 683-713.

International Institute for Sustainable Development (IIDS), Deloitte & Touche, World Business Council for Sustainable Development (WBCSD). (1992). Business Strategy for the 90s, *IISD*

Jäger, J. (2017). How to get listed in the Dow Jones Sustainability Index, *Compliance Week,* Available online: https://www.complianceweek.com/ethics-and-culture/how-to-get-listed-in-the-dow-jones-sustainability-index/2748.article [Accessed May 16, 2021]

Karash, R. (2018). Mental Models and Systems Thinking: Going Deeper into Systemic Issues, *The Systems Thinker,* Available online: https://thesystemsthinker.com/mental-models-and-systems-thinking-going-deeper-into-systemic-issues/ [Accessed June 1 2021]

Kashmanian, R.M., Wells, R.P. & Keenan, C. (2011). Corporate environmental sustainability strategy, *The Journal of Corporate Citizenship*, vol. 44, pp. 107-130.

Kianian, B., Daly, E. & Andersson, C. (2018). Towards guidelines for selection of production performance indicators to measure sustainability performance, *Procedia Manufacturing,* vol. 25, pp. 570-577

Kline, S.J. & Rosenberg, N. (1986). An overview of innovation. *In Landau, R. and Rosenberg, N., editors, The positive sum strategy: harnessing technology for economic growth, Washington, DC: National Academy Press*, pp. 275–306

Korhonen, J., Honkasalo, A. & Seppälä, J. (2018). Circular economy: The concept and its limitations, *Ecological Economics*, vol. 143, pp. 37-46

MacArthur, E. (2013). Towards the circular economy. *Journal of Industrial Ecology*, vol. 2, pp. 23-44

Meadows, D.H. (1999). Leverage points: Places to intervene in a system, *Sustainability Institute*, Available online: http://www.scrummaster.dk/lib/AgileLeanLibrary/People/DonellaMeadows/donellameadows.org-Leverage%20Points%20Places%20to%20Intervene%20in%20a%20System.pdf [Accessed June 3, 2021]

Nidumolu, R., Prahalad, C.K. & Rangaswami, M. R. (2009). Why sustainability is now the key driver of innovation, *Harvard Business Review*, vol. 87, no.9, pp. 56-65

Ny, H., MacDonald, J. P., Broman, G., Yamamoto, R., & Robèrt, K. H. (2006). Sustainability constraints as system boundaries: an approach to making life‐cycle management strategic, *Journal of Industrial Ecology*, vol. 10, no. 1‐2, pp. 61-77

Peavey, F. (1995). Strategic questioning manual, Available online: http://pnodn.pbworks.com/f/Peavey+strategic+questioning+manual.pdf [Accessed June 3, 2021]

Porter, M.E. & Kramer, M.R. (2006). The link between competitive advantage and corporate social responsibility, *Harvard Business Review*, vol. 84, no. 12, pp. 78-92

Rittel, H.W.J., & Webber, M.M. (1973). Dilemmas in a general theory of planning, *Policy Sciences*, vol. 4, no. 2, pp. 155-169

Robèrt, K.H. (2000). Tools and concepts for sustainable development, how they relate to a general framework for sustainable development, and to each other?, *Journal of Cleaner Production*, vol. 10, pp. 243-254

Robèrt, K.H. (2002). The Natural Step story: Seeding a quiet revolution, *Bloomington: Indiana University Press*

Robinson, W.T. (1990). Product innovation and start-up business market share performance. *Management science*, vol. 36, no. 10, pp. 1279-1289

Schaltegger, S. & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: Categories and interactions, *Business Strategy and the Environment*, vol. 20, pp. 222-237

Scherer, A. G., Palazzo, G. & Seidl, D. (2013). Managing legitimacy in complex and heterogeneous environments: sustainable development in a globalized world, *Journal of Management Studies*, vol. 50, pp. 259-84

Seidman, I. (2006). Interviewing as qualitative research: A guide for researchers in education and the social sciences, *New York: Teachers College Press*

Sekaran, U. & Bougie, R. (2016). Research methods for business, *Sussex: John Wiley & Sons*

Senge, P.M. (2003). Taking personal change seriously: The impact of organizational learning on management practice, *Academy of Management Perspectives*, vol. 17, no. 2, pp. 47-50

Simons, R. (2010). How to Stress-Test Your Strategy. *Harvard Business Review*, Available online: https://hbr.org/2010/11/stress-test-your-strategy-the-7-questions-to-ask [Accessed May 14, 2021]

Stahel, W. (2016). The circular economy, *Nature*, Available online: https://www.nature.com/news/the-circular-economy-1.19594 [Accessed May 14, 2021]

Starik, M. & Kanashiro, P. (2013). Toward a theory of sustainability management: Uncovering and integrating the nearly obvious, *Organization & Environment*, vol. 26, No. 1, pp. 7-30

Starik, M. & Rands, G.P. (1995). Weaving an integrated web: Multilevel and multisystem perspectives of ecologically sustainable organizations, *The Academy of Management Review*, vol. 20, no. 4, pp. 908-935

Thorén, K., & Vendel, M. (2019). Backcasting as a strategic management tool for meeting VUCA challenges. *Journal of Strategy and Management*, vol. 12, no. 2, pp. 298-312

UN. (1992). Agenda 21, *United Nations, New York.* Available online: https://www.un.org/Depts/german/conf/agenda21/agenda_21.pdf [Accessed May 21, 2021]

UN. (2021). Take Action for the Sustainable Development Goals, *United Nations,* Available online: https://www.un.org/sustainabledevelopment/sustainable-development-goals/ [Accessed June 3, 2021]

Vogt, E.E., Brown, J. & Isaacs, D. (2003). The art of powerful questions: Catalyzing, insight, innovation, and action, Mill Valley, CA: Whole Systems Associates

Wavell, H. (2020). How history has forged the path to a circular economy, *Medium*, Available online: https://medium.com/circulatenews/how-history-has-forged-the-path-to-a-circular-economy-150c5278e38d [Accessed May 20, 2021]

WCED. (1987). Our common future, Report of the World Commission on Environment and Development, *Oxford University Press, Oxford, UK*

Weber, M. (1915/2009). Religious Rejections of the World and Their Directions, in H.H. Gerth and C. Wright Mills (eds), *From Max Weber: Essays in Sociology*. *New York: Oxford University Press.*

Webster, K. (2016). The Circular Economy: A Wealth of Flows, *Ellen McArthur Foundation Publishing,* 2nd edn

Whelan, T., & Fink, C. (2016). The comprehensive business case for sustainability, *Harvard Business Review*, Available online: https://everestenergy.nl/new/wp-content/uploads/HBR-Article-The-comprehensive-business-case-for-sustainability.pdf [Accessed June 1, 2021]