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Sustainability Reporting Practices and their Impact on Organizational Dynamic Capabilities: An Empirical Examination of Professionals' Perception

M.Sc. Business Administration - Thesis

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Statement of Authorship

I hereby declare that I am the sole author of this master thesis and that I have not used any sources other than those listed in the bibliography and identified as references. I further declare that I have not submitted this thesis at any other institution in order to obtain a degree.

(Signature)

Berlin, 22.06.2023

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List of Abbreviations

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| CSR: | Corporate Social Responsibility |
| CSRD: | Corporate Sustainability Reporting Directive |
| DC: | Dynamic Capability |
| ESG: | Environmental, Social, Governance |
| EU: | European Union |
| GRI: | Global Reporting Initiative |
| KPI: | Key-Performance Indicator |
| NFRD: | Non-Financial Reporting Directive |
| SR: | Sustainability Reporting |

Abstract: Upcoming regulation is set to make Sustainability Reporting (SR) mandatory for many companies in- and outside of Europe. Yet, in existing research the effect of SR on company internal processes and resulting competitive advantage remains unexplored. This research investigates the relationship between the implementation of SR practices and the resulting development of dynamic capabilities (DCs) within organizations. Drawing on theoretical knowledge from several relevant fields of research, empirical insights from desk research on emerging regulation in the SR field, as well as semi-structured interviews with 12 practitioners in the field of sustainability reporting, the study uncovers the potential effects of SR implementation on companies' sensing, seizing, and transforming capabilities. The findings suggest that SR implementation can enhance a company's sensing, seizing and transforming capabilities by improving its understanding of the business environment, the quality of its decision-making processes and its strategic alignment efforts. The study also highlights the role of emerging SR regulations, such as the CSRD, in achieving lasting competitive advantage and explicates the possible benefits of going beyond mere compliance with regulation. Drawing on the Insights of the conducted interviews, a conceptual framework is proposed, visualizing the interdependencies between SR-related activities and DCs and offering actionable insights for practitioners. This study contributes to both dynamic capability and sustainability reporting research, providing valuable insights for organizations aiming to implement SR practices. Future research may explore these relationships further, incorporating a broader range of stakeholders and industries, and employ longitudinal and quantitative methods for validation of the findings and more in-depth analysis of the dynamics at hand.

1 Introduction

The European Union (EU) is aiming to accelerate the transition towards a sustainable economy in Europe through the Green Deal initiative. As part of this initiative, the European Commission has introduced various regulations, including those that aim to improve corporate ESG-disclosure practice, such as the Corporate Sustainability Reporting Directive (CSRD). Besides a much broader scope than previous initiatives, both in the quality/quantity of disclosure requirements mandated and the number of companies affected, the CSRD will further require companies to develop sustainable transformation strategies and track their progress over time. Finally, the newly created sustainability reports will require limited- and, likely starting from 2028, reasonable assurance by independent auditors. By improving the transparency around companies' sustainability impact, the EU hopes to enable a sustainable finance industry, redirecting financial resources to more sustainable undertakings.

Next to this macroeconomic effect, which the CSRD will bring to bear, it is also expected to have considerable effect on the individual companies, as a plethora of organizational changes are required for compliance: Changes to knowledge acquisition-, stakeholder engagement-, data gathering and consolidation-, and decision-making processes are anticipated to be influenced during SR implementation. Therefore, it is plausible to assume that the implementation of SR can have a significant effect on the organizational performance. However, research on the impact of sustainability reporting on organizations remains limited, especially on a qualitative and processual level.

This study aims to close this gap by investigating the effect of the implementation of sustainability reporting on company-internal processes. As a theoretical framework for this investigation the dynamic-capabilities theory is chosen. According to this theory, companies that find themselves in fast changing environments need dynamic capabilities to preserve or create competitive advantage. Dynamic capabilities refer to a firm's capacity to integrate, develop, and restructure both its internal and external competencies in response to fast-changing business environments. This capacity is based on those continuous *internal processes*, which enable a company to *sense* new developments and trends, *seize* opportunities through unbiased decision making, and *transform* processes and resources to achieve strategic fit.

As the introduction of sustainability reporting in an organization might directly or indirectly affect various internal processes, this study employs a combined approach of using both applicable theoretical insights and qualitative findings gained from expert interviews. The identified information is used to assess the potential impact of sustainability reporting implementation on dynamic capabilities and derive applicable theoretical and practical insights.

1.1 Research Gap and Theoretical Contribution

Corporate Social Responsibility (CSR) practices in general have been made out to have a positive effect on competitive advantage and financial performance of companies, for example by improving corporate reputation, customer satisfaction and organizational commitment (Cantele & Zardini, 2018; Carroll & Shabana, 2010; Nejati et al., 2010). While similar findings have been made for the effect of sustainability reporting on organizational performance, to the best of the authors knowledge, the relevant literature has mostly used quantitative approaches (Rabaya & Saleh, 2022), e.g., measuring competitive advantage with outcome variables such as firm value (Albitar et al., 2020; Ioannou & Serafeim, 2017; Y. Li et al., 2018), or input variables like access to finance (Cheng et al., 2014; Eliwa et al., 2021; Reverte, 2012). Relevant literature further focused on the response of stakeholders to ESG disclosure as explanation for the observed positive effects of sustainability reporting implementation, especially from investors (Albitar et al., 2020; Cheng et al., 2014; Ioannou & Serafeim, 2017; Mohammad & Wasiuzzaman, 2021).

Accordingly, researchers have acknowledged the need for more research on the effect of sustainability reporting on directly and indirectly affected firms (Bergmann & Posch, 2018; Christensen et al., 2021; Dinh et al., 2022). However, research is especially limited so far on the effects sustainability reporting practice can have on *internal processes*. As Lu et al. (2022) contend, research in the CSR field in general has been focusing mainly on corporate reputation as justification of CSR activity and further research is required on other beneficial effects. They further explain that CSR investments could be justified solely with their impact on information-gathering practices and internal processes such as risk management and stakeholder engagement.

Adams and McNicholas (2007) and Adams and Frost (2008) present similar findings, gained by a series of interviews and an action research approach respectively, that point towards far-reaching internal effects of sustainability reporting, for example on decision making. They additionally show that qualitative research in the field can be a successful way to identify such internal impacts.

The lens of observation chosen for investigating these internal effects in this study is the dynamic capability theory since it focuses on internal processes and routines as sources for competitive advantage. To the authors knowledge, no research exists that applies dynamic capability theory to investigate the effects of sustainability reporting implementation on the company in general or in relation to internal processes.

Several company-internal processes that might be positively influenced by sustainability reporting implementation could be anticipated by drawing on relevant literature in the respective fields of research. It is therefore plausible to assume that the introduction of sustainability reporting can be an opportunity for companies to create the dynamic capabilities needed to remain competitive, especially in the context of the green transformation of the economy and the resulting rapid changes to the business environment. However, as mentioned, no research exists that addresses this connection. To close this identified gap, this study aims to investigate the potential impact of the implementation of sustainability reporting practices on the dynamic capabilities of reporting companies by answering the following research question:

How can the implementation of sustainability reporting practices affect dynamic capabilities?

As discussed, the impact of sustainability reporting on dynamic capabilities is likely to be multifaceted and may include aspects which are yet to be investigated in research comprehensively. To unveil such hidden aspects and bridge the identified research gap, the study employs a qualitative approach by conducting a series of semi-structured interviews with practitioners in the field of sustainability reporting.

Consequently, the study is contributing on an empirical and qualitative level to the existing body of research on the antecedents and moderators of dynamic capabilities as well as research on the effect of sustainability reporting implementation on the organization. On a larger scope, the study therefore contributes to explicating the “route to competitive advantage under conditions of change”, a major goal of strategic management literature (Schilke et al., 2018).

The study contributes to the literature by addressing the identified gap between dynamic capability theory and SR research. As such the study adds to existing research on the effects of SR on company performance (Albitar et al., 2020; Ioannou & Serafeim, 2017; Y. Li et al., 2018) and on the antecedents and moderators of DCs and their creation (Ambrosini et al., 2009; Eriksson, 2014).

Based on the study material, the study further proposes a conceptual framework to structure the findings and visualize the potential interrelationships between sustainability reporting related activities and dynamic capabilities. The conceptual framework provides insights on the uncovered dynamics in which SR practice might influence dynamic capabilities and potential moderators of their relationship. The framework further provides insights towards which potential changes can lead to lasting dynamic capability creation, as they exceed regulatory requirements. This way, the reader develops a better understanding of the complex interplay between sustainability reporting, upcoming regulation, and dynamic capabilities.

Lastly, the study lays out future paths of research that are necessary to further validate and quantify the findings. By pursuing these avenues of research, research can gain a more nuanced understanding of the implications of sustainability reporting for dynamic capabilities.

1.2 Practical Contribution

There are several practical contributions that this research could offer to businesses, policymakers, and other stakeholders. First, the study may enhance understanding and acceptance of sustainability reporting practice among managers. The study might help managers of companies to understand how their sustainability reporting efforts contribute to the company’s competitiveness in conditions of change. As such the study may serve practitioners and managers alike as an argument for a more active approach to sustainability reporting instead of engaging only in passive compliance efforts.

Further, the study may offer exemplary use cases and concepts for practitioners. The use cases discussed in the study could serve as blueprint for other practitioners in their efforts to implement sustainability reporting in an organization. The insights and concepts of this study argue for implementing regulations in a deliberate way: assessing how the information and competencies needed for compliance might be expanded or integrated into business processes in beneficial ways. This could increase the attractiveness of thorough corporate social responsibility (CSR) and thereby accelerate the sustainable transformation.

The proposed conceptual framework also has relevant practical implications, as managers and practitioners can use it, firstly to gain a better understanding of the dynamics at hand, and secondly to prioritize the potential changes according to the DC which needs development in the organization and according to complementary groups of changes, which create synergy in SR implementation.

Also, the study could also have implications for policymakers by providing evidence of the potential impact of sustainability reporting on DCs. This could inform the development of policies that encourage or require organizations to adopt more robust SR practices, which could in turn drive sustainable growth and competitiveness.

Overall, the practical contributions of this research are likely to be wide-ranging and could benefit a variety of stakeholders who are interested in driving sustainable growth and competitiveness.

This paper is structured in the following manner: after this introductory section, in Section 2 the conceptual background of the study is developed. In Section 3, the detailed research methodology is explained, before the results of the study are laid out in Section 4. Section 5 features an in-depth discussion of these findings and their relevance for theory and practice. Section 6 concludes the paper.

2 Conceptual Background

2.1 The Role of Businesses for Sustainability

Achieving sustainable development is the major goal of human society in the 21st century. Sustainable development was defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (United nations, 1987). Achieving sustainable development requires individual business models, industries and the economy itself to be reinvented with sustainability as the key tenet. Sustainability itself is understood to include 3 dimensions: Environmental sustainability, social sustainability and economic sustainability. In contrast to the traditional single bottom line, which describes company’s exclusive focus on shareholder value maximization, these three dimension form a *triple bottom line*, which is in line with sustainable development (Elkington, 2012).

Companies play a major role in achieving sustainable development, as many common business practices lead to externalized costs borne by the public (in form of damages to nature, climate or human health), while excess returns are privatized (Siegrist et al., 2020). Companies therefore have a moral obligation towards society to minimize their sustainable impact and take part in the sustainable transformation of the global economy. This moral obligation is described in the concept of Corporate Social Responsibility (CSR). CSR refers to companies’ general moral responsibilities including legal, ethical, and philanthropical expectations held by society (Carroll, 1991, p. 283).

While CSR relates more to a moral obligation of companies towards society, stakeholder theory posits that sustainability-orientation can also have beneficial effects for the company. Stakeholder theory is a concept coined by R. Edward Freeman in his influential book *Strategic management: A stakeholder approach* (1984). It posits that a company's success is dependent on its ability to meet the needs and expectations of its stakeholders. Stakeholders are understood as individuals, groups, or organizations that affect or are affected by organizational activities such as shareholders, employees, customers, suppliers, and communities (Freeman, 1984).

Stakeholder theory over the years has branched into two major views (Frooman, 1999). The moral view of stakeholder theory (Freeman, 1984; Mitchell et al., 1997) posits a normative obligation of companies towards individuals affected by their activities as these stakeholders are morally entitled to be informed about the company’s sustainable impact and hold certain performance standards to the company. The strategic view postulates that stakeholders can provide the company with crucial benefits in form of legitimization and social license to operate, risk management, and learning (Freeman, 1984; Sillanpää, 1998). Both the moral and strategic view justify informing stakeholders about the sustainable impact of the undertaking.

Informing stakeholders necessitates the *quantification* of an undertakings sustainable impact – a notion that is included in what is called Environment, Social, and Governance (ESG). Despite being used interchangeably in science, as seen in the example of Gillan et al. (2021), ESG and CSR convey different meanings behind their acronyms, albeit similar ones. While CSR relates to the discussed social responsibilities of a company, the ESG principle stems from sustainable investment and is connected to making the sustainable impact of a company quantifiable in its three dimensions (Li et al, 2021). This quantification can then be used by Investors to evaluate the sustainable and ethical impact of an investment in a company. ESG information in this study is therefore understood as information which is related to fulfilling investor's and stakeholder's demands for information on the company's environmental, social and governance activities/performance.

As part of their CSR strategy, many companies measure their sustainable impact and engage in disclosure of ESG information to relevant stakeholders via sustainability reporting. This satisfies their moral responsibility and offers potential benefits grounded in stakeholder theory.

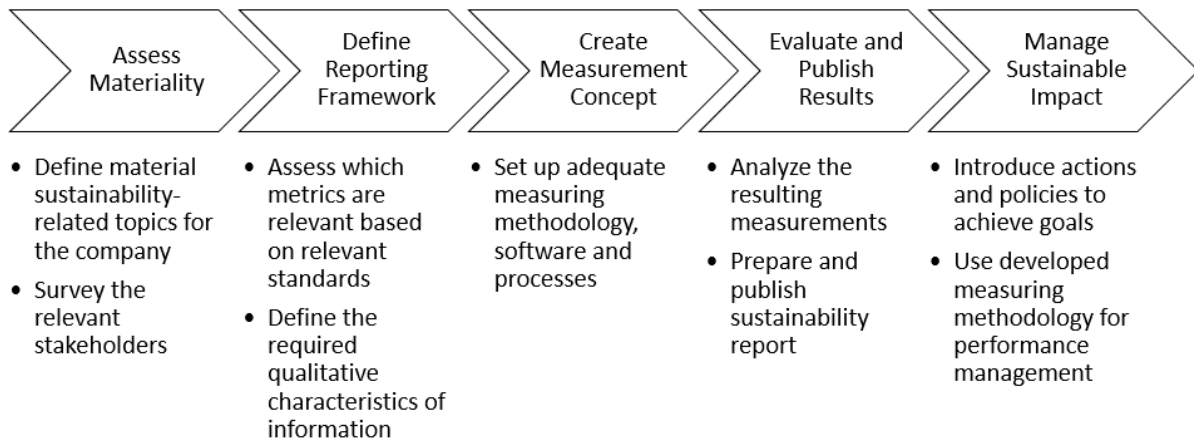
2.2 Sustainability Reporting

The success of organizations is determined by a diverse set of stakeholders (e.g., employees, customers, suppliers, creditors, advocate groups, public authorities) following individual sets of agendas and interests. Arguably the most important channel for companies to satisfy stakeholder demands and information requirements is sustainability reporting (SR) (Hahn & Kühnen, 2013). SR entails the voluntary or mandatory disclosure of ESG information to stakeholders in a yearly rhythm. Companies implement SR, among other things, to legitimize corporate activities, products and services, increase corporate reputation and brand value and gain a competitive advantage (Herzig & Schaltegger, 2006).

The content of a sustainability report is determined by what the undertaking establishes as material to the stakeholders. In the financial context, the U.S. supreme court ruled information to be material for reporting if they are relevant for shareholder decision making: "An omitted fact is material if there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote." (*TSC Industries, Inc. v. Northway, Inc.*, 1976). In the non-financial context, companies conduct materiality assessments to define which information are material for their stakeholders and therefore are included in the sustainability report. This is usually managed by conducting stakeholder surveys.

The SR process can be described in 5 steps (see Figure 1). After their initial materiality assessment, companies will need to define which voluntary or mandatory reporting standards are relevant to them. Together with the material topics of the company, these standards determine the content and qualitative characteristics of the disclosed information, also called reporting framework. In the next step, the required measurement processes and software need to be conceptualized and implemented to satisfy the identified disclosure requirements. The measurement of the relevant data should be completed sometime before the reporting deadline, as their evaluation and the preparation of the final report can take considerable effort. After the publication of the final sustainability report, the created measurement processes can be used for managing the sustainable impact of the company and track the performance of related projects and activities (Gittell et al., 2012).

Figure 1

Sustainability Reporting Process

Note. Based on Sustainable Business Case Book, by Gittell et al., p. 146

Example

An energy provider will most likely identify CO₂ emissions as a material topic for their stakeholders during its materiality assessment based on e.g., stakeholder surveying. To find out which CO₂-data needs to be published in which quality, the company will need to assess their required or preferred reporting standards. Consequently, the company will define and set up the required data gathering processes or measurement systems to be able to map their CO₂-emissions adequately. In some cases, the company will need to find and rely on industry standards to calculate their carbon footprint. In the final sustainability report however, the company must ensure that the provided data is reliable and auditable, so that independent auditing companies can give a statement of assurance prior to publication. Finally, the company can use the created measuring processes to assess the performance of implemented CO₂ reduction measures and track the development towards reduction goals that might have been set.

Engaging in SR can have beneficial effects for organizations, especially due to its effect on stakeholder opinion. In general, companies reporting superior performance in ESG matters may face “less friction and problems in their business relationships with suppliers, traders, public authorities and other stakeholders” (Herzig & Schaltegger, 2011, p. 152). SR can further be seen as a part of a firm's communication efforts to decrease information asymmetries between managers and investors as well as between individual investors (Reverte, 2012). In this context, SR can help to lower cost of equity for companies (Christensen et al., 2021; Reverte, 2012).

For these reasons, companies in the past have introduced SR voluntarily to signal their sustainability efforts to interested stakeholders. However, because the field remains largely unregulated, a plethora of different reporting frameworks and -methodologies have established themselves among individual industries and countries. Consequently research suggests that without common standards that are made mandatory for all undertakings, comparability between different companies remains low (Christensen et al., 2021). Because of this low comparability, voluntary SR is associated with the facilitation of greenwashing, as companies can influence stakeholder opinion with comparably insignificant CSR activity (Gatti et al., 2019). For this reason, voluntary SR practices are increasingly less meaningful for stakeholders. Companies try to improve the comparability and credibility of their

sustainability disclosures by buying assurance services or adopting more rigorous reporting frameworks (Ioannou & Serafeim, 2017).

Regulating bodies try to improve comparability by enacting corresponding regulation. Such regulation forces companies to engage in mandatory SR with the aim of increasing transparency of company's environmental and social Impact. This transparency can enable investors to redirect financial resources to more sustainable endeavors – a concept that is called sustainable finance (European Commission, 2021b).

In a first step, the EU's Non-Financial Reporting Directive (NFRD) adopted in 2014, compelled 11,000 companies in Europe to engage in SR (European Commission, 2021a). Yet, the NFRD, while mandating ESG disclosure, did not appoint a reporting framework as singular standard. Companies are allowed to choose between a variety of voluntary reporting frameworks like the Global Reporting Initiative (GRI) or Task Force on Climate-related Financial Disclosures (TCFD) standards as long as the basic disclosure requirements are fulfilled. While some studies find the NFRD to cause an increasing comparability by harmonizing the reporting quality of companies (Mion & Loza Adai, 2019), others find the regulation to increase data availability and credibility, but not comparability (Ottenstein et al., 2022).

Accordingly, low comparability originating from the lack of a common reporting standard (Doni et al., 2020; Steinhöfel et al., 2019; Venturelli et al., 2019) and unclarity on the applied materiality concept limited the effect of this initiative on the sustainable transformation of the economy (Baumüller & Sopp, 2022).

That's why on November 28th, 2022, the European Council formally adopted the Corporate Sustainability Reporting Directive (CSRD), which builds on the NFRD but enlarges its scope significantly. Under the new regulation, all publicly listed companies as well as companies that satisfy at least two of the three following criteria are required to report (Manfredi, 2022):

- A balance sheet total exceeding €20,000,000;
- a net turnover exceeding €40,000,000; and
- in excess of 250 employees on average during the financial year.

An estimated 50,000 companies in the EU will be in scope of the CSRD. Additionally, the regulation will also affect undertakings which are not headquartered in the EU but have listed securities at European stock markets or generate upwards of €150,000,000 annual revenue in the EU. It is assumed that a further 10,000 foreign companies will be mandated to disclose their sustainability performance under the CSRD (Holger, 2023).

To improve comparability, the EU has delegated the process of publishing its own set of reporting standards, the European Sustainability Reporting Standard (ESRS). The 12 draft ESRS published in November 2022 include 84 disclosure requirements and 1144 datapoints regarding different categories the fields of environment, social and governance, 398 of which are mandatory for all companies, regardless of the result of the materiality assessment (Barton & Rosenfeldt, 2023). As opposed to previous regulations, the CSRD requires not only information on decarbonization and climate change mitigation, but includes indicators on other environmental issues, such as biodiversity, resource use and circularity, as well as social matters, such as workers- and human rights on the whole supply chain, as well as diversity and democratic values and principles. Further, the governance field entails a view on the organizations administrative, management and supervisory bodies, internal control and risk systems, corporate culture, and stakeholder engagement. Next to these general, sector-agnostic indicators, companies will further have to report on sector- and company-specific indicators (European Commission, 2021a; ESRS 1, 2022; ESRS 2, 2022).

With the CSRD, the EU is also aiming to redefine the issue of materiality. The new regulation establishes the concept of *double materiality*. Double materiality has two dimensions: impact materiality and financial materiality, as described in ESRS 1: “A sustainability matter meets the criterion of double materiality if it is material from the impact perspective or the financial perspective or both” (ESRS 1, 2022, p. 25). This means a sustainability matter can be material based on the company's impact on environment and society, or based on the sustainability matter's impact on the company's financial development. Furthermore, the requirements for the data quality of disclosed information are raised significantly under the CSRD: All information must fulfill the qualitative characteristics of information (ESRS 1, 2022). These characteristics are relevance, faithful representation, comparability, verifiability, and understandability. The relevant ESG information will have to be published as a part of the annual report (Baumüller & Grbenic, 2021) and will therefore follow an integrated reporting approach.

Besides the measurement of their impact, companies are required to explicate a variety of other concepts (ESRS 1, 2022, § 10; Manfredi, 2022):

- Strategy: The company's business model and strategy, including compatibility with the 1.5°C goal of the Paris Agreements and the inclusion of sustainability matters and stakeholder interest.
- Targets: Progress towards achieving the sustainability targets set.
- Governance and policies in relation to sustainability matters including incentive schemes for executives based on sustainability measures.
- Impacts: Most relevant negative impact on sustainability matters.
- Remedial actions against these negative impacts.
- Risks related to sustainability matters and related risks management.
- Reporting scope: Documentation explaining how the scope of reporting was set.

Moreover, the organizations will have to provide both forward-looking assumptions and scenarios as well as retrospective, comparative information and establish linkages between them to “foster a clear understanding of how historical information relates to future-oriented information” (ESRS 1, 2022, p. 17). While under the NFRD auditing of sustainability reports was optional for reporting organizations, the CSRD compels organizations to attain “limited” assurance and by 2028 the more thorough “reasonable” assurance from independent auditing companies (Manfredi, 2022).

The merit of mandatory SR is not uncontroversial: Skeptics have frequently raised doubts about the effectiveness of SR regulation. Herzig and Schaltegger (2011) have highlighted that relying solely on command and control regulations could be expensive and hinder innovation. Further, the usefulness of SR assurance practices in creating credibility and transparency is stifled by lackluster scrutiny of independent auditors (Boiral & Heras-Saizarbitoria, 2020). Owen et al. (1997) and Schaltegger (1997) voice doubts in the effectiveness of SR in improving both corporate accountability and the accuracy of ESG information presented in reports. However, such rather outdated criticism refers to a lack of information quality in mandated disclosure that is addressed by the ESRS.

More current criticism refers to mandatory SR's implication for corporate costs: SR stipulates an increase in CSR-activity (Christensen et al., 2021). This increase in CSR-activity, paired with the high administrative burden of compliance with the new regulation, pose a significant cost increase for affected companies. Furthermore, litigation costs caused by non-compliance, and proprietary costs associated with the disclosure of confidential information may arise (Christensen et al., 2021).

Hence, it is fair to say that this new comprehensive legislation will pose significant challenges for companies. It stands to reason though, that there are some inherent advantages tied to the collection,

preparation and disclosure of the relevant ESG information: Despite the described burdens and costs of introducing mandatory SR, Ioannou & Serafeim (2017) point to an increased firm value as a result of SR implementation. Carnevale & Mazza (2014) and Klerk & Villers (2012) find a similar correlation for European banks and South African firms respectively. This points to a firm-value relevance of sustainability, meaning shareholders appreciate the additional information provided in sustainability reports (Carnevale & Mazza, 2014).

Besides an increased approval by shareholders, some scholars argue that SR likely also has other beneficial effects on companies. Lu et al. (2022) argue that much focus has been laid on the effect that CSR activity (including reporting) has on the company's reputation, and the effect on internal processes is understudied. For instance, in their study they found firms with a better CSR performance (one indicator of which was reporting quality) to be more likely to adopt integrated risk management practices. Another effect lays in improved decision making stemming directly from SR practice, as the key performance indicators (KPIs) for measuring sustainability performance are used in decision-making, strategic planning and performance management (Adams & Frost, 2008). Accordingly, Hamed et al. (2022) found that the United Kingdom's Sustainability Disclosure Requirements significantly enhances the quality of SR, which helps in guiding firms in their decision making for sustainable investments.

This influence on a company's risk sensing, decision making, and performance management capability is underscored by the EU's own Impact assessment for the CSRD. According to this document, one indirect benefit of the CSRDs implementation would be an "increased firm resilience through an improved awareness and management of sustainability related risks" (CSRD Impact Assessment, 2021/Commission staff working document). These capabilities can be linked to sensing, seizing and transforming DCs and reinforce the notion that SR influence on company-internal processes and competitive advantage can be studied using the DC framework.

2.3 Dynamic Capabilities

The dynamic capabilities concept is rooted in the resource-based-view of a company (Wernerfelt, 1984) which aims at refocusing the attention of the strategy scholarship away from the external environment of a company (e.g. Porter's Five Forces) back to the firm's idiosyncratic and difficult-to-imitate resources as the origin of competitive advantage (Strauss et al., 2017; Teece et al., 1997). In an effort to consolidate the two views, Teece et al. (1997) developed the concept of dynamic capabilities (DCs), which focuses on the capabilities needed to adapt organizational structures and resources in order to create and preserve competitive advantage in conditions of change (Strauss et al., 2017).

Teece describes DCs as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." (Teece et al., 1997, p. 516). This insinuates that they can effect change in an organization's extant resource base, ecosystem, and strategy. This differentiates a firm's *dynamic* capabilities from its *operational* (ordinary) capabilities, which are the everyday activities needed to preserve the status quo (Schilke et al., 2018). For modifying these ordinary capabilities and thereby addressing/creating opportunities, dynamic capabilities are needed (Eisenhardt & Martin, 2000).

Modification and creation of new DCs in turn is accomplished by higher-order DCs, also called *regenerative* DCs. This concept of a capability hierarchy (Ambrosini et al., 2009) explains how companies can change their ordinary capabilities by deploying DCs, and add new DCs by deploying regenerative DCs (Winter, 2003). Regenerative DCs - like normal DCs - can take many forms, but are different from normal DCs in so far that they are used to create new DCs and therefore only have an indirect effect on the underlying resource base or ordinary capabilities (Ambrosini et al., 2009).

A dynamic capability can further be described as a highly patterned and repetitious routine or process of combining existing resources into clusters involving multiple individuals or groups, that enables a specific activity (Teece et al., 1997; Winter, 2003). This deliberate and processual approach differentiates them from passive and reactive “fire-fighting”, which also creates change but is less deliberate and more akin to ad-hoc problem-solving (Winter, 2003).

It is the company’s distinct skills, processes, procedures, organizational structures, decision rules, and disciplines that lay the microfoundations for dynamic capability (Teece, 2007). Being rooted in these idiosyncratic microfoundations makes DCs organization- and context specific, implying they are hard to buy or sell, except if sold as part of an entire organization in which they are embedded. Their context-specific and embedded nature makes the development and maintenance of DCs a lengthy endeavor, which entails significant sunk cost (Ambrosini & Bowman, 2009; Winter, 2003).

This study takes the side of Eisenhardt and Martin (2000, p. 1105) in that DCs “are idiosyncratic in their details and path dependent in their emergence, yet they have significant commonalities across firms” and therefore can constitute best practices for other organizations. The study thereby follows recommendation of Laaksonen and Peltoniemi (2018) to explicate the level of uniqueness of DCs adopted in this study.

Since its inception, the DCs concept has been the interest of a growing community of scholars, with many sub-concepts and branches being formed. Today, what is seen as the traditional concept of DCs is focusing on three individual, yet interconnected and partly overlapping DCs; *sensing*, *seizing*, and *transforming* (Teece, 2007; Wu et al., 2013).

The “sensing” DC consists of the company’s ability to scan and interpret markets and technological advances for opportunities and threats that can become relevant to the company. Developing sensing capability calls for an organization to invest in research activities, analyze customer needs and corresponding technological developments, understand future changes in industries and markets and anticipate the most probable reactions of suppliers and competitors (Teece, 2007).

Essential for opportunity discovery is the knowledge acquisition and learning capacities of the company and its individuals (Teece, 2007). Information must be accumulated from a diverse array of stakeholders and then filtered and synthesized to create hypothesis of future developments. Organizational processes defining knowledge management need to be in place to formalize sensing activities and stay independent from individual employees’ experience. Such knowledge management systems are further important to create an analytical framework that emphasizes knowledge articulation, and recurrent synthesis and updating of the developed insights (Teece, 2007). Not only external information is relevant for sensing activities: spotting dysfunctional routines and opportunities for internal improvement is equally important for sensing capabilities.

Having identified potential opportunities or threats with their sensing DC, the “seizing” DC enables organizations to mobilize internal resources and address and use opportunities in their favor (Teece, 2007). Fitting products, processes, or services need to be drawn up using the available knowledge and information to face the hypothesized changes in the environment. Acquiring funding for such projects can be challenging however, as resource allocation in companies can be biased towards conserving the status quo: Market incumbents tend to exhibit decision-making bias for existing “routines, assets, and strategies developed to cope with existing technologies” and against “making and/or adopting radical, competency-destroying, noncumulative innovation” (Teece, 2007, p. 1328). This behavior is partly rooted in a dominance of risk-aversion, caused by the certainty effect, e.g., disproportionately discounting effects that are merely probable but not certain, or a lack of integrated thinking, e.g., viewing investment options in isolation and not integrated in the broader product/business environment (Teece, 2007). Another related bias is short termism, which values short term financial

gains (e.g. share price increases) over long term financial success (e.g. sustainable business) (Jackson & Petraki, 2011).

Being aware of these biases and formalizing adequate countermeasures in the decision-making process is key to maintaining the needed technical competences and complementary assets as well as consecutively addressing the scouted opportunities with timely and decisive investment (Teece, 2007).

In summary, seizing capabilities can be described as developing concrete and fitting business opportunities and making unbiased and interrelated investment decisions in context of change to address such opportunities (Kump et al., 2019; Teece, 2007).

While seizing revolves around making the right investment decisions at the right time, “transforming” DC focuses on the implementation of such decisions. This encompasses the recombination and reconfiguration of processes, assets and structures in the face of changing environments and new organizational requirements. Such asset orchestration and -realignment activities (e.g., relocation of assets or mergers and acquisitions) are needed to create complementary assets and achieve strategic fit. Highly complementary assets (co-specialization) are hard to imitate and offer idiosyncratic advantages and cost savings (Teece, 2007).

As discussed, successful incumbents are prone to forgo sensed opportunities that involve radical changes to the organizational structure or business model. On a processual level, this is related to their tendency to fall in path-dependency while trying to sustain existing advantages. However, rapidly changing environments call for flexibility and continued reconfiguration of existing structures to preserve evolutionary fitness (Kump et al., 2019; Teece, 2007).

This perpetual transformation entails delegating tasks, distributing funds, and ensuring that the workforce is equipped with the newly demanded knowledge (Kump et al., 2019). It is enabled by a corporate culture that is shaped to accept the uncertainty that accompanies internal change (Teece, 2007). Further, a decentralized organizational structure, which enables quick decision making and allows top management to be closer to new developments on the market and in technology is conducive for transformation capabilities (Teece, 2007).

Fitting governance structures are determinants of transformative ability. Having adequate governance structures in place for intellectual property protection or to create incentive alignment between employees, managers and investors is integral for successful transformations (Gottschalg & Zollo, 2007; Teece, 2007).

Lastly, learning practices within the company are an important part of transformations. Like *sensing* abilities, *transforming* organizational structures relies on knowledge. In this case however, the focus lays on the integration and combination of knowledge from within and outside the borders of the organization and making this knowledge available for employees, especially those in charge with implementing a change project (Kump et al., 2019).

DCs are not necessarily beneficial for organizations. Next to the discussed costs of creating and maintaining DCs, they can also be used in detrimental ways: If a manager misinterprets market developments and deploys dynamic capability to transform the organization at inopportune moments, the organization will have to bear the costs of maintenance as well as the cost of adverse deployment of DCs (Ambrosini & Bowman, 2009). A highly complex decision space increases the probability of adverse deployment of DCs owing to the bounded rationality of managers, making DCs a costly resource with a net-negative contribution to organizational performance in this context (Ambrosini & Bowman, 2009). The development and maintenance of DCs therefore is not recommendable in all scenarios. Next to highly complex industries, Industries with low dynamism do not require for costly

DCs, as there are seldomly needed. Ad hoc problem solving and adaptability might be more cost-effective approaches in such sectors (Winter, 2003). Yet, DCs are made out as the foundations for sustainable competitive advantage and successful (sustainable) business model innovation (Bocken & Geradts, 2020; Inigo et al., 2017). As DCs enable change of the organization's extant resource base, they are crucial for achieving sustainable competitive advantage in many contexts (Ambrosini & Bowman, 2009).

2.4 Potential effects of SR on DCs

2.4.1 DC Theory as Lens of Observation

DC Theory is chosen for observing the impact of SR implementation on organization because of multiple reasons. Firstly, DC theory's focus on organizational routines and processes enables the exploration of investigated effects on a processual level, the level that has been made out as part of the research gap. Second, the broad area of application of DC theory allows for exploration of the proposed effect in all relevant fields of expertise, like organizational culture, -structure, -governance, and -strategy. Third, the cyclical nature of disclosure hints at reoccurring effects on routines on a dynamic level, which deems DC theory a better fit than other, more static views such as the resource-based view. Fourth, both the CSRD as well as the DC theory have a focus on sensing new developments and adequately strategizing a reaction to perceived opportunities and threats.

Lastly, as discussed before, the anticipated effect of the CSRD is to quicken the pace of sustainable transformation by enabling sustainable finance. This effectively increases the pace of change that the economy is faced with. Dynamic capability theory makes it possible to address the challenges of SR regulation (Increased change) with its potential benefits (increased DCs to address change) in the same frame of mind, crucially providing affected companies with a way to remain competitive in these conditions of change.

The potential intersection between mandatory SR and DC Theory becomes apparent when studying descriptions of the benefits of SR: "Sustainability reporting provides an official company-internal reason to deal with corporate sustainability, it initiates processes of *awareness*, and it can establish *routines for considering sustainability-related information to be part of business information*" (Herzig & Schaltegger, 2006).

2.4.2 Why SR may contribute to DC

DC theory is revolving around company-specific, or *idiosyncratic* capabilities to explain competitive advantage. Hence, Teece (2007) rules out "widely-adopted best-practices" as DCs, as they are not idiosyncratic and therefore cannot by themselves be the foundation of competitive advantage. If dynamic capabilities are idiosyncratic in nature, how can SR, which is already a widely adopted business practice, constitute any kind of advantage for a company? Following this notion, it could be argued, that especially government regulations such as the CSRD, which must be adopted by all companies in its scope, can hardly be constituent of DCs.

However, not every company may implement the CSRD- or use the created information the same way. In many companies, implementation of mandatory practices is done with a focus on compliance and risk avoidance (Kähkönen et al., 2018). Organizations that perceive the CSRD as a compliance project and therefore use a risk-avoidance approach, might be less aware of the benefits which a deliberately executed implementation potentially has to offer, and instead tend to focus on the associated costs.

A fitting example stems from Gittell et al. (2012). They describe how SR can be practiced without much influence on decision making and sensing activities, if the relevant information is not used accordingly:

But even if an organization has the best data collection systems in place and a robust and accurate sustainability reporting process, organizations must also act on that information—that is, use the information to inform and influence subsequent actions. This leads to the next major challenge, which is integrating the information collected and analyzed into the management decision-making process. It is not beneficial to produce a great sustainability report and then stick it on a shelf or a website. A business must be able to “sense” its external environment through effective data acquisition and reports, and it must be able to learn from what it perceives from that information to improve its practices using that information (Gittell et al., 2012, p. 142)

The seamless integration of such information into existing decision-making processes, while being beneficial, might require costly changes to the IT landscape or changes to corporate governance structures. Organizations that view the CSRD from a risk-avoidance perspective might be unaware of the potential benefit of this implementation or unwilling to bear the associated costs and risks. Other organizations, however, may intend to use the information at hand to have a more complete basis for decision making, potentially advancing their sensing and seizing capabilities. They are investing additional effort to make use of the opportunities that the new regulation offers.

It could be argued that only companies willing and able to invest into overhauling their processes and use the opportunities given by the SR implementation are able to develop DCs. After all, “obtaining the systematic means to promote strategic change through dynamic capabilities requires a substantial commitment of organizational effort, time, and funds” (Schilke et al., 2018, p. 393). Consequently, focusing on compliance only would not bare any idiosyncratic capabilities, as the company is not taking any risk to address the opportunities that arise for DC creation. This is in line with findings from Bocken and Geradts (2020), that make out risk avoidance as a barrier for dynamic capability development.

Hence, it is not the mere implementation of SR regulation by which a company creates DCs, but a *commitment to actively overhaul company processes to address the opportunities presented by the implementation*. The author of this study describes this as an *active* approach to SR implementation, as opposed to a *passive* approach which focuses on mere compliance. This terminology is based on a similar one employed by the consultancy BearingPoint (2023). (The consulting company describes an active SR approach as integrating ESG information in decision-making using real-time data consolidation as opposed to a passive approach, which consists only of complying with regulation).

Taliento et al. (2019) have used a related approach in determining the financial materiality of ESG information in European stock markets: They found *excess* ESG performance, so the distance from the industry standard, to be positively relevant for financial results of the company.

2.4.3 Anticipated Effects on Dynamic Capabilities

Earlier work has identified four business processes that may be affected by SR and have connections to DCs: *Knowledge Acquisition, Stakeholder Engagement, Knowledge Management* and *Integrated Management Control Systems*. In the following, the processes and their relation to SR are shortly explained before the processual changes, which SR implementation could entail, are laid out. Lastly, the potential effects that such changes could have on DCs are explained. The assumed effects on individual DCs are listed in Table 1.

Table 1

Processes Effected by an Active Approach and the Respective DCs Impacted

| Processes | Sensing | Seizing | Transforming |
|--|----------------|----------------|---------------------|
| <i>Knowledge acquisition and open innovation</i> | ● | | |
| <i>Stakeholder engagement</i> | | ● | |
| <i>Knowledge management structures</i> | ● | ● | ● |
| <i>Integrated management control systems</i> | ● | ● | ● |

While describing the potential effects on DCs, the differing effects between an active- and passive approaches to SR implementation as described in Chapter 2.4.2 are hypothesized, i.e., active companies will implement the possible changes in this process during SR implementation, while passive companies will focus on achieving compliance.

Knowledge Acquisition (Sensing)

As described by Jantunen (2005), knowledge-acquisition capabilities involve procedures and mechanisms that gather information and generate knowledge. Companies implementing SR will be faced with the task to implement a number of such knowledge acquisition processes for both internal and external sources. Externally, satisfying the disclosure requirements (e.g., by using industry standards for emissions calculations), creating and adapting the organizations sustainability strategy to include newly researched materials or products, or identifying material risks and opportunities all build on the company's ability to acquire relevant information from its environment. Especially the detailed disclosure requirements set by the CSRD described in Chapter 2.2, will require companies to get in touch with external knowledge holders. The connection to sensing capabilities is evident; Kump et al. (2019) describe sensing capabilities as an organizations capability to "systematically, continuously, and reliably acquire strategically relevant information from the environment" (Kump et al., 2019, p. 1156) and point to knowledge acquisition as described by Jantunen (2005) as a related concept. While they are primarily focusing on the external sources of information relevant for the company, scholars have argued that the acquisition of internal information is equally important for sensing capabilities, as they enable the identification of new developments and opportunities within the firm (Babelytė-Labanauskė & Nedzinskas, 2017; Hodgkinson & Healey, 2011). Accordingly, internal information gathering for measuring the company's impact is a main element of the sustainability reporting processes as described by Gittell et al., (2012). Consequently, organizational processes for knowledge acquisition are linked to discovering both external and internal opportunities and threats via sensing capabilities.

Passive companies might acquire the needed information through external sources, but conversion of such efforts into DCs requires a patterned and repeatable process. Active companies will create routines to continuously scan the environment for sustainability developments and technologies or establish long-lasting relationships with external holders of knowledge such as universities and industry associations. Such open Innovation practices are seen as both beneficial for DCs as well as benefiting from them: "The two are mutually reinforcing. The implementation of open innovation can broaden top management's horizons for sensing and seizing. And strong dynamic capabilities will increase the effectiveness of open innovation efforts." (Teece, 2020, p. 14). Further, active SR might encompass a more rigorous approach to internal information gathering, with a higher data granularity or -reliability then required by regulation.

Stakeholder Engagement (Seizing)

Stakeholder engagement is most commonly understood as “the practices that the organization undertakes to involve stakeholders in a positive manner in organizational activities” (Greenwood, 2007). In their literature review, Kujala et al. (2022) describe it to involve the “aims, activities, and impacts of stakeholder relations in a moral, strategic, and/or pragmatic manner”.

The ESRS points out engagement with affected stakeholders to be central to the organization’s sustainability materiality assessment (ESRS 1, 2022, § 28). As the materiality of sustainability matters is determined by the organizations “actual or potential, positive or negative impacts on people or the environment over the short-, medium- and long-term time horizons”. (ESRS 1, 2022, § 46), engaging with stakeholders is necessary to identify, evaluate and later also mitigate these impacts.

Conducting a materiality analysis not only helps companies to gather information regarding its sustainable impact from internal and external stakeholders, but can also be a way to integrate stakeholders’ interests and expectations in company decision making and balancing shareholder and stakeholder orientation. Bocken and Geradts (2020) contend how holding a balance between shareholder- and stakeholder-value orientation is seen as an institutional driver of DCs, as it promotes sustainable investment as opposed to financially detrimental short termism. Short termism is identified as a main barrier of DC development (Bocken & Geradts, 2020; Jackson & Petraki, 2011) and the adoption of sustainability initiatives (Bocken & Geradts, 2020; Siegrist et al., 2020). The balance between short- and long term view and shareholder- and stakeholder orientation leads to a more informed decision making, that is not biased towards share price effects, thereby improving seizing capability.

Panda & Sangle (2020) have identified stakeholders in general as an important resource for companies. They contend, that the capability to access this resource falls under stakeholder engagement. They further establish stakeholder engagement as a dynamic capability and conducive for establishing competitive advantage.

In terms of general performance impact, external stakeholder engagement and a resulting outward orientation is a hallmark of sustainable companies, the likes of which tend to significantly outperform their traditional, non-sustainable counterparts (Eccles et al., 2012).

While passive companies will engage with their stakeholders to gain the information needed for conducting a materiality assessment and satisfying other disclosure requirements, upholding these connections continuously as well as introducing stakeholder interest in decision-making, is neither strictly necessary for compliance (ESRS 2, 2022, §§ 41–43) nor an easy thing to do: permanently embedding the necessary processes within organizations is considered a key challenge in stakeholder engagement (Smith et al., 2011). An active approach might incline companies to engage with their external partners in a continuous fashion and using a structured approach, leveraging the advantages of active stakeholder engagement: a more balanced shareholder and stakeholder value and a resulting reduction of risk aversion (Smith et al., 2011).

Knowledge Management (Sensing, seizing & transforming)

Acquiring the relevant external information and combining it with the internal knowledge of an organization forms the basis of sensing capabilities. However, for successful decision making to take place, the vast pool of information available to a company and its employees needs to be continuously maintained, corrected, and made accessible. Managing the process of creating, sharing, and using the knowledge and information of an organization is part of the knowledge management discipline (Girard & Girard, 2015).

A structured approach to knowledge management can consist of e.g., a dedicated department and function, processes for continuous reevaluation of existing knowledge, or engagement in knowledge creation individually by all employees. Implementing formal knowledge management structures is found to facilitate DC creation (van Reijssen et al., 2015) specifically transforming DCs (Teece, 2007). These structures effect transformation capabilities, as they help to ensure that the workforce is equipped with the required knowledge. Further, implementing knowledge management structures has an effect on the three learning processes by which companies convert experience and information into knowledge: by accumulating, articulating and codifying knowledge (Eriksson, 2014). A sizeable pool of knowledge at the company's disposal can help to alleviate the bounded rationality of decision makers and therefore improve the quality of decision making and as such seizing capabilities.

As laid out in Chapter 2.3, knowledge management structures that enable employees to codify their knowledge are needed to formalize sensing activities and stay independent from individual employees' experience. Knowledge management systems further enable recurrent synthesis and updating of the developed insights, creating sensing capabilities (Teece, 2007).

Companies are compelled by the CSRD to acquire knowledge on a variety of different aspects, e.g., find and survey relevant stakeholders, calculate relevant KPIs, or iteratively validate the assumptions on which their calculations and sustainable-transformation strategies are based. It can be argued that a formalized knowledge management approach through which processual knowledge is structured and made available will be beneficial for these tasks. While passive companies might not see the necessity of such a structured approach, companies following an active approach might be inclined to create or expand existing knowledge management structures to facilitate SR implementation, thereby improving their sensing, seizing and transforming DCs.

IT Systems (Sensing, seizing & transforming)

Storing and integrating this information and knowledge in ways that make them usable is not trivial. The use of specialized software to collect and structure data in organizations has become more relevant with the increasing amounts of data becoming available and relevant (Elbashir et al., 2021). Integrated management control systems enhance the efficiency of processes and routines and by extension have an influence on DCs. Sensing capabilities, it can be argued, are promoted by MSCs through their ability to find patterns and other actionable information within the integrated internal and external data. This way opportunities and threats as well as dysfunctional routines are more likely to be spotted. Increased sensing capabilities are achieved by enabling managers to access and consider more relevant financial and non-financial information during decision-making, alleviating their bounded rationality. Transforming capabilities are driven by facilitating resource realignment and process feedback and control (Elbashir et al., 2021).

Further research points to a general connection between information systems and DCs: N. B. Jones et al. (2003) contend how "organizational memory systems" used for information storage, access and structuring, are effective in improving absorptive capacity and organizational learning of organizations. Absorptive capacity is outlined as "a dynamic capability that influences the firm's ability to create and deploy the knowledge necessary to build other organizational capabilities" (Zahra & George, 2002, p. 188). Similarly, Macher and Mowery (2009) found that a high degree of information-handling automation is conducive of learning and problem solving skills of semi-conductor producers.

There is a plethora of data collection and management tools such as Happeo (Happeo, 2023) or Workiva (Workiva, 2023) on the market that include specifically tailored applications for sustainability disclosure duties. They are not exclusively aimed at sustainability data however, and offer integration of all data in a central repository. Companies using a passive approach might be reluctant to green-light the costs associated with acquiring, implementing, and maintaining such a software tool, and

instead use existing software such as excel for information gathering and structuring. An active approach drives organizations to use/expand MCSs and implement the sustainable information into integrated software solutions as a way address rising demands of data acquisition and compilation through automatization.

While it can be hypothesized, based on the theory laid out so far, that engaging in an active SR approach and initiating the above-mentioned changes in business processes would affect DCs, no research exists that shows if organizations are exhibiting such behavior during SR implementation or how this influences DC creation. The research design described in Section 3 was used to fill the identified research gap and find out if the hypothesized effects are real occurrences, and which unanticipated changes and activities a SR implementation could entail.

3 Method

In this study, a qualitative research approach using semi-structured interviews was chosen to explore how the implementation of SR can affect dynamic capabilities, as this aspect has not been extensively researched in the literature (see Chapter 1.1). This approach lays the groundwork for future research on this topic.

Qualitative research allows for the exploration of the "how" and "why" research questions, such as the one at hand, as it provides a deeper understanding of experiences, phenomena, and context. It further helps to explore everyday social phenomenon and human experiences (Cleland, 2017). The objective of qualitative research is therefore to obtain a subjective viewpoint of a phenomenon, instead of only measuring the extent of interviewee's agreement to a question (Hale et al., 2007).

Semi-structured interviews are beneficial for revealing viewpoints, examining procedures within a specific context, or investigating the experiences of an individual or group (Agee, 2009). Hence, semi-structured interviews were considered the appropriate method for this study, also because they offer the flexibility to diverge from the interview protocol and ask follow-up questions, which are necessary for uncovering qualitative knowledge that cannot be obtained through standardized interviews or questionnaires (Flick, 2018). Semi-structured interviews also enable a reciprocity between the interviewer and participant, which makes it possible to discover empirical realities within the topic in an inductive way (Galletta, 2013).

3.1 Sample

The study used a series of 12 semi-structured interviews with SR professionals and experts for data collection. Relevant interview partners had sufficient knowledge about the diverse internal changes that accompany SR implementation. As such, interviewed individuals included those practitioners that had managed the introduction of SR in the past, those that were planning the implementation of the CSRD in the future, as well as consultants who had advised companies on the implementation of SR in the past.

Potential participants were searched on LinkedIn by typing key words like "sustainability manager", "sustainability reporting", or "sustainability disclosure" into the search bar. After controlling for relevant experience, the potential participant was contacted, and the intention of the study was communicated. For further information a study information sheet was sent (Appendix A) as well as the informed consent form (Appendix B).

If the address could be found on the company's website or sustainability report, some practitioners were contacted directly via e-mail. For finding relevant sustainability reports the ranking of sustainability reports was used (Institute for Ecological Economy Research [IÖW], 2023).

After contacting 160 individuals over the span of 3 months, 12 interviews could be conducted. These 12 interview partners are listed in Table 2. All companies are Germany-based, except company 11 which is based in Denmark.

Table 2

Company Type Investigated, Interview Partner, and Their Relevant Expertise.

| # | Industry | Company type | Company size | Position | Years in position | Other relevant experience |
|----|------------------------|-----------------------------|--------------|--|-------------------|---|
| 1 | Textiles and Furniture | Consulting | Small | Sustainability consultant | 1 | Two years board member in the fashion industry, 10 years managing director |
| 2 | Food | Mill and bakery | Medium | Head of sustainability & communications | 7 | |
| 3 | Automobile | Metal working | Medium | Sustainability specialist | 2 | PhD in environmental science and life cycle assessment |
| 4 | Construction Material | Fastening technology | Medium | Head of sustainability, environment and energy | 2 | More than six years working for the company, partially in sustainability management |
| 5 | Cross-industry | Sustainable network | Small | Project manager sustainability reporting & ratings | 1 | One year sustainability manager, two years corporate responsibility consultant |
| 6 | Finance | Insurance company | Large | Group environment officer | 10 | Four years consultant and environment manager |
| 7 | BioTech | Life science company | Large | Sustainability assessment & reporting manager | 2 | |
| 8 | Chemical | Specialty chemicals company | Large | Senior consultant sustainability | 7 | |
| 9 | BioTech | Pharmaceutical company | Large | Senior manager sustainability reporting | 6 | Seven years sustainability analyst |
| 10 | Finance | Insurance company | Large | Group sustainability manager | 1,5 | |
| 11 | Cross-industry | Consulting | Small | Consultant sustainability specialist | 2 | |
| 12 | Electronics | Electrical installations | Large | Sustainability reporting manager | 5 | One year executive specialist life cycle assessment & sustainability certification |

Note. Company size was categorized according to revenue following the American Small Business Administration scheme for size categorization; Small: <\$38,5 million, large: >\$1 billion.

3.2 Data Collection

The questions of the semi-structured interviews were informed by prior literature review of selected fields of research (see Chapter 2.4.3). Scheduling and execution of the interview was done with Microsoft Outlook/Teams. In the beginning of the meeting, the respective participant was informed about the intentions of the study. The informed consent form was either already sent to the researcher at that point or filled out together with the participant. Ten Interviews were conducted in German language, two in English. The complete English interview guideline can be found in Appendix C.

Participants 5 and 6 had access to the guideline prior to the interview as they requested it as condition for participation.

The interview was initiated by asking the person about their background and career path up until now. They were asked to explain their position and relation to SR. If relevant, earlier work experience related to SR were inquired on. The related information can be found in Table 2.

Then followed the main part of the questionnaire: About half of the interview consisted of open questions, inquiring the general changes made as a consequence of SR implementation. Questions like “Can you briefly recap the process for sustainability reporting in your organization?”, or “What has changed in the organization as a result of implementing sustainability reporting?” were asked in the beginning to get a better understanding of the general process of SR in the company and to open the field of view of the interviewee. Follow-up questions were used to infer a deeper understanding of the mentioned changes and how they might have impacted organizational performance. In this way, potential benefits of SR that had not been identified in theoretical groundwork could be uncovered in an inductive way. Some of the following topics and questions could be discarded already or marked as especially relevant, depending on the company’s approach to SR. This way the length of the interview could be kept at max. 1 hour, as all participant remarked to be time sensible.

However, as some questions should be based on prior knowledge (Turner, 2014), insights from the theoretical groundwork of Chapter 2.4.3 was used to identify affected business processes and develop corresponding questions in a first deductive step prior to the interviews. To test these anticipated effects, the middle section of the interview therefore covered questions inquiring about changes directly related to the identified processes of Chapter 2.4.3, such as “What changes have been made to the way the company engages with stakeholders in the wake of sustainability reporting implementation?” or “What changes have been made to the IT-Infrastructure to accommodate sustainability reporting processes?”. Again, follow up questions were used to establish deeper understanding and potential performance implications: If for example, changes had been made to the IT-infrastructure, more specific questions about the impact of these changes on the relevant DCs, in this case sensing and seizing, were asked.

The interview was concluded with another set of general questions, inquiring the most important positive and negative impacts of SR for the company, giving another opportunity to uncover new inductive insights.

After the recording was concluded, each interviewee was asked to give feedback on the interview. The feedback was implemented in the succeeding Interviews if deemed beneficial for the course of the study.

In addition to the interview material, contemporary regulatory standards were reviewed. Mainly the draft versions of the European Sustainability Reporting Standards (ESRS) of the CSRD, were analyzed. Relevant in the context of this study are the “ESRS 1, General requirements” (44 pages), and the “ESRS 2, General Disclosures” (41 pages). The information and requirements of these standards was included in the evaluation of the interview material in Section 4 as to contrast company practices with emerging regulatory requirements. Essential for the study was the differentiation between behavioral requirements, such as conducting a materiality assessment or assurance by independent auditors, and disclosure requirements, such as the measurement and reporting on emissions or diversity in the company. With this information a distinction could be made between those company activities that are aimed at complying with standards and those that go beyond what is strictly required.

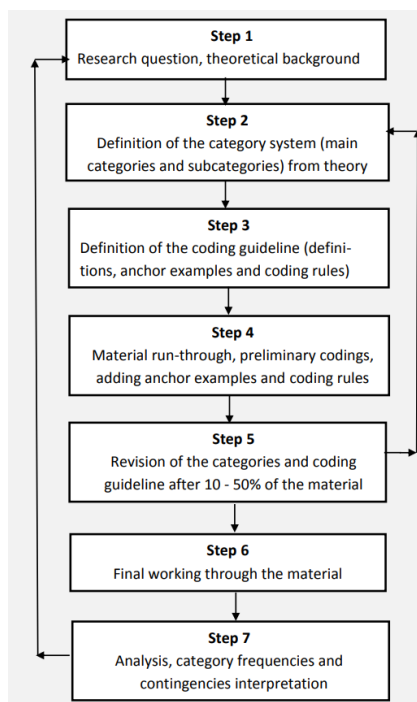
3.3 Data Analysis

As mentioned, the interviews took place online on Microsoft Teams, which allowed for transcription of the interviews using the Microsoft Teams transcription function. The transcripts were later corrected for mistakes and improved in readability (Microsoft Teams adds unnecessary full stops or paragraphs that make coherent reading challenging). Besides this, dialect, filler words, and double formulations were erased to improve readability where necessary (especially challenging and complex passages were cleaned) creating a hybrid of “Clean read or smooth verbatim” transcripts and “Pure verbatim protocol” (Mayring, 2014). This was done to improve readability in important segments, while keeping some information about the interviewee’s way of expression.

The transcripts of the conducted interviews were analyzed using the rule-based qualitative content analysis process (Mayring & Fenzl, 2019). In this context the deductive category development approach described in Figure 2 (Mayring, 2014) was used. For coding and further processing of the results, the software ATLAS.ti was used as it facilitates synthesizing and contrasting information in a structured way.

Figure 2

Steps of Deductive Category Assignment



Note. From Qualitative content analysis: theoretical foundation, basic procedures and software solution by P. Mayring, p. 96. Copyright 2014 by Philipp Mayring.

In a preliminary step the category system was created using knowledge of relevant theoretical groundwork and leaning on the structure of the interview guideline. The category system was outfitted with anchor examples and coding rules used to define exactly when a category is applied to a coding unit. In a first material run-through (approx. 25% of the material) the category system was tested, continuously reworked, and expanded with further subcategories. The mostly deductively created first categories therefore could be complemented by inductively explored categories, allowing for a combined approach. The new category system was revised again after running through 50% of the material. In the final run-through 100% of the material were coded using the same category system (Mayring, 2014).

Table 3 and Table 4 show a comparison of the initial and final category system. Between the two systems, the following important changes were made:

- Questions regarding the company and industry were omitted from later interviews to save time and are therefore not found in the final category system. Relevant information was acquired by research on company websites.
- The focus on an active approach (former commitment approach) was lessened and contrasted with pragmatism, a concept found to be relevant during the interviews.
- Change of the main category order: The initial main categories were ordered along the three DCs, sensing, seizing, and transforming, following the structure of the interview guideline. This was changed to a more general order in the final system. That is because it was challenging to differentiate between, for example, three different knowledge management codes. By collecting all information regarding e.g., knowledge management in one code, the different approaches of the companies could be compared better, and complexity was reduced. The differentiation among the DCs was reintroduced in the final synthesis of the material (see the three columns in the right of Table 4).
- During the interviews and in the process of coding, additional categories were found to be relevant. These are indicated in green color in Table 4.

Table 3

Initial Coding System

| Category | Sub-category |
|---|--|
| 1. Person and organisation | 1.1 Career |
| | 1.2 Position in company |
| | 1.3 Connection to SR |
| | 1.4 Business Model |
| | 1.5 Industry |
| 2. SR in the organisation 2b. Changes for NFRD/GRI 2c. Changes for CSRD | 2.1 Since when and why SR |
| | 2.2 Used standards |
| | 2.3 Rough structure of the process |
| | 2.4 Implemented changes for SR |
| | 2.5 Planned changes for SR |
| 3. Commitment approach | 3.1 Implemented extra-mile |
| | 3.2 planned extra-mile |
| 4. Dynamic capabilities: Sensing | 4.1 Knowledge acquisition |
| | 4.2 Metrics of b. environment assessment |
| | 4.3 Identification of obsolete processes |
| | 4.4 Knowledge management |
| | 4.5 IT systems |
| 5. Dynamic capabilities: Seizing | 5.1 Decision making criteria |
| | 5.2 Short term bias |
| | 5.3 Knowledge management |
| | 5.4 IT systems |
| | 5.5 Stakeholder management |
| 6. Dynamic capabilities: Transforming | 6.1 Knowledge management |
| | 6.2 IT systems |
| | 6.3 Project management |
| | 6.4 Competencies of employees |
| | 6.5 Culture |
| 7. Other relevant findings | 7.1 Other |

Table 4

Final Coding System Used on 100% of the Material

| Category | Sub-category | Sensing | Seizing | Transforming |
|---|--|---------|---------|--------------|
| 1. Participant | 1.1 Career | | | |
| | 1.2 Position in company | | | |
| | 1.3 Connection to SR | | | |
| 2. SR in the organisation | 2.1 Since when and why SR | | | |
| | 2.2 Used standards | | | |
| | 2.3 Rough structure of the process | | | |
| | 2.4 Changes planned for CSRD compliance | | | |
| 3. Active SR and pragmatism | 3.1 Active approach | | | |
| | 3.2 Pragmatism | | | |
| 4. Anticipated processes from chapter 2.5.3 | 4.1 Knowledge acquisition | x | | |
| | 4.1A Materiality assessment | x | | |
| | 4.2 Identification of obsolete processes | x | | |
| | 4.3 Knowledge management | | | x |
| | 4.4 IT systems | x | | |
| | 4.5 Stakeholder engagement | x | x | |
| | 4.6 New competencies | | | x |
| 5. General influence on decision making | 5.1 Decision making | | x | |
| | 5.2 Short term bias | | x | |
| | 5.3 Strategy | | x | |
| 6. Influence on the stakeholders opinion | 6.1 External opinion in general | | | |
| | 6.2 Opinion of employees | | | |
| | 6.3 Opinion of customers | | | |
| | 6.4 Opinion of investors | | | |
| 7. Communication and culture | 7.1 Culture | | | x |
| | 7.2 Internal communication | | | x |
| 8. Organizational changes | 8.1 Organizational changes | | | |
| 9. Challenges | 9.1 All disadvantages | | | |
| | 9.2 Uncertainty as challenge | | | |

Note. Green color indicates inductively identified categories.

The English translation of the final coding system including definitions, anchor example, and coding rules can be found in Appendix D. After applying the category system, the now sorted information could be further summarized and key insights and interrelations were abstracted.

Following Mayring and Fenzl (2019), this study sets definitions for the coding unit, the context unit and the recording unit. The coding unit is an expression of the sensitivity of the analysis and is set to individual words, meaning any text component smaller than a word may not be used for coding. The context unit describes the biggest text component used for coding and is set to whole paragraphs. The recording unit is the amount of text that is confronted with the same category system. Since all interviews are confronted with the same category system in the final run-through, the recording unit is 12 Interviews.

After analytical work had been completed the identified effects and insights were then condensed in a conceptual framework to structure the findings and visualize the potential interrelationships between SR related activities and DCs.

4 Results

In the following section the changes implemented by the participants during the SR introduction in their company are identified and the effects these changes had on sensing, seizing, transforming capabilities are made out. Finally, the findings are synthesized and aggregated into the conceptual framework. While this section focuses on beneficial effects of SR implementation, it should be mentioned at this point, that the changes mentioned do not only have upsides; they also entail significant costs and effort. Almost all interviewees mentioned the related costs to be a significant disadvantage of the implementation of SR (1(Participant):32(Quote), 3:30, 4:40, 5:39, 7:34, 8:29/37, 9:38, 10:26, 11:13/23). Only participant 12 explains that they want to see these costs rather as an investment into the company's future:

Sustainability is not a cost. That's not the culture that we want to instill. We see everything we do as having value in the future. So, the investment we make now is to avoid making bigger investments. It's an investment. It's not a cost. So I really don't see any negative impact to doing sustainability reporting, it may be exposing problems, issues, but it's not negative. (12:34)

Be it as a cost or as an investment, most companies will have to carefully assess which of the following changes provide value to them, and which ones can be addressed in a later stage (Some theoretical considerations on the dynamics of this assessment process are given in Chapter 5.4.2).

4.1 Sensing

4.1.1 Knowledge Acquisition

Code 4.1 Knowledge acquisition

Acquisition of knowledge in the form of data on the ESG performance of a company is an integral part of SR. The CSRD demands at least 398 datapoints to be disclosed in the future (Barton & Rosenfeldt, 2023), and while limited assurance audits will be sufficient in the beginning, the requirements on data quality will likely be raised significantly with the introduction of the reasonable assurance requirement in 2028. The conducted interviews indicate that companies are preparing for these requirements by establishing continuous process for data retrieval within the company (3:7, 3:10), but also from external sources, such as suppliers (1:12), NGOs, industry experts and institutions (1:26). These continuous processes not only confront the company with information regarding its environmental and social impact on different dimensions and levels (11:22) but also enable a more accurate and earlier estimation of risks and opportunities faced by the company (5:23/37, 10:27), as participant 5 explains:

To assess one's own risks and opportunities at an early stage, that's what's going on now and . . . that's also a big part of what the ESRS is now, really a weighing of opportunities and risks, as far as the topic of sustainability is concerned. So, you have to say now I think there are already the first companies that, if they have included this in their calculations at an early stage, are already profiting from it, right? (5:23)

As the participant explains, companies that are early adopters of SR are profiting from this increased awareness of risks and opportunities. To improve their awareness further, but also for credibility reasons, some companies collect more data than is required by their respective standards (4:9, 9:13/14).

Aside from internal information, this awareness can be partially explained by the continuous contact to external sources of information, which companies build. While some of these interchanges are commonplace regardless of the implementation of SR, such as contacts to universities, others are set up specifically for the disclosure: The contact to peers for example is enabled by sustainability

networks, in which companies can exchange information about the SR processes and other ESG topics (5:14, 5:15). In this context, gathering information about peers' SR practices is enabled further by the accessibility of their sustainability reports, which companies use as benchmarks and sources of inspiration (6:10). Before, during and after the implementation of SR, many companies acquire external knowledge and information on the implementation through consulting contracts (5:12/13, 7:4/22, 12:10). However, such contracts are sometimes not a continuous, but rather a one- or two-time service (6:10). The introduction of specialized software solutions for SR can also be complimented by consulting services (1.21, 5:10). Lastly, processes of continuous monitoring of the regulatory landscape are established in companies (10:8).

Companies implementing SR practices are able to form a more precise picture of their business environment, and the company's place inside it (4:9, 11:21). This is in line with CSRD disclosure requirements regarding a company's "market position, the elements of its strategy that relate to or impact sustainability matters, its business model(s) and its value chain" (ESRS 2, 2022, § 36). Importantly, companies tend to form internal inter-disciplinary and international teams and networks to acquire the required information. As it is a very cross-discipline topic, the implementation of SR and the corresponding information gathering processes involve many different departments (1:10, 5:9, 6:4/15, 8:3, 10:14, 11:7) and necessitates expert collaboration also from international subsidiaries of the company. Companies address this complex task by forming interdisciplinary teams and networks across organizational boundaries and functions (4:14, 12:6). These teams or networks of content owners serve multiple functions as they do not only facilitate information gathering but also can serve as bidirectional information distributors (10:10), as participant 4 explains:

That's why we have identified the most important departments in the company and each of these departments has a representative. This representative is part of the sustainability team, which currently consists of about 25 people. We meet regularly once a month for 2 hours, where we discuss topics from the departments with each other and also pass on topics to the departments via the team.

And we have the further advantage that there is no other team at the company that is so broadly positioned, that really all essential departments are represented. And these people are also a kind of multiplier - bidirectional as I said, they bring topics, but they also take topics with them. (4:14)

This means the company can take advantage of such networks not only for sustainable information gathering, but also for channeling information to the individual departments and receive relevant input from these representatives regarding a variety of potential topics and decisions (4:17/20).

Another benefit of SR practices laid out by the interviewees, is its aid in questioning existing processes, products, and methods regarding their fit with sustainable KPIs and goals (8:17, 11:22, 12:29). As the measurement of sustainability KPIs enables the setting of corresponding strategic goals, SR indirectly streamlines corporate efforts to improve these KPIs and reach their goals. Processes or products that do not sufficiently feed into these goals (e.g. because of disproportional energy use) might become obsolete and subject to change or removal. Hence, SR practices indirectly help identifying obsolete processes. In this context, participant 11 makes out SR standards as frameworks that help with mentally dividing the company into smaller entities, which can then be evaluated according to their contribution to the sustainable KPIs:

By having this reporting standard, you are forced to also think in the subcategories and it has the effect that it creates Uh thinking process of dividing your company into smaller bits, which can then help the process of then being creative or finding reduction actions more in depth you can say, yeah. (11:22)

4.1.2 Materiality Assessment and Stakeholder Engagement

Codes 4.1A Materiality assessment & 4.5 Stakeholder engagement

Stakeholder interests are crucial information for SR. The ESRS requires stakeholder interest to be surveyed and taken into consideration for decision making, mostly during the process of sustainability materiality assessment (ESRS 1, 2022, § 28; ESRS 2, 2022, § 51). Companies are foremost using stakeholder surveys conducted during the materiality assessment to collect and prioritize stakeholder input (2:4, 3:14/26, 5:30, 10:20/22, 12:9), as participant 12 explains:

it will be part of our first report, a strong, credible materiality assessment so that we identify what are the relevant topics for us that we report on, and it is a tool as well to use for our strategy and to make our strategy more coherent when it comes to taking input from different stakeholders.

The materiality assessment is usually conducted every two years (1:18, 2:4, 3:14, 4:39), or every 4 years (8:28). This relatively low frequency is necessary to process the results and to be able to address the material topics in the company's strategy before the next assessment might reveal changes in materiality. The first materiality assessment conducted is comparatively bigger than subsequent ones, with more stakeholders being asked more questions, to capture more potentially relevant input. The resulting high variety of material topics are later clustered to make them more manageable (7:25, 8:21).

While some participants emphasize the importance of reliably identifying all relevant stakeholders and addressing them accordingly during the survey (5:32, 10:18), others explain how the capacity of the company for managing stakeholders is limited and asking the right stakeholders the right questions is essential to keeping it manageable (9:30). For example, in complex industries, such as chemicals, the materiality assessment can be conducted internally and only validated externally by testing it with industry experts, as the average stakeholder might not have the necessary knowledge about the company's business model to answer surveys adequately, as participant eight explains:

The GRI requires this stakeholder view, yes, yes, but that is incredibly difficult for us because: which stakeholder, i.e. which . . . NGO, which authority, which legislator understands exactly what we do? That's not so easy to understand and that's why we have now also said that we will do this materiality analysis, the assessment, exclusively with internal experts and then test these results afterwards with external experts - again experts. Sustainability experts were there, representatives of the scientific community were there, and works council members were there as well. (8:23)

Most approaches explained by participants saw this stakeholder survey as one directional question-answer mode by stakeholders, that unveils the stakeholders' interests and is to be incorporated into the materiality assessment. This question & answer approach is contrasted by the fourth participant's example of a "stakeholder dialog":

In the context of sustainability, we hold a Stakeholder Dialog every two years. This is a two-day event, about 50 people, 15 internal, 35 external, whom we invite to our company over 2 days. . . . Those 35 are balanced across all 3 dimensions: Education, research, local representatives, customers, suppliers so really the whole spectrum. And beforehand, we always ask these stakeholders in the form of a materiality matrix or a kind of materiality analysis; we have the topics in a question catalog, that's also about 60 questions, where it's always about:

How do you assess it? What is your external view of the topics in the context of the company? . . . We do the same again with the entire management team. In the run-up to the event, we set this up as a kind of matrix; on one axis, the average of the external participants, on the other, the management, and then we look at how this relates. And . . . where the internal and external views are identical, the points are okay. But there are also certain outliers, where the externals are very pronounced or the internals are very pronounced, and that's what we rely on; to discuss with each other and, of course, to use this format again and again for continuous development. (4:39)

As the participant explains, after the initial survey, the stakeholders' views are contrasted with the management's views on material topics. During a lengthy in-person event, the company invites representative stakeholders to discuss the topics in which the views differ. This way a dialog about the important differences between stakeholder- and company interests is established, where a deeper understanding can be reached. This can aid in the further development of the company. Another example is company 9, which builds on the insights of the materiality assessment to engage in a deeper dialog with stakeholders and discuss potential actions in greater detail (9:28).

For many companies, the next step towards the implementation of the ESRS standards is to conduct the materiality assessment according to the double materiality concept of the CSRD (6:14, 7:17, 8:10, 9:9, 12:9).

Through the materiality assessment, the company is confronted with a plethora of new material topics. As discussed, these topics need to be respected both in the setup of information gathering processes to acquire the respective KPIs, but also in the strategy formulation of the company, to steer the company towards a reduction of said KPIs. The impact of the materiality assessment and stakeholder engagement on decision making can therefore be significant and is discussed in Chapter 4.2.1.

4.1.3 IT Systems

Code 4.4 IT systems

As companies start with SR implementation, the focus lays clearly on compliance with the applicable regulatory framework or voluntary standard that is being followed. For many smaller and medium-sized companies, achieving this compliance is possible with standard software tools, like Excel and SAP, which are already present in the company and can be adapted to fit the needs of SR (1:7, 2:6, 4:21, 3:11, 7:7, 12:23). This is exemplified by participant 3, sustainability manager of a medium-sized industrial company:

It doesn't make any sense to use specific tools for sustainability reporting, because basically it's just a tool for data consolidation. I don't need a super fancy sustainability tool. I can do that with anything, I just need a tool or a software solution or can basically be an Excel where you can enter data. It doesn't have to have anything to do with sustainability. (3:9)

With these existing tools, quick results can be achieved, which are important for management approval, as participant 1, a consultant for small and medium-sized textile- and furniture companies, explains:

But for now, we're not implementing any big new processes or software or anything like that, we're already getting everything done in Excel, because I think you need this momentum to see results for the management team, but also for the sustainability team, for a start. (1:7)

In general, a sense of pragmatism is present in most company's approaches to SR. The adoption of new software does not only incur costs for licenses but also costs of related consulting and the time-consuming adoption process. When contemplating the implementation of such software, companies are facing a trade-off between these incurred costs and the expected benefits of automation (5:29, 11:17). Hence, the adoption of existing tools, such as the ones used by finance departments, is often preferred, as employees are used to them and the cost of adoption is low (3:8/12/18). (The idea of pragmatism as guiding principle in SR implementation is further developed in Chapter 5.4.2)

Furthermore, as the respective data sources for sustainable information are not clear in the beginning of SR implementation, a software for data collection would have very limited use (7.27).

Bigger companies, or such companies that are more experienced, however, are already using dedicated SR software for data collection, consolidation and integration. And the aforementioned small companies are aware that the increasing regulatory requirements will not be achievable without the use of such software.

Companies are hoping to benefit in three ways from the use of SR software: Increased efficiency in data gathering processes, an improved data quality and quantity, and lastly an improved performance management through data visualization.

Efficiency – reduction of administrative effort in data collection

While for initial implementation of SR the data collection might be possible with rudimentary software use, the increasing regulatory requirements posed by the CSRD will make manual data acquisition ever more tedious. In the near future, many companies therefore see the need for implementing SR software, as it can increase the efficiency in data collection both from the company's existing systems and from content owners across the subsidiaries (1:9/22, 4:21, 7:9/27, 10:9, 11:15, 12:23/25). As participant 4 states:

The company has . . . a little over 40 national subsidiaries, if we have to query this every month, then at some point we do nothing but chase after some information. (4:25)

As of yet, the market for SR solutions is vast and solutions are still being developed. Participants explained that their companies are actively searching for software solutions, but that they are not mature enough yet (1:9, 4:25, 12:23), for example because they restrict flexibility and dynamism in an uncertain environment (4:21) or because they are not compatible with existing systems (12.23). Other participants are already actively using dedicated SR software for data gathering and consolidation and profit from an increased efficiency (5:10, 10:6). The complexity of introducing such a software solution compels companies to buy consulting advice, either from consulting firms or software providers with consulting advice for implementation (5:12). However, in one instance the consulting project together with a big ERP Software provider failed and integration was unsuccessful. In any case, owing to the idiosyncratic organizational structures and IT landscapes of companies, solutions will have to be highly specialized for each company (2:6).

That is why multinational corporations with complex business cases are leaning towards creating their own custom SR software solutions (8:9/15, 9:20), in addition to manual data handling (9:21), as software providers are not able to deliver an adequate solution, as participant 9 explains:

But when we've talked to various software service providers, we've noticed that many of them aren't able to map the complexity, at least not for us. And some time ago, I spoke on the phone with various people who offered: "Yes, you can do a great job of collecting data here and also for all kinds of things. So, I said: "That looks good for the climate. What do you do with water, what do you do with wastewater, what do you do with wastewater

loads, what do you do with the various gases that are emitted into the atmosphere or with VOCs or particles, etc. Can you do that too?" -Silence. (9:25)

Data Quantity and Quality – improve data inventory

Another driving factor for IT systems integration is the improvement of data quality and quantity that an integrated IT landscape for SR enables. Providing all relevant KPIs in the required data quality necessitates a normalization of the data query and consolidation processes of non-financial KPIs to the standards of data quality that are present for financial disclosure. In so far a close collaboration between the sustainability and finance department to manage this normalization is vital to achieve sufficient data quality (1:11, 4:15, 5:9, 6:8/6/16, 12:23). A significant challenge in terms of normalization that companies face right now is the timely delay between the management report and sustainability report (2:4, 4:26, 6:18/7:12), as the latter is traditionally published in Q2 (partially because invoices for utilities are available in spring only). Releasing both reports simultaneously will require to speed up the process and finalize it in Q1.

Some companies are thinking about moving the process of SR to the finance department altogether (7:20). Especially software tools present in the finance department could be reused for non-financial disclosure processes (3:12/19).

Simultaneously, many companies still use individual tools and Software as a Service (SaaS) solutions tailored for individual sustainable KPIs, such as software for emission accounting (2:6, 5:10, 8:9), water use and waste measurement (8:9) or chemical use in the value chain etc. (1:21).

Eventually though, reaching the kind of data quality that is present in financial reporting and that is likely required by the CSRD in form of reasonable assurance audits starting from 2028, will require a *single point of truth* for all financial and non-financial data (7:9, 8:16) which is created by integrating all data sources into one consolidation and validation tool (10:6). As all data sources, -flows and calculations are laid out in a single piece of software, the reliability and auditability of the data is increased. In this context, participant 7 explains the rationale behind their company's sustainable reporting software project:

The argument of a single point of truth is of course very important at this point, and it is a bit of this way of thinking behind it: the sustainability data must come qualitatively on the same level as the financial data at some point and we will hopefully achieve this with such an IT-supported process, right? So far, as I said, it's all piecemeal, it's all gathered up, it's not yet of the same quality or reliability at the level that would stand up to an audit with reasonable assurance, and I think that's also a bit of the motivation behind it. (7.9)

Participant 7 further states how their company's decentralized organizational structure is a hinderance for the integration of SR software (7:15/16), as responsibilities and data sources are not clearly defined, and a variety of different software tools are in use in different business areas.

Increased data quality and a single point of truth would not only improve the auditability of the companies' sustainability reports, but also aid in their decision making, as they can rely on more accurate and more available data as basis for their decisions (8:16, 12:25).

Accessibility – make real time data accessible for Decision Makers

One potential application of SR software and the acquired ESG information also lays in performance management of projects and products regarding their impacts (1:22). The CSRD requires companies to track the effectiveness of its actions and policies that aim to address sustainability matters with every

reporting cycle (ESRS 2, 2022, §§ 76–79). Companies that have successfully implemented the required IT-processes, are able to track the impact of individual processes, products and projects on the sustainability KPIs *between* two reporting cycles, aiding in their operational decision making (11:16).

This is facilitated by having a “management dashboard” of ESG information that makes the sustainability performance of the whole company, but also individual processes, easily accessible to the responsible decision makers in the company. Such a set up would be advantageous both for performance management and for tactical- & operational decision making, as companies can evaluate better which activities are having which impact on sustainability KPIs.

To achieve this, ESG information must be gathered and compiled in the adequate data granularity. For example, if a company wants to know if a reduction project has influenced the consumption of energy of a specific production process, the data granularity must be high enough to see how much energy this process consumes at which time.

Data collection with sufficient granularity could be achieved by real time measurement using Internet of Things (IoT) devices as data sources. The information is then validated and compiled by one software tool as a single point of truth. This full integration of software is completed with a management dashboard that visualizes the sustainable performance indicators in real time for management to use as basis for decision making (11:18/19/20). These insights were compiled mostly from the interview with Participant 11, an IT-consultant in the sustainability field. The person explains this concept when asked about their preferred IT solution:

I would like to have like, what is called Internet of Things - the digitalization of technology - where you can just drag data from different systems. So there you have an internal system collecting data from their sources with amounts and tags, which then groups within at a raw data sheet their CO2 mapping you can say. So it connects their activity data to some lines with the emission factors. And so in this their activity data is automatically updated and the emission factors are maybe updated manually or by consultants . . . some can be automated and in that aspect and then this raw data sheet should just connect to some kind of other tool. It could be a power BI tool which then creates just the reports.

Rothfuß, M.P.: Management dashboards?

Participant 11: Yeah, management dashboards and you have sliders for the period you want to see and the categories you want to see and the activity you want to see and then the company can just allow whoever they want internally to gain access to this. And so, you can have it on your mobile phone, you can have it, yeah, everywhere. And you can- just by clicking update, you can get the new data down and everyone can, yeah. (11.19)

Having made the company’s sustainability performance accessible in such a way, could enable decision makers and project managers to track the impact on sustainability performance of their project at any time and therefore enable a continued reconfiguration based on the available data (see Chapter 4.3.1).

Participant 9 on the other hand, argues that such high data granularity is excessive, as the sustainability parameters in question are either not relevant for controlling or do not change as fast and yearly measurements are therefore enough (9:23), although the person admits there might be individual use cases (9:24).

In practice, none of the interviewed companies are currently using live tracking of their emissions or other sustainability KPIs, as they are still implementing earlier stages of software integration, such as

the discussed single point of truth. As *strategic* decision making can be based on the KPIs of the yearly report, such a tracking system might not be relevant in that regard. However, the theoretical benefit of such an integrated KPI tracking system for *tactical/operational* decision making as well as performance management could be significant as explained above. In the future, companies are therefore more likely to try and implement such a digitalized measurement approach which enables higher data granularity. Furthermore, companies could be required by regulation to be more granular in their measurement, at least in some areas: The CSRD requires data disaggregation, for example by country, site or asset, if there are significant variations between them or in case that the aggregated data could “obscure the specificity and context necessary to interpret the information” (ESRS 1, 2022, §§ 58–61).

4.2 Seizing

4.2.1 Stakeholder Engagement

Code 4.5 Stakeholder engagement

The main contribution of SR to seizing capabilities is found to be its contribution to unbiased and integrated decision making, especially through making stakeholder interests matter in strategic decision making. After the identification of the relevant stakeholder interests (see Chapter 4.1.2), stakeholder engagement in particular can further serve to make these interests matter for the company. Similar to their Identification, stakeholder interests are primarily made material for decision making through the materiality assessment (1:23). As the CSRD requires a double materiality approach (see Chapter 2.2.) in the materiality assessment (ESRS 1, 2022, § 25), and the materiality assessment is used in the strategy development process of companies, the CSRD will indirectly enforce sustainability matters to be included in strategy considerations (Companies are further required to report on the details of this inclusion (ESRS 2, 2022, § 44)).

This resulting effect of the material assessment on corporate decision making and strategy formulation has been made out by most of the interviewees (3:26, 4:39, 7:26, 8:11/22, 9:37, 12:11). In this context however, it is not only the collected KPIs, but also the reporting obligation on identified material topics itself, that can serve as argument for sustainability professionals in decision making, as reporting on these material topics automatically creates accountability and asserts pressure on decision makers to implement reduction measures (1:31, 5:33/34/35, 6:14/17). Accordingly, participant 5 explains how stakeholder interests identified in the materiality analysis are inevitably subject of project work:

So, for example, you consider now- you include the stakeholders in the process of the materiality analysis, i.e. the process of determining the really essential topics for the company in relation to sustainability, and if everyone then tells you that biodiversity is a top topic, then you can't just make it disappear, then it is ultimately also a topic for you in the project. And you have to work on it. (5:34)

The impact which SR has on decision making via other stakeholder engagement practices than the materiality assessment is less salient. That may be due to the fact that, as stakeholder engagement is an integral part of the operations of any sustainability-oriented company, many of the interviewed companies already had established such processes prior to the introduction of SR. Therefore, it is difficult to make out SR as the driving factor behind a company's stakeholder engagement strategy. Several of the interviewed companies had already been practicing stakeholder engagement (either voluntarily (6:13, 12:12), or because of other regulation (1:14)) before SR introduction. However, as participant 6 explains, annual sustainability reporting is a vital part of the stakeholder engagement strategy:

In this context, we have actually had a relatively systematic approach to stakeholder management for over 10 years. For example, we have - and this is no exception - [the department of] investor relations, where we ask ourselves, what information is specifically relevant and important for the investor group.

. . . We also work with the NGO community, of course, because that is actually very, very important, a very valuable contribution from just the perspective of looking at these are very important topics and therefore I have a bit of a hard time now to emphasize the reporting in terms of stakeholder management and decision-making, but I think it is actually the sum of the various activities that lead to the fact that we transport our sustainability approach to the outside. Formal annual reporting is one and of course an important part of it, isn't it? (6:13)

Not many companies follow a comprehensive stakeholder engagement aside from the materiality assessment. Those that do mainly tend to focus on customers (12:12/23) or investors (5:16) as the main stakeholder in the engagement process. None of the participants mention a *continuous* (intra-year) stakeholder engagement (excluding customer engagement owing to customer centricity of the company (10:21)). Lastly, the way a company reports on how stakeholder interests are managed can vary from the reality “on the factory floor”, as each individual country, service line or department may have different customs in this regard (12:17).

However, there are some ways identified during the study in which companies can manifest stakeholder interests in their decision making: For example, through corporate governance structures such as automatic internal controls. Participant 9 explains how internal controls ensure that procedures and standards protecting stakeholder interests are followed in day-to-day operation. In one example, investment decisions for new products have to be informed by mandatory sustainability- and ethics assessments (9:27/29). Another way of including stakeholder interests in decision making by corporate governance is establishing committees that inform decision making, for example by assessing the environmental impact of a planned investment (10:17). Private companies so far are less transparent on how stakeholder interests are addressed in decision making (7:24, 12:19), hence they will have to adapt their processes more to comply with the CSRD requirements.

Importantly, participants explained that by including stakeholder interests in strategic and operational decision making, the company reduces its focus on shareholder value and introduces a stakeholder orientation, thereby mitigating short term bias within the company (8:26, 11:14). This has beneficial impact on seizing capability as more unbiased and interrelated decisions can be taken. On a side note, this stakeholder orientation also can have positive effects on the company reputation. More on the effect of SR on stakeholder opinion in Chapter 5.4.1.

4.2.2 Decision Making (Strategic)

Codes 5.1 Decision making, 5.2 Short term bias

SR has both direct and indirect influence on decision making: As discussed in Chapter 4.2.1, identifying a topic as material in the materiality assessment directly increases the company’s accountability, and therefore increases pressure on board and management to integrate sustainability targets and measures in decision making. Indirectly, SR influences decision making if the information that is acquired and compiled in the SR process also finds use in the company’s steering processes. This way, decisions are taken on a more comprehensive base of information, improving their interrelatedness and quality.

The insights gained from the study material suggests that this is the case in most companies, especially in the strategic decision-making and goal-formation processes. As strategic decision making requires a

precise understanding of the business environment and future developments, and as sustainability is becoming an ever more important part of doing business, decision makers use the information acquired for SR for the strategy formulation of the company (3:20, 4:34, 7:26, 12:26). Participant 12 sums it up as follows:

[The] Main objective for doing sustainability reporting first of all is to be able to react. When you measure things, when you are able to measure things, you are able to manage them better. (12:26)

Participant 11 advises companies to communicate ESG information to decision makers as to reduce the risk of adverse selection of reduction actions or investments. However, the participant adds that not all companies are following his advice (11:12/13). The CSRD requires companies to disclose how sustainability matters are communicated to the administrative, management and supervisory bodies, but does not offer specific guidance on adequate practice (ESRS 2, 2022, §§ 22–24). Yet, this communication of SR results to the decision makers is crucial for their integration in strategic decision making.

The interviews offer some indications as to the quantity and frequency in which ESG information is fed into the strategy formulation process. For some companies, the yearly report where information is accumulated and disclosed is sufficient as input for strategic decision making (12:26). Others only gather and communicate those KPIs to management more frequently, which are already relevant for the strategic goals of the company (9:18/19). As discussed in Chapter 4.1.3, certain sustainable KPIs might not be measured more frequently because they cannot be influenced on a smaller timescale.

Next to the yearly report, the relevant information is communicated to decision makers additionally at board meetings (9:18, 10:15) or in one-on-one meetings with executives directly (4:19), depending on the organizational distance of the sustainability reporting manager to the executives, as described by participant 3:

I have a direct report to the management, which is informed weekly if there is anything in the field of sustainability, it depends on the organizational structure. So I am directly under the management, they are informed about it. (3:21)

Lastly, the interdisciplinary and international teams and networks that some companies create for SR purposes (see Chapter 4.1.1) can be used to aid management in decision making by bundling their competences and perspectives. One example can be the sustainability due diligence of a potential merger or acquisition, where the experience in sustainability disclosure can improve decision quality (12:18).

In conclusion, by reducing the organizational distance of SR managers to top-level management and including the knowledge of SR teams and networks in strategic decision making, more ESG-information can be made relevant, thereby improving decision making quality and ultimately seizing capability.

4.3 Transforming

4.3.1 Decision Making (Tactical/Operational) and Performance Management

Codes 4.7 Project management, 5.1 Decision making & 5.2 Short term bias

Transforming capabilities enable the company to constantly realign operations with their set strategic decisions and goals. This implicates that an adequate translation of strategic decision making into tactical/operational decision making is crucial for transforming capabilities. In the context of SR, participants are offering insights as to how ESG-related goals set on a strategic level can influence decision making on a smaller time frame: Especially if sustainability strategies of companies are

integrated in-, or congruent with the overall business strategy (4:35, 8:17, 12:16) the impact of sustainability-related goals on operations increasingly is on par with the financial KPIs. Participant 8 elaborates on this translation of sustainable strategic goals to a more operational level as follows:

We are now in the fortunate situation that sustainability aspects are actually . . . they are now already integrated into all our strategic core processes, i.e. there is no separate sustainability strategy and corporate strategy, so our targets, for example for CO₂ savings, which we have set ourselves, are of course broken down, they are now part of all strategic developments, if you like: So the innovation department has targets that it has to meet, and research and development perhaps thinks more circularly from the outset and how you can avoid waste and how you can also recover an end product better afterwards, so to speak. (8:17)

While the CSRD requires *disclosure* of the impact development over time (ESRS 1, 2022, § 79) and of policies and activities pursued to address sustainability matters (ESRS 2, 2022, §§ 61–67), no strict *behavioral* requirement is given by the ESRS in regards to operationalizing strategic goals of the company. It can therefore be argued that the adequate translation of the sustainability strategy into operative decision making is not common practice and can constitute lasting transformative DCs.

Information of sustainability performance can also have a more direct impact on tactical/operational decision making, if data is available in the necessary data granularity to support decisions on a smaller time scale and regarding more specific processes and products, as discussed in Chapter 4.1.3.

Another important factor for tactical/operational decision making lays in the influence SR has on the mindset of decision makers: The reporting process is said to help bring about a shift towards opening the decision space to more dimensions than just the financial one, countering short-termism (8:30/31). This is the case especially when this mindset shift is supported by remuneration schemes which are linked to ESG related KPIs (12:20/21), as seen in several companies (8:27, 10:16, 12:20). These remuneration schemes are enabled by the KPIs gathered during the SR process. The ESRS require disclosure of sustainability related remuneration schemes, but not their implementation (ESRS 2, 2022, §§ 25–27). Further findings regarding SR's influence on culture can be found in Chapter 4.3.3.

SR by some companies is already seen as an opportunity to track the performance of reduction measures and general sustainability performance on a yearly basis. Participant 4 explains how SR offers a Plan-Do-Check-Act time frame for sustainability projects:

Because we see the sustainability report as a kind of waste product, where our activities are reflected in the form of a PDCA cycle, where you formulate goals, then take a year to achieve the goals or derive measures, and in the following year we always refer back to the state of affairs and issue a new goal. (4:6)

The yearly rhythm of reporting has some companies experience an accelerating effect on projects. They argue that the drive to deliver achievements on set sustainability performance goals for the yearly reporting is building pressure to complete related projects in time (1:27/31, 2:3, 8:19, 9:32). However, participant 10 argues that accelerating projects to suit goal fulfillment for reporting purposes is akin to greenwashing and is not part of their considerations (10:32). This is congruent with participant 11, who explains that reporting should be used for making the right decisions, not for “staying in line with your targets” (11:13).

Analogue to tactical/operational decision making, ESG information can also enable performance management on a smaller time scale than yearly, if the data is gathered in sufficient data granularity and made accessible to the project manager for example by visualization in management dashboards.

Decision makers and project managers can track the impact of their project on sustainability performance at any time, which enables a continued reconfiguration based on the available data.

4.3.2 Knowledge Management & New Competences

Codes 4.3 Knowledge management & 4.6 New competencies

In regard to study's findings on the effect of SR implementation on knowledge management processes, there is not enough evidence in the transcripts that supports the notion that companies are implementing knowledge management for SR and are therefore increasing their sensing, seizing or transformation DCs. Yet, the hereafter described competences and mindsets that companies try to instill in their employees for SR practice contribute to a change in culture, as described in Chapter 4.3.3.

A fully structured knowledge management process as described in Chapter 2.4.3 is rare, especially in small and medium-sized companies (1:20, 3:17). While none of the interviews mention a knowledge management process being set up specifically for SR, almost all participants mention a form of preexisting learning platform that is used by the company to instill the necessary skills and knowledge in their employees (e.g., 8:24,10:12). As they are implementing SR, companies see the need to instill certain sustainability-related competences in their employees (3:25, 10:12). Such competences can range from the necessary understanding of the data acquisition processes for SR (1:19, 10:11) to promoting a sustainable mindset in employees. This newly required knowledge also has an impact on employee selection as explained in the most comprehensive approach to knowledge management by participant 8:

I just told you that we realize that we have to qualify people, so to speak, we have to have other skills, and we probably have to get a certain mindset right so that everything [sustainability reporting] works and that, that has been recognized, and that is why there is actually knowledge management: The learning landscape is very pronounced here to begin with, In addition to many important topics, there are now also many sustainability modules where colleagues are trained, there are many learning opportunities within the framework of certain formats where colleagues also report on their work and share it with others. It's a community that I think has 12,000 members, so that's quite remarkable, and people are really listening. So that means yes, Knowledge Management is very much decentralized. Everyone who wants to report on their own things can do so in a structured way . . . Plus: We are currently in the process of redefining the requirements for new employees. What are the skills that you have to bring with you? And so on. (8:24)

Such a described knowledge management is furthermore important for retaining the relevant knowledge acquired during the implementation. Processual knowledge on reporting requirements, contact persons, data sources (9:31) etc. need to be documented for future iterations of the reporting process. The increase in knowledge retention capability that is enabled through knowledge management practice is also important to improve auditability (5:25) and increase information accessible for decision making (5:27). It can also be conducive for project management, making work more efficient as knowledge is accessible to all who need it (5:28).

4.3.3 Culture and Internal Communication

Codes 7.1 Culture & 7.2 Internal communication

A corporate culture that is conducive for change can be a significant transformative capability, as the company faces less resistance when transforming processes and resources to achieve strategic fit. In the context of SR, the sustainable impact of a company is a highly engaging topic for its employees. As more and more working people strive to have a sense of purpose in their job, or at least not contribute

to unsustainable behavior, the interest in the companies ESG-data increases. The overall sustainable performance of the employer contributes more to employees job satisfaction and identification with the company (1:29, 5:36, 7:29, 9:34). SR enables this motivational factor by disclosing the sustainability performance to the employees.

However, given the general increase of public interest in the topic of sustainability, it is difficult to make out SR as direct driver of corporate culture change (2:7, 3:23, 8:20, 9:33, 10:24). Yet, participants of this study made out SR as creating awareness and sensibility for sustainability within the company (3:27, 4:37, 7:30, 9:36, 12:30), among all levels of hierarchy, also on management level (7:32, 8:30). Yet, this impact is dependent on how much support the topic has in management (5:36), and how prominent the results of the SR process are thus communicated internally (1:28), as participant 5 explains:

When they [employees] see that there is movement and, above all, an awareness of it [sustainability], then it's possible that they can identify with it or that it can bring about a different dynamic within the company, and I think that's very realistic. It just always depends on how it is supported by the board of directors, by the management. How is it communicated within the company? And so these are just other influencing factors that also play a significant role. (5:36)

Communication of the sustainable performance technically is done already with the sustainability report, however, due to its length and complexity, a sustainability report could be difficult to access or interpret for employees unfamiliar with its structure and methodologies. While some companies do not attempt to communicate the sustainability report's results in more accessible ways (3:17/24, 12:32) others are investing considerable effort to make the results accessible, by communicating with the employees in adequate formats (7:30, 10:13/25, 11:10). One very thorough example of this is given by participant 9:

the report will be out tomorrow . . . relatively soon after that, there will be very intensive communication on this topic, on sustainability, first in the form of the sustainability report itself, there will be different excerpts from it, and then we have created a highlight report for this year. This will deal with a few individual topics with a couple of pictures, so that a whole, whole lot of people will be picked up on the most important topics. We will no longer have 140 pages, but 12 pages, but then you have quick and easy access to them. And that is a very, very important topic for us, a matter close to our hearts.

In addition, there will also be various messages where so-called leaders in the Group on LinkedIn will take many of these individual messages and then communicate them. We see that LinkedIn is used quite often by our employees for internal communication, for identification, so such things are all taking place. In the course of the year, there will also be various so-called town halls, where topics from this will be presented and so on. (9:35):

Communicating the results internally to employees can have real effects on sustainability performance. Participant 2, sustainability manager of an industrial bakery, recounted how they communicated the results on a general employee assembly, stressing how the ovens are responsible for a great deal of energy consumption and CO₂ emissions. Within 4 weeks, the oven operators were able to decrease the energy consumption by 18%, as they had established a greater awareness of the topic among the employees. (2:8)

Next to the mentioned effects on existing employees, SR plays a vital role for employee branding, as many young and talented employees are attracted to sustainable companies (8:33, 4:77, 11:11). New talent acquisition is dependent on SR, as participant 3 describes:

I think the external effects are even more important. Companies have to appear attractive, and sustainability is now a very important part of this. The fact that good, motivated employees, especially young employees are increasingly looking at this, is something we receive as feedback by HR. (3:28)

Through the influx of such people with sustainability as an interest, and the instilled competences described above, the company's culture might change over time towards a culture that is more conducive and welcoming towards change in the sustainability context (8:33).

4.4 Integrated Perspective and Framework Creation

To increase understanding of the insights gained in this section so far, their content is synthesized and reshaped into a comprehensive framework. As in the previous chapters, the framework is ordered according to the sensing, seizing, and transforming capabilities and built up consecutively for each of them as to maintain comprehensibility.

4.4.1 Sensing

Reviewing the study material showed a clear tendency of companies addressing SR implementation by increasing their Sensing capabilities. Especially the ESRS with their requirements towards the quantification of the company's sustainable impact abiding to the qualitative characteristics of information (see Chapter 2.2), nudges companies to increase their stakeholder engagement and the quality of their data acquisition processes. When asked what the biggest benefit of SR is, participant 1 explains (1:30):

"That you have to work systematically with sustainability issues, that is certainly the most important thing, I think, and that you do it very quantitatively, in other words, that you create transparency and that you measure - you don't talk. I like that, so you have to measure it again and again, and that's the fantastic thing with CSRD: We will then measure the same thing again and again hopefully."

This mandated quantification of the sustainable impact together with the requirement to assess and value stakeholder-interests by conducting a structured materiality assessment, exert the driving forces behind SR implementation in companies. These external mandates are visualized in the two gray boxes in the top of Figure 3.

Companies address the need for quantification of their sustainable impact by improving their data acquisition from internal and external sources and by investing in improved IT Systems.

Improving data acquisition to comply with disclosure requirements set by regulatory standards already yields important benefits for corporate foresight. Companies exceed these requirements and build DCs by establishing continuous processes for additional (non-required) ESG information as well as external information gathered from industry experts, consultants, and industry networks (Figure 3, ¹). Many companies are furthermore implementing the standards before regulatory pressure applies to them, granting them increased sensing capabilities when compared to other, non-reporting companies. Importantly, companies address the need for internal information collection by forming interdisciplinary and international teams and networks (Figure 3, ²).

Investments into IT-infrastructure also help companies with quantifying their sustainable impact. Reviewing the interview transcripts yielded insights into the growing importance of integrated IT

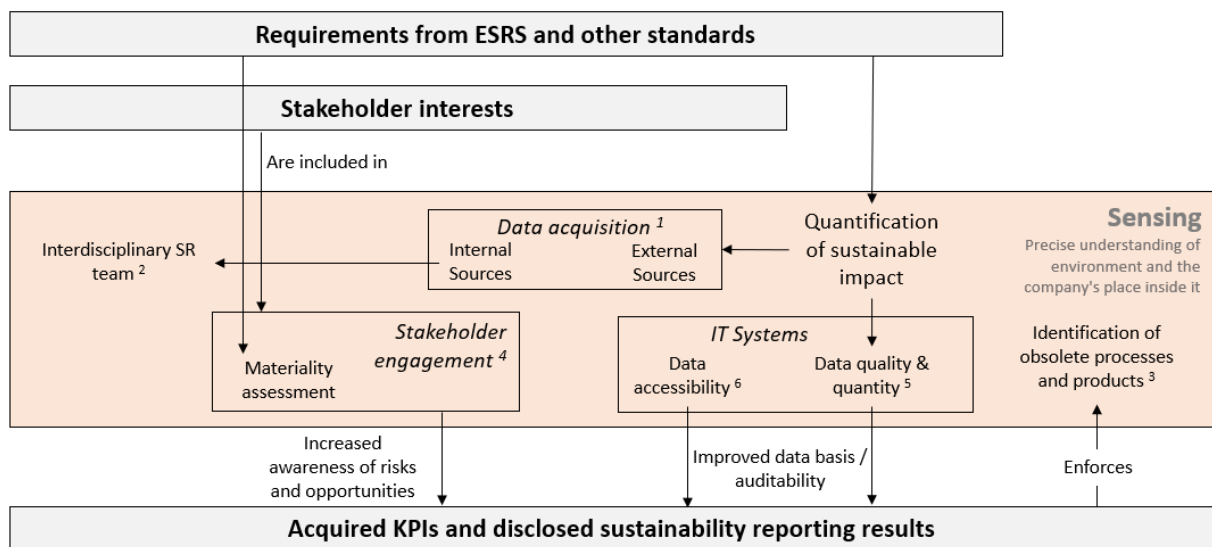
systems for SR implementation. Generally, companies using such system are benefiting from increased data acquisition efficiency, reducing costs and effort of compliance with SR regulation. By establishing a single point of truth, such systems help to improve data quality, -quantity and -reliability, providing a more precise picture of the business environment and improving sensing capabilities (Figure 3, ⁵). With increasing integration, these systems enable a better accessibility of data for decision makers through better visualization and higher granularity (Figure 3, ⁶). While the implementation of such systems certainly goes beyond regulatory requirements and showcase an active approach, their implementation is not always practical, as they do not exhibit a high maturity and are costly to acquire and implement.

The requirement to map the company's material topic according to stakeholder interest with a materiality assessment yields positive effects for the reporting company. The study results indicate that the mandatory materiality assessment offers a structured approach to the inquiry of stakeholder interests and therefore aids in stakeholder engagement. Companies exceed this requirement by engaging in a stakeholder dialog and initiating discussion on material topic with the respective stakeholder (Figure 3, ⁴). A continuous, year-round engagement helps to identify new material topics early and therefore increases the awareness of risks and opportunities. Many companies are adopting the standards for materiality assessment proactively, even before they face regulatory pressure, giving them better sensing capabilities compared to non-reporting companies.

Acquiring the necessary data and compiling them in the sustainability report makes them more accessible to both management and investors. The compiled information, represented by the gray box in the bottom of Figure 3, can then be used for questioning the strategic fit of existing products, and methods and identify obsolete processes (Figure 3, ³).

Figure 3

Effect of Sustainability Reporting Implementation on Sensing Capabilities



Note. Fields that feature activities or changes that can go beyond what is required by the CSRD are italicized. Superscript refers to the information in text.

As described above, certain changes to data acquisition, IT systems and stakeholder engagement go beyond what is required by regulation and therefore showcase an active approach. The respective items have been italicized in the framework.

4.4.2 Seizing

While successfully retrieving the relevant information is an important prerequisite for seizing activities, seizing entails also to appreciate and use the acquired information effectively to make unbiased decisions and seize the identified opportunities. In SR, the creation of the report itself can be orchestrated in a very decentral fashion with few employees, detached from any real impact on the company (1:28). The use of the gathered information in decision making requires internal processes that render the insights vital for management. Therefore, the information must become an important part of strategy formulation and goal setting processes (strategic decision making).

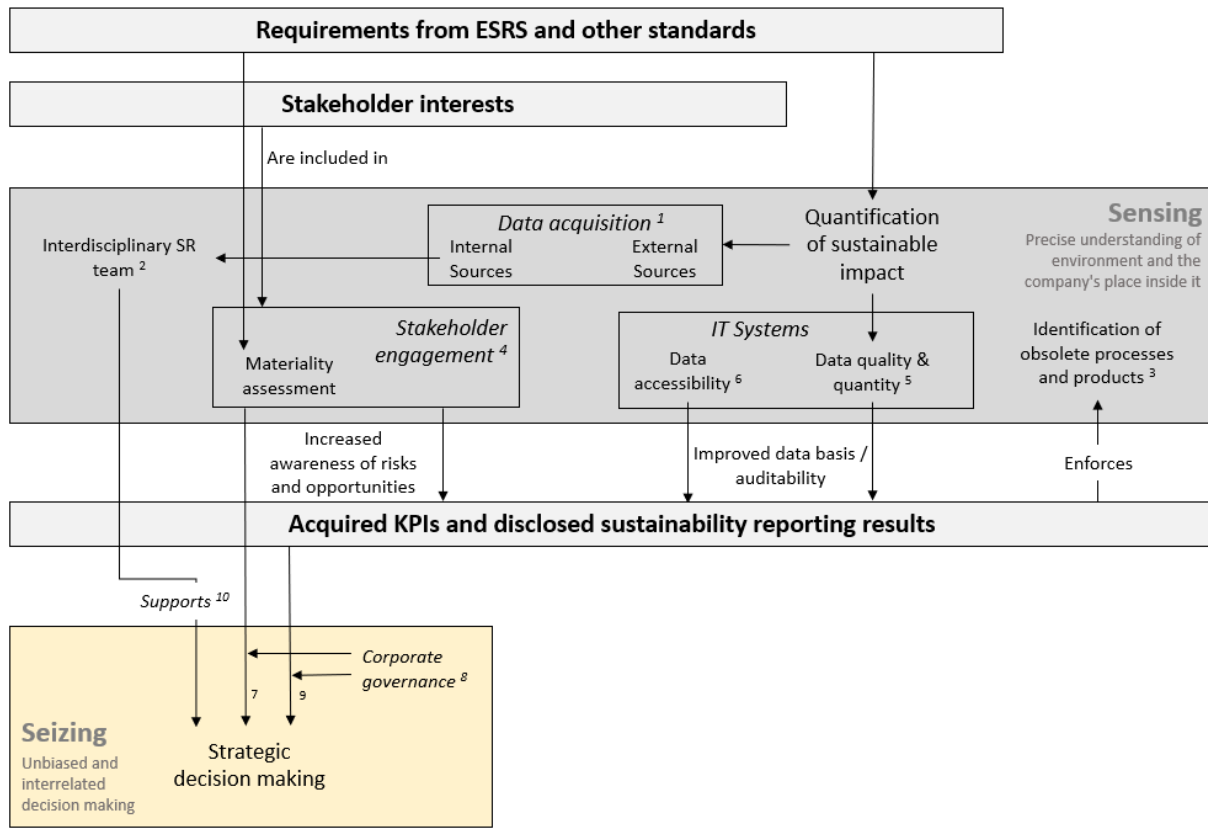
The mandatory materiality assessment certainly enables this relevance for strategic decision making: The results show how identified stakeholder interests are made material for the company's strategy formulation through the materiality assessment (Figure 4, ⁷). This helps in reducing focus on shareholder value and introducing stakeholder value orientation for the company. Companies exceed regulatory requirements for stakeholder interest inclusion by implementing corporate governance measures such as internal controls (Figure 4, ⁸). These companies thereby improve seizing DCs as strategic decision making becomes less biased towards relatively short-term financial gains.

Apart from the material topics of the materiality assessment, through SR, companies are also in possession of the relevant KPIs and qualitative information which are compiled for the actual report. The study results show that a majority of companies is using data gained in the SR process for strategic steering processes. By including the available information in strategy formulation and goal setting processes, companies are improving decision making quality and are exhibiting more interrelated thinking (Figure 4, ⁹).

Companies enable the use of this information in strategic decision making by improving the communication channels by which the relevant insights are delivered to management, for example, by reducing the organizational distance of the SR manager to decision makers. In this context, Jour fix appointments of sustainability managers with executives help to stress the importance of sustainability-related topics to the management. In this field, companies set themselves apart from mandatory practices for example by relying on the competences of internal teams or networks, such as the interdisciplinary SR team, for strategic decisions involving complex trade-offs (Figure 4, ¹⁰).

Figure 4

Effect of Sustainability Reporting Implementation on Seizing Capabilities



Note. Activity or changes that go beyond what is required by the CSRD are italicized. Superscript refers to the information in text.

With the CSRD, the inclusion of sustainability matters and stakeholder interests in strategy formulation becomes common mandatory practice. However, some companies already exceed the regulatory requirements and demonstrate an active approach: The results of the study imply that tweaking corporate governance mechanisms to hard-code stakeholder interest in the decision-making process, as well as involving the competences of interdisciplinary teams and networks in strategic decision making, increases seizing capabilities in the company. The relevant items have been highlighted in the framework by italicizing them (see Figure 4).

4.4.3 Transforming

Decisions made on a strategic level need to be accompanied by the necessary processes to translate them to the tactical and operational level. This translation enables the constant realignment of processes and products needed to achieve a fit of strategy and reality and therefore transformative capabilities. Further, data compiled in the sustainability report can likewise be used for creating transformative capabilities, especially by establishing performance management and remuneration schemes.

The findings indicate that the translation of strategic decisions and information gained from the SR process into tactical/operational decisions is present in several companies: They facilitate this translation for example by putting the importance of financial and non-financial information on par (Figure 5, ¹¹), e.g., by integrating sustainable- and business strategy into one strategy.

Tactical/operational decision making in some companies is further facilitated by the KPIs compiled in the sustainability report via the use of remuneration schemes for management or employees. The gathered KPIs enable employees to be incentivized to achieve strategic fit (Figure 5, ¹³).

A major aspect that contributes to transformative capabilities is performance management. The results show that through the implementation of performance management aided by the gathered SR-information, companies are able to track their progress towards set strategic goals (Figure 5, ¹⁴). For example, the annual reporting cycle can be used as a Plan-Do-Check-Act cycle for continuous improvement of the company's sustainability performance and realignment of unfit products and processes.

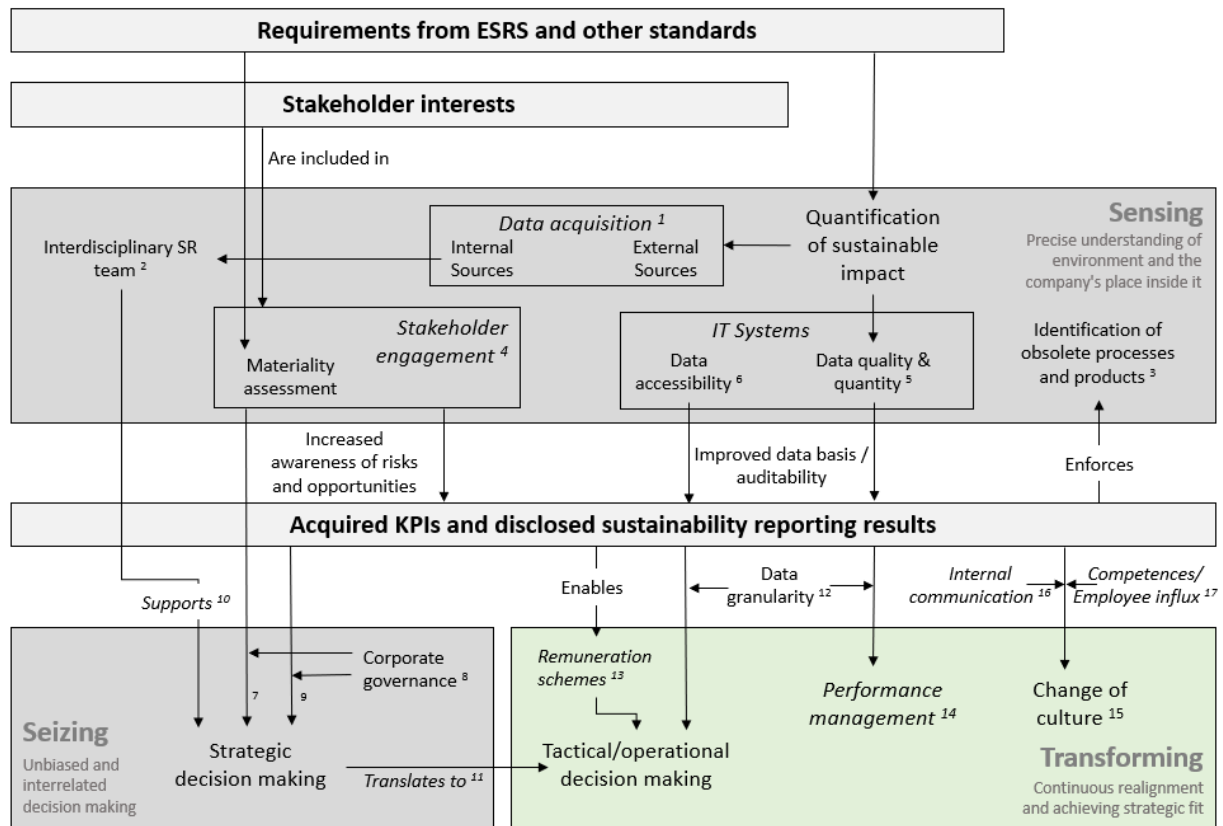
Both tactical/operational decision making as well as the related performance management are aided by an increased data granularity, supporting decisions on a smaller time scale (Figure 5, ¹²). Being in possession of such granular data, enables decision makers and project/product managers to continuously reassess the impact of their topic, also between reporting cycles. This facilitates a continued reconfiguration of assets and therefore constitutes transformation capabilities.

Lastly, reviewing the interview transcripts yielded insights into how SR can impact corporate culture, as it is creating awareness and sensibility for sustainability among employees (Figure 5, ¹⁵). Companies are actively shaping this influence through the way in which the SR results are communicated internally (Figure 5, ¹⁶). Through its influence on employer branding and new talent acquisition, SR can further have a long-term impact on culture as more sustainability-oriented people are drawn to the company (Figure 5, ¹⁷).

Although the CSRD features some disclosure requirements regarding the translation of sustainability related goals into operations, no behavioral requirements are set. It can be argued that this translation of strategic goals into operational change offers opportunity for lasting DC creation. Some companies already use this opportunity and thereby demonstrate an active approach. The relevant items have been highlighted in the framework by italicizing them (see Figure 5). The results of the study imply that integrated strategies, sustainability-related remuneration schemes, high data granularity and a corresponding performance management are improving transforming capabilities. Further, a culture shaped to accept the uncertainty that accompanies internal change is conducive of transformation capability and can be instilled by using SR results in internal and external communication.

Figure 5

Effect of Sustainability Reporting Implementation on Transforming Capabilities



Note. Activity or changes that go beyond what is required by the CSRD are italicized. Superscript refers to the information in text.

5 Discussion

The study set out to answer the research question of how the implementation of SR practices can affect DCs. For answering this question, theoretical knowledge about dynamic capability creation and mandatory SR regulation was combined with empirical insights gained from semi-structured interviews with 12 practitioners in the field of SR.

While all interviewed practitioners reported on a variety of different changes that accompanied the implementation of SR, it is not obvious that these changes created lasting DCs in the respective company. That is because common practice is not constituent of DC creation. In this context, the study's findings underline the importance of emerging SR regulation: As current best practice is turned to common practice by upcoming regulation, companies that do not go beyond regulatory requirements in their SR implementation do not yield lasting DC. However, the semi-structured interviews revealed that companies are usually implementing changes to individual SR related processes that exceed the requirements set by the CSRD. In doing so, they create DCs that are hard to imitate and might constitute lasting competitive advantage. These changes found in the results are compiled in Table 5.

Table 5

Compiled Changes that go Beyond the ESRS Standard and Constitute Lasting DC Creation

| Sensing | Seizing | Transforming |
|---|---|---|
| <ul style="list-style-type: none"> • Establishing and maintaining continuous processes for gathering additional internal and external information from industry experts, consultants, and networks to improve decision-making basis. • Engaging in a continuous stakeholder dialog and initiating discussion on material topic with the respective stakeholders to improve stakeholder engagement and decision-making processes. • Establishing a central repository of information to improve data quality, quantity, and reliability, which can be accessed by decision makers. • Improving the accessibility and usefulness of data for decision makers through better visualization and higher granularity of data. | <ul style="list-style-type: none"> • Implementing corporate governance measures, such as internal controls, to incorporate stakeholder interests and reduce short-term bias in decision-making processes. • Improving communication of the acquired information to decision makers and leveraging the competences of internal teams or networks, such as the interdisciplinary SR team for decision making processes. | <ul style="list-style-type: none"> • Integrating sustainable and business strategies into a single strategy to facilitate the translation of sustainable strategy into operational decision-making processes. • Setting up incentives for achieving sustainable goals by designing appropriate remuneration schemes. • Tracking progress towards strategic goals by implementing performance management of individual projects and reduction measures. • Establishing the necessary granularity of data for tactical/operational decision making processes and related performance management. • Effectively communicating SR results internally to shape SR's influence on corporate culture. |

The results of the study, when contrasted with the anticipated affected processes in Chapter 2.4.3, show that a majority of the a priori anticipated changes are also implemented in practice: In their introduction of SR, some companies implement continuous knowledge acquisition processes for additional, non-required Information to improve their understanding of the business environment and their place in it. By having this understanding, companies are able to better identify opportunities and risks and ultimately improve their sensing capabilities.

Some companies further introduce thorough stakeholder engagement processes, such as a stakeholder dialog day, to have a more precise picture of stakeholder interests and introduce these interests into decision making and resource allocation procedures. This introduction of stakeholder interests into internal processes enables the company to balance shareholder und stakeholder orientation and take more long-term oriented and unbiased decisions, improving seizing capabilities.

Lastly, Investments in the purchasing, implementation and maintenance of integrated IT Systems specialized on SR are used to address the rising demands of data acquisition, improve data quality and accessibility (sensing, seizing). The higher data granularity that these systems enable also enables companies to track performance and constantly realign their operations with their strategy (transforming). In conclusion, the changes to IT systems can help companies improve all DCs.

Only the anticipated changes to knowledge management structures could not be observed in the interview analysis. Instead, the analysis of the study material revealed that changes in the requirement for employee competences, a process that can be seen as related to knowledge management, are

decisive for the diffusion of sustainable thought and the influx of new employees, both contributing to a corporate culture that is more supportive for sustainability-related change. This way the company can introduce such changes more smoothly and ultimately improve their transforming capabilities. In this context, the internal communication of SR results facilitates this culture changes by involving employees in the sustainability-related efforts of the company.

Like in this case, other relevant changes could be identified during the analysis in an inductive manner. Companies implementing governance mechanisms to enforce stakeholder interests or remuneration schemes to translate strategic decisions into day-to-day decision making are some examples of processes that can constitute seizing or transformation DCs respectively.

The findings of the study illustrate how SR implementation can have a variety of positive effects on the sensing, seizing, and transforming capability of reporting companies. This means among other things that companies that engage in SR profit form a more precise understanding of the business environment and the company's place inside it, they engage in less biased and more interrelated decision making, and are able to achieve a better strategic fit through a continuous realignment to their strategy.

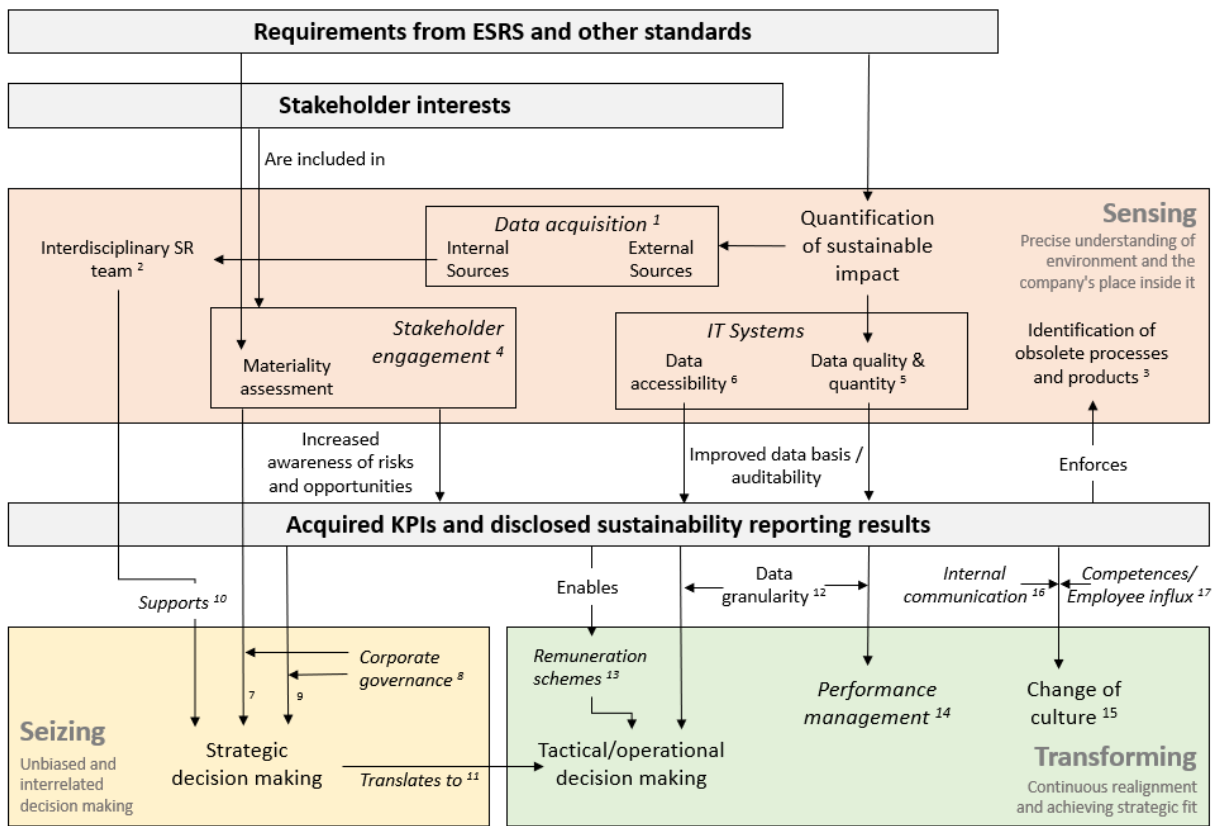
It is important to note however, that the introduction of SR, especially in the context of compliance with emerging regulation, is a major drain of resources for companies, both financial and in terms of workload. While the general sentiment of SR introduction was rather positive, all but one interviewee stressed the importance of the cost factor in deciding which changes to implement. Additionally, the uncertainty around regulatory developments is mentioned frequently as another challenge for SR implementation. Hence companies are careful not to introduce too many changes at once which would overburden their organization (The question of how companies navigate the decisions around implementing changes during SR introduction is further discussed in Chapter 5.4.2).

Further, many of the identified benefits are tailored towards improving the *sustainability* performance of the company for example by making sure company operations align with the sustainability strategy. As SR measures sustainable impact and helps to track external developments in the field of sustainability, the DCs acquired through its implementation are primarily applicable for improving sustainability-related activity such as sustainable business model innovation or emission reduction measures. It should be said however, that the intention of regulatory frameworks like the CSRD is to make the sustainability performance of companies transparent enough to be on par with financial information and therefore relevant for investor decisions. Hence the DCs gained through SR, while stemming from the sustainability field, are crucial for the overall performance of the company.

The implemented changes and relevant interdependencies uncovered in the study have been visualized in the conceptual framework provided in Figure 7. The framework aims at organizing the study's findings and illustrating the identified connections between activities related to SR and DCs. In doing so, the framework offers a comprehensive view of how SR practices impact DCs and identifies factors that mediate their relationship. Through this conceptual framework, the reader can gain a deeper understanding of the intricate interplay between SR and DCs and leverage this knowledge to gain a competitive edge.

Figure 6

Complete Conceptual Framework.



Note. Activity or changes that go beyond what is required by the CSRD are italicized. Superscript refers to the information in text.

The conceptual framework, next to facilitating understanding of the uncovered dynamics, also enables practitioners and managers to prioritize individual or complementary groups of changes during SR implementation. Relevant examples are given in Chapter 5.2.

5.1 Implications for Theory

The study contributes to literature by addressing the identified gap between dynamic capability theory and SR research. As such the study adds to existing research on the effects of SR on company performance (Albitar et al., 2020; Ioannou & Serafeim, 2017; Y. Li et al., 2018). The study shows internal changes in relation to SR implementation to be equally relevant for evaluating the overall impact of SR on companies as external stakeholder effects. As a consequence, the study might contribute to a renewed focus on these internal effects of SR implementation, a view that has long been understudied in recent SR research (Lu et al., 2022).

The study further contributes to research on the antecedents and moderators of DCs and their creation (Ambrosini et al., 2009; Eriksson, 2014). It does so by enriching existing research in the DC field with empirical evidence in several sub-fields: The gathered insights confirm the relevance of the acquisition of internal information for the creation of sensing capabilities (Babelytė-Labanauskė & Nedzinskas, 2017; Hodgkinson & Healey, 2011), as the gathered internal ESG-information enable the identification of new developments and opportunities as well as obsolete processes within the firm.

In response to Jackson & Petraki (2011) and Bocken and Geradts (2020) who identify short termism as a major barrier for DC development, this study shows how short termism can be tackled by SR implementation and the resulting increase in shareholder orientation of the company. The study's

findings also relate to the notion presented by Panda and Sangle (2020), who make out stakeholder engagement as a dynamic capability relevant for managing stakeholders as a corporate resource (see also Chapter 5.4.1).

The study's efforts to explicate the observed impacts of IT-Systems' implementation and integration in the context of SR add to existing research of Elbashir et al. (2021) by showing how DCs are facilitated by software through an improved efficiency of processes and routines, through an improved basis of decision making and through the facilitation of performance management of products and projects. Here the study also confirms findings by Adams and Frost (2008) on the benefits of the use of SR-KPIs for decision-making, strategic planning and performance management.

Conceptually the study offers a variety of new models in different fields: Firstly, an extended SR-process is drafted based on the model proposed by Gittel et al. (2012). further, the study proposes a conceptual model for explaining when companies should pursue opportunities during SR-implementation (see Chapter 5.4.2). Most notably however, the main conceptual framework offers a visual representation of the identified interrelations between SR-related activities and DCs. This framework can serve as a conceptual basis and inspiration for future research on the topic, providing researchers with a clear visualization of the relationships between these concepts.

5.2 Implications for Practice

The findings of this research further have practical implications for managers and practitioners. The study supports the notion of actively engaging in SR as opposed to passive compliance efforts. Companies that actively engage in SR can gain a competitive advantage by leveraging the benefits of improved sensing, seizing, and transforming capabilities. The study provides actionable insights into how organizations can adapt their SR practices to foster the development of lasting DCs. For instance, by manifesting stakeholder interests in their corporate governance, improving the SR related IT landscape, and translating sustainability strategies into operational decision-making and performance management, companies can exceed regulatory demands and cultivate lasting DCs.

However, the study acknowledges that SR implementation entails significant cost and effort, and not all opportunities for DC creation identified in the study are beneficial for all companies. The theoretical consideration on when to address certain opportunities in Chapter 5.4.2 can remind practitioners to prioritize the most promising opportunities and not overburden the organization with a too broad course of implementation.

The conceptual framework developed in this study visually represents the intricate interplay between SR practices and DCs (see Figure 6). It offers a comprehensive model of how SR can positively impact an organization's internal processes and highlights those areas where companies might go beyond regulation to create lasting DCs. Practitioners can use it to prioritize individual or complementary groups of changes for implementation: E.g., if the improvement of culture in the context of transformative capabilities appears to be the most pressing issue in a company, management might refer to the framework to find that the internal communication of SR results and the diffusion of new sustainability-related competences is to be prioritized. In another example; if an organization finds the introduction of SR-related information and KPIs into tactical/operational decision making to be lacking, managers might refer to the framework to find the following changes to be beneficial: The introduction of variable remuneration schemes based on sustainability KPIs, an increase in data granularity facilitated by IT systems and a translation of strategic decision making into the tactical/operational time-frame through the integration of the sustainability strategy into the overall business strategy.

In addition, the study has implications for policymakers, as it demonstrates the potential impact of SR on company performance. Policymakers can use this evidence to amend regulation to leverage this

finding or justify existing regulation mandating organizations to adopt robust SR practices. This could drive sustainable growth and competitiveness, benefiting not only individual companies but also society at large.

Overall, the study enhances the understanding of the relationship between SR and DCs and offers practical guidance for organizations seeking to implement SR.

5.3 Limitations and Future Research

A number of limitations are identified for this study which could inspire subsequent research. First, SR is a part of the overarching sustainability efforts of a company and was at times initiated simultaneously with other measures and at times integrated into an existing assortment of sustainability activity. SR is always a piece of the complete puzzle of activities that aim to make a company sustainable. It is therefore at times difficult to separate the effects of SR implementation from confounding effects of other activities, such as existing stakeholder engagement or knowledge management. In the course of the coding- and analysis phase, the author took care to differentiate between effects that were explicitly related to SR implementation and those that were not. However, interview partners did not have a common understanding of what constitutes the “sustainability reporting process”, as there are different set ups of this process between companies. In a future study, the interviews should therefore start by giving a definition and creating a common understanding of the topic at hand.

Another set of limitations stems from the sample of interview partners used for this study. For one, the interviews were conducted only with experts in the sustainability fields, and thus might be biased towards an exaggerated view of the benefits of SR. As these professionals have an incentive to exaggerate their work’s usefulness, they might be inclined to pay greater attention to the potential upsides of SR. It could therefore be recommended to conduct further empirical work with other fields, such as HR professionals, IT experts or higher-level managers to test the identified effects.

Also, the interview partners only represented countries operating in Germany, and were mostly German nationals. Between the German markets and other markets, cultural differences are likely and have been identified in other research: Cormier and Magnan (2007) found that the impact of environmental reporting on the relationship between a firm’s earnings and its stock market value varies depending on the observed market, with a significant positive effect occurring only in Germany. Testing of the results of the study at hand in other market contexts is therefore recommended. Lastly, the sample size (12) is owed to timely restriction and difficulties in contacting and arranging meetings with the members of the target group. As mentioned in the method section, additional desk research was conducted to improve the studies coverage of relevant information. Future studies may resolve this limitation by engaging with more interview partners.

The study aims at creating paths for future research through identification of the effects of SR implementation on the internal processes in the company. This identification was made possible through a qualitative research approach. The identified effects are to be validated further by quantitative analysis in the future. In a potential next step, a study using surveys could be helpful to quantify the percentage of companies that has experienced a specific effect, e.g., improved decision making. Studies applying a longitudinal scope would be especially useful to track the development of DCs over the complete time frame of SR implementation and the subsequent years of practice.

The practical implications of this study could be further validated by applying them within a genuine sustainability implementation process. An action research approach, like the one chosen by Adams and McNicholas (2007) for SR implementation, could translate findings into solid managerial practice and test their applicability for specific contexts.

5.4 Further Insights

The study material yielded an array of additional information that yielded interesting insights on the topic of sustainability reporting and its effect on organization. While these insights are not strictly related to answering the research question, they do address related questions and offer valuable context to the results and discussions presented so far.

5.4.1 What are the effects of SR on external stakeholders?

A relevant topic that emerged in the interviews but lays outside of the framework of the internal scope of the sensing, seizing and transforming framework is the effect SR has on stakeholder opinion. As SR is aiming at informing all interested stakeholders on the company's impact on these very stakeholders, it is fair to say that stakeholder opinion is driven by what the company discloses to them. Unlike the stakeholder engagement discussed in Chapter 4.2.1, the stakeholder impacts discussed in this chapter are not part of an institutionalized stakeholder engagement process, but rather an effect of publishing the sustainability report (However, it can be assumed that stakeholder engagement itself is conducive of positive stakeholder opinion as well).

SR can help improve companies' reputation for all stakeholders (4:27) by improving the credibility and authenticity of a company's sustainable efforts. Especially those companies who are reporting on their impact without regulatory pressure to do so are reaping this benefit now, as participant 5 explains:

What advantages do the companies derive from being so far ahead of the competition in terms of sustainability reporting?

Participant 5: Yes, that's exactly the credibility, the seriousness behind it, and of course also . . . what you had already mentioned: The positioning, also among competitors, so externally. (5:32)

Companies want to appear credible in their sustainability efforts towards stakeholders and auditors (5:22, 4:8/23). One reason for this is that a credible sustainability report can help to clear greenwashing allegations (5:26, 6:9) as the organization's claims are backed by high-quality data. To keep their goals and sustainability efforts credible, some companies avoid proclaiming goals and releasing unnecessary KPIs altogether (4:11/13), as credibility of companies that made unrealistic promises and failed to keep them is diminished (4:12).

Another way to establish credibility for companies is to get external confirmation of their sustainability efforts (5:20). This can be done by paying independent auditors to audit a sustainability report (either with limited or reasonable assurance) (6:6, 8:8, 9:5) or by taking part in ESG rankings such as EcoVadis. However, in order to acquire the desired testing results, the company has to reach a certain auditability of their ESG information.

Auditability refers to an auditor's capacity to examine a client's financial records and statements comprehensively (Bragg, 2022). It increases when financial records are well-organized, complete, and the client's personnel are transparent with the auditor. An effective system of internal control by the client also enhances auditability. This concept can be applied to audits of non-financial information analogously.

As such, establishing auditability for sustainability reports encompasses creating a sufficient data quality as well as transparent data flows, from the source to the final report. As discussed in Chapter 4.1.3, auditability requires IT systems integration and a normalization of the data query and consolidation procedures for non-financial KPIs to meet the standards required for financial disclosures. As discussed in Chapter 4.3.2, knowledge management is conducive for high auditability.

SR standards and the ESRS especially, enforce auditability as they require external auditor validation. This has introduced a paradigm shift into companies' reporting efforts, away from qualitative and marketing-oriented reporting to a reliable and quantitative data collection (1:30, 3:15, 9:16). This quantitative approach can help to make the sustainability efforts of the company more accessible and therefore overcome internal resistance and help communicating them to stakeholders, as participant 8 explains:

You try to establish these things that don't seem measurable, so to speak, you try to establish metrics, you try to establish measurability for sustainability issues as well. And that's super important because most people just tick like that: they are very number-focused and I think you can only convince people that you are going the right way if you can measure that and present it in a credible way, and that's the only way you can set reasonable goals for further development. (8:14)

increasing auditability specifically for the requirements of ESG ratings can improve corresponding ranking scores (4:28) and therefore credibility. For example, participant 9 explains how they are disclosing additional reports with information specifically aimed at sustainability ranking requirements, which is not mandated by regulation (9:13/14). This can have advantageous effects on financing as a good ESG ranking can give the company access to green bonds and loans with lower interest (8:34).

As mentioned in Chapter 4.3.2, the satisfaction of employees is influenced by SR. It is fair to say that this effect should be increasing with higher credibility, as employees have more reason to believe in the truthful representation of the facts stated in the report.

Lastly, credible SR helps to fulfill customer requirements - especially in the B2B sector - as more and more customers are paying attention to the sustainability risks and liabilities within their supply chain. SR therefore helps sales managers to address customer queries on the company's sustainability efforts (3:29), therefore increasing product competitiveness (11:5).

In conclusion, the reviewed material indicates that through SR results and the corresponding auditing, companies can give credibility to their sustainability efforts and thereby improve the relationship to stakeholders. This improvement of stakeholder relation yields positive benefits for the company. This is in line with stakeholder theory (see Chapter 2.1) which states that stakeholders can provide value to the company and therefore be crucial for creating competitive advantage. This finding is further supported by the research listed in Chapter 1.1 (Albitar et al., 2020; Cheng et al., 2014; Ioannou & Serafeim, 2017; Mohammad & Wasiuzzaman, 2021).

But how are SR effects on stakeholder opinion related to the sensing, seizing and transforming DCs? And could they be accommodated in the study framework? Panda & Sangle (2020) bridge the gap between stakeholder theory and DC theory by establishing stakeholders as a resource and stakeholder engagement as a dynamic capability managing said resource. In this study, SR is seen as influencing stakeholder engagement efforts, but not as being a part of it. When categorizing SR as part of the stakeholder engagement strategy of the company, this distinction would become obsolete, and the corresponding effects can be accommodated into one. This means that SR as part of the stakeholder engagement strategy is conducive for DCs. While this is the case, stakeholder opinion is kept separate from sensing, seizing, transforming categories in the framework, as stakeholder opinion is not accredited to any of the three categories in literature and the effects found in the study are not exclusively related to any of them. The extended conceptual framework including the above findings and considerations can be found in Figure 7.

While on the topic of positive stakeholder effects, a critical reflection is owed to the issue of morality of introducing SR for competitive advantage. With the described effects on stakeholder opinion described in this chapter, it is understandable that participants in general were cautious of greenwashing facilitated through SR. During the creation of a sustainability report, sustainability managers are torn between using SR as means to polish stakeholder opinion (strategic view on stakeholder theory; see chapter 2.1) and fairly communicating facts (moral view).

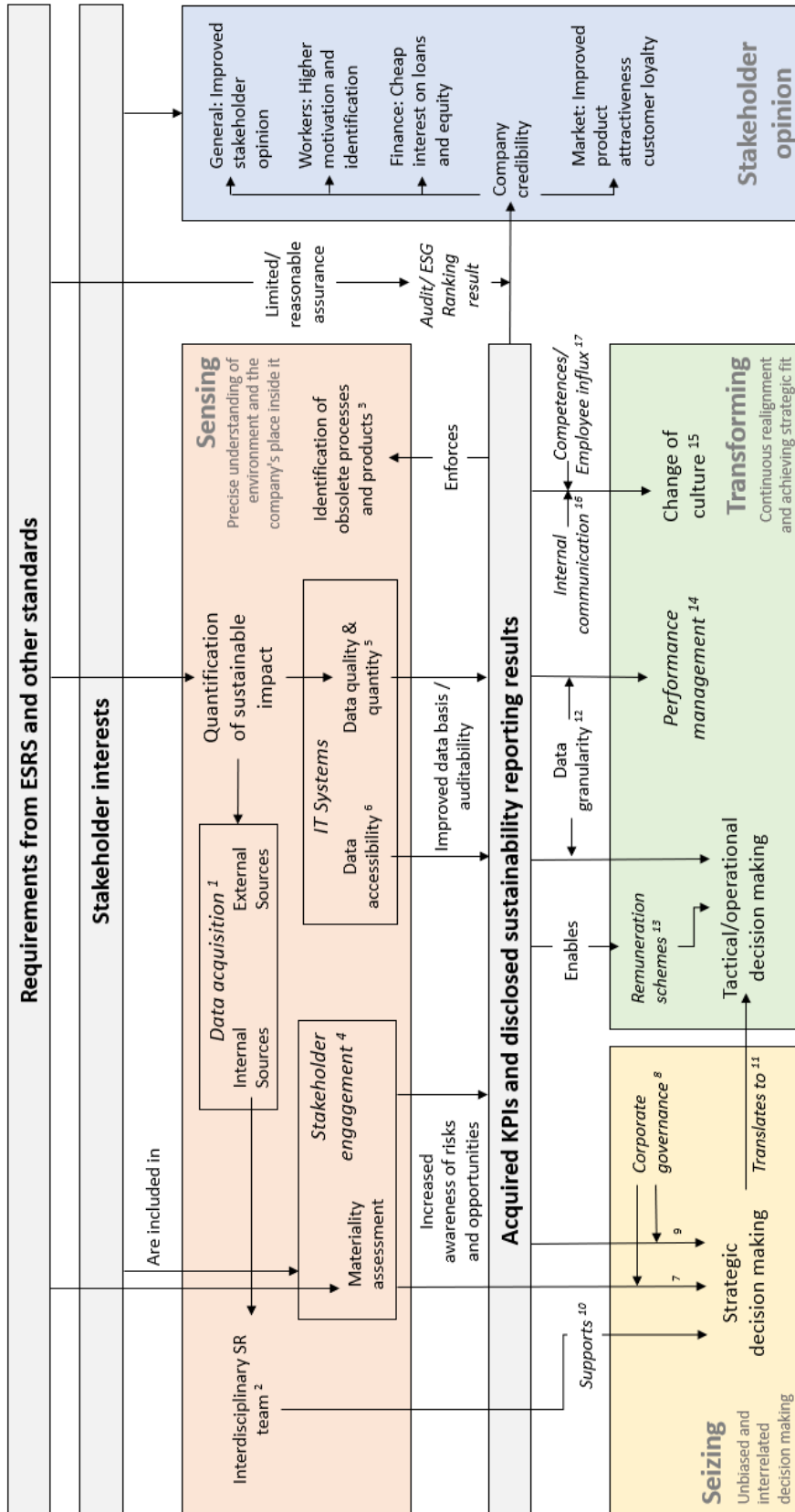
In this context, one of the participants refused to speak of “advantages” gained through SR but rather spoke of a license to operate, which requires a fair communication of the company’s sustainability efforts (6:12). Following this notion, one could argue that SR should not be practiced for the sake of acquiring competitive advantage, but rather as a moral obligation towards the stakeholders, and the managerial implications that can be derived from this study are unethical as they promote SR out of the wrong reasons. Using SR both out of strategic calculation and normative considerations reveals the paradoxical nature of stakeholder theory, as stakeholders are treated as both means to ends and ends in themselves (Goodpaster, 1991). Freeman addresses this conflict by suggesting a new, “managerial” stakeholder theory:

We need to see stakeholder theory as managerial, as intimately connected with the practice of business, of value creation and trade. That was its original impetus, in the sense of re-describing the practice of value creation and trade to ensure that those with a “stake” in this practice had attention paid to them. (Freeman, 2000, p. 173)

In the opinion of the author, this managerial view can justify engaging in SR both for informing stakeholders and for reaping the benefits uncovered in Section 4. Hence, the managerial implications of this study can be applied both for the end of improving transparency for stakeholders as well as improving corporate (sustainability) performance.

Figure 7

Conceptual Framework Including Effects on Stakeholder Opinion.



Note. Activity or changes that go beyond what is required by the CSRD are italicized. Superscript refers to the information in text.

5.4.2 How much change is too much?

While the preceding results have established that SR implementation encompasses opportunities for DC creation, it is not clear yet, in which cases these opportunities should be used and when their implementation would cost more than it would yield benefits. As became apparent, some companies are quick to implement certain changes, while others don't see any added-value and resort to more pragmatic solutions. Why are not all companies showcasing an active approach to SR implementation? While the interviews did not state the answer for this explicitly, they gave the necessary input to create a conceptual model that can be used to discuss when opportunity use is beneficial and facilitate further research on the topic.

The study initially defined an active approach to SR implementation as addressing opportunities during SR implementation that go beyond what is required by the regulatory landscape as opposed to only achieving compliance with regulatory requirements (passive). The concept in the beginning resembled a dichotomy of those companies that aim to exceed regulations, and those that aim at compliance. The interviews, however, did showcase neither a definite active approach nor passive approach to SR in any company. Instead, different companies are going beyond regulation in different areas of SR and are focusing on compliance in other areas. While almost all companies are eager to reap certain benefits from SR, they are also using *pragmatic* approaches to try and keep the necessary expense to a minimum.

A case in point is company 3: With the stakeholder dialog day mentioned in Chapter 4.2.1, the company has established an exceptionally detailed process to get into in-depth dialog with their stakeholders (4:39). They are also following voluntary reporting guidelines without regulatory pressure (4:4) and are even collecting additional non-financial information to guide in decision making (4:10). However, they do this while keeping the processes (4:18), staff requirements (4:16) and reporting scope (4:41) as lean as possible. No new software has been established as the current requirements are achievable with Excel (4:21), yet future efforts include the search for a tool that helps to increase data collection efficiency (4:25).

Another example can be found in company 12: They are concerned with compliance foremost, but they aim to go beyond mandatory standards in their implementation to reap related benefits (12:5). As the only company in the study, they also have implemented a variable remuneration scheme that rewards *all* employees if sustainability goals are met, a measure that has helped to influence decision making also on an operational level (12:20/21). On the other hand, they use existing stakeholder mappings of industry association instead of creating their own (12:12), and they try to include the additional SR related work in existing processes, for example by discussing issues in existing meetings instead of planning new ones to reduce the stress on the company (12:8). An overview of the relevant codes "3.1 active approach" and "3.2 pragmatism" for each company can be found in the Appendix E.

As can be seen in these examples, companies intend to apply an active approach to SR for the sake of creating DCs. To do so, they are implementing processes and practices that go beyond what is required currently by SR regulation. At the same time, budgetary and capacity restrictions are limiting these companies in the scope of their active implementation. Their response to this trade-off is to reuse processes and tools, keep processes lean and make the most of what is available- to be pragmatic.

Pragmatism in the beginning of the study was first falsely identified as the passive approach laid out in Chapter 2.4.2. However, in the course of this study the above examples showed that companies can address opportunities for DC creation during SR implementation while being as pragmatic as possible. First described by Peirce (1878), pragmatism, or being pragmatic, is a way of thinking that focuses on the practicality of issues instead of other more theoretical considerations. It means to take the most

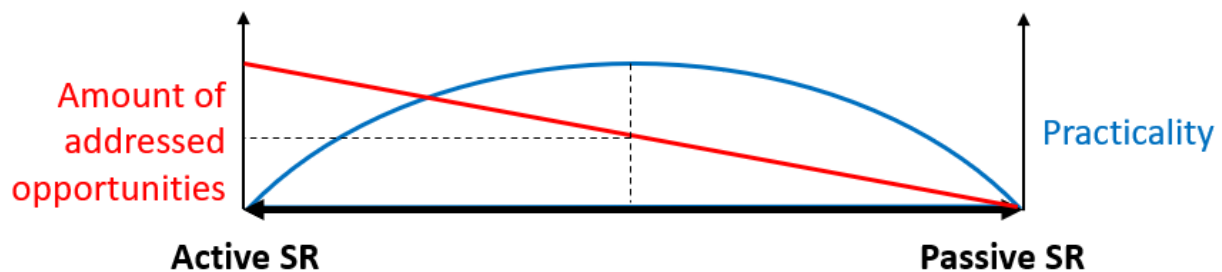
practical approach. In the context of this study, this means to focus on those changes that *practically* make sense as opposed to implementing all theoretically promising solutions.

Circling back to the definition of active and passive approaches to SR given in Chapter 2.4.2, if an active approach is to overhaul company processes in order to address the opportunities presented by the implementation and passive is the exact opposite, namely addressing none of the opportunities presented by the implementation, then pragmatism is the moderator by which companies assess which opportunities presenting themselves are to be addressed, and which are to be ignored. For example: Companies following a 100% active approach would implement a fully integrated SR software solution as it is a theoretical opportunity to improve data quality and acquisition efficiency. If companies choose not to implement such a system, it's not necessarily because they are passive, but because it's not practical to do so currently. Maybe the systems are not mature enough yet, or the company does not have the capacity currently. On the other hand, in most cases a completely passive focus on compliance is not a pragmatic way of thinking either, as in this way, none of the presented opportunities are addressed and the company will not develop any DCs (Note: In some cases, creation of DC might not be pragmatic for companies, for example in highly complex decision spaces or low-dynamism industries, as discussed in Chapter 2.3).

Figure 8 captures this relationship: Neither a complete focus on addressing all opportunities presented by SR nor a complete disregard towards them are pragmatic approaches to implementing SR as they do not make use of what is practical for the company. The slope of the blue practicality line is idiosyncratic: During the interviews it became apparent that it's both the *capacity for change* of a company as well as the *subjective value of the opportunity* that influences what opportunities seem practical to a company.

Figure 8

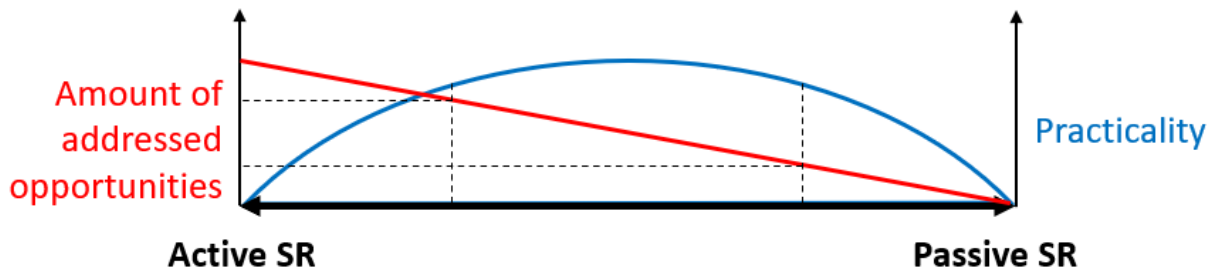
Perceived Practicality during SR implementation



A pragmatic company will be closer to the maximum amount of practicality, while a less pragmatic company might be more theoretically oriented and not have the right degree of practicality in its SR implementation (see Figure 9). In this case, the company is too active or too passive and will not find the right (amount of) opportunities to address. This example will result in too much or too little change and either overburden or stall the company in its development.

Figure 9

Less Pragmatic Companies Fail to Find the Right Degree of Practicality



As the attentive reader might have guessed, this relates back to higher-order or regenerative DCs discussed in Chapter 2.3: The more DCs a company has, the more it can sense opportunities, accurately identify their value, and seize and transform to address as many of these opportunities as is practical. As laid out in Section 4, addressing opportunities stemming from SR implementation can lead to the creation of new DCs. Following the theoretical notions laid out in Chapter 2.3, creating new DCs necessitates the deployment of regenerative or higher-order DCs. Therefore, I am suggesting that the extant regenerative DCs of a company affect how practical opportunities appear. The more regenerative DCs a company has, the more value opportunities have and the more opportunities for DC creation can be addressed. In consequence this means: the more regenerative DCs a company possesses the more active their approach to SR implementation can be while still being practical and vice versa. Figure 10 and Figure 11 illustrate this concept with varying degrees of regenerative DCs.

Figure 10

Practicality Curve of a Company with Less Regenerative Dynamic Capabilities

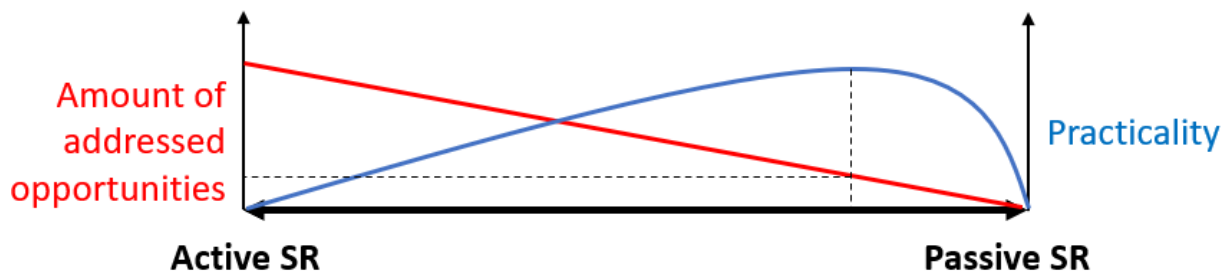
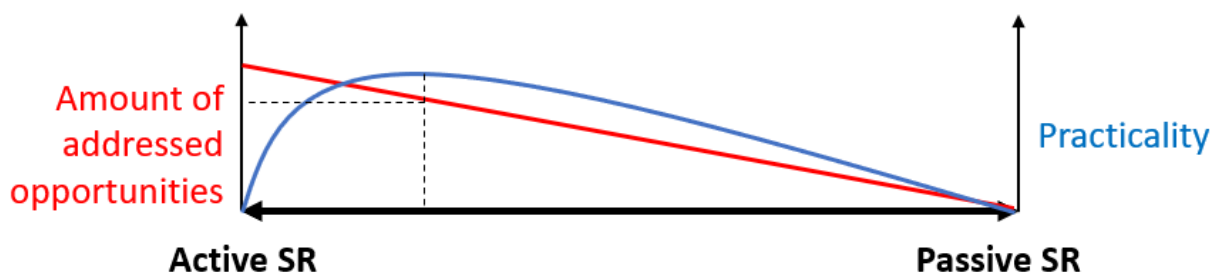


Figure 11

Practicality Curve of a Company with More Regenerative Dynamic Capabilities



In conclusion, whether an individual opportunity for DC creation will be addressed depends on its value to the company and the company's capacity for change, which is moderated by the extant regenerative or higher-order DCs and the industry complexity and dynamism. Whether the company implements a practical number of opportunities depends on a company's level of pragmatism.

6 Conclusion

In conclusion, this study has made significant strides in understanding the relationship between sustainability reporting (SR) and dynamic capabilities (DCs) in organizations. By investigating the potential effects of SR implementation on sensing, seizing, and transforming capabilities, valuable insights for both theory and practice have been uncovered:

The findings of the study highlight the internal changes which companies are implementing during the introduction of SR, and their role in creating DCs and fostering competitive advantage. In the context of emerging regulation such as the CSRD, this study emphasizes the importance of going beyond regulatory requirements in SR practices to achieve lasting competitive advantages, as said regulation is to make many of the identified changes become common practice. The study therefore highlights those activities that exceed regulatory demands and explicates in some detail how their introduction contributes to sensing, seizing or transformation DCs.

The implications of this research extend beyond academic discourse, offering tangible recommendations for businesses to strengthen their SR practices and capitalize on the potential advantages that stem from the cultivation of DCs. Thereby, the study's findings might convey incentives for companies to engage in more robust SR practices and improve their transparency towards external stakeholders regarding their sustainable impact. In the context of ongoing climate change and the EUs efforts to create a sustainable finance industry, this transparency would not only benefit individual companies but also have positive implications for society as a whole.

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Appendix A: Study Information Sheet

English version of the Information sheet handed to potential interview partners.

Study Information Sheet

(Date: 03.01.2023)

Study Name:

Sustainability reporting and competitive advantage; Exploring the relationship between a commitment approach to mandatory sustainability reporting practices and dynamic capabilities

Study Purpose:

The purpose of the study is to investigate potential benefits of the implementation of mandatory sustainability reporting regulation such as the non-financial reporting directive (NFRD). Literature suggests potential advantages in corporate foresight or knowledge management, which are yet to be investigated.

However, since new sustainability reporting regulation, like the corporate sustainability reporting directive (CSRD), affect all major companies in the EU, a competitive advantage can only be achieved by a management commitment to leverage the opportunities presented by this regulation. Companies for example, that go further than just listing stakeholders and establish permanent stakeholder engagement could be benefiting from improved decision making. Implementing measures that go beyond mere compliance with regulation is called a commitment approach in the frame of this study. The study is designed to investigate the relationship between such a commitment approach and competitive advantage.

As lens for this relationship the dynamic capability theory is used, a theory that describes how companies create and maintain competitive advantage by sensing opportunities and enacting and implementing change projects in volatile conditions.

Data collection and privacy:

The study investigates the described relationship by means of semi-structured interviews with experts in the field of sustainability reporting. The interview is designed by the interview guide to last 45-60 minutes.

The interview is recorded and later transcribed. Personal information of the participant given during the interview will be anonymized and the original recordings will be deleted after transcription. After the study, the anonymized transcription is archived for 10 years in Areda, UT's data archive, so that it can be used for future research and learning purposes. Other researchers may request access to these records from the study author. The results of the study may be further disseminated in scholarly journals and online portals.

For contact purposes, the name and contact information of the participant will be stored in a separate document during the study and appropriately protected from outside access. They will be deleted after completion of the study, unless otherwise stated in the consent form. The results of the study will be made available to the participating person after completion of the study. The participating person has the right to request access to his or her personal data and its correction or deletion at any time.

Informed consent:

The participating person agrees to the survey and recording in a separate form of consent. This consent can be revoked at any time and without giving reasons. The research project has been reviewed and approved by the Ethics Committee of the BMS (Department of Humanities and Social Sciences).

Contact details:

Questions or complaints can be directed to the lead researcher Manuel Rothfuß (m.p.rothfus@student.utwente.nl), his supervisor Barbara Kump (b.kump@utwente.nl), or the BMS Ethics Committee/domain Humanities & Social Sciences (ethicscommittee-bms@utwente.nl).

Appendix B: Consent Form

English version of the consent form handed to potential interview partners.

Consent Form - Study: Sustainability reporting and competitive advantage

YOU WILL BE GIVEN A COPY OF THIS INFORMED CONSENT FORM

| <i>Please tick the appropriate boxes</i> | Yes | No |
|---|-----------------------|-----------------------|
| Taking part in the study | | |
| I have read and understood the study information dated [03/01/2023], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction. | <input type="radio"/> | <input type="radio"/> |
| I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason. | <input type="radio"/> | <input type="radio"/> |
| I understand that taking part in the study involves an audio-recorded interview that is subsequently transcribed. The recordings will be deleted after the end of the study. | <input type="radio"/> | <input type="radio"/> |
| Use of the information in the study | | |
| I understand that information I provide will be used for creation of a scientific study revolving around sustainability reporting practices and possible effects on dynamic capabilities of the reporting company. The results will be published in the university library of the University of Twente. | <input type="radio"/> | <input type="radio"/> |
| I understand that personal information collected about me that can identify me, such as name or social media contact (e.g., LinkedIn), will not be shared beyond the study team. | <input type="radio"/> | <input type="radio"/> |
| I agree that my information can be quoted in research outputs | <input type="radio"/> | <input type="radio"/> |
| I agree that my real name can be used for quotes | <input type="radio"/> | <input type="radio"/> |
| Future use and reuse of the information by others | | |
| I give permission anonymised transcripts that I provide to be archived in Areda, the University of Twente data archive, so it can be used for future research and learning. For details see study information sheet. | <input type="radio"/> | <input type="radio"/> |
| I give the researchers permission to keep my contact information and to contact me for future research projects. | <input type="radio"/> | <input type="radio"/> |

Signatures

Name of participant

Signature

Date

UNIVERSITY OF TWENTE.

Appendix C: Interview Guideline

English version of the interview guideline used in the interviews with participants.

Interview Introduction:

Thank you for taking the time to do this study. This study focuses on the impact of implementing sustainability reporting on the dynamic capabilities of the reporting organization. The dynamic capabilities theory describes characteristics that can help companies predict trends, make decisions, and adapt advantageously in dynamic business environments. In this interview, we would like to determine whether the introduction of sustainability reporting has had an impact on your organization's dynamic capabilities.

As stated in the study information sheet, the interview will take approximately one hour, you can stop the interview at any time without giving a reason. The interview will be recorded and the transcripts will be archived anonymously in line with good scientific practice. If you wish, we will send you the findings obtained after the study has been completed.

Do you agree to the interview being recorded?

_____START RECORDING_____

Again, on tape: do you agree that the interview will be recorded?

Do you have any questions before we get started?

Interview**questions**

Gray font color indicates additional information/secondary questions that will be asked if necessary.

1. first a few questions about yourself
 - a. Can you briefly describe your career to date?
 - b. What is your role in the company? What is your connection to sustainability reporting?

2. I would like to ask you some questions about sustainability reporting in your organization
 - a. When did your organization start producing sustainability reports?
 - i. Did it start doing so on a voluntary basis before the Non Financial Reporting Directive (NFRD) came into force?
 - ii. What standards are being followed in this regard?
 - b. Can you briefly recap the process for sustainability reporting in your organization?
 - c. What has changed in the organization as a result of implementing sustainability reporting?
 - i. ... In terms of sustainability
 - ii. ... outside the area of sustainability
 - iii. ... anything else?
 - d. If already known, what will change in the organization as a result of implementing CSRD?
 - i. ... Is it already clear how the organization must respond to the new regulations? What are the to-dos?
 - ii. ... What changes in the process landscape are targeted beyond the requirements as part of the implementation?

Now that I know more about your organization and its approach to sustainability reporting, I would like to ask you about some specific business processes. The questions are about how business processes in the organization have changed as part of the implementation of sustainability reporting. If you can already say something here about changes in the course of CSRD implementation, feel free to elaborate. Otherwise, the questions refer to the implementation of the guidelines of the NFRD or other standards used.

The questions of this section can sometimes overlap or repeat, don't let this confuse you.

3. Let's first take a look at what impact the implementation of sustainability reporting has had on the way information is filtered and obtained (sensing).
 - a. What changes have there been to the way the organization acquires new knowledge?
 - To what extent have **continuous processes** been established for spotting and acquiring strategically important information from the business environment?
 - To what extent were **new sources of information** outside and inside the organization developed on an ongoing basis?
 - To what extent has **Open Innovation** been introduced for knowledge sharing or joint research with external organizations?
 - b. What changes have there been to the metrics collected that feed into the business environment analysis?

- c. What changes have there been to the way unprofitable or obsolete business processes and routines are identified?
 - d. After information is obtained, it must be processed. For this purpose, some companies operate a so-called **Knowledge Management**. What changes have there been in your organization in the way knowledge is handled?
 - Has a specific **knowledge management function**, i.e. a department or person in charge, been established in the organization?
 - Since/because of the implementation, are employees encouraged to write down knowledge themselves and make it accessible?
 - Have employees been encouraged since/because of the implementation to evaluate and adapt knowledge themselves?
 - Have changes been made to the way in which the required knowledge is made available to those responsible for and involved in a change project?
 - i. to what extent do these changes influence the way information is filtered and obtained in the organization?
 - ii. how do these changes affect decision making in the organization?
 - iii. to what extent do these changes influence the planning and implementation of decided changes in the organization?
 - e. Information processing includes the use of **IT supported processes and applications**. What changes have there been to the organization's IT systems?
 - Have new IT systems been introduced to monitor manufacturing processes or to obtain additional information (e.g. CO2 emissions, water consumption, energy consumption)?
 - Have new IT systems been introduced to identify and evaluate opportunities or threats?
 - Is the newly acquired (sustainability) information stored in integrated IT systems/databases?
 - Is the success and progress of new processes or projects supported and tracked using new IT infrastructure?
 - i. To what extent do these changes affect the way information is filtered and obtained in the organization?
 - ii. to what extent do these changes influence decision-making in the organization?
 - iii. to what extent do these changes influence the planning and implementation of decided changes in the organization?
4. Next, I would like to find out what impact the implementation of sustainability reporting has had on the way decisions are made (seizing).
- a. What changes have there been in terms of the decision criteria used in decision making? Are there new variable remuneration schemes?
 - b. What changes have there been to avoid bias in decision making? New committees / functions / processes?
 - c. Part of decision making is the inclusion of stakeholder interests. How has stakeholder engagement changed in the organization?
 - What changes have there been to the way stakeholder interests are handled in the organization?
 - Has a stakeholder identification process been implemented/expanded?

- Has a process for contacting and sharing information with stakeholders been established?
 - Are stakeholder interests systematically identified and incorporated into organizational decision making?
 - How is care taken to establish these stakeholder engagement processes in the long term?
- i. to what extent do these changes affect the way information is filtered and obtained in the organization?
 - ii. how do these changes affect decision making in the organization?
 - iii. to what extent do these changes influence the planning and implementation of decided changes in the organization?
5. Last, I would like to know how the implementation of sustainability reporting has affected the planning and implementation of decided change projects in the organization (transforming)
- a. What changes have there been to the way projects are managed to plan and implement decided changes in the organization?
 - b. What changes have there been to the way new competences are taught to staff?
 - c. What changes have there been to the culture that is lived in the organization?
 - Have there been changes to the attitude of employees towards change in the organization?
6. if we summarize everything, what are the positive impacts of sustainability reporting in their organization?
7. if we summarize everything, what are the negative impacts of sustainability reporting in their organization?
8. did I forget anything? Anything else you would like to mention in that context?

_____END OF RECORDING_____

Are you satisfied with how the interview went? Why, why not?

Appendix D: Final Coding Scheme

Final coding scheme with corresponding definitions and anchor examples.

| Category | Sub-category | Definition | Question in guide | Anchor examples | Coding rules |
|----------------------------|---|--|-------------------|---|--|
| 1. Participant | 1.1 Career | What is the participant's previous educational and career path, what skills does the person already have with sustainability reporting. | 1.a | Participant has graduated from university and then participated in the preparation of SR in company XY for 5 years. | |
| | 1.2 Position in company | What position and responsibility does the participant hold in the company? Since when has this role been filled by the participant? | 1.b | Participant has been Sustainability Manager at Company XY for 2 years and is co-responsible for sustainability reporting. | |
| | 1.3 Connection to SR | How is the participant's area of responsibility related to SR? | 1.b | Sustainability reporting was part of the participants' area of responsibility. The participants played a key role in establishing SR | |
| Category | Sub-category | Definition | Question in guide | Anchor examples | Coding rules |
| 2. SR in der Organisation | 2.1 Since when and why SR | Since when has the company been operating SR? Since when have corresponding key figures been collected? Why was SR started, voluntarily or obligatory? | 2.a | The organization has been conducting sustainability reporting since 2018 and began as part of the NFRD coming into force. The company has already been collecting key figures on sustainability on a small scale since 2015. | |
| | 2.2 Used standards | What standards are aimed for or adhered to in SR? Does SR have to be done according to CSRD? As of when? | 2.a.i, ii | Since 2012, the company has been reporting in accordance with the UN Global Contract. Since 2018, the SR has been based on the GRI standard. CSRD reporting is mandatory from 2025 for the year 2024. | |
| | 2.3 Rough structure of the process | How exactly does the SR process work? Which functions and departments are involved? What changes have been implemented because of this? | 2.b, c | All functions are involved in the materiality analysis to ensure complete coverage of the relevant topics. During the annual preparation of the SR, experts from the individual departments are asked to draft reports. These are then compiled by the sustainability department. | |
| | 2.4 Changes planned for CSRD compliance | What changes are planned to the organization's processes as part of the upcoming implementation of SR under CSRD? | 2.d | Regular meetings are planned in which management evaluates the current sustainability key figures and discusses possible changes to the sustainability strategy | |
| Category | Sub-category | Definition | Question in guide | Anchor examples | Coding rules |
| 3. Active SR vs pragmatism | 3.1 Active approach | Processes and procedures in which the company goes far beyond what is required by law. | Alle | The company introduced SR management software in 2017 in order to be able to call up the relevant key figures on a monthly basis. | Changes that go beyond the minimum (not standard practice) |
| | 3.2 Pragmatism | Processes and procedures in which the company avoids additional work and complies with requirements with minimal effort. | Alle | Existing software solutions from the financial sector are adapted for SR, since everyone is familiar with them. | Changes that were realized with a minimum of effort. |

| Category | Sub-category | Definition | | Anchor examples | Coding rules |
|---|--|---|--------------------------------|--|--|
| 4. Anticipated processes from chapter 3.4.3 | 4.1 Knowledge acquisition | What changes have there been to the way the organization acquires new knowledge? | 3.a, 3.d.i, 3.e.i, 4.c.i | The participants are in regular exchange with a professor of the Leuphana University to get relevant information about sustainability in the industry. | Here, internal and external knowledge procurement that does not rely on IT systems. |
| | 4.1A Materiality assessment | How is the materiality assessment structured, how does the materiality assessment contribute to information gathering? | 2.b, c, 3.a | For the materiality analysis, a biannual stakeholder meeting is held in the company, at which the stakeholders' values are compared with those of the Board of Management. | Only stakeholder contact in the context of the materiality analysis and the stakeholder analysis itself (since this is needed for the materiality analysis). General stakeholder engagement not relevant here. |
| | 4.3 Identification of obsolete processes | What changes have there been to the way unprofitable or obsolete business processes and routines are identified? | 3.c | Through the SR, the influence on environmental parameters, which some processes have in the company, became obvious. The added value that this process had for the company was no longer there and it was dissolved. | Statements where it is explicitly described that existing processes and products are questioned by SR. Implementation of "measures to improve sustainability" also relevant. |
| | 4.4 Knowledge management | What changes have there been in the organization to the way knowledge is handled? | 3.d | As part of the implementation of the SR, the company introduced a knowledge management system in which employees are encouraged to write down and share methods and knowledge for saving energy in production. | Processes to store and communicate information and competencies relevant to SR. |
| | 4.5 IT systems | What changes have there been to the organization's IT systems? | 3.e | The participants mentioned the introduction of a CO2 accounting tool, which was introduced for reporting to catch up with industry standards for CO2 emissions and their mitigation. | Any changes to the IT landscape that have been made or are planned as part of SR implementation. |
| | 4.5 Stakeholder management | How has the approach to stakeholders changed? Are stakeholders' interests taken into account more in decision-making? | 4.a | Critical decisions are communicated by stakeholder management to affected stakeholder groups. These groups can contribute their interests and counterproposals. | Structured engagement with stakeholders apart from contact during the materiality assessment |
| | 4.6 New competencies are built up | What changes have there been to the way new skills are taught to employees or new employees are recruited? | 5.b | Training on sustainability was introduced so that employees could understand the change projects needed. New employees were hired to run SR | Changes to skills transfer aside of knowledge management formats. Also, changes in requirements for new employees |
| | 4.7 Project management | What changes have there been to the way projects are managed to plan, implement, and control decided changes in the organization? | 5.a, 3.d.iii, 3.e.iii, 4.c.iii | Projects related to sustainability are pushed forward more quickly, as the annual cycle of the SR requires quick results. | |
| Category | Sub-category | Definition | Question in guide | Anchor examples | Coding rules |
| 5. SR influence on decision making | 5.1 Decision making is influenced | Whether and how the findings from SR are incorporated into the company's operational decision-making. | 4, 3.d.ii, 3.e.ii, 4.c.ii | New findings are presented to the responsible managing director on a weekly basis. New investments have to pass an environmental check before they can be approved. | Changes to tactical/operational decision making are required here. This means a planning horizon of >24 months and no strategic processes. |
| | 5.2 Short term bias is reduced | What changes have been made to avoid bias in decision making? New committees / functions / processes? | 4.b | In the case of decisions that are critical for sustainability, the Sustainability Officer and the Stakeholder Manager are asked for a written statement. This is included in the process. | |
| | 5.3 Strategy is influenced | Whether and how the findings from SR are incorporated into the company's strategic decision-making. | 4, 3.d.ii, 3.e.ii, 4.c.ii | The Board of Management and employees are incentivized by sustainability indicators. The sustainability strategy is integrated into the business strategy. | Here, changes to strategic planning (>24 months) are meant. |
| Category | Sub-category | Definition | | Anchor examples | Coding rules |
| 6. Influence on the stakeholders opinion | 6.1 External opinion in general | SR has an influence on the way the company presents itself to the outside world | Inductive (z.B. 2.b.c, 6, 7) | The company hopes to increase its reputation with stakeholders by demonstrating its efforts to the outside world. | Statements that do not distinguish between the impact on different stakeholders |
| | 6.2 Opinion of employees | SR has an impact on the way the company presents itself to their (potential) employees. | Inductive (z.B. 2.b.c, 6, 7) | The company hopes to gain an advantage in attracting new talent or retaining existing talent by showcasing its efforts to the outside world. | Statements explicitly related to the effect on employees |
| | 6.3 Opinion of customers | SR has an impact on the way the company presents itself to their customers. | Induktive (z.B. 2.b.c, 6, 7) | The company hopes to gain a competitive advantage by showing its efforts to the outside world. | Statements explicitly related to the effect on customers |
| | 6.4 Opinion of investors | SR has an impact on the way the company presents itself to their investors. | Inductive (z.B. 2.b.c, 6, 7) | The company hopes to get improved funding from this to showcase its efforts to the outside world. | Statements explicitly related to the effect on investors |
| Category | Sub-category | Definition | | Anchor examples | Coding rules |
| 7. Communication and culture | 7.1 Culture is influenced | SR has an influence on the culture that is lived in the company | 5.c | Employees could better identify with their work after seeing the results of SR | Statements that refer to "culture", "mindset," a "way of thinking," etc. |
| | 7.2 Internal communication of SR results | The way the results of SR are communicated within the company. | Inductive (z.B. 2.b.c, 6, 7) | The results of the SR are tailored to the target group and communicated via LinkedIn, as many employees use this platform. | |
| Category | Sub-category | Definition | | Anchor examples | Coding rules |
| 8. Organizational changes | 8.1 Organizational and interconnectivity | The impact SR has on the structure of the organization and how it creates connections between individual departments. | Inductive (z.B. 2.b.c, 6, 7) | Due to the interdisciplinary nature of SR, a network with members from all relevant departments and countries has been established to address the creation of SR. | |
| Category | Sub-category | Definition | | Anchor examples | Coding rules |
| 9. Challenges | 9.1 All disadvantages | All mentioned disadvantages that are related to SR implementation | 7. | All of this involves a tremendous amount of extra work! | |
| | 9.2 Uncertainty as challenge | Statements where participants have identified uncertainty in sustainability reporting practice as a challenge | induktiv (z.B. 2.b.c, 6, 7) | EFRAG's many adjustments to the CSRD, some of which are arbitrary, make future tasks difficult to assess and pose a challenge to us | |

Appendix E: Overview of Active and Pragmatic Approaches

Overview of the codes “3.1 active approach” and “3.2 pragmatism” for each company.

| IP | Citation# | Active approach Information | Citation# | Pragmatism Information |
|----|-----------|--|-----------|--|
| 1 | 13, 14 | In the fashion industry, many audits that cover CSRD requirements are already good practice. | 7, 34 | Focus in the beginning is compliance, fast results are needed to show to management that implementation is progressing. |
| 3 | 16 | Additional standards (like ISO 50001) are introduced. This helps for stakeholder opinion and ESG ranking. | 12 | No new SR Software is needed, existant tools like excel and finance tools are sufficient for compliance. |
| 4 | 4 | Started with sustainability reporting long before they are mandated to do so, following a voluntary standard. | 16 | Sustainability staff kept as lean as possible. |
| | 10 | They are collecting more information than it is obliged by the voluntary standard. | 18 | No structured communication of findings to management besides the report but direct meetings if necessary. |
| | 39 | Company hosts a stakeholder dialog day for materiality assessment purposes. They engage in in-depth dialog over disagreements. | 41 | They want to keep reporting lean and accessible, focus only on the relevant information. |
| 5 | 19, 20 | Many German companies have their reports audited voluntarily to assert credibility of their efforts. | 9 | Implementation can be build on existing processes of finance department. |
| | 21 | Companies that have engaged in voluntary standards are now more prepared for compliance. | 17 | Focus in the beginning is a gap analysis, identifying missing data and processes. |
| | 23, 24 | These companies now have advantages in risk foresight and assessment. | | |
| 6 | 6 | Company gets reasonable assurance for non-financial report since 2019, high data quality is the standard. | | |
| | 9 | They strive to have "leading role" and not passively let themselves be driven by regulation. They do so out of personal commitment and communicate the results fairly because it is the right thing to do. | | |
| 8 | 6, 10 | They try to implement the relevant standards ahead of time as soon as they can. | 5 | No new hires for sustainability reporting, they try to achieve what is possible with the existing team. |
| | 8 | Everything is audited to limited assurance, some KPIs to reasonable assurance. | | |
| | 16 | A new "single point of truth" / software tool for sustainability reporting is being developed to reach higher data quality and improve steering. capabilities | | |
| 9 | 17 | Data quality is assured through internal controls and external validation in a very lengthy procees. | | |
| | 35 | Internal communication of the reporting results is very refined and adequately for the respective target audience. | | |
| 11 | 15 | Their project is to find the best digitalization tool for the organizational reporting of greenhouse gases and other environmental categories. | 15 | However, they also see it is necessary to be compatible with a variety of existing customer systems. Hence Excel is they way to go for now. |
| 12 | 5 | They are engaging in SR to be ready for compliance in 3 years but they also want to go beyond what is required because they see potential benefits. | 12 | They use existing stakeholder maps of Industry associations instead of creating their own. |
| | 20, 21 | They have variable remuneration depending on sustainability performance for all employees, leading to more sustainable investment decisions. | 8 | They try to include the additional SR related work in existing processes, for example discussing data in existing meetings as to reduce the stress on the company. |