Triple Bottom Line considerations in Venture Capital Decision-Making in Germany

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DEDICATION

This thesis is dedicated to those who have supported me throughout this journey.

To my wife, thank you for your patience and understanding during the countless hours I spent working on this project. Your encouragement kept me motivated, and I appreciate your ability to challenge me when I needed it most and for always believing in my potential.

To my daughters, I want to express my gratitude for your tolerance as I balanced my time between family and my studies. I recognise the moments we missed together, and I hope that this experience shows you the importance of hard work and dedication. Your love and support have been a constant source of strength for me.

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This work is a reflection of the support and encouragement I have received from all of you. Thank you for being part of this journey.

ABSTRACT

This research investigates the integration of the Triple Bottom Line (TBL) into strategic decision-making within the Venture Capital (VC) industry in Germany, a rapidly changing area for sustainability policy and practice. The study aims to enable German VC firms to better integrate the TBL into their strategic decision-making, particularly in fund set-up, due diligence, and public sustainability commitments, by identifying the underlying structures and mechanisms shaping sustainable practices in the industry. Objective 1 examines influences on VC funds' strategic decisions in fund set-up, focusing on incentives for sustainability-related aspects. Objective 2 evaluates sustainability due diligence methodologies, identifying factors that may influence start-up behaviour. Objective 3 analyses the prominence of TBL elements on VC websites, deducing sustainability commitments of purely financially driven, Environment, Social and Governance (ESG) focused or impact funds. Grounded on a Critical Realist philosophical foundation, this research combines qualitative and quantitative methods. Methodologically, the study innovates by applying Critical Realism to explore observable and unobservable structures affecting the VC industry. Insights were derived from 25 semi-structured interviews with senior VC participants, revealing mechanisms influencing strategic decisions. Additionally, a custom-developed tool analysed VC fund communications, generating extensive data on economic, environmental, and social themes on their websites.

The research provides practical insights for VC firms on implementing TBL aspects and promoting sustainable financial practices. For the fund set-up, 15 practical recommendations were identified, falling into the categories of change management in implementing sustainability, focusing on materiality assessments, investors driving change and monitoring regulatory changes. The evaluation of prominent ESG and Impact due diligence frameworks identifies potential gaps in comprehensiveness and offers means to identify mechanisms that may influence the start-up founders in the absence of observable structures. The transparency of website communication priorities allows VC funds to address potential gaps. No research addressing the TBL in the strategic decisions affecting fund set-up, sustainability due diligence and fund communication from a Critical Realist point of view could be identified. This study contributes to academic knowledge by addressing this gap in the literature. In addition, it introduces a valuable investigation tool for scholars to evaluate website communication. This research underscores the potential value of TBL implementation in VC and start-ups, offering a novel perspective on a rarely investigated area and contributing significantly to academic theory and management practice.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

AIF	Alternative Investment Fund
AIFM	Alternative Investment Fund Manager
BA	Business Angel
BI	Business Intelligence
CDP	Carbon Disclosure Project
CFP	Corporate Financial Performance
CLA	Convertible Loan Agreement
CR	Critical Realism / Critical Realist
CSRD	Corporate Sustainability Reporting Directive
CVC	Corporate Venture Capital
DBA	Doctor of Business Administration
DD	Due Diligence
DDQ	Due Diligence Questionnaire
DEI	Diversity, Equity, and Inclusion
DNSH	Do No Significant Harm
EIF	European Investment Fund
ESG	Environmental, Social, Governance
ESMA	European Securities and Markets Authority
ESOP	Employee Stock Option Program
EU	European Union
FDOI	Five Dimensions of Impact
FO	Family Office
FSB	Finance Stability Board
GHG	Green House Gases
GmbH	Gesellschaft mit beschränkter Haftung
GP	General Partner

GRI	Global Reporting Initiative
HNWI	High Net Worth Individual
INI	Institutional Investor
IPO	Initial Public Offering
KAGB	Kaptialgesetzbuch
KYC	Know Your Customer
LP	Limited Partner
MCDM	Multi-Criteria Decision Matrix
MVP	Minimum Viable Product
PAI	Principal Adverse Impacts
PE	Private Equity
PM	Performance Measure
PPP	People, Planet, Profit
R&D	Research & Development
REDF	Roberts Enterprise Development Fund
SASB	Sustainability Accounting Standards Board
SDG	Sustainable Development Goals
SE	Social Enterprise
SFDR	Sustainable Finance Disclosure Regulation
SRI	Socially Responsible Investment
SWF	Sovereign Wealth Fund
TBL	Triple Bottom Line
TCFD	Task Force on Climate-related Financial Disclosures
ToC	Theory of Change
VC	Venture Capital
VSOP	Virtual Stock Option Program
WTA	Webtext Analyser

In this research, the word "thesis" is used in two ways: when referring to this document as the thesis or in the context of VC firms when a thesis describes a fund's investment strategy.

1. INTRODUCTION, AIMS AND OBJECTIVES

1.1. Introduction to the chapter

"[…] success or failure on sustainability goals cannot be measured simply in terms of profit and loss. It must also be measured in terms of the well-being of billions of people and the longer-term health of our planet: the real-world positive impact." (Elkington, 2024, p. 214).

This research investigates what it would take for the financial sector, specifically the Venture Capital (VC) industry in Germany, to step up and apply the Triple Bottom Line (TBL) in their strategic decision-making.

In this chapter, the background and rationale of this research are explained. Specific focus is given to why the TBL concept as the framework for investigation was used and why it is applied to the VC industry. The rationale for setting a specific geographical focus on Germany is explored, followed by the aim and the research objectives. Critical Realism (CR) is the basis of the entire investigation and a red thread through this work; therefore, a high-level overview of the adopted philosophical stance and the applied research methodology and design are given in Sections 1.4 and 1.5, which are more detailed in Sections 4.3 – 4.5.

This research contributes to academic knowledge by addressing existing gaps in the literature, which has so far focused on the financial aspects of the TBL in VC. Furthermore, a tool to investigate website communication has been developed, which can be utilised by other academics in various fields.

In the context of management practice, the study offers valuable insights into implementing TBL aspects in fund setup, due diligence (DD) processes, and fund management. This contribution is particularly noteworthy as it provides practical guidance to financial sector professionals, promoting more sustainable and responsible financial practices.

This chapter concludes with a general overview of the structure of the rest of this document and a summary of the contents of the following chapters. The rationale for the research study will be explored in more detail in the next section.

1.2. Rationale for the research project

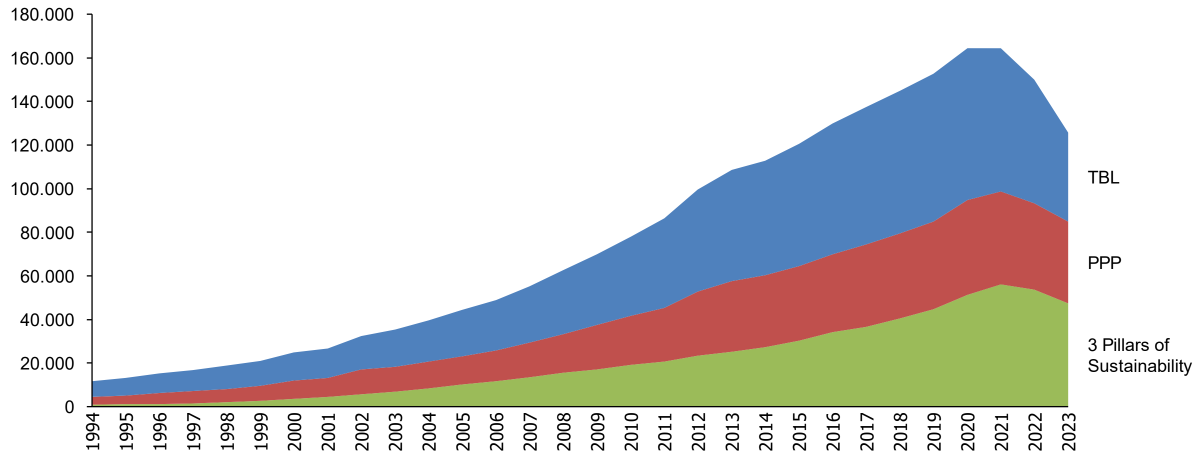
This section explores the rationale for the three elements of this research: why the TBL, why the VC industry, and why the focus on Germany.

This research was inspired by the works of John Elkington, who established the TBL concept, describing the need to balance environmental protection, social equity and economic prosperity when running a company. The core elements of the TBL were investigated and discussed before that already. The UN Report of the World Commission on Environment and Development authored by Gro Brundtland already defined the need to balance economic development, including the directions of investments, with social equity (in particular the eradication of poverty) and limitations of the biosphere (Brundtland, 1987). Over the last 20 years, the concept of the TBL has been widely applied to large companies like Novo Nordisk (Elkington, 2020). It has been incorporated into the sustainability reporting standards of organisations like the Global Reporting Initiative (*GRI - Home*, n.d.), which encourages organisations of any size to report their comprehensive performance, including their sustainability efforts, in a structured manner.

John Elkington (1999), in “Cannibals with Forks: The Triple Bottom Line of 21st Century Business”, produced the seminal work, establishing the concept of the TBL, with two publications before that (Elkington, 1994) and (Elkington, 1998) leading up to the book release.

Academic research in the TBL has steadily increased since its inception (see Figure 1.1). The number of search results for “Triple Bottom Line” (TBL), “People, Planet, Profits” (PPP) and “3 Pillars of Sustainability” increased steadily for the years from 1998 until 2018 and remained at a high level until 2021. The reduction in the number of publications since 2021 can be attributed to the effects of the COVID-19 pandemic on the academic community (Raynaud et al., 2021; Riccaboni & Verginer, 2022; Yang & Li, 2023). Interest in the subject has increased steadily since the original publications by Elkington. They are maintained at a high level, making the TBL a relevant concept to be studied further.

Figure 1.1 Historical Developments - Number of Google Scholar Search Results



*Source: (*Google Scholar*, n.d.)*

This research investigates a niche in academic knowledge in how far the German VC industry has considered and internalised the TBL. Chapter 3 (Literature Review) details the gap in the current knowledge based on this combination of TBL and VC when applied to a German context.

VC companies are part of a larger Private Equity (PE) industry and go through a process of collecting funds from investors, which are utilised to procure equity stakes in a portfolio of private companies, usually at an early stage of their development and within a specified industry or competence focus (Caselli & Negri, 2021; Metrick & Yasuda, 2021). VC companies help their portfolio investments grow through their financial contribution, through the provision of strategic advice, access to a network of relevant suppliers, customers, etc. and specific industry knowledge, with the intention of ultimately selling their share in the company with larger than average returns in an exit scenario, e.g., through an Initial Public Offering (IPO) or a sale to an established industry competitor (Caselli & Negri, 2021; Metrick & Yasuda, 2021). Through this support, start-ups that received VC funding have a higher chance of success than non-supported peers. The funds' success has historically been measured primarily by the financial returns generated for their investors but increasingly also by the impact (environmental or social) they generated, in the case of impact funds (see Chapter 2.4 for different types of funds).

This industry has been chosen, as, through its decision process for investments, it has a distinctive influence on the set-up of the start-up ecosystem in a country, which in turn is the driver for innovative solutions for the current climate crisis (Elkington, 2020). If VC companies make investment decisions based not only on economic but also on environmental and social information, more start-ups with such a focus should receive funds and non-financial support and, therefore, progress not only economic goals but also environmental and social ones. Equally, VC funds can support their start-ups in minimising their environmental footprint for the business model or improve their impact on the people affected by the business.

This research is conducted to make an active contribution to include more environmental and social aspects in the decision-making process in the VC industry in Germany. VCs historically acted as purely commercial enterprises with no specific declared social or environmental focus (Choi & Mummert, 2015). By contrast, impact investment vehicles have a declared purpose to invest in start-ups with an environmental or social mission (or both). The Global Impact Investing Network defines Impact Investments as *"[…] investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return"* (*GIIN: Impact*

Investing, n.d.). Therefore, by definition, impact investors must consider the TBL. Studies have shown that Socially Responsible Investment (SRI) can result in similar or better financial performance than traditional funds (Ambec & Lanoie, 2008). The Sustainable Finance Disclosure Regulation – SFDR (Regulation (EU) 2019/2088) of the EU has created increased transparency, forcing funds to declare their focus on pure financial gain (Article 6), a focus on ESG (Article 8) or on impact (Article 9), see Chapter 2.4 on relevant laws for further detail.

Whilst extensive research has been conducted on the TBL concepts, there is an agreed gap in the academic knowledge relating to the combination of all three aspects applied to VC or start-up environments (gaps noted, for example, by Brozovic, 2020; Cohen et al., 2008; del Brío & Junquera, 2003; Dyllick & Hockerts, 2002; Hall et al., 2010; Hockerts & Wüstenhagen, 2010). Multiple studies have identified differences in the set-up and performance of the VC industries in the US, Europe, and Germany (for example, Hege et al., 2003). Germany has a different entrepreneurial and VC setup due to a higher fear of failure than other European countries or the US (Arundale, 2018). VC investments aim for higher-than-average returns on investment but are linked with high risks of loss of the entire investment amount (Drover et al., 2017). These high risks and the higher fear of failure in Germany have led to lower VC investment levels in Germany.

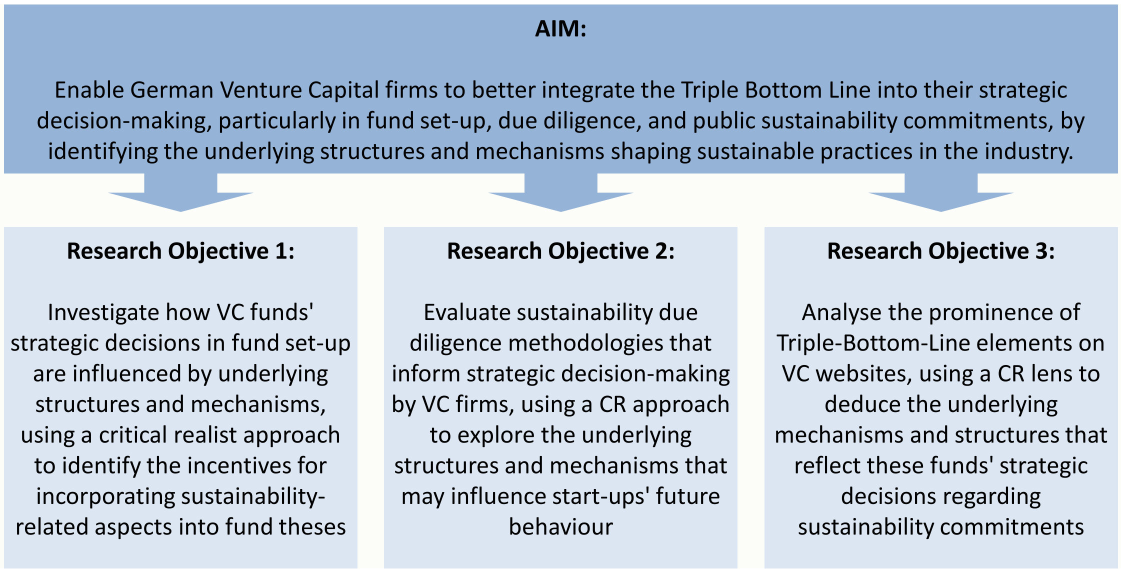
The decision to focus on Germany in this research was driven by the uniqueness of the German market and its comparative underrepresentation in academic literature. This geographical choice was deemed interesting and valuable for further exploration.

This research provides a unique insight into a gap in the academic literature by combining the three elements of the TBL, VC and Germany. In addition to the gaps in the academic knowledge and the value provided to the business community, there are also personal considerations concerning the choice of the subject focus. As a father of two young girls, the question about how this planet is treated, or rather mistreated, gained prominence in my mind. The TBL speaks to me as a management consultant through its comprehensiveness and simplicity. As a business angel investor in impact start-ups, I aim to support these founding teams to develop their firm to become interesting for VC management companies. The combination of these aspects created an interest in the German VC industry and its application of the TBL in their strategic decisions.

1.3. Research Aim and Objectives

One research aim and three objectives have been developed for this research (see Figure 1.2).

Figure 1.2 Overview of Aim and Objectives



Source: Own illustration

The literature review *(see Chapter 3)* has identified that whilst elements of the TBL are covered individually in the academic literature on the VC industry, a comprehensive evaluation of all three elements in a structured way is missing (as highlighted for example by Brozovic, 2020; Cohen et al., 2008; del Brío & Junquera, 2003; Dyllick & Hockerts, 2002; Hall et al., 2010; Hockerts & Wüstenhagen, 2010). This research has the objective of closing that gap.

> *The aim is to enable German Venture Capital firms to better integrate the Triple Bottom Line into their strategic decision-making, particularly in fund set-up, due diligence, and public sustainability commitments, by identifying the underlying structures and mechanisms shaping sustainable practices in the industry.*

It combines the abovementioned elements: TBL, VC, and a focus on Germany. It also expresses the desire to contribute to management practice and the business community by identifying structures shaping sustainable practices in the VC industry.

The three objectives are related and cover the most strategic decisions in the entire fund life cycle. The first objective focuses on the initial fund establishment, including the decisions to attract investors. This provides the foundation of any fund, as no start-up investments can be made without any investors. The second objective targets the investment decisions of VC funds and questions asked in the DD process. Once investors have been secured, these start-up investments become the foundation for wealth generation by the venture capital management companies. The first two objectives, therefore, cover the most strategic decisions in a fund's lifecycle. The third objective investigates what the fund displays in its public communication on its website, which is usually targeted towards both the investor base and future start-ups. Therefore, VC funds often describe their investment focus, thesis and strategy but also already conducted investments and the rationale behind them. The third Objective is, therefore, the outcome of the strategic decisions explored in Objectives 1 and 2.

All three objectives are explored in more detail, starting with Objective 1:

Investigate how VC funds' strategic decisions in fund set-up are influenced by underlying structures and mechanisms, using a CR approach to identify the incentives for incorporating sustainability-related aspects into fund theses.

VC funds collect investments from limited partners (LPs), which are then in turn invested into start-ups over a period of time, and profits are realised when these start-ups are sold, either through an IPO at the stock market or to strategic investors, typically larger established companies in the industry (see section 2.3). Therefore, the first step for a fund management company is to define the investment thesis, detailing the investment strategy, the team, the focus industries /sectors, the start-up stage, etc. This thesis is part of the basic information package for LPs, the investors in the fund. Through the implementation of SFDR, this information must also disclose whether the fund is purely financially driven, follows ESG risk management approaches, or has declared impact objectives (Regulation (EU) 2019/2088). As potential LPs might demand attention to ESG or impact, fund managers must decide how much their fund investments will focus on social or environmental subjects. This objective explores the underlying mechanisms and structures (Hu, 2018) when fund managers make these strategic decisions to facilitate the implementation of environmental and social aspects in establishing funds. The research utilises the McKinsey 7-S model to identify and evaluate these mechanisms in an organised way, providing a comprehensive view of an organisation by examining Shared Vision, Strategy, Structure, Systems, Staff, Skills, and Style (Peters & Waterman, 2004).

After the strategic decisions relating to setting up a VC fund, the evaluation of start-ups creates the next opportunity to incorporate the TBL on a strategic level. Objective 2 is:

Evaluate sustainability due diligence methodologies that inform strategic decision-making by VC firms, using a CR approach to explore the underlying structures and mechanisms that may influence start-ups' future behaviour.

Based on the existing literature and primary research findings, all relevant components of the DD process of VC management companies about the TBL are explained and explored with a specific focus on environmental and social aspects.

The objective aims to integrate existing academic knowledge with an understanding of the current state of implementation. Adding to this, the deeper mechanisms allowing or preventing the implementation of investment decision criteria in the DD process are explored (Hu, 2018). It is the intention that this exploration of evaluation frameworks for DDs related to ESG and impact can be widely used in the industry to bring more balance to the three bottom lines and bring more prominence to the currently underrepresented environmental and social dimensions. Implementing such a framework should also prepare VC industry participants to be more ready for legislative changes and benefit from environmental protection and social equity incentives that the European Union or the German government might implement.

Although participants in the sector might theoretically agree on the importance of all three aspects of the Triple Bottom Line (TBL) and assert their application, they may do so to potentially greenwash the perception of their operations. *"Greenwashing refers to the practice of gaining an unfair competitive advantage by marketing a financial product* *as environmentally friendly, when in fact basic environmental standards have not been met"* (Regulation (EU) 2020/852, introduction, paragraph 11).

The identification of the relative importance given to environmental and social elements, contrasted with economic aspects, intends to shed light on its application in the industry-leading to Objective 3:

Analyse the prominence of Triple-Bottom-Line elements on VC websites, using a CR lens to deduce the underlying mechanisms and structures that reflect these funds' strategic decisions regarding sustainability commitments.

Websites of VC companies are targeted at their investors, potential start-ups and the public. They not only contain generic information on the VC company itself but also highlight their declared investment focus and continuously updated snapshots of past deals. The balance in these descriptions of past deals indicates how far environmental and social aspects have been considered in investment decisions. The rationale for the investments is highlighted in these sections, so if there were a declared environmental or social focus in the evaluation of start-ups, it would be mentioned on their websites. The results of this investigation will be relevant from an academic point of view in investigating which elements have already been implemented. It will also be pertinent to the business community to establish the current position of the public image given by a VC and by comparing it with industry averages.

This research intends to identify the deeper mechanisms that lead to implementing investment decision-making criteria and the rationales that hinder such adoption.

Understanding factors that allowed the implementation of environmental and social elements in VCs' decision-making process helps identify ways to spread these elements to similar companies. Equally, the rationale for preventing the implementation of such elements might help with finding ways to overcome such hurdles.

The research is based on Critical Realist (CR) philosophical underpinnings to reach the underlying structures that prevent or support the implementation of such framework elements. This should contribute to the support available to the business community to overcome these potential obstacles when applying the TBL in this industry.

After exploring the “why” of this research (see Section 1.2) and the “what” in this section, the next section will give an overview of the “how,” explore the theoretical framework, and highlight the methodology.

1.4. Philosophical Stance

Undertaking doctoral research necessitates thoroughly exploring the researcher’s belief system, encompassing ontological, epistemological, and axiological convictions. This introspective journey profoundly influences the research process, including data collection, discerning findings, and attaining the research objectives. Examining philosophical beliefs is subjective, varying among researchers and research subjects.

This section describes the journey to identify the most suitable philosophy for this research and why others were dismissed, elucidating ontological, epistemological, and axiological dimensions. Some details of CR are already explored in this and the following section, as CR is a red line going through this entire thesis, warranting more in-depth explanations upfront.

Ontology pertains to examining the nature of reality, or to be phrased differently, how a person views reality (MacIntosh & O'Gorman, 2015), which can be objectivist or subjectivist. The objectivist approach assumes that there is an observable reality, independent from the observer, that can be evaluated, tested, or measured and where repetitive measurements, potentially done by different people, will produce the same results (MacIntosh & O'Gorman, 2015). On the other hand, the subjectivist understanding defines reality as a construct experienced by individuals and, therefore, will potentially differ between observers or over time (MacIntosh & O'Gorman, 2015).

Applied to this research, a pure objectivist approach would assume that VC funds, the start-up companies they invest in, and the corresponding strategic choices during fund set-up and in DD processes are tangible matters and can be measured, compared, and tested. A purely subjectivist viewpoint, in contrast, would imply that these companies, contracts, etc., are based on the perception of the participating individuals or, in a more extreme interpretation, figures of the imagination of the respective authors.

Epistemology studies how valid knowledge is obtained (MacIntosh & O'Gorman, 2015) and how reality can or cannot be observed. Whilst an objectivist epistemological understanding assumes that reality can be independently observed, a subjectivist approach presumes that this is impossible but that observers construct their perspectives based on the layers of reality they observe and their values and belief systems. In the context of this research, an epistemological objectivist viewpoint assumes that a researcher can identify, capture, and understand the inner workings of funds in Germany. By contrast, a subjectivist researcher assumes that findings, for example, identified in an interview process with VC industry participants, provide a viewpoint on a part of or layer of reality based on the interviewer and interviewee's beliefs and values.

Axiology is the theory about the researcher's values and beliefs and how they might influence the observed reality (Saunders et al., 2016). Do the researchers' values and ethics change the reality observed, and might they potentially influence the participants in the research? In the context of this research, the question is whether an interview with GPs about the environmental and social aspects of the strategic choices of funds would influence these GPs to change their behaviour in the future or whether it is possible not to do so.

From ontological and epistemological standpoints, five major philosophical paradigms can be inferred: Positivism, Critical Realism, Interpretivism, Postmodernism, and Pragmatism (Saunders et al., 2016). The paradigms describe different belief systems that researchers might subscribe to, and they then drive the researcher towards a particular set of methodologies and methods for generating knowledge.

At the beginning of the research journey, these five major philosophical paradigms were evaluated based on their suitability for this project. Table 1.1 provides a summary of this initial evaluation. What proved to be most valuable in this rather positivistic evaluation of different research philosophies was the immersion into the different beliefs of reality and how far they can be observed.

Table 1.1 Comparison of research philosophies

Philosophy	Summary	Applicability of Topic
Positivism	Evaluations about the finance world, including VC, lend themselves to quantitative approaches; however, such an approach might neglect the human element in investment decisions.	◕
Critical Realism	The approach allows for informed and relevant interviews with industry leaders, a mixture of quantitative methods to collect website data and qualitative methods like semi-structured interviews to generate a deeper understanding of the underlying structures.	●
Interpretivism	The inductive approach of interpretivism might not be suitable with the social and cultural environment of venture capitalists, due to their expected quantitative focus.	◔
Post Modernism	The approach would require a high level of access to one or more funds to observe social constructs and analyse any available documentation, which is not attainable.	◔
Pragmatism	Similar to CR, the approach's flexibility might provide suitable results for the business community; however, the layers of reality of CR align better with my own belief system.	◑

Source: Own research

Through this reflective process, CR was identified as the chosen philosophy for this research. From a technical perspective, CR allows using mixed methods, combining the advantages of collecting quantitative data with understanding the underlying structures through qualitative evaluations.

More fundamentally, distinguishing between observable phenomena and underlying unobservable structures resonated with my own beliefs about the definition of reality. This was influenced by a career in strategy consulting and change management, where underlying structures and mechanisms must be investigated and understood to allow change to manifest. In a multitude of change management projects, the underlying structures were investigated, starting with visible documentation of strategy, organisation and committee structures or systems (both process descriptions and available IT systems) in a client organisation. This was followed by interview processes identifying the shared values (or lack thereof), style (behavioural patterns of critical stakeholders), the organisation's core skills and the available staff.

The McKinsey 7-S Model (Peters & Waterman, 2004) or adaptations thereof (to accommodate industry or business model peculiarities) have been developed explicitly for such investigations. Its successful application in several projects reinforced the belief in multiple layers of reality and underlying structures and mechanisms that are not visible until more thoroughly investigated. The doctoral journey and its investigation of different philosophies relating to reality allowed me to connect the dots and realise my affinity to CR.

CR was, therefore, chosen as the underlying research philosophy for this work.

1.5. Theoretical Framework and Methodology

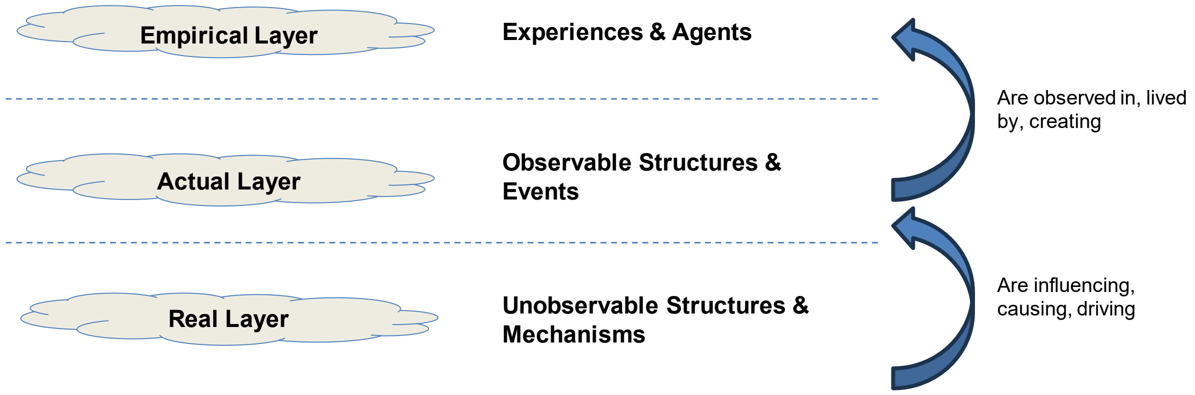
CR was developed by Roy Bhaskar in the late 20th century, stemming from the post-positivist movement (Saunders et al., 2016). As the name implies, post-positivism was developed after positivism to reflect that, in social sciences, researchers cannot ascertain knowledge of truth with absolute confidence when investigating human beings (Creswell & Creswell, 2018).

CR allows triangulating data sources through a mixed methods approach, thereby identifying mechanisms otherwise (potentially partially) unobservable (Frederiksen & Kringelum, 2021). These authors quote several studies (e.g., Armstrong, 2019 or Snell et al., 2015) that derived a deeper understanding through this triangulation approach by mixing document analysis with semi-structured interviews; a similar approach is used in this research.

Critical realists' ontological stance assumes that there are three layers of reality: the empirical layer (things that are observed), the actual layer (the sum of all possible observations), and the real layer (the underlying structure and mechanisms) (Danermark et al., 2019). Epistemologically, applying a CR philosophical stance, the perception of reality is influenced by the observer's interpretations.

Applied to this research, each start-up, VC company, contract, website, etc., can be individually observed in the empirical layer. The extant literature could be considered a proxy that portrays an incomplete picture of the actual layer by collecting data and observations of multiple deals, set-ups, utilised tools, etc. The real layer provides frameworks and theories on how these interactions between start-ups and VC companies are assumed to be constructed, including their underlying mechanisms. This 3-layer structure affects how this research is conducted (see Figure 1.3).

Figure 1.3 - Overview 3 Layers of Reality



Source: based on Easton, 2010; Hu, 2018; Hu et al., 2020; Kempster & Parry, 2011; Martin & Wilson, 2016; Saunders et al., 2016; Wynn & Williams, 2012

The underlying structures and mechanisms that lead to the implementation of TBL-related aspects in the fund set-up and later fund management activities are explored, recognising the transient nature of this research. The website analysis of each VC company below provides a puzzle piece of the empirical layer. The overview of all the websites completes a picture of the actual layer. Influenced by Danermark et al. (2019) works, the research explores the real layer through both abductive and retroductive methods. The pluralist interpretation of research methodologies allows a deeper understanding of the German VC investment decision-making process, as quantitative and qualitative data can be utilised, generating a richer, thicker and more explanatory research result (Edwards et al., 2014). Research design using CR underpinnings can be considered intensive, looking for mechanisms on how and why they operate or extensive, describing the context of mechanisms at work (Ackroyd & Karlsson, 2014), or it could apply a combination of intensive and extensive methods (Danermark et al., 2019).

The objectives of this research cover both approaches, with the first objective to understand enabling and preventing factors for some elements of the TBL and the underlying mechanism for their implementation, which is intensive. The second objective is both extensive and intensive as, on the one hand, it identifies those questions that are currently asked in an investment appraisal / DD process, which is extensive. In addition, the mechanisms and structures of how funds manage this process and why certain aspects are included were explored through the interviewing process. The third objective, aiming to identify public communication in VC companies in Germany related to the TBL, is extensive.

Danermark et al.'s (2019) 5-stage approach provided the initial structure (see Section 4.2), allowing for the combination of intensive and extensive qualitative and quantitative investigations. While the research followed these five stages in spirit, CR research is often iterative, and the different stages could be revisited multiple times (Edwards et al., 2014). The five stages were not executed strictly linearly and sequentially. However, they were taken as an intellectual guideline, moving more fluidly between them, depending on the research's specifics, as Danermark et al. (2019) intended.

Critical realists often use either abductive or retroductive logic to explore the data identified. An abductive approach in this context uses the collected data from the research to derive generalisations and re-contextualise the VC decision-making process. A retroductive approach, on the other hand, would go further to explore the world's underlying functioning, often over time, by breaking data down into entities, mechanisms, and structures. (Edwards et al., 2014). It aims to understand why VC companies make strategic decisions and why shifts towards more environmental and potentially social aspects occur. Applying the 5-stage process defined by Danermark et al. (2019), this research used both an abductive and a retroductive approach.

Table 1.2 provides an overview of the five stages and how they were applied in this research.

Table 1.2 Overview of Application of Five Stage Process

Stage	Generic application	Application in this research	Chapter(s)
1. Description	Description of the concrete situations that are to be studied and explained.	Description of the rationale for the research project, including its aim and objectives	1
2. Analytical resolution	Dissolution of the complex by distinguishing various components, focus on certain components.	Description of the VC ecosystem including the start-up business model, relevant laws and regulations and the VC lifecycle. Definition of focus areas for research, e.g., geographical focus; focus on the most strategic decisions	2 & 3
3. Abduction / theoretical redescription	Interpretation and redescription of the components by applying theoretical interpretative frameworks.	Application of the McKinsey 7-S model, TBL (frameworks) in analysing the strategic decisions taken by VC fund managers	3 & 4
4. Retroduction	Application of the previously defined methodological strategies.	Data collection through academic and professional literature, interviews and website analysis	5 -7
5. Contextualization	Investigation of the relationships between various structures and casual mechanisms identified.	Interpretation of findings for objectives 1-3, including identification of propositions to management practice	5-8

Source: Danermark et al., 2019, Own research

As mentioned above, the five stages were not followed strictly linearly and chronologically but iteratively. For example, the focus on Germany was defined already at the outset of the research; it was circled back to when exploring the literature on VC and TBL in Germany, confirming the gap in academic knowledge. These five stages are explored in the following for simplicity in a linear and sequential order.

In the first stage, the **description** stage, the rationale for the research and the resulting aim and objectives were defined. This included the initial focus on Germany, the TBL, and CR as a philosophical framework. This description was reevaluated or validated throughout the following stages based on additional learnings and findings. This description phase is intended to establish a detailed understanding of the VC and TBL research subject, including the various components influenced by the underlying structures and mechanisms. These structures and mechanisms influence the VC management's strategic decisions.

In stage 2, **analytical resolution**, the VC ecosystem and its components were explored, including the associated start-up business model and the key participants in a VC fund lifecycle. The various components of the research were described and defined, including VC and start-up companies, different stages of investments, the overall investment process from due diligence through the holding stage, and the portfolio support provided until an exit is achieved. The focus was the identification of existing structures and mechanisms driving the industry, including legal frameworks like SFDR.

In addition, the concepts of the TBL and their application in the VC industry were explored and defined. The extant literature identified and analysed applications of parts of the TBL in the VC context in its individual pieces or comprehensively in different industries and geographies using a variety of approaches in the research (e.g., Brozovic, 2020; Cohen et al., 2008; del Brío & Junquera, 2003; Dyllick & Hockerts, 2002; Hall et al., 2010; Hockerts & Wüstenhagen, 2010) This understanding was separated into its components, and the research focus was narrowed down (Danermark et al., 2019).

The identified components of the study were crystallised by confirming the geographical focus on Germany, the investing companies to VC only (i.e., excluding BA, CVCs, and others) and by focusing on the most strategic decisions taken by GPs. Having originally intended to focus on the German ecosystem, this focus was confirmed throughout the literature review, highlighting a gap in academic knowledge for this sector and geography. As elaborated on in Chapter 2, the German VC industry has observed significant growth rates from the point of view of fundraising of VC funds and investments, making this an interesting geography to explore.

From the analysis of the start-up ecosystem of the various investors contributing to this business model, VCs were identified as the ones that both have a professional approach to the investments (as opposed to BA) and have the strategy of value maximisation of the investments themselves (as opposed to CVCs or industrial investors, who also might have incentives to complement their core products/services).

The initial fund set-up and the DD processes were prioritised from the VC lifecycle, as these are the most strategic decisions of the VC management. The first aspect provides the fund's focus and whether its investment thesis comprises purely financial components or considers environmental or social themes. This influences how the fund is marketed to LPs, including the target audience of the LPs and, ultimately, the fundraising success.

Investment decisions by VC companies are based on a multitude of different criteria, some tangible and observable (e.g., sales forecasts, market share potential) and some intangible or harder to quantify (e.g., skills available in the team), which are based on the decision makers' subjective preferences (Govindan et al., 2013). Investing in a start-up is equally a strategic decision, as each start-up should have the potential to provide the financial returns for the entire financial product.

The portfolio management aspects during the holding period were reviewed as the choice of support offered also has resource implications for a fund management team, making this a strategic choice.

To investigate these identified and prioritised aspects, in the **abduction / theoretical redescription stage,** frameworks are identified as most suitable for the analysis. The components are analysed using the McKinsey 7-S Model (see Figure 1.4) to normalise these findings and derive a comprehensive picture (Peters & Waterman, 2004).

Figure 1.4 Application of the McKinsey 7-S Framework

Dimension	Definition
Strategy	The alignment of an enterprise's actions to achieve competitive advantage by responding to or anticipating external changes.
Structure (Organisational)	The division of tasks, distribution of authority, grouping of activities and reporting relationships, and methods for coordinating organisational activities.
Systems	The formal and informal procedures used to manage the organisation, including control systems, performance measurement, planning, budgeting, resource allocation, and information systems.
Shared Values	The core set of principles and beliefs widely shared within the organisation, expressed through vision, mission statements, and guiding tenets that direct employee behaviour and provide a sense of purpose.
Skills	The distinctive organisational strengths and capabilities in areas such as personnel, management practices, processes, systems, technology, and customer relationships providing a competitive edge.
Staff	The organisation's human resources - their skills, backgrounds, and how they are recruited, trained, socialised, and promoted.
Styles	The leadership approach that shapes the organisational culture and values, as well as the conscious and unconscious actions, symbols, and norms exhibited by leaders that influence the organisation's public image and standing.

Source: Kaplan, 2005; Peters & Waterman, 2004

The 7-S model was deemed suitable for this research as it provides a framework to evaluate a company's structures (in the CR sense). It reviews hard, visible, and often documented aspects, such as structure (as in organisation structure or definition of roles), strategy, and systems, but also softer not documented aspects, such as shared values, staff, skills, and styles, thereby comprehensively exploring all underlying structures and mechanisms in the CR sense (see Table 1.3).

Table 1.3 Review of the Suitability of Evaluation Frameworks

Framework	Pros	Cons
McKinsey 7-S Model	• Considers both hard (strategy, structure, systems) and soft elements (shared values, skills, staff, style), providing a holistic view of the organisation • Highlights the interconnectedness of the seven elements and the importance of aligning them. • Emphasis on shared values, skills, and style can help uncover underlying cultural and behavioural structures that shape the VC fund's operations and decision-making processes	• Primarily focuses on internal organisational elements • May not capture the dynamic nature of organisational change and evolution • Requires significant involvement and commitment from senior management
Balanced Scorecard	• Aligns organisational activities with strategic goals across multiple perspectives (financial, customer, internal processes, learning and growth) • Provides a balanced view of performance by considering both financial and non-financial measures	• Data availability and quality of data may limit the ability to uncover underlying structures and mechanisms • Focus on internal processes may overlook external structures and mechanisms that influence VC funds. • Challenge to identify overall drivers for the VC industry
SWOT Analysis	• Analysis can help identify both internal and external structures and mechanisms that influence the VC funds • Can reveal mechanisms that enable or constrain the VC fund's strategic decision-making	• Subjective and qualitative nature of the SWOT analysis may make it challenging to identify the underlying structures and mechanisms. • May oversimplify complex situations, potentially overlooking important structures and mechanisms that influence the VC fund's performance • Challenge to identify overall drivers for the VC industry
PESTLE Analysis	• Can help identify underlying structures and mechanisms in the external environment that shape a VC fund's operations and investment decisions • By identifying potential opportunities and threats, the analysis can reveal mechanisms that enable or constrain a VC fund's success	• Focus on external factors may overlook internal structures and mechanisms that influence the VC fund's performance. • Interpretation of external factors and their potential impact may be subjective, making it challenging to identify the underlying structures and mechanisms • Challenge to identify overall drivers for the VC industry

Source: Bismark et al., 2018; Kaplan, 2005, Peters & Waterman, 2004; Thapliyal et al., 2021; Own research

Frameworks such as the Balanced Scorecard, SWOT, and PESTLE could be applied in settings where one fund was evaluated in a case study. However, they were deemed less applicable in the context of multiple funds, identifying CR structures and mechanisms for an industry.

The concept of emergence postulates that the properties of the overall framework will be larger than the sum of its parts (Edwards et al., 2014). By comprehensively pulling together the seven dimensions and the TBL, this research brings about a deeper understanding of all components in the strategic decision-making process of German VCs.

The frameworks described above were applied to the data collection in the fourth stage, **Retroduction**.

In addition to classifying CR research as intensive or extensive, the level of detachment or involvement of the researcher from their research subject can guide appropriate data collection tools. It is understood that to deepen the understanding, CR researchers would assume some level of involvement in the research subject (Ackroyd & Karlsson, 2014). Depending on the level of involvement or detachment and whether the research is intensive or extensive, Ackroyd and Karlsson (2014) suggest different research designs, ranging from detailed, in-depth case studies (intensive and detached) to extensive realist evaluations (extensive and engaged).

Having provided this framework of the most suitable data collection tools, depending on the research design, Ackroyd & Karlsson (2014, p.22) also argue that

> *"successful research depends on intellectual creativity, not on following methodological rules".*

This research applied a mix of methods ranging from intensive and engaged semi-structured interviews to extensive and detached website analysis, providing a wealth of data and findings linked to the frameworks identified in the previous stage. These findings are analysed based on CR's three layers, identifying experiences and events, observable structures, and, ultimately, underlying mechanisms and unobservable structures influencing the German VC industry.

In the last stage, **contextualisation**, the findings from the previous phases were reviewed, moving from the abstract to the concrete. Recommendations for management practice were developed based on the mechanisms and structures (see Chapters 5, 6, 7 and 8) discussed for each research objective linked to the investigation frameworks. Initially identified for each of the elements of the 7-S model and identified themes, these concrete recommendations were reviewed and discussed, linked to the aim and objectives in the overall conclusion of the research.

This represents a partially integrated (concurrent) embedded mixed methods approach, as quantitative and qualitative methods are alternated (Saunders et al., 2016). The extensive nature of the website analysis and the intensive interview process provided the fit-for-purpose data gathering in this research project (Hurrell, 2014).

This research is explanatory in nature. It aims to assess how far TBL considerations are employed by VC companies in Germany and gauge why some elements were adopted and others not.

The next section explains the boundaries identified at the beginning of this research journey, which were identified to provide additional focus to the study.

1.6. Boundaries

CR's philosophical understanding postulates that no research can comprehensively evaluate all aspects of any phenomenon (Danermark et al., 2019). This doctoral research has also defined several boundaries relating to geography, the types of funds, the targeted interview partners, the focus within the TBL, and the stages in fund operations.

The study concentrates geographically on Germany due to its exposure to the Sustainable Finance Disclosure Regulation (SFDR) and its well-established VC ecosystem (see Section 2.5). Other countries were excluded to ensure sufficient depth and clarity in the interview findings. The investigation targets VC funds, intentionally omitting private equity (PE) funds and other financial products. Although PE funds operate similarly (see Section 2.3), they primarily invest in larger, potentially long-established companies. In contrast, VC firms focus on start-ups, engaging in smaller investment amounts and more frequent transactions. Consequently, VC firms conduct a greater number of due diligence (DD) processes, which is linked to one of the objectives of this study. The research examines the strategic decisions of VC funds during the fund setup phase and subsequent DD activities, identifying senior leadership within these funds as the most appropriate interview subjects. ESG professionals were also included in the interviewee pool due to their involvement in sustainability-related decisions. Other team members within the funds were not prioritised. The study emphasises the environmental and social dimensions of the TBL, while the economic aspects, though not entirely disregarded, were not a primary focus. The closure of the fund and fund administrative tasks, such as accounting and personnel management, were excluded from the study as these will be applicable independently of the strategic decisions taken in the fund set-up or DD phase.

It was a conscious choice to take an extensive approach to the website analysis, covering the websites of all funds in Germany. This was decided to be able to provide an industry comparison for participating interviewees. However, it did not allow for an in-depth analysis of the language used on the websites, particularly in combination with other elements such as imagery or the combination with other communication channels such as LinkedIn. Case studies of a few funds, both from the website point of view and in combination with more interviews, could add additional viewpoints.

The development of a comprehensive DD framework combined the questions of available academic and industry literature with interviews of participants using tools available in the market for environmental and socially focused industry specifics. These frameworks allow applicability across various industries and phases. However, additional work could be done to dive deeper into specific sectors or phases to further drive the standardisation of in particular impact DDs.

1.7. Structure of the Thesis

Following this introduction and exploration of the foundation, aim, and objectives, some background is provided to the German VC industry. Chapter 2 on the German VC environment explains the start-up and VC value chains and observable structures affecting these to provide context for the subsequent chapters. The Chapter provides background on the VC environment in Germany, offering a foundational understanding of the start-up and VC value chains, lifecycles, and pertinent laws and regulations.

In Chapter 3, the extant literature on VC and the TBL in general and each of the three elements (environment protection, social equity, economic prosperity) are explored, also in the context of the McKinsey 7-S model (Peters & Waterman, 2004), leading to the identification of the gap in the current research on this topic.

The research design for the three objectives is explored in detail, highlighting the rationale behind methodological choices in Chapter 4. CR allows for mixed method investigations, which are also applied in this research, combining literature review, computer-aided text analysis, and interviews to derive the results and identify deeper mechanisms for the functioning of the VC industry. As mentioned before, CR was the foundation of this research, which was already applied during the literature review in Chapter 3.

Chapters 5 to 7 display the findings for the three objectives and the discussion thereof. For the sake of the flow of the document, it was decided to discuss the findings for each identified theme directly rather than in a separate discussion chapter. These discussions also identify recommendations for management practice, where appropriate.

In Chapter 8, the conclusion, the additions to academic knowledge and management practice are explored, and further research is identified.

2. THE VENTURE CAPITAL ENVIRONMENT IN GERMANY

2.1. Introduction to the Chapter

The previous chapter provided the rationale for the research project and described the aim and objectives. In line with Danermark et al. (2019), this chapter will provide the description and an initial step of the analytical resolution for this research, explaining why a focus was given on VC and why the fund set-up, DD, and communication on websites were chosen (analytical resolution).

First, an overview of the value chain and other relevant actors in this field, including the investment targets (e.g., start-up companies), early investors (e.g., Business Angels) and investors in VC funds (LPs), are explored. This provides the required background and foundational knowledge to the research. Following this, key developments in the applicable regulations and laws, particularly about the Sustainable Finance Disclosure Regulation (SFDR) of the European Union (Regulation (EU) 2019/2088), and their implications are described.

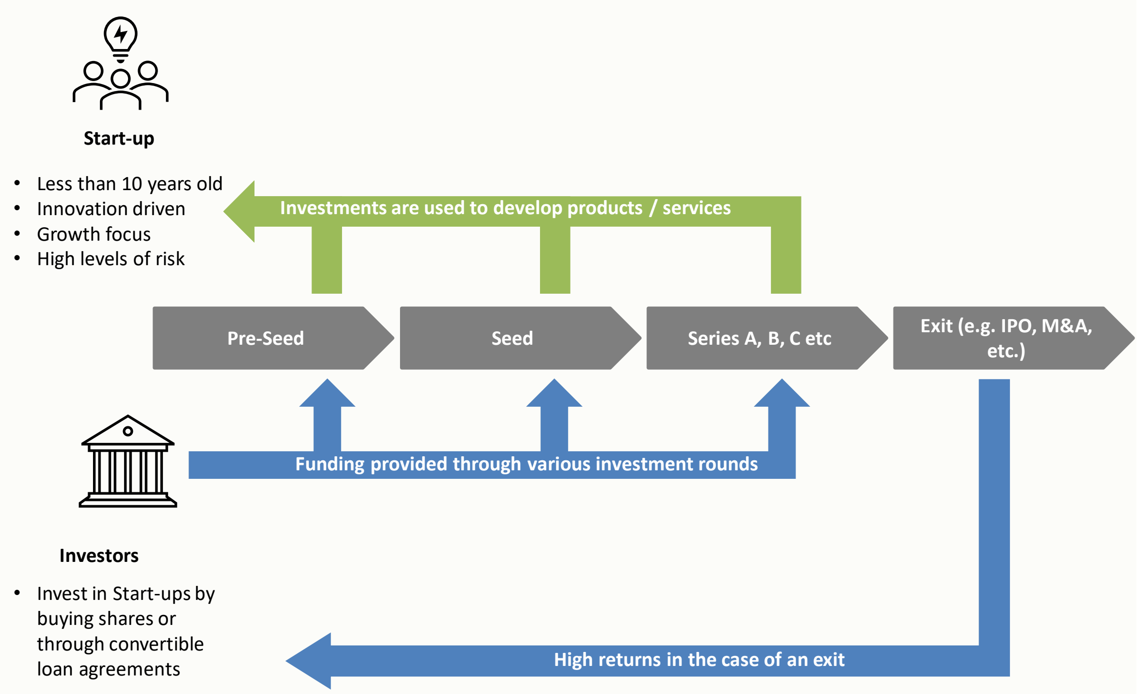
With a usual investment cycle of 3-4 years for VC funds, followed by a holding period of another 7-9 years, new funds are established every year, making identifying all market players challenging. The approach to establishing a full list of currently active funds is explored in the latter part of this chapter, as no full list of VC funds was readily available. This builds the foundation for this research, which evaluates VC fund websites and identifies potential interview partners for which this list was utilised.

2.2. Background on the start-up value chain

VC is part of a larger system that provides financial resources for start-ups to grow. To provide some background, the value chain of start-up companies is explored first, highlighting the various players, including the start-ups themselves, business angels (BA), VCs, and industrial investors.

Ehsan (2021) highlights various definitions of a start-up company, most linking to the time of existence but also incorporating a focus on innovation, expected high growth, and associated high risks due to the high level of innovation. The timeframes of what is still considered a start-up vary by location; for example, in the EU (except Italy), a company must be younger than ten years to be considered a start-up. Innovation differentiates a start-up from a regular small and medium business, as start-ups are expected to develop new services or products, often to disrupt existing markets or business models with newer solutions. The start-ups are often launched with little more than an idea and a team and go through the stages described in Figure 2.1 from pre-seed, seed, followed by series A, B, C, etc. Each stage is associated with a financing round, and start-ups initially use the money from investors to develop a minimum viable product (MVP) and access the market. Subsequent rounds are usually linked to growth (e.g., number of customers/users) or profitability targets. Especially in the early stages, profitability is not necessarily expected, but a path to profitability is exceedingly required in later stages. These high levels of innovation also lead to high risk, as not all innovations are expected to be successful (Ehsan, 2021).

Figure 2.1 Overview of Start-up Value Chain



Source: Simplified illustrative based on Ehsan, 2021

Successful start-ups are expected to grow at high, potentially exponential rates, making them interesting for financial investors like BA and VCs. By reaching the product development, growth, or profitability expectations of each of the above-described stages (pre-seed, seed, etc.), the valuation of the start-up and how much the company is worth at that point is also expected to increase accordingly in each financing round. For each financing round, the start-ups either create additional company shares, which the investors then purchase, or convertible loan agreements (CLA) are released. CLAs are loans which are converted into shares at a specified later financing round.

The ecosystem has three types of investors: BA, VC funds and industrial investors. BAs are private individuals who invest their own money into start-ups, usually at the very early stages (pre-seed or even just after the company's establishment). They often comprise experienced businesspeople with either relevant industry knowledge or who might have successfully established a start-up, which they exited (Kerr et al., 2014). They provide the start-up with the first funding to establish the MVP and, through their support, help it grow and become an interesting investment target for VC funds. They realise their returns either through secondaries (they sell their shares in later rounds to other investors) or they maintain their shares until an exit (the start-up is sold to another company or is undergoing an IPO).

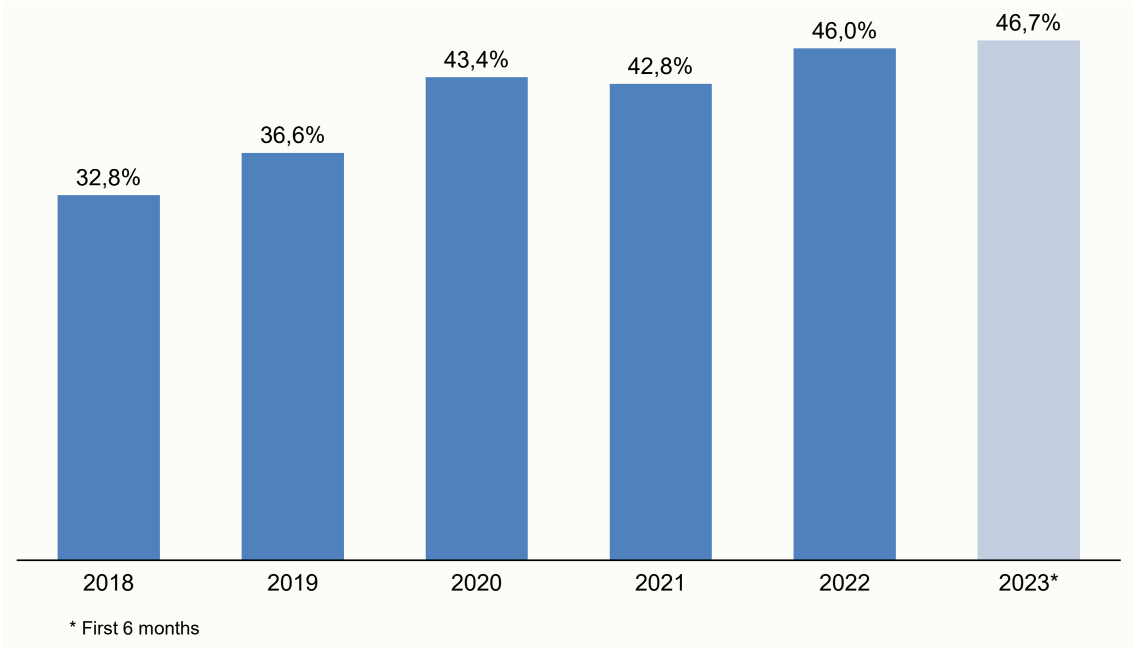
VC funds are professional investors who collect financing from LPs and manage the process of sourcing, choosing, supporting, and ultimately exiting from start-ups. The VC value chain will be explored in more detail in the subsequent chapter.

The third category of investors is industrial investors, who complement their in-house research and development (R&D) activities by investing in start-ups relevant to their business model. Typically, these investors join later in the start-up lifecycle, when the product and business model have already been proven, and then fully take over the company, leading to an exit.

In line with stage 2 (analytical resolution) of the 5-stage model for CR research by Danermark et al. (2019), the focus is on VC investors rather than BA or industrial investors. BA were excluded as they invest lower amounts into start-ups and, therefore, have less of a lever on the start-up’s attitude towards environmental or social aspects. In addition, investments are not part of the core business of BA; they usually manage their own companies or have senior posts in larger corporations. The underlying mechanisms driving behaviours will likely be less homogeneous than with VC participants. Industrial investors were excluded, as these follow the corporate strategic direction, conducting investments to complement or develop the existing business model rather than to conduct investments for a direct financial, environmental, or social gain.

The above background on the start-up ecosystem is useful as it provides insight into the mechanisms in the form of incentives for the players in the industry. Start-ups, through their high levels of innovation, are not immediately striving for profitability but for the acquisition of investors who allow them to develop their product, service or business model and allow for rapid expansion. The incentive for all players is not the long-term success of the start-up but the successful completion of the next financing round, leading to an exit. Arguably, it is counterintuitive how such a value chain can fit into the theory of the TBL, which is geared towards sustainability of economic, environmental, and social aspects. A mechanism driving industry participants towards ever-increasing economic valuations might reduce the agents' focus on environmental and social aspects. However, there is a shift in the market. More and more start-ups are focused on environmental or social impact or considering ESG aspects in their business model and receiving funding for it (see Figure 2.2).

Figure 2.2 Percentage of German Start-ups counting themselves to the Green Economy.



Source: Kollmann et al., 2023

The percentage of start-ups considering themselves part of the green economy has steadily increased, reaching 46.7% in the first six months of 2023 (Kollmann et al., 2023).

In the next chapter, the value chain of VC funds is explored in more detail, again providing background to the structures prevalent in the industry.

2.3. Venture Capital Value Chain

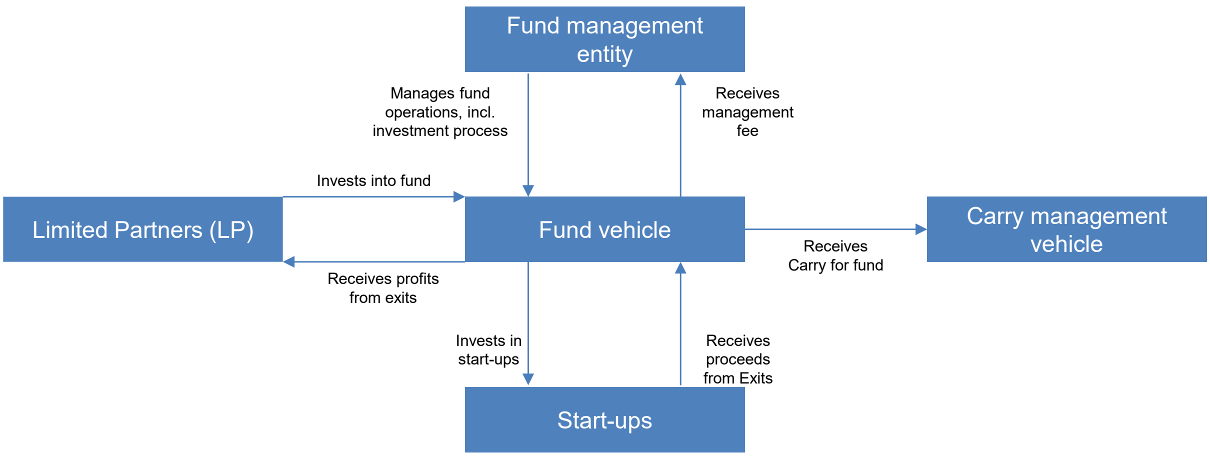
Having explored the underlying start-up value chain, section 2.3 investigates the lifecycle of VC funds from inception to closure. To start, the various entities involved in VC are explained, followed by a step-by-step description of the fund's lifecycle. This provides the background of existing structures in such funds, giving context to the prevalent mechanisms driving decision-making, as investigated in this research.

Figure 2.3 gives an overview of the different entities directly active in the VC lifecycle. In addition to the ones mentioned, a wide range of legal advisors or subject matter experts advise fund management entities on their operations.

It should also be noted that these entities can be structured using different legal vehicles, like GmbH (Gesellschaft mit beschränkter Haftung—limited liability company) or GmbH & Co KG (limited liability company & limited partnership) or other legal vehicles. This research investigates the CR structures and mechanisms that drive the behaviours of the industry participants.

Ultimately, investors invest in funds, which in turn invest in start-ups. Figure 2.3 describes this basic principle in more detail. The left of the illustration shows the limited partners (LP) who invest in VC funds.

Figure 2.3 Overview of Key Entities Involved in Venture Capital

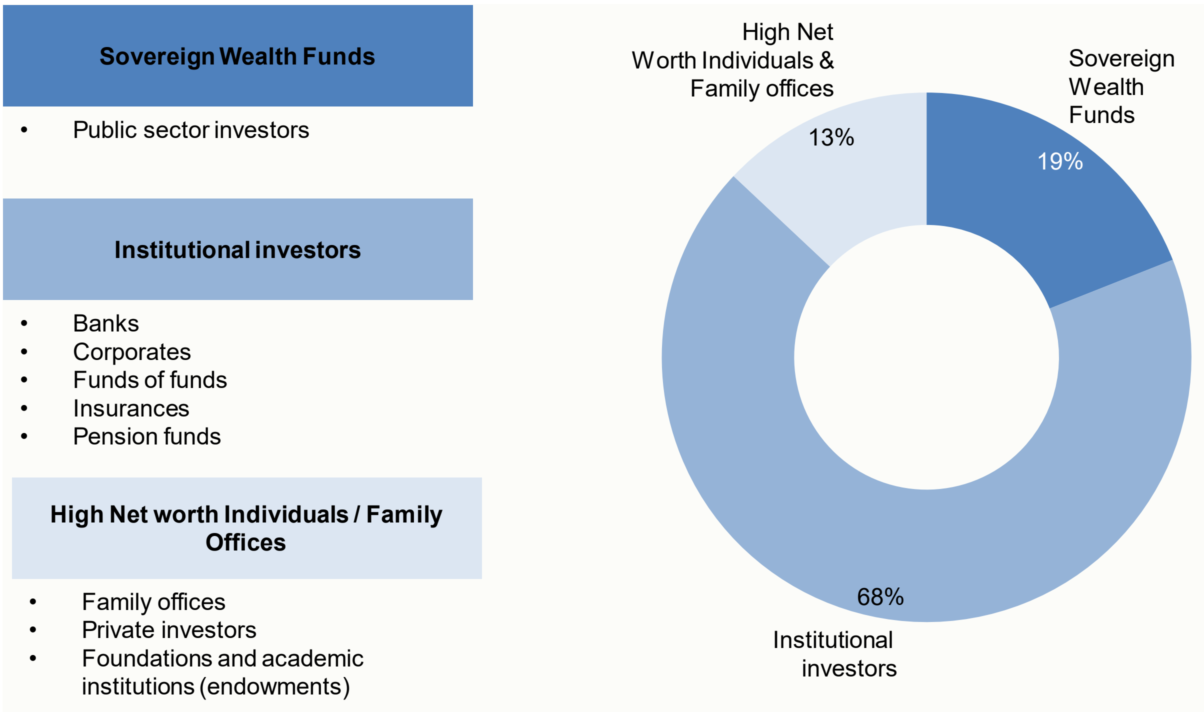


Source: adapted from Hockerts et al., 2022; Own research

There are three main types of investors (LPs) in VC (see Figure 2.4):

- *Sovereign Wealth Funds (e.g., KFW Capital, European Investment Fund – EIF): entities managing direct or indirect public money, often with a specific geographical focus.*
- *Institutional investors (e.g., insurance companies, banks, corporate investors): entities investing on behalf of other private/retail investors.*
- *High Net Worth Individuals / Family Offices: private investors investing their own personal wealth.*

Figure 2.4 Types of Limited Partners and Fund Allocation (2022 in %)



Source: Adapted from Dahmann, 2023

Sovereign Wealth Funds (SWF) comprised 19% of the funds raised in 2022. However, the number of such investors is limited, resulting in comparatively high sums being invested per LP (Dahmann, 2023). The European Investment Fund (EIF) focuses on creating a sustainable VC Ecosystem in Europe to drive innovation and entrepreneurship (EIF Venture Capital, 2023). It aims to accomplish this by providing capital to private sector VC funds, which invest in high-tech small and medium enterprises. The European Investment Bank, the European Commission and national and regional authorities finance the EIF.

KFW Capital, a subsidiary of the KFW Bankengruppe, defines its goal as:

> *"to strengthen the supply of venture and growth capital for innovative technology companies in Germany: KfW Capital invests in German and European venture capital (VC) funds with the support of the ERP Special Fund and the Federal Government's Future Fund. In this way, KfW Capital indirectly improves access to growth capital through larger VC funds and strengthens Germany as a location for innovation. The VC funds in which KfW Capital invests are obliged to finance innovative technology companies in Germany with at least the capital provided by KfW Capital." (KfW Capital - Responsible Investments in VC Funds, n.d.)*

KFW Capital is one of the largest VC investors in Germany and Europe and has invested since its inception Euro 1.9 billion in over 100 funds (Habdank, 2023). State-owned banks from the 16 states in Germany are also considered part of the SWF category, as they also have regional development in their state as a remit in addition to generating financial returns.

With 68%, institutional investors (InI), a group of professional investors, provided the largest share of funding. High-net-worth individuals and Family Offices provided the remaining 13% of funds raised in Germany in 2022.

Given the high-risk asset class of VC, all three investor types expect high financial returns from their fund investments. Initially, only legally binding commitments are solicited from the LPs; financial funds are only transferred when investments are made.

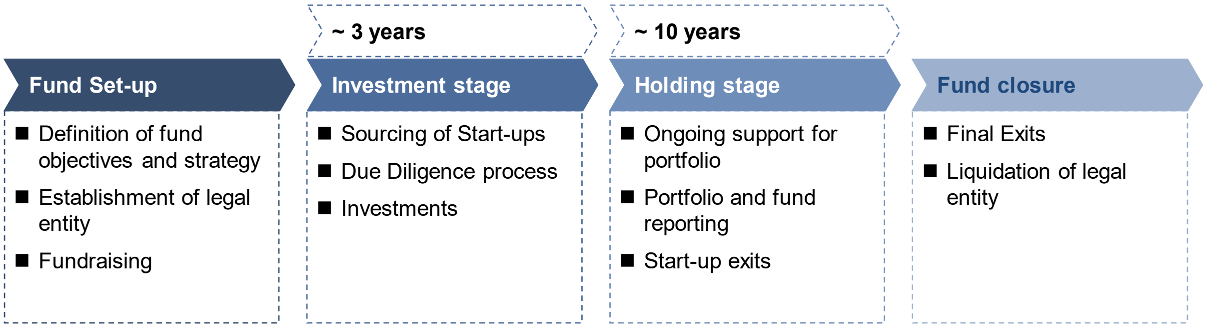
The fund vehicle in the centre of Figure 2.3 represents the legal entity of the financial product offered. As illustrated at the top, it is operated by a fund management entity. Most funds separate the financial product from the management company because a fund management team would establish multiple financial products (funds) with potentially differing investors over time.

The same fund management company then manages multiple funds in parallel, covering all aspects of the investment management process, from sourcing deals through DD to portfolio management and exits. They are remunerated through the management fee, often 2% of the annual invested sum. The fund management entity is owned and managed by General Partners (GP), employs investment managers (at different levels, from analyst to principal/partner level) and a back office of HR, finance, and IT professionals. In some cases, specialised personnel for ESG, Impact or people development are also hired by the fund management entity (Hockerts et al., 2022).

The financial product (fund) is then used to invest in start-ups, as described above in the previous chapter. Once profitable exits have been realised from these investments, the fund management team will receive a carry, a percentage of these profits, once minimum targets (financial and potentially environmental or social impact) have been reached (20% of these profits). These carry payments are paid through a separate legal entity as over several fund generations, not only the LPs will change but also potentially the management team. Therefore, the carry management vehicle is linked to the fund (financial product) (Hockerts et al., 2022).

Figure 2.5 illustrates a fund's lifecycle from original set-up to final exits and closing. In the beginning, a team of fund management professionals, comprised of GPs and potentially an initial team of investment professionals and back-office staff, define the objectives (financial and other, e.g. impact or ESG) of the fund, including the strategy to attain these objectives. They use the resulting description package, including compulsory disclosures (see Section 2.4), to approach LPs to convince them to invest in the financial product. The interviews have shown that this can be an iterative process, where feedback from the LPs is used to develop the investment thesis further. Ultimately, the fund setup and the definition of the investment thesis are strategic decisions of the GPs, who might attract different investors depending on these choices. In this stage, the legal entities described above are also created. Once sufficient commitments have been collected from the LPs, the fund is closed and will move to the investment phase. The fund may create second or third closings if additional investors are interested and the originally anticipated investment sum was not reached directly.

Figure 2.5 Overview of VC lifecycle



Source: Interviews, Own research

Following the fund set-up, during the investment stage, the fund management company invests in suitable start-ups in line with the originally defined thesis. This stage takes 3-4 years, and activities comprise deal sourcing, DD, and the investment process. Deal sourcing comprises all activities necessary to identify suitable investment targets through the network of investment professionals, conferences, accelerator programs, and internet scraping tools.

Suitable start-ups are then evaluated in the DD process against financial, legal, technical, and other criteria, covering the start-up's vision, strategy, staff, structure, etc. Given the high failure rate of start-ups of approximately 90% in the early stages of their lifespan, the DD process is considered a critical risk mitigation process, where only those start-ups with the highest risk/ return profile are taken as investments (Aminova & Marchi, 2021). Once appropriate firms have been identified, the investments are negotiated, including the company's valuation at the time of the investment and the corresponding number of shares purchased. Typically, investors (both VC funds and BA) do not participate in a financing round alone, but several investors invest in parallel. A lead investor, either with the largest share of the investment or with a specific technical knowledge of the start-up's business model or industry, heads the negotiations from the investor side. The details of the funding round are documented in a term sheet detailing all relevant aspects of the funding round, which is negotiated between the lead investor and the start-up. Most funds commit to a certain percentage of their available capital to follow on investments, adding more funding in subsequent financing rounds to the same start-up if milestones are met.

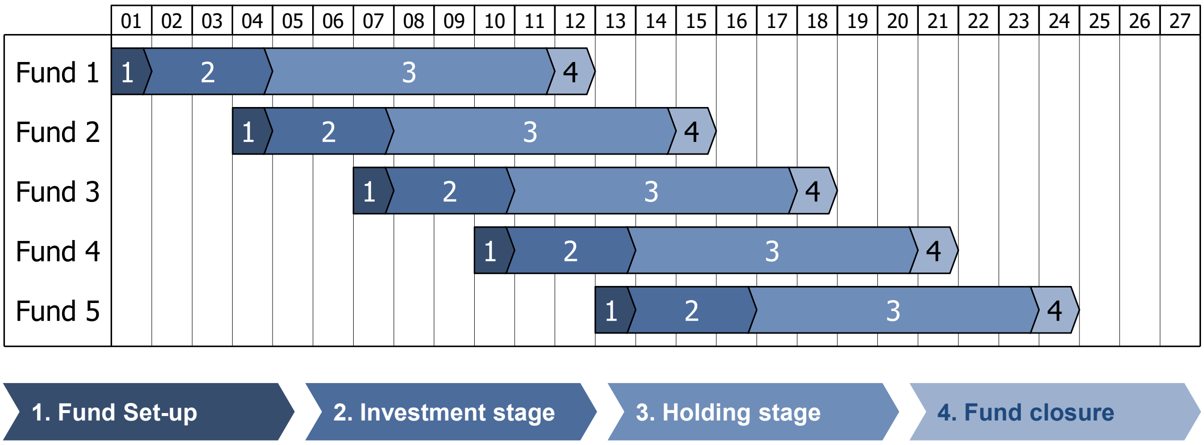
In the holding stage, the funds support their portfolio company in reaching its milestones through operational advice, access to a network of potential customers or suppliers, technical and managerial advice, etc. The overall objective of funds is to buy shareholdings at a low valuation and sell again at higher valuations. During the holding period, the fund is incentivised to support the portfolio companies in reaching their milestones from a product development, growth, and pathway towards profitability point of view.

In addition, the funds have an obligation to LP reporting on progress with the implementation of SFDR, both from a financial and environmental/social point of view, unless the fund is classified as Article 6—pure financial focus (see Section 2.4). This requires data collection, analysis, and the preparation of at least an annual report and, in most cases, quarterly updates.

The fund will exit from its start-up portfolio during the holding period (usually ten years). These could be through write-offs, as mentioned above, 90% of the start-ups are expected to fail in this timeframe (Aminova & Marchi, 2021), or through secondaries, industrial takeovers or IPOs.

Once the entire portfolio has been exited, the fund vehicle is liquidated. Successful fund managers aim to demonstrate their achievements to their LPs throughout the investment stage and then the holding period to facilitate the raising of the next fund. See Figure 2.6 for an illustration of this process over time.

Figure 2.6 Sequence of Fund Establishment



Source: Own research

If a fund can demonstrate the achievement of the set investment thesis, previous LPs will be more likely to invest again in the subsequent funds (financial products) of the same team of fund managers. Such a track record and the associated re-investments from existing LPs might also facilitate conversations with additional LPs.

After this description of the VC lifecycle, in line with the analytical resolution stage by Danermark et al. (2019), the focus was given to the initial set-up of VC funds, the DD process, and communication on the websites. The initial set-up of funds requires the most profound strategic decisions by the GPs as the investment thesis describes the direction of all investments in the lifecycle of the financial product, particularly in how far environmental and social aspects are included. The mechanisms and structures in these decision-making processes have the most fundamental influence on the behaviours of the fund management throughout the subsequent phases.

The DD process was chosen because strategic investment decisions are made at this stage. In this stage, the additional focus on the environmental and social bottom lines (combined with the prevalent economic focus) decides which business models (e.g., start-ups) will get support from the VC ecosystem and, therefore, have a higher chance of survival.

Finally, the communication on the websites was chosen as a point of investigation as this is the medium that links to both current and future LPs and new start-ups about the strategic direction of the fund.

In the next section, relevant laws will be explored, particularly the EU SFDR (Regulation (EU) 2019/2088), given its relevance to the TBL in VC in Germany.

2.4. Introduction to pertinent legal and regulatory frameworks

Within the VC industry in Germany, a comprehensive framework of laws and regulations governs the operations of such entities. These legal provisions are derived from national, and European Union (EU) sources transposed into national law. This regulatory landscape encompasses a spectrum of statutes, encompassing conventional corporate law for establishing and managing legal entities, tax laws, and specialised legislation governing Alternative Investment Funds (AIFs) (Directive 2011/61/EU, 2011).

A VC management entity must register or obtain written permission from the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht—BaFin) (*Bundesportal | Apply for a Licence to Operate a Capital Management Company*, n.d.).

The relevant category of fund for VC is AIF; other fund types could focus, for example, on the management of a stock market-traded portfolio or others. To obtain permission, capital management companies must meet specific capital requirements, which vary depending on their structure (at least Euro 300,000 or Euro 125,000 in initial capital), demonstrate appropriate organisational structures, and have reliable and professionally qualified management. BaFin monitors the market behaviour of these companies based on the German Capital Investment Code (Kapitalanlagegesetzbuch - KAGB), which pertains to market supervision.

VC funds are part of a sub-category of AIFs, Special AIFs, whose shares can only be acquired by professional and semi-professional investors. Under certain conditions, AIF capital management companies may register with BaFin instead of obtaining permission. Registration suffices if they meet criteria related to the assets under management, leverage, and investor redemption rights. VC funds are typically closed, indicating investors cannot redeem shares or units before the fund's liquidation.

Whilst these regulations and laws all form part of the VC industry's underlying structure, it is noteworthy that they remain impartial concerning the TBL. That is, they do not inherently advocate for social or environmental objectives. Although environmental laws, such as those addressing pollution and social laws concerning labour rights, exist, they are not specifically tailored for the financial sector.

The SFDR has been instituted to mitigate greenwashing in financial products, encompassing venture capital funds. It is building a legal structure that VC managers are obliged to follow in defining their financial products (funds) (Regulation (EU) 2019/2088). SFDR applies to all financial market participants, including VC funds, active in the EU, with shareholders from EU states or based in the EU. It was established in 2019 and started applying in 2021 with the aim *"to reduce information asymmetries in principal-agent relationships about the integration of sustainability risks, the consideration of adverse sustainability impacts, the promotion of environmental or social characteristics, and sustainable investment, by requiring financial market participants and financial advisers to make pre-contractual and ongoing disclosures to end investors when they act as agents of those end investors (principals)."* (Regulation (EU) 2019/2088, introductory comments, paragraph 10).

It applies directly to VC as it targets financial market participants, including alternative investment fund managers (AIFM), the legal classification of VC funds. To achieve the transparency mentioned above related to the sustainability of investments, it provides both a definition of sustainable investments and a classification of disclosure requirements, depending on the sustainability focus of the financial product. This classification is commonly referenced by the articles in SFDR, which outline the disclosure requirements:

- *Article 6: Financial products with no sustainability scope,*
- *Article 8: Financial products promoting environmental or social characteristics,*
- *Article 9: Financial products with sustainable investment as their objective.*

Even Article 6 funds with no sustainability scope must disclose sustainability risks that the financial product might be exposed to or provide reasons why no sustainability risks are applicable. Article 8 funds, known as light green or ESG funds, consider environmental, social, and governance (ESG) aspects in their investments but do not commit 100% to a sustainability objective. A percentage of investments might be dedicated to sustainability objectives in Article 8 funds. Article 9 funds commit to sustainability objectives, and almost 100% of investments must focus on sustainability.

Sustainable investments, according to SFDR, are investments in economic activities demonstrating (Regulation (EU) 2019/2088, article 2, paragraph 17):

- *Contribution to an environmental objective: e.g., resource efficiency related to energy, raw materials, water, land, greenhouse gas emissions, etc., or*
- *Social objective: e.g., tackling inequalities, fostering social cohesion, social integration, etc., or*
- *Human capital or disadvantaged communities.*

In addition, sustainable investments must demonstrate that they do no significant harm (DNSH) in other environmental or social aspects.

A set of compulsory and voluntary principal adverse impacts (PAI) is delineated, specifying how they will be calculated and reported. These include scopes 1, 2, and 3 of greenhouse gas emissions, water usage, and waste, and a series of social measures, including the gender pay gap and the diversity of the founding team and the board (See the appendix for a list of compulsory and voluntary PAI).

Funds with an Article 8 classification must disclose whether they dedicate a percentage of their investments to sustainability objectives, elucidating this objective's social or environmental focus. Article 9 funds are mandated to disclose their sustainability objective and the means to attain it, methods of measuring success (impact measures) and adherence to the DNSH principle.

While PAI reporting is voluntary for Article 8 funds, Article 9 funds are compelled to report on at least the compulsory list of PAI. Both classifications require the description of the financial product's investment strategy, focusing on reducing ESG impacts for Article 8 funds and achieving sustainability objectives for Article 9 funds.

Furthermore, both fund types must declare whether they align with the EU taxonomy. Given the innovative nature of their investment targets, it is worth noting that the majority of VC funds do not aim for alignment with the EU taxonomy.

SFDR additionally delineates mandatory disclosures for fund websites, encompassing information related to the financial product and the fund management entity. This includes a summary of the information already disclosed in the pre-contractual documents on their websites.

The annual reporting requirements specified by SFDR mandate that fund managers furnish LPs with comprehensive information. This reporting mirrors the aspects covered in pre-contractual disclosures, demonstrating how the stated ambitions were implemented. It encompasses PAI, impact measures, and any other committed performance measures, necessitating the collection of performance data from start-ups at least annually.

SFDR has been established to specify the disclosure requirements on a pre-contractual basis, on websites, and in annual reporting, depending on a fund manager's decision on how sustainable their financial product will be. The overall aim is to provide transparency for investors. In practice, the interviews have shown that SFDR is seen as a classification of funds. The European Commission has also recognised this in a review (*Joint Consultation Paper: Review of SFDR Delegated Regulation Regarding PAI and Financial Product Disclosures*, 2023).

SFDR, therefore, is part of the underlying structures that influence fund managers' strategic decision-making when defining the investment thesis for their financial product. This research also investigates the effects of SFDR on the investment thesis and fund managers' strategies to attract LPs and investments.

As a next step, the technical disclosure requirements for each type of fund are explained in more detail to provide an understanding of the prevalent structures. SFDR specifies requirements for pre-contractual disclosures, which must be made transparent by the fund managers to future LPs before a Limited Partner Agreement (LPA) is signed. These disclosures are typically explained in more detail in the abovementioned package describing the investment thesis, objectives, strategy, etc. However, in the case of Article 8 or 9, funds must also define the financial product's sustainability-related aspects using the applicable template from the SFDR Annexes.

It is worth noting that SFDR extends its applicability to VC funds and all other financial market participants, even those with existing investment portfolios. In the case of VC funds, disclosure precedes actual investments and thus reflects the anticipatory stance of fund managers.

The European Commission initiated a review of SFDR soliciting feedback from market participants, identifying potential shortcomings (*Joint Consultation Paper: Review of SFDR Delegated Regulation Regarding PAI and Financial Product Disclosures*, 2023). This solicitation recognises that the SFDR has developed into a financial product classification system contrary to its initial intent. It is therefore investigated whether this classification system should be maintained but enhanced to ensure transparency, including environmental and social aspects, DNSH, etc. Alternatively, a more detailed categorisation system could be established, differentiating financial products with specific investment strategies or targeting specific industry sectors. The consultation process ran throughout 2023, and whilst it constitutes an upcoming change to the underlying legal structure relevant for VC funds in Germany, it has not been considered in this research as its effects will only come into effect in the future. All interviews were conducted before the consultation was announced, so all answers were given based on the existing legal structure given by SFDR.

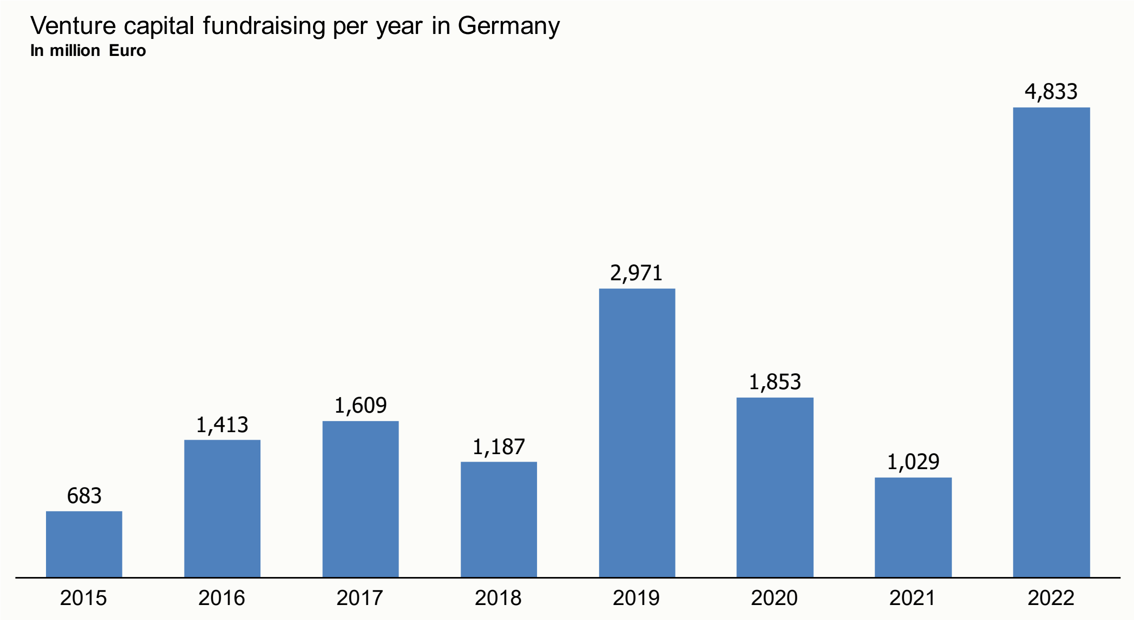
Section 2.4 has provided an overview of the most relevant legal framework or structure influencing decision-making in VC. Section 2.5 explores the VC ecosystem in Germany, elucidating the approach employed in its identification.

2.5. The German VC Ecosystem

The preceding sections provided an insight into prevalent structures in the VC industry. This exploration encompassed various facets, ranging from the intricate value chain within start-ups to the life-cycle of funds, alongside pertinent legal regulations. This chapter provides an overview of the German VC industry. It starts with a market overview and subsequently delves into the systematic approach employed for identifying the participants within the industry. This assessment also includes an analysis of the distinguishing characteristics of these identified companies.

VC management entities raise funds from LPs and subsequently allocate these funds for investment in innovative start-up ventures. 2022 witnessed a surge in the overall capital raised within this domain; 4.8 billion Euro of LP capital was channelled into VC funds (see Figure 2.7). While some fluctuations in fundraising amounts transpired from year to year, an overarching pattern of consistent growth emerges when viewed from a broader perspective (Dahmann, 2023).

Figure 2.7 VC Fundraising Volume in Germany



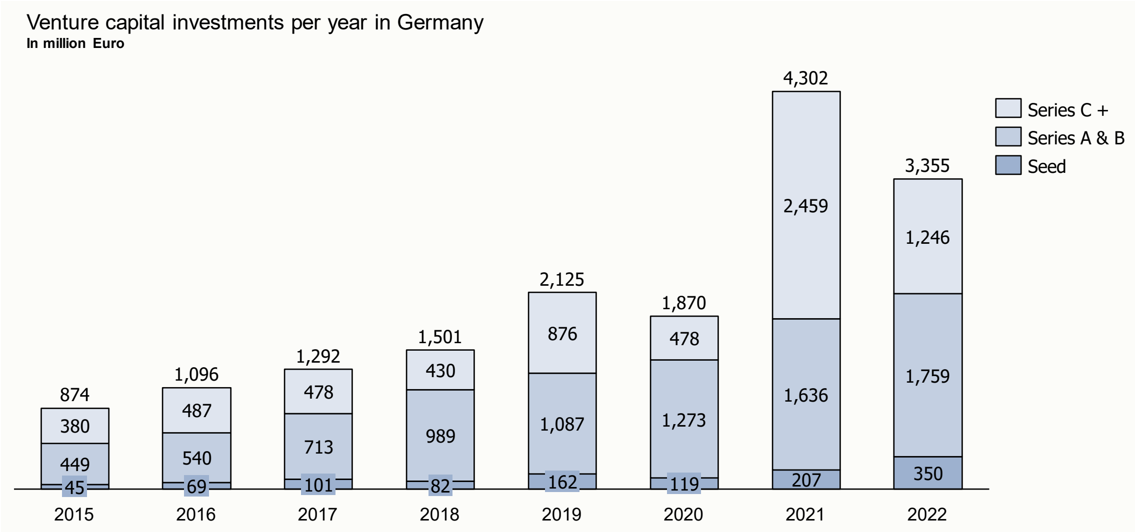
Source: Dahmann, 2023

It is essential to remember that VC funds typically operate on investment cycles lasting 3 to 4 years. Upon the conclusion of these cycles, successful funds initiate new fundraising endeavours. Therefore, the total capital raised in a specific year is not solely contingent upon general economic conditions within Germany. Other factors include the number of funds undertaking fundraising during the same period and the success rates of these fundraising efforts. One market participant is HV Capital, a VC management company that achieved a remarkable feat by raising over €710 million in 2023, marking its highest fundraising achievement. Impressively, 75% of this substantial sum stemmed from existing investors (Bergen, 2023).

From 2015 to 2022, a discernible upward trend is evident concerning investments by VC companies in startups, reaching its pinnacle in 2021 (see Figure 2.8). This surge was primarily driven by investments in the later stages of start-ups, specifically from Series-

C financing rounds onwards. It is worth noting that start-up valuations typically experience upward trajectories from one financing round to the next, resulting in progressively larger investment sums as the start-ups advance (Dahmann, 2023).

Figure 2.8 VC Investment Volume in Germany



Source: Dahmann, 2023

The year 2022 marked a decline in invested sums; however, it is worth noting that the VC market has demonstrated significant growth in fundraising and investments over the years. Compound annual growth rates of 32% and 21%, respectively, were observed in these two key aspects from 2015 until 2022. Despite fluctuations in investment amounts, the VC market remains robust, with substantial investment volumes exceeding €3 billion in 2022. Notably, the record sum of 4.8 billion Euro in 2022 will flow into start-up investment from 2023 to 2025. This dynamic presents an opportunity to establish VC as an asset class with substantial potential for advancing environmental and social solutions.

The exploration of the VC industry for this research commenced with the German Private Equity and Venture Capital Association (Bundesverband Beteiligungskapital e.V. - BVK). This association, encompassing VC and PE firms, maintains a list of its members on its website. Initial efforts were supported by the BVK's market research and studies team, which provided a foundational list of VC-related member companies in digital format.

Subsequent steps involved compiling this data into an Excel database and filtering to exclude consulting firms, law practices, and other non-relevant entities. Basic information about these funds, including websites, LinkedIn profiles of key personnel, sector focus, addresses, investment stages, and sustainability commitments (if available), was catalogued. The list encompassed fund management entities overseeing multiple financial products and those managing a single fund. See Figure 2.9 for an illustration of the Excel sheet (addresses are hidden due to data protection requirements).

The initial list also contained corporate venture capital (CVC) companies, funds with one primary limited partner, usually an industrial company, who established a fund to invest in start-ups related to their core business. These CVCs were excluded from further investigation, as the corporate head office defines their strategy, which depends on the industry sector and specific background of the corporate entity. Their underlying structures differ from those in traditional VC, and in line with Danermark et al. (2019), in stage 2 analytical resolution, the focus was given to traditional VC companies.

Figure 2.9 Illustrative – Snapshot of the Initial List of Funds

FINANCIAL PRODUCT	website	LINKEDIN (PEOPLE)	SECTORS	STAGE	VERBAN	TYPE
415 CAPITAL MANAGEMEN	https://415capital.com/	https://www.linkedin.com/company/	MedTech	EARLY, GROWTH	1	VC
42CAP MANAGER GMBH	https://www.42cap.com/	https://www.linkedin.com/company/	Tech, Data-driven, B2B So	EARLY	1	VC
ACTON CAPITAL PARTNERS	https://actoncapital.com/	https://www.linkedin.com/company/	Consumer Internet	GROWTH	1	VC
ALSTIN II FONDS GMBH & C	https://www.alstincapital.de/	https://www.linkedin.com/company/	Technologie / Internet, Lif	EARLY, GROWTH	1	VC
ANANDA VENTURES GMBH	https://ananda.vc/	https://www.linkedin.com/company/	Sozialunternehmer (educa	EARLY, GROWTH	1	VC
ANTLER CE I FUND MANAG	https://www.antler.co/	https://www.linkedin.com/in/alan-p	AGNOSTIC	EARLY	1	VC
APOLLO HEALTH VENTURES	https://www.apollo.vc/	https://www.linkedin.com/company/	HEALTH	EARLY, GROWTH	1	VC
ARCHIMEDES NEW VENTUR	https://archimedesnewventures.de/	https://www.linkedin.com/company/	DEEP TECH	EARLY	1	VC
ASTUTIA VENTURES GMBH	https://www.astutia.de/	https://www.linkedin.com/in/astutia	Smart Cities, Future of Co	EARLY	1	VC
ATLANTIC LABS MANAGER (	https://www.atlanticlabs.de/	https://www.linkedin.com/company/	Tech	0	1	VC
AUXXO FUND MANAGEMEN	https://www.auxxo.de/	https://www.linkedin.com/company/	Technologie, Internet, Sof	EARLY	1	VC
AVESCO MANAGEMENT GM	https://www.avesco.de/european-social-in	https://www.linkedin.com/company/	AGNOSTIC	EARLY	1	VC
BAMBOOVENTURES GMBH	https://bamboo.ventures/	https://www.linkedin.com/company/	SOFTWARE	EARLY	1	VC
BAYERN KAPITAL GMBH	https://bayernkapital.de/	https://www.linkedin.com/company/	DEEP TECH	EARLY, GROWTH	1	VC
BERLIN VENTURES	http://www.berlinventures.com/	https://www.linkedin.com/company/	Digital Innovation	EARLY, GROWTH	1	VC
BITSTONE CAPITAL MANAG	https://www.bitstone.capital/	https://www.linkedin.com/company/	Digital Real Estate	EARLY, GROWTH, EX	1	VC
BLSW SEEDFONDS GMBH &	http://www.blsw.de/	0	SOFTWARE	EARLY	1	VC
BLUEYARD CAPITAL	https://www.blueyard.com/	https://www.linkedin.com/company/	DEEP TECH	EARLY	1	VC
BMP VENTURES AG	https://www.bmp.com/	https://www.linkedin.com/company/	Internet/Software/Mobile	EARLY, GROWTH	1	VC
BONVENTURE MANAGEME	https://bonventure.de/	https://www.linkedin.com/company/	Sozialunternehmer	EARLY	1	VC
BORN2GROW / ZUKUNFTSF	https://born2grow.de/	https://www.linkedin.com/company/	Automation & Elektronik,	EARLY	1	VC
BTH BERLIN TECHNOLOGIE	https://www.berlinholding.com/	https://www.linkedin.com/company/	Mobile, Internet of Things	GROWTH, EXIT	1	VC
BVP BERLIN VENTURE PART	http://berlin-venture-partners.com/	0	SOFTWARE	EARLY	1	VC

Source: Own research

This search identified 110 funds with an office in Germany and a functioning website or LinkedIn presence.

The German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht—BaFin) was a second source for identifying companies. VC funds are registered with BaFin as Special Alternative Investment Funds and maintain an online database that can be downloaded in Excel. This database encompasses both fund management companies and the entities established for financial products (funds), totalling 2795 entries.

For example, a large fund management company like HV Capital is represented by 15 legal entities. The BaFin database also contains fund entities unrelated to VC, such as those focusing on real estate or stock market investments. Notably, this process was made more complex because the legal entity's name did not always fully correspond with the fund company's name on the website.

The analysis of these funds identified an additional 103 VC funds, active in Germany but not part of the BVK, with a functioning website or LinkedIn presence. These funds were incorporated into the existing list, and the same research process was undertaken to determine their focus areas.

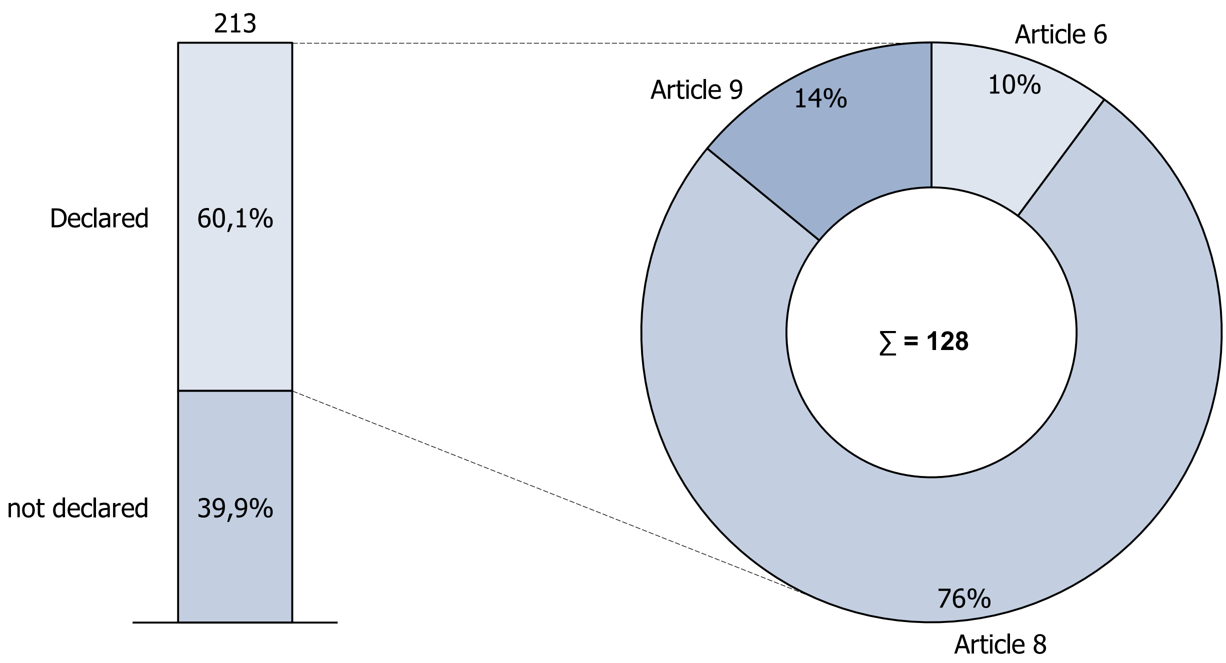
Finally, through a commercial provider (Listenchampion), an additional list of VC funds was procured. This list contained 276 entries; however, some pertained to BA clubs or non-VC investors. This list did not contain additional funds that had not been identified before; the remaining information, like the sector focus, was updated in the database, where appropriate.

When the research transitioned to primary data collection through interviews, the final list of funds comprised 213 entries. It is important to note that the stage of each fund (fund set-up, investment, holding, closure) is not always discernible from websites or the BaFin database. It is possible, therefore, that some of these 213 funds are already in the later part of the holding stage and did not set up a new financial product.

The subsequent section investigates these funds, including their SFDR classifications, geographical locations, stage of operation, and sector focus.

It is worth noting that since 2023, funds have been obligated to disclose SFDR-relevant information on their websites, although not all funds currently comply with this requirement. See Figure 2.10 for an overview of the available declarations related to the SFDR of the funds in the identified list.

Figure 2.10 Overview of Fund SFDR Declarations on Websites



Source: Fund websites, Own analysis

Of 213 funds, only 128 (approximately 60%) disclosed their SFDR commitments on their websites (status: May 2024). The content of these specific SFDR declarations was not assessed for legal compliance; rather, the focus was on their existence and whether they described an Article 6, 8, or 9 fund classification.

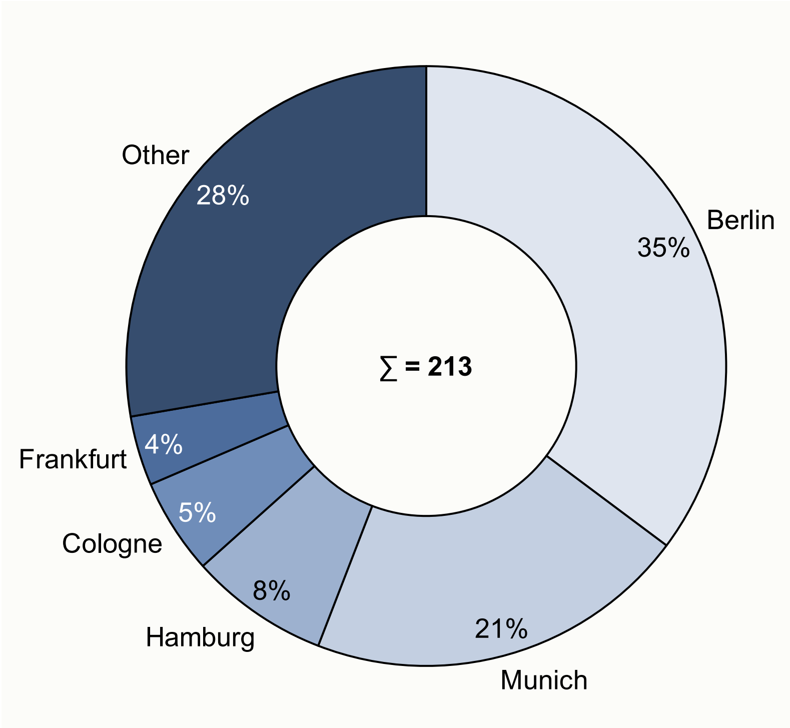
Of the funds with website disclosures, the vast majority, 76%, were Article 8 funds, committing to considering ESG measures in investment decisions, but the majority rejected PAI measurements.

10% of the disclosed funds remained classified as Article 6, indicating no commitment to ESG or impact-related considerations. Some of these funds justified their stance by citing the pervasive regulatory environment, making it challenging to commit to such measures.

A total of 18 funds, constituting 14% of those with website disclosures, were declared Article 9, often referred to as dark green or impact funds. These funds typically provide more extensive information on the impact they aim to generate and comply with SFDR disclosures.

The data showed that VC companies are spread all over Germany; companies are in 41 different cities (see Figure 2.11). When a fund had multiple offices within Germany, only the location of its head office was considered. The top five hubs for VC activity were Berlin, Munich, Hamburg, Cologne and Frankfurt. These cities are also the largest in Germany and have consistently ranked among the top 10 cities for start-up foundations since 2022, according to the German start-up association (Startup Verband) (Gilde et al., 2023).

Figure 2.11 Geographical Distribution of VC Companies

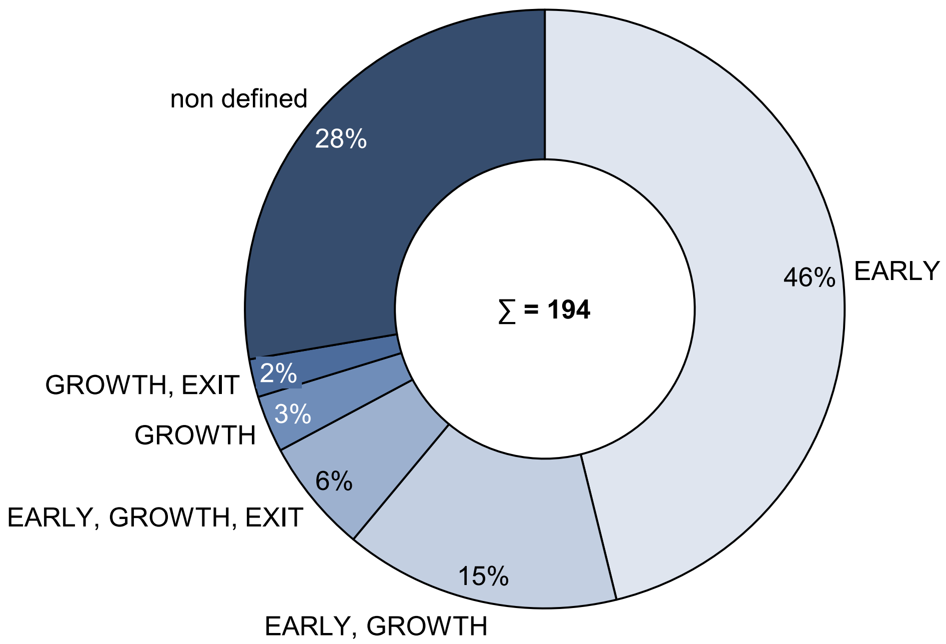


Source: Fund websites, Own Research

Correlation inferences cannot be made without considering the multifaceted determinants influencing the establishment of VC funds. These determinants encompass many factors, including local tax implications, prevailing standards of living, and the accessibility of human resources, among others. Notably, proximity to the start-up ecosystem emerges as a pivotal factor, particularly in the era predating the COVID-19 pandemic and the subsequent surge in virtual communication tools. During this period, the DD processes crucial to VC investments primarily relied on in-person interactions.

Many VC funds abstain from explicitly declaring their investment focus on their websites; approximately 28% of such funds do not specify any stage preference in their investment strategy (see Figure 2.12). Furthermore, an additional 6% of these funds focus on early-stage, growth-stage, and exit-stage investments, encompassing the entire start-up life cycle.

Figure 2.12 Stage Focus of German VC Funds



Source: Fund websites, Own Research

A notable 46% of VC funds exhibit a distinct focus on early-stage start-ups, with an additional 21% incorporating early-stage ventures into their target segment. This strategic allocation aligns with the inherent risk-reward dynamics characterising VC investments. These funds strategically engage with early-stage start-ups to capitalise on the potential for enhanced valuations in subsequent funding rounds and eventual exits.

Regarding sector emphasis, VC funds frequently articulate their interest in multiple industry sectors on their websites, a tactic to attract suitable start-up candidates. A recurring theme within these sectors is the pursuit of scalable business models that facilitate the rapid acquisition of a substantial user or customer base within a condensed timeframe. Notably, sectors such as software, technology, deep tech, and the internet prominently feature among the preferences of these funds on their websites (see Figure 2.13).

From a TBL perspective, themes like climate, social, health, and life science are also prominently mentioned, albeit to a lesser extent than tech subjects.

Figure 2.13 Wordcloud – Most Mentioned Industry Sectors

Source: Fund websites, Own Research

Indeed, a tech-focused approach within VC does not preclude investments in technology-driven solutions addressing the climate crisis. VCs will likely consider such investments, even if climate-related initiatives or other environmental or social fields are not the fund's primary focus. This flexibility reflects the recognition that innovative technological advancements can be pivotal in addressing environmental challenges.

This section provided background on the VC ecosystem, the approach to identifying the participants, and their segmentation. In the next Section, key points will be summarised, and the relevance to this research will be highlighted.

2.6. Summary and Key Takeaways about the German VC Environment

CR, as applied in this context, seeks to uncover underlying structures within the German VC ecosystem. This chapter highlighted the most relevant observable structures currently present in the German VC ecosystem. The effects of these observable and unobservable structures are investigated later in Chapters 5 and 6.

First, the existing structures of the start-up value chain, including the various investors, provide the framework in which VC funds are operating. The business model for VC investors is to identify those start-ups with the highest potential to successfully go through financing rounds with increasing valuations. Contrary to traditional small businesses, the focus is not on the rapid establishment of profitability to allow for the business's survival but primarily on the growth and the potential of future profitability. This expected profitability attracts investors in future rounds, increasing the valuation of the start-ups. From a CR and TBL perspective, this might indicate mechanisms creating incentives for all participants to focus on the economic bottom line and overshadow the social or environmental ones. This research investigates these structures in more detail to explore the unobservable structures and mechanisms that influence these incentives, offering a promising outlook for the German VC ecosystem.

Reviewing the VC value chain delineates the stages a VC fund progresses. It highlights that the most strategic decisions the fund is making are first at the set-up stage when the investment thesis is defined and then during the DD when the choice is made regarding which companies to invest in. Notably, the fund influences the start-ups throughout the holding period, guiding them on technical, commercial, environmental, and social aspects. Which subjects the funds emphasise during their support is also a strategic decision of the fund management team. The public communication on the funds' websites reflects these strategic decisions and usually demonstrates the overall thesis and the rationale behind investments made in specific start-ups. Given the prevalent structures, the mechanisms influencing these strategic decisions are the point of this investigation, highlighting the complexity and importance of these decisions in the German VC ecosystem.

The establishment of SFDR has altered the VC ecosystem's legal structure, providing more transparency of environmental and social objectives. On the other hand, it could also be a mechanism for fund management teams to reflect on their environmental and social ambitions and shared values for their financial products and the target audience of LPs they market them to. Therefore, it has been incorporated into the investigation during the interview stage.

This research intends to benefit the business community by revealing these structures and helping VC funds and other market participants navigate the changes.

The next Chapter focuses on the academic foundation of this research by investigating the existing literature about VC and the TBL, highlighting the gaps in the knowledge this research aims to address.

3. LITERATURE REVIEW

3.1. Introduction to the Literature Review

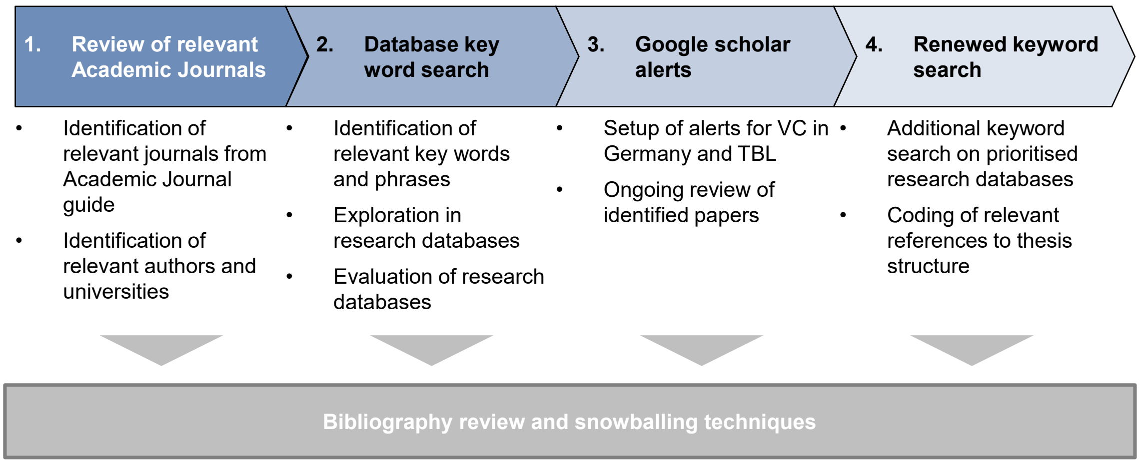
Having explored this research's aim, objectives, and rationale, this chapter explains the approach taken for the literature review. It highlights the gaps in the academic knowledge related to this subject. This chapter first explores the methodology for the structured search, describing the approach taken to identify all relevant literature. This is followed by an evaluation of the gap in the literature when investigating VC in general about the TBL. Environmental, social, and economic subjects are individually explored with a viewpoint on the evaluations of VC companies, highlighting available knowledge and gaps based on the 7-S Model. This review is focused on peer-reviewed academic literature; however, additional professional literature from the industry and legal texts are added where appropriate. This research is based on CR philosophical underpinnings, which this chapter shows is not a commonly used philosophy for this subject, even though it allows for a deeper understanding of the underlying structures linking the TBL to VC.

To start with, the methodology for the literature review is explored.

3.2. Methodology for literature review

A literature review is not a one-off event but a continuous development in a doctoral journey spanning multiple years. At the beginning of the research, an initial baseline literature review was conducted, evaluating relevant publications and using research databases (see Figure 3.1).

Figure 3.1 Literature Search Approach



Source: Based on Saunders et al. (2016) literature review process

This initial list was continuously updated using Google Scholar alerts to identify additional relevant academic work. Closer to completion, the academic knowledge was explored again and aligned with the structure of this thesis.

This research combines two independent but connected fields of academic literature. First is the area of TBL research, which follows the seminal work of John Elkington (1998) and reviews how organisations in general should consider their financial and environmental and social bottom lines. The second area of investigation is focused on VC and the VC value chain. Whilst the literature review is narrative, an approach was chosen following systematic methodologies to ensure the comprehensiveness of the publications covered by the review. Notably, the bibliography was reviewed for each relevant piece of academic research, and a snowballing technique was applied to identify additional relevant work (Wohlin, 2014).

The following subsections illustrate the approach taken for these four phases of literature review.

3.2.1. Review of Relevant Academic Journals

First, all relevant academic journals related to TBL and VC/ financing subjects were identified from the Academic Journal Guide (published by the Chartered Association of Business Schools), and an initial list of articles was downloaded. This led to the identification of key authors and research institutions in the field, and additional articles were added. The process also helped with the familiarisation with the academic nomenclature in this field.

The 39 most relevant journals were selected from the Academic Journal Guide. Titles with apparent links to the research were chosen and downloaded from the issues of these journals until the beginning of 2016 (see Table 3.1 for a sample). Subsequently, the identified research was documented in Zotero, leading to the full list of references documented in the list of references.

Table 3.1 Sample Article Database

#	Authors	Title (Shortened)	Number of Citations	Journal	Date	Geography
1	(Lee et al., 2016)	Env. responsibility & firm performance: The Application of an Environmental, Social and Governance Model	87	Business Strategy and the Environment	2016	other global
2	(Searcy, 2016)	Measuring Enterprise Sustainability	86	Business Strategy and the Environment	2016	other global
3	(Madsen & Ulhøi, 2016)	Corp. environmental initiatives in Small and Medium sized enterprises and their outcomes: a longitudinal study	22	Business Strategy and the Environment	2016	Denmark
4	(McWilliams et al., 2016)	Strategic Decision Making for the Triple Bottom Line	70	Business Strategy and the Environment	2016	US
5	(Kumar et al., 2016)	How do strengths and weaknesses in corporate social performance across different stakeholder domains affect company performance?	21	Business Strategy and the Environment	2016	US
6	(Trumpp & Guenther, 2017)	Too Little or too much? Exploring U-shaped Relationships between Corporate Environmental Performance and Corporate Financial Performance	112	Business Strategy and the Environment	2017	global
7	(Belz & Binder, 2017)	Sustainable Entrepreneurship: A Convergent Process Model	195	Business Strategy and the Environment	2017	Germany
8	(Escrig-Olmedo et al., 2017)	Measuring Corporate Environmental Performance: A Methodology for Sustainable Development	57	Business Strategy and the Environment	2017	global
9	(Porter & Kramer, 2019)	How to Reinvent Capitalism—And Unleash a Wave of Innovation and Growth	10,022	Harvard Business Review	2011	global

Source: Own research

This initial review also identified relevant authors in the field. John Elkington, who developed the triple bottom line concept, balancing People, Planet and Profits (Elkington, 1997), was identified as the most prominent author to include in this study. Albeit not a traditional academic, John Elkington is also a visiting professor at Cranfield University, Imperial College and UCL and has authored or co-authored 20 books, 10 of which are in the business sector (Elkington, n.d.). A review of the outline of these books prioritised the last five business-related books relevant to this research. The other books were excluded as they focus on large organisations. Four additional academic papers by Elkington were identified as applicable. It should be noted that while Elkington has produced more than 1000 articles (Elkington, n.d.), most were not peer-reviewed academic papers but were written in commercial journals and newspapers. Whilst these articles have not gone through rigorous academic peer review, they have often been referenced in the academic community and considered in this work, if relevant.

Andreas Kuckertz was an identified author from the University of Hohenheim who produced relevant research. Others include Elisabeth Berger, Andreas Köhn, Patrick Röhm, and others. Given the university's focus on entrepreneurship and the associated financing of start-ups and its geographical focus on Germany, the university's publications were reviewed to bring out additional literature.

The literature review also allowed for identifying appropriate search terms for a database search, which was the focus of stage 2.

3.2.2. Database Keyword Search

A database search was conducted to ensure comprehensiveness, using terms identified through the first stage searches.

The following databases were used to identify relevant pieces of literature:

- *Web of science*
- *Scopus*
- *Business Source Premier*
- *Emerald*
- *Proquest central.*

The database search was split into three broad categories. The first was to identify the TBL literature that also focused on VC, start-ups, entrepreneurship, and valuations, always aiming to focus on Germany. The aim of this part of the search was twofold: first, to find out if the TBL concept, which has been widely applied to large organisations, had already been applied to small companies as well. This relatively broad approach intended to identify any literature on the operations of funds linked to Objective 1.

The second aim of the search was to identify evaluation measures for the environmental and social performance of organisations that could be used to evaluate start-ups. This second part of the database search aimed at the VC literature, searching for work on the valuation of start-ups in general, built on the systematic literature review conducted by Köhn (2018). The second search intended to discover literature concerning the valuation of start-ups, in general, to assess whether VC firms had already investigated or applied any social and environmental factors.

The third part of the database search was to identify work written with a declared use of CR philosophical underpinnings. Many works did not specify the underlying philosophy, so an additional text search was conducted in the articles for key CR authors (e.g., Bhaskar, Danermark). If these authors were referenced, it could be assumed that CR was applied or referenced in the articles.

Appendix 4 lists the search terms and the number of articles identified. Zotero was used to document and track the literature, create citations, and create the final list of references.

3.2.3. Google Scholar Alerts

Google Scholar was used for forward and backward referencing of articles but not for the structured literature search, as the results were too broad to be relevant. However, alerts were set up via Google Scholar and directly from relevant publications, such as the International Journal of Entrepreneurship and Innovation. The keywords for the search were either targeted towards the VC industry in Germany or articles related to the TBL. Identified articles were then directly reviewed and forward and backwards referenced.

3.2.4. Renewed Keyword Search

Closer to the end of the doctoral journey, an additional keyword search was conducted, focusing on Scopus and Web of Science, as these databases delivered the best results in the first stage and were considered the most user-friendly. The timeframe was limited to articles from 2016 or later to limit the duplication with the initial literature search. The renewed search identified 178 articles with a matching title; an abstract review reduced the number of relevant academic papers to 87.

As a next step, the articles were reviewed in detail, and relevant references were coded, using NVIVO, to the appropriate sections in the thesis (see Figure 3.2). Some references provided relevant academic background for multiple sections in this research and were coded to each section individually. This academic knowledge was then added to the already created literature review and, where appropriate, to put findings into the appropriate context. It should also be noted that for not all the sections in the thesis, relevant papers could be identified, highlighting the gap in the academic knowledge in these areas.

Figure 3.2 Illustrative - Coding of References using NVIVO

Literature review codes

Search Project

Name	Files	References
1. Introduction, Aims and Objectives	1	2
1.2. Rationale for the research project	1	
2.The Venture Capital Environment in Germany	1	1
2.2.Background on the start-up value chain	11	
2.3.Venture capital value chain	19	
2.4.Introduction to pertinent legal and regulatory frameworks	9	
4.Literature review	4	4
4.3 Venture capital overall	24	
4.4 Philosophies	8	
4.5 SFDR in academic literature	9	
4.6 Geographical distribution	1	
4.7 TBL	4	
Data analysis and Findings	0	0
5.Findings objective 1	0	
01 Strategy	20	
02 Structure	2	
03 Systems	21	
04 Shared Values	4	
05 Skills	4	
06 Staff	1	
07 Style	8	
6.Findings objective 2	30	
5.4.1 Impact DD	6	
5.4.2 ESG DD	6	

Source: Own research (see appendix for full list of codes)

In the following sections, the findings from the literature review are explored, highlighting existing knowledge and gaps. The structure follows the overall chapter structure of the thesis, starting with VC overall, with a context of the TBL, including relevant literature on start-up companies. Subsequently, the available literature related to the research objectives is explored.

3.3. Exploration of Suitable Sustainability Frameworks

The evolution of sustainability frameworks in business has been a subject of considerable academic interest, with various models emerging to address the complex interplay between economic, social, and environmental factors. Among these, the Triple Bottom Line (TBL) framework has maintained a prominent position since its inception, serving as a foundational concept for subsequent approaches to corporate sustainability.

The TBL framework, introduced by John Elkington in the 1990s (Elkington, 1994; Elkington, 1998; Elkington, 1999), marked a significant shift in how businesses conceptualised their responsibilities and impact. By proposing a three-dimensional approach encompassing People, Planet, and Profit, the TBL offered a more comprehensive view of corporate performance beyond traditional financial metrics. This tripartite structure provided a basis for organisations to consider their social and environmental impacts alongside economic outcomes.

As the field of corporate sustainability evolved, new frameworks emerged, each attempting to address specific aspects of sustainable business practices. The Environmental, Social, and Governance (ESG) criteria, for instance, expanded on the TBL by offering more detailed, measurable indicators for each dimension (Kuzmina et al., 2023). Similarly, Corporate Social Responsibility (CSR) emphasised voluntary initiatives and philanthropic efforts, focusing primarily on the social and environmental aspects of business operations (de Nadae et al., 2021). However, these newer frameworks can be viewed as nuanced interpretations or deeper explorations of the core principles established by the TBL. While they offer valuable insights and metrics, they often lack the integrated approach to financial performance that the TBL inherently provides. This balance is particularly crucial in sectors such as VC, where economic viability remains a primary concern alongside potential social and environmental considerations.

It is important to acknowledge that the TBL framework, like any conceptual model, has faced criticism. Menghwar and Daood (2021) argue that related concepts, such as Creating Shared Value (CSV), lack theoretical rigour and are fraught with ambiguities. Milne and Gray (2013) suggest that truly sustainable practices may require moving beyond the current TBL approach to address more urgent ecological concerns.

Despite these critiques, the TBL framework continues to offer a robust and flexible approach for evaluating business practices across various industries and company sizes. Its simplicity and intuitiveness make it accessible, while its comprehensive nature allows for a holistic examination of sustainability in business contexts (de Nadae et al., 2021). In the realm of VC and strategic decision-making, the TBL framework provides a valuable lens through which to assess investments and VC fund strategies. Its balanced consideration of economic, social, and environmental factors aligns well with the multifaceted nature of VC investments, which often seek to generate not only financial returns but also positive societal and environmental impacts, in particular for impact funds.

Given its enduring influence, comprehensive approach, and adaptability, the TBL framework emerges as a highly suitable model for examining strategic decision-making in the VC sector (Hammer & Pivo, 2017).

3.4. VC in the context of the full TBL

VC is crucial in supporting sustainable start-ups that align with the TBL of people, profit, and the planet (Chouaibi et al., 2022). Identifying sustainable start-ups with the potential for positive societal and environmental impacts requires careful evaluation by VCs (Dhayal et al., 2023). Additionally, various actors, such as accelerators, incubators, crowdfunding platforms, ecopreneurs, and government policies, supplement VCs' sustainability efforts (Dhayal et al., 2023).

Cavallo et al. (2019) contribute to the literature on venture financing, specifically focusing on formal VC funds. This area of research delves into decision-making processes, agency costs, and the investor–entrepreneur relationship (Cavallo et al., 2019). The study calls for continued research on exogenous factors affecting VC funds' action space (Cavallo et al., 2019).

The rise of sustainable investing is evident, reflecting growing societal awareness of sustainability issues. As highlighted in studies, sustainable funds have experienced rapid growth, particularly in Europe (Brito-Ramos et al., 2023). However, investigating the alignment of different sustainability labels within the European Union's (EU) fund market, known for pioneering sustainable finance, has been identified as an area of ongoing research (Brito-Ramos et al., 2023).

Impact investing, in particular, broadens perspectives, as noted by Bocken and Short (2021). They emphasise that many financial activities still overlook the full impact of their investment strategies. Despite the influence of ESG and impact investing, some argue that the finance sector needs to consider broader implications upstream and downstream through business actions (Bocken, 2015).

While there is a wealth of contemporary literature on debt financing in green finance, the same cannot be said about equity financing (Lin, 2022). VC funds, however, play a unique and crucial role in the realm of sustainable start-ups. They go beyond mere monetary contributions, providing technical knowledge, industry relationships, and management skills, thereby adding significant value to these start-ups (Lin, 2022). This value-add enables their portfolio companies to commercialise cutting-edge science, fostering the innovation necessary for sustainable development and accelerating the availability of sustainable solutions, thereby heralding various environmental and social benefits (Lin, 2022).

VCs are not passive investors. They actively contribute to reducing the time it takes for companies to bring a new product to the market (Hellmann & Puri, 2000), and they drive more influential innovations (Kortum & Lerner, 2000). They also play a significant role in arranging subsequent financing and assisting with recruiting managers, particularly in the United States (Hellmann & Puri, 2002) and, to a lesser extent, in Europe (Bottazzi et al., 2008). This proactive role could also be harnessed to drive sustainability innovation at these start-ups.

Investors increasingly show interest in sustainability issues when making investment decisions (Auzepy et al., 2024; Bocken, 2015). This trend is evident in the adoption of a joint sustainability clause by many leading German VC firms to ensure more climate protection in their investment portfolios (Engert, 2020). Even many conventional fund managers have incorporated responsible investing features into their investment process (Van Duuren et al., 2016). The provision of funds and expertise by VC companies is a significant incentive considered by start-ups and entrepreneurs early on. However, when entrepreneurs expand their business knowledge, including on the way to raise funds, they might be discouraged in the sustainability focus of their enterprise or idea or be discouraged from taking up an opportunity in the first place.

Recent research suggests that the finance literature has only begun to explore the relationship between ESG factors and firm performance, with limited studies examining ESG integration in the PE sector (Zaccone & Pedrini, 2020). The authors argue that PE management companies, and by extension VC firms, are entering a new phase characterised by the increasing incorporation of ESG considerations into existing practices. While more PE firms are adopting ESG factors in their strategies and investment decisions, there remains a lack of clarity regarding their motivations, specific activities, implemented tools, and encountered obstacles in this process. In other words, they refer to the CR approach identifying underlying unobservable structures and mechanisms driving agents in the industry.

VCs are key in supporting sustainable start-ups, providing TBL business advice and leveraging networks (Bocken, 2015). Their strategic involvement aims to create a positive societal and environmental impact while fostering business growth. Research in this regard spans various sustainability dimensions, including cleantech, innovation, sustainable development, climate change, sustainable entrepreneurship, green innovation, and renewable energy (Dhayal et al., 2023). Polzin and Sanders (2020) and Polzin et al. (2021) examine how VC supports the transition to low-carbon energy in Europe, mapping investments by technology into finance needs. The impact of government subsidies on VC and renewable energy investment is a critical aspect explored in this context, emphasising the need for additional studies (Wu et al., 2020). Whilst this was explored in a Chinese context, SWF investments in VC funds also apply in this context.

Dyllick and Hockerts (2002) make a case that there is only limited substitutability between economic, environmental, and societal factors and that environmental effects are non-linear and potentially irreversible. Therefore, they argue that companies should aim for corporate sustainability by going beyond eco-efficiency and socio-efficiency to eco-effectiveness and socio-effectiveness (in addition to the financial bottom line). They propose that more quantitative research be conducted to link the three bottom lines in the business world. This is corroborated by Cohen et al. (2008), who, in their typography of TBL-related entrepreneurial research, conclude that most research (48%) is focused on economic aspects only, 44% on socio-economic aspects and 8% on social aspects. While their research was based on a single academic journal, they propose additional research linking the TBL to entrepreneurship.

Elkington (2006) notes that TBL aspects should be included in a company's corporate DNA at an early start. In his later work, he expands that TBL needs to push into the mainstream investment sector (shifting VC companies toward more social and environmental assessment criteria) (Elkington, 2020).

Brozovic (2020) worked on sustainable business models and, based on a literature review and empirical findings from Swedish permaculture companies, suggests additional empirical research to be conducted in other contexts, geographical or by type of organisation. Corporate sustainability transformation involves distinct phases, culminating in a holistic strategy derived from TBL considerations (Varga, 2018) for start-ups and fund management companies.

In their literature review on research on the link between sustainability and company performance, Goyal et al. (2013) identified that most research focuses on the US markets; 10% of the studies are dedicated to Germany. Similarly, only 4% focus on the banking and finance industry, of which VC would be part. They recommend further research combining both quantitative and qualitative methods.

3.4.1. VC & the Environment

Dyllick and Hockerts (2002) examine the TBL and its three components and develop definitions for each area of what constitutes economically-, environmentally- or socially sustainable companies through a review of the available literature. They split environmental sustainability into three factors: using natural resources that can be reproduced by nature (or replaced by substitutes), preventing emissions, and preventing activities that degrade ecosystems. The focus is on the efficient use of water, energy and resources and the intensity of waste and pollution (Dyllick & Hockerts, 2002).

Ambec and Lanoie (2008) aim to identify empirical work proving that focusing on the environmental bottom line will positively impact the economic bottom line. Providing evidence from various companies and a literature review, their exploratory study finds that there might be a positive correlation due to the potential for cost reduction and revenue increases from innovations reducing environmental impact. They concede, however, that this will depend on the specific type of company and the geography the company is operating in (Ambec & Lanoie, 2008).

In their empirical study on Korean companies, Lee et al. (2016) proved a positive relationship between environmental responsibility and a firm's financial performance. Various other studies have also identified win-win scenarios between environmental and social aspects and the organisation's financial performance (Ozanne et al., 2016).

Upon a thorough analysis of the available literature on business models, it becomes evident that there is a pressing need for further research on the type of organisational capabilities required to establish environmentally sustainable businesses (De Giacomo & Bleischwitz, 2020). This call to action highlights the urgency and importance of this topic, prompting a deeper exploration into this relatively unexplored territory. Applied to VC, there is a recognised gap in understanding how to promote higher levels of private impact investment needed to support early-stage cleantech innovators in addressing climate change (Owen et al., 2020a). Owen et al. (2020a) emphasise the requirement for more research on the behaviours of investors.

The environmental dimension in organisational management entails identifying and managing aspects to ensure a long-term positive impact on natural systems (Kravchenko et al., 2019). This dimension encompasses resource consumption and emissions to water, soil, air, and chemicals, with aspects commonly integrated into performance measurements and reporting frameworks (Kravchenko et al., 2019). Noteworthy reporting frameworks on environmental subjects include the GRI Sustainability Reporting Standards, OECD sustainable manufacturing indicators, and ISO 14031: Environmental Performance Evaluation Standard (Kravchenko et al., 2019). Aspects within this dimension cover material, energy, and water consumption, waste generation, pollution, gaseous emissions, land use, material safety, and product architecture (Kravchenko et al., 2019). These considerations are vital for comprehensive sustainability reporting and environmental performance evaluations. (Kravchenko et al., 2019).

3.4.2. VC & Social Aspects

The social dimension of business sustainability encompasses identifying, assessing, and managing diverse stakeholder values and requirements (Kravchenko et al., 2019). This dimension is crucial for organisations seeking to balance their economic pursuits with societal responsibilities (United Nations Development Programme., n.d.). Stakeholders can be categorised into internal and external entities, each interacting with and being affected by the company's operations to varying degrees (Labuschagne et al., 2005). Research by Labuschagne et al. (2005) suggests that most global standards and reporting frameworks (including the Global Reporting Initiative -GRI) emphasise four primary stakeholder groups: employees, customers, suppliers, and communities (whether local, national, or global). Each of these groups presents unique business considerations, ranging from employment practices and workplace safety to customer well-being, human rights, equitable treatment, etc. The social dimension in their database encompassed several categories, including community engagement, staff

empowerment, workplace health and safety, employee development and training, working conditions, equality practices, supplier relations, and customer interactions.
Based on a literature review, Norman & MacDonald (2004) provide a set of social measurements to evaluate companies against, which fits into the abovementioned categories. They claim that social aspects cannot be measured in a comparable fashion (charitable contributions vs. exploitation of workers), like financial accounts (Euro value of revenues vs. Euro value of expenditures) and that there is limited value in reporting these publicly (Norman & MacDonald, 2004). On the other hand, "*[…] value may be equally hard to calculate but becomes more likely where societies and their economies embrace a vision of, and targets for, positive transformation*" (Elkington, 2020, p. 61).

Indeed, Gutiérrez-Nieto et al. (2016) describe a Multi-Criteria Decision Making (MCDM) model for social investments, which a Spanish social investment bank applies, quantifying and quantitatively balancing financial and social returns. The criteria applied in their model fit both the internal aspects (diversity and equal opportunities, health) and the wider community ones (impact on employment, education, community outreach) and contain an environmental factor.

3.4.3. VC & Economics

The economic dimension pertains to how a company generates and distributes value, which is enhanced by maintaining long-term relationships with customers, partners, and suppliers (Kravchenko et al., 2019). It involves several key components often highlighted in corporate reporting, such as managing costs and revenues, making strategic investments, fostering innovation and technology advancements, and effectively utilising knowledge management systems (Elkington, 1998).

Dyllick and Hockerts (2002) define economic success as maintaining sufficient cash flow whilst achieving above-average returns for associated shareholders. In the academic community, there appears to be a consensus that there is a positive relationship between sustainability efforts and financial performance for SMEs (Bartolacci et al., 2020).

Dittmann et al. (2004) describe in their study on the German VC market the different valuation methods used in Germany at the time. While focusing on the financial valuation, once an investment decision has been made, they show that subjective factors (e.g. “experience”) also play a role at this stage in the investment process. This is corroborated by Kollmann & Kuckertz (2010), who evaluated criteria used by German VC companies in their investment decision process. They concluded the applicability of all these, which are directly linked to the economic bottom line. Only some (e.g., leadership capabilities, technical qualifications) could be partially applied to the other bottom lines. Dittmann et al. (2004) conclude that investors with a longer-term investment mindset and a focus on fundamentals have a higher chance of investment success, which is typically the investment horizon of socially and environmentally focused companies.

On the other hand, Sievers et al. (2013) demonstrate the importance of financial factors in VC evaluations compared to subjective factors; however, environmental or social aspects were not considered in their study.

The impact of ESG factors on financial performance has been a research focus, revealing a positive correlation, especially under mandatory disclosure regimes (Bruna et al., 2022). Studies comparing the performance of self-labelled socially responsible investing (SRI) funds with conventional mutual funds generally found no significant differences (Amel-Zadeh & Serafeim, 2018; Bauer et al., 2007). While these SRI funds did not produce superior financial results, they created equivalent financial success while providing additional social benefits. Li et al. (2022) find a positive relationship between ESG performance and corporate innovation, highlighting the interconnectedness of sustainability and innovation.

Research evaluating approximately 2,200 individual studies shows that the business case for ESG investing is empirically well-founded (Friede et al., 2015). Roughly 90% of studies find a nonnegative ESG –financial performance relation, and most research reports positive findings (Friede et al., 2015).

Van Duuren et al. (2016) confirm the academic focus on financial performance, identifying a research gap on conceptual and theoretical grounds, including evaluating extra-financial performance.

3.5. Relevant literature on VC and the start-up ecosystem

The sustainability impact of start-ups reflects the ability to develop sustainably and utilise commercial opportunities by adopting disruptive technologies that create long-term value (Trautwein, 2021). Start-ups enter new market spaces and adopt innovative and responsible organisational solutions to strengthen the pillars of the TBL (Fichter & Clausen, 2016).

In pursuit of value creation, social entrepreneurs aim to generate positive externalities—benefits that extend beyond the immediate participants of an economic activity (Santos, 2012; Auerswald, 2009). This unique approach distinguishes social entrepreneurs from traditional non-profit organisations, which primarily focus on value creation, and conventional entrepreneurs, who typically prioritise value capture. Consequently, social entrepreneurs strive to achieve a dual objective: generating financial returns (associated with value capture) whilst simultaneously producing positive externalities (linked to value creation) (Roundy et al., 2017).

Haldar (2019) and Horne et al. (2020) were amongst those scholars who have shown how entrepreneurship driven by innovation fosters sustainability due to the guidance of leaders who incorporate the values of the TBL into their corporate mission to achieve economic, environmental, and social goals.

Start-ups are crucial in creating new market spaces to bring innovative, responsible, and sustainable solutions together (Fichter & Clausen, 2016). Research indicates that strong ESG performance positively correlates with both the quantity and quality of innovation

(Li et al., 2022). This relationship is evidenced by an increase in the number of authorised invention patents and a higher frequency of patent citations, respectively (Li et al., 2022). It is unclear how start-ups develop and present their sustainability-oriented market innovations and how stakeholders, such as VCs, impact this growth (Silva et al., 2019). Equally, the elements influencing entrepreneurial enterprises' efforts to develop sustainable innovation are underexplored (Horne & Fichter, 2022).

Entrepreneurship's genuine contribution to sustainable development is reflected in its sustainability impact, achieved through adopting disruptive technologies that inspire markets to innovate and create long-term value (Trautwein, 2021). Thus, the sustainability impact of start-ups reflects the ability to perform sustainable development and utilise commercial opportunities by adopting disruptive technologies that create long-term value (Trautwein, 2021). Start-ups enter new market spaces and adopt innovative and responsible organisational solutions to strengthen the pillars of the TBL (Fichter & Clausen, 2016).

The challenges associated with impact assessment are not well comprehended, particularly concerning start-ups, which are the main drivers of innovative changes aimed at environmental conservation (Fichter & Clausen, 2016; Schneider & Veugelers, 2010). This is especially true during the pre-seed and seed stages of the entrepreneurial life cycle (Trautwein, 2021).

A focus on the financial viability of entrepreneurial activity (and the maximisation thereof) is prominent in the academic literature related to the subject, not even considering wider economic aspects (Cohen et al., 2008). This focus is to be expected, as failure to produce financial returns for entrepreneurs will likely result in personal, immediate hardship (by not being able to pay themselves a salary), whilst wider (national) economic, social, or environmental aspects have less of an immediate impact on the entrepreneurs (Ozanne et al., 2016). The academic literature follows these needs of the entrepreneurs, and there appears to be a gap in the academic literature combining these broader subjects, as identified in the typology provided by Cohen et al. (2008).

According to the literature review conducted by del Brío & Junquera (2003), SMEs, including start-ups, have an overproportionate contribution to pollution in the European Union. They identify nine factors impacting the environmental performance of SMEs, which can be linked to the McKinsey 7-S model. These are financial resources (strategy), organisation structure (structure), management style (style), human resources (staff), environmental management status (structure), manufacturing activity (systems), technological approach (systems), innovative capacity (skills) and external cooperation (staff). They conclude that more quantitative research is required to explore these factors further in SMEs.

As Lammers et al. (2022) highlighted, the evolution of sustainability efforts by start-ups underscores the changing landscape where social and environmental sustainability increasingly contribute to economic success. As funds support start-ups, aligning fund operations with this evolving landscape involves prioritising economic value creation while recognising the importance of sustainability.

Lüdeke-Freund (2020) developed an integrated framework, arguing that entrepreneurs incorporate sustainability into their entire business model, which could lead to increased social, environmental, and financial performance. They recommend further research investigating the access to financing for entrepreneurial companies (start-ups) following this framework.

In an investigation on how sustainable start-ups and major incumbents potentially drive an entire industry towards sustainability, Hockerts & Wüstenhagen (2010) conclude that further research (not based on a single case study) would be beneficial, including on investor's decisions on how to balance economic, environmental, and social impacts.

Having comprehensively reviewed the available literature on sustainable development and entrepreneurship, Hall et al. (2010) suggest further research on how entrepreneurs are incentivised to pursue sustainable ventures. This is supported by large-scale empirical work concluding that entrepreneurial drive is higher with sustainably oriented university students and graduates, which diminishes with increasing business experience (Kuckertz & Wagner, 2010).

3.6. Relevant Literature on Entrepreneurial Finance

The landscape of entrepreneurial finance research, particularly in the context of green innovation and sustainable ventures, has evolved significantly in recent years. Mukherjee et al. (2024) conducted a comprehensive systematic literature review on financing green innovation start-ups, focusing on early-stage funding. Their review reveals a bias towards well-established North American and European ecosystems in the existing literature, providing benchmarks for the German context. However, it also underscores the need for more research specific to the German entrepreneurial finance landscape and based on qualitative or mixed methods.

A key challenge identified in the literature is the high capital costs and financing requirements associated with green innovations, especially for early-stage companies (Bento et al., 2019; Owen & Vedanthachari, 2023). Bento et al. (2019) highlight that cleantech initiatives, including material installation of energy plants and manufacturing energy-efficient products, face unique financing challenges. They note that low-carbon technologies have distinct risk profiles related to their emergent disruptive technologies and innovative business models.

These high capital requirements are particularly relevant to the German VC ecosystem, where firms may need to adapt their strategies (aligning with the 7-S model's Strategy dimension) to accommodate the longer investment horizons and higher capital needs of green start-ups. Bento et al. (2019) emphasise that cleantech projects often require significant upfront investments, which can be a substantial barrier, especially for smaller and earlier-stage businesses.

Cumming et al. (2016) offer further perspectives on the worldwide landscape of cleantech venture capital investment. They underscore the significance of cleantech media coverage as a statistically meaningful factor influencing cleantech VC investment (connecting to reputation - the style dimension of the 7-S model). This media coverage is determined to be as economically important as other national-level legal, governance and cultural variables.

There is a diverse funding landscape for SMEs engaged in green innovation, with VC playing a significant role alongside other sources, such as public sector co-funding (Owen, 2023). This diversification of funding sources suggests that German VC firms should consider their position within a broader entrepreneurial finance ecosystem (relating to the Strategy element of the 7-S model).

A critical challenge identified is the information asymmetry between entrepreneurs and investors in the green technology sector (Harrer & Owen, 2022). This aligns with the CR perspective, acknowledging the complex, layered reality of investment decisions in sustainable ventures. Bento et al. (2019) corroborate this, noting that the disruptive nature of cleantech innovations often leads to higher perceived risks by investors.
VC firms in Germany may need to develop specialised knowledge and expertise (Skills in the 7-S model) to evaluate and support green innovations effectively. This is particularly crucial given the unique characteristics of cleantech investments, such as longer development timelines and the need for specialised technical knowledge to assess project viability (Bento et al., 2019; Gaddy et al., 2017).

Mukherjee et al.'s (2024) review also highlights the importance of policy and regulatory environments in shaping green finance innovation (Criscuolo & Menon, 2015; Mazzucato & Semieniuk, 2018). For German VC firms, this emphasises the need to navigate and potentially influence the regulatory landscape (aligning with the Systems element of the 7-S model).

Criscuolo and Menon (2015) provide additional insights into the relationship between environmental policies and VC investment in the green sector. Their study covers 29 OECD and emerging economies from 2005 to 2010. It finds that supply-side policies (such as government R&D expenditures) and environmental deployment policies are associated with higher levels of VC investment in the green sector. This is particularly relevant compared to more short-term fiscal policies, suggesting that a longer-term focus of policies, incentivising the commercial use of environmental technologies, aligns better with the VC investment model. Criscuolo and Menon (2015) further contribute to this discussion by examining the role of specific renewable energy policies, such as feed-in tariffs (FITs). They find that generous FITs are positively associated with VC investment. However, excessively generous FITs tend to discourage investment in the solar sector, perhaps reflecting a need for more longer-term credibility. This highlights the importance of policy stability and credibility in attracting VC investment to the green sector.

Owen and Vedanthachari (2023) contribute to this discussion by examining the role of university entrepreneurial ecosystems in entrepreneurial finance. Their study of UK Innovation Knowledge Centres (IKCs) reveals how universities can act as important intermediaries, regionally and globally, to connect wider entrepreneurial finance ecosystems. They highlight the need for an improved policy mix across university ecosystem actors to enhance long-horizon investment, which is particularly relevant for cleantech ventures.

Owen et al. (2020b) provide additional insights into the challenges faced by early-stage cleantechs in attracting financing. Their study of the UK Innovation Investment Fund (UKIIF) highlights that while public-private co-financing can help address market failures in Cleantech financing, there are still significant barriers to overcome. They found that cleantech ventures often require longer-term, patient capital due to their extended R&D phases and time to market. The complexity of cleantech business models and their hybrid nature (combining commercial and environmental goals) can make it difficult for traditional investors to assess their value proposition (making the DD process for the environmental aspects more crucial).

Gaddy et al. (2017) provide additional insights into cleantech ventures' challenges in attracting VC funding. Their study of the cleantech VC boom and bust cycle from 2006 to 2011 reveals that cleantech investments posed high risks and yielded lower returns to VCs than medical and software technology investments. They found that among cleantech investments, start-ups focused on advanced technologies involving novel hardware, materials, chemical processes, or manufacturing techniques required the highest capital input while generating the least favourable financial returns. This aligns with the Strategy and Skills elements of the 7-S model, suggesting that VC firms may need to reconsider their investment strategies and develop specialised expertise to evaluate these complex technologies.

Gaddy et al. (2017) further stress the importance of wider backing from policymakers, corporations and investors to bolster innovation trajectories for clean technology. They suggest that the traditional VC model may not be well-suited for the capital-intensive and long-horizon nature of many cleantech innovations, particularly those involving hardware and materials development. This insight aligns with the Strategy element of the 7-S model, suggesting that alternative funding or hybrid models may be necessary to support cleantech innovation effectively.

Owen et al. (2018) add to this discourse by investigating how governmental policies can facilitate investment to support the shift towards a low-carbon economy. They stress the importance of developing targeted policies specifically to support early-stage cleantech investments with extended time horizons to commercialisation. Their study highlights the importance of creating a 'green finance escalator' to support the development of innovative green start-ups from early-stage research to commercialisation. This concept aligns with the broader entrepreneurial finance ecosystem perspective and underscores the need for a coordinated approach to financing green innovation.

Owen et al. (2018) further emphasise the need for improved policy evaluation metrics, considering the full impact of cleantech investments versus non-cleantech alternatives. This aligns with the TBL approach and suggests that German VC firms adopting this framework may need to develop new evaluation tools to assess their investments' broader societal and environmental impacts (linking both to the systems dimension of the 7-S model and the DD frameworks leading to performance measures).

Cumming et al. (2016) add to this discussion by highlighting the role of cultural factors, particularly uncertainty avoidance, in cleantech VC investment. They find that uncertainty avoidance hurts cleantech VC investment and moderates other variables' effects. This suggests that cultural factors significantly shape the cleantech VC landscape, an important consideration for the German context, linking to the shared vision and style dimensions in the 7-S model.

3.7. Academic knowledge related to the 7-S's in VC

This section examines the relevant literature on VC and the TBL linked to the McKinsey 7-S model. Despite the above-described best efforts, it was impossible to identify extensive relevant literature for all the 7-S', indicating a gap in the academic knowledge of the VC industry.

3.7.1. Strategy

This subsection explores the literature on a fund's strategy. It starts by reviewing findings concerning the LPs of VC funds, as the initial decision point of VC management companies is about the strategy and investment thesis and how far that helps attract such LPs. It is followed by an investigation of the literature on fund performance measures, recording progress against the predefined strategy.

Strategy is defined as "*the positioning and actions taken by an enterprise, in response to or anticipation of changes in the external environment, intended to achieve competitive advantage*" (Kaplan, 2005, p. 41).

The German Sustainable Finance Strategy (2021) underscores the significance of the KFW Group, the state-owned national promotional bank of which KFW Capital is a part. With a funding volume of €135bn in 2020, the KFW group has emerged as a key supporter of sustainability and climate goals, aligning with the German government's objectives. KFW's strategic objectives include explicit goals related to sustainable development and climate compatibility in its financing activities.

This is confirmed by Scherer & Hasaj (2023), who highlight the regulator's interest in steering investment flows into green funds with environmental impact. They explore the impact of SFDR labels on fund flows, finding that Article 9 funds attract more significant funding flows. By extension, this interest also drives the investment decisions of government-influenced SWFs such as KFW and EIF.

Research by Zaccone and Pedrini (2020) illuminates the growing importance of ESG factors in investment decision-making. The study underscores various pressures, including investor demand, media attention, and regulatory requirements, driving private equity (PE) firms to integrate ESG considerations into their strategy. This demand is conformed for investors into VC funds, albeit with a focus on ESG practices (Lange & Banadaki, 2023). Gebhardt et al. (2023a) confirm the rising importance of sustainability for institutional investors, with 85% of CFA Institute (a global non-profit finance education organisation administering the Chartered Financial Analyst credential) members considering sustainability factors in their investments. This shift, accelerated by the COVID-19 pandemic, underscores the broader trend towards sustainable investments, constituting over one-third of global assets under management in 2021

(Gebhardt et al., 2023a). Institutional investors are particularly focused on climate-related risks, aligning with the findings of Krueger et al. (2020), who identify the increasing consideration of environmental risks due to progressive climate change. The preference for TCFD - Taskforce on Climate-related Financial Disclosures recommendations over other sustainability reporting guidelines is attributed to their focus on financial materiality and providing climate-relevant information for investment decisions (Gebhardt et al., 2023a).

Block et al. (2019) shed light on the unique traits of FOs in the VC sphere. These entities are driven by long-term objectives, prioritising high revenue growth over immediate profitability. This approach aligns with the prevailing view of VC investments as high-risk, high-growth ventures.

Friede et al. (2015) investigated approximately 2200 individual studies reviewing the link between ESG and corporate financial performance (CFP). They identified that the connection between ESG and CFP is well established, with 90% of studies finding a non-negative relationship and most studies identifying a positive one (Friede et al., 2015). Van Duuren et al. (2016) confirm that ESG investing closely resembles fundamental investing.

Becker et al. (2022) contribute insights into the impact of ESG factors on fund flows. Their findings indicate that funds associated with higher ESG alignment witness positive net inflows, i.e. investments from LPs, corroborating the broader study by Ammann et al. (2019) and Ghoul and Karoui (2021). This emphasises the growing investor preference for sustainability-aligned investments.

Professional investors like VCs operate under market logic, focusing on short-term returns and high scalability (Vismara, 2019). For fund operations, this implies adapting to market-driven demands while strategically incorporating sustainability considerations. Silva et al. (2019) confirm that hardly any literature presents assessment approaches specifically designed or developed for the needs of start-ups and their stakeholders.

In recent years, there has been a growing interest in understanding the social impact generated by Social Enterprises (SEs); however, measuring this impact is challenging due to the subjective nature of existing methodologies, making it difficult for SEs, which aim to create social impact (Fernandes et al., 2023). This is relevant to the strategy of VC funds, as pre-contractual disclosure requirements force the fund managers to describe their approach to evaluate and measure social and environmental impact (Regulation (EU) 2019/2088, Annex III). Therefore, these definitions form part of the strategy of the VC.

There is a lack of consensus on the best methodology for assessing social impact in different cases. However, despite these challenges, proponents suggest that SEs adopt a multidimensional perspective and employ holistic indicators and proxies like gender, outreach, and rural measures. (Fernandes et al., 2023). Despite a lack of consensus on the best methodology for each impact case, there is an emphasis on adopting a comprehensive approach (Fernandes et al., 2023). One example mentioned is SPI4, a method for measuring social performance, along with a combination of proxies such as gender, outreach, and rural measures (Fernandes et al., 2023).

Reinboth and Pedersen (2020) emphasise the integration of human rights considerations in investment decisions. This involves adopting a policy commitment to respect internationally recognised human rights, identifying and mitigating negative human rights outcomes, and communicating outcomes and actions to stakeholders. Human rights considerations add an ethical dimension to the DD process, aligning investments with global human rights standards (Reinboth & Pedersen, 2020).

It becomes evident that literature about VC management companies' strategies exists regarding observable structures, such as pre-contractual disclosure requirements through SFDR. Unobservable structures, such as the mechanisms that drive agents to incorporate environmental and social measures into the strategy, are less explored.

3.7.2. Structure (Organisational)

Structure is defined as "*the way in which tasks and people are specialised and divided, and authority is distributed; how activities and reporting relationships are grouped; the mechanisms by which activities in the organisation are coordinated* "(Kaplan, 2005, p. 41).

While the finance literature has only recently begun to address this topic, there is a limited number of studies exploring the integration of ESG considerations in the PE industry and, by extension, in the VC industry (Zaccone & Pedrini, 2020). Zaccone and Pedrini (2020) indicate that an increasing number of PE firms are incorporating the management of ESG issues into their existing capabilities and, therefore, organisational structures. However, despite this trend, they identify a lack of clarity regarding the motivations, details of activities, tools used, and barriers PE firms face in integrating ESG factors into their strategies and investment decisions (Zaccone & Pedrini, 2020).

Companies across industries, including VC management companies, need to transform unsustainable business models into sustainable ones, which requires organisational design changes (Coffay & Bocken, 2023). However, challenges in implementing this strategy indicate the need for skills to integrate sustainability factors into the investment decision process (Gebhardt et al., 2023a).

There is limited literature about organisational structures in VC funds, especially considering additional and potentially new sustainability-related roles.

3.7.3. Systems

Systems are defined as "*the formal and informal procedures used to manage the organisation, including management control systems, performance measurement and reward systems, planning, budgeting and resource allocation systems, and management information systems*" (Kaplan, 2005, p. 41). This subsection follows the VC investment lifecycle, first exploring the DD process, followed by the operational support and reporting processes.

Researchers emphasise the need for a comprehensive evaluation of various factors during the DD phase to mitigate risks and enhance the success of VC investments. DD ensures that investments align with ESG and impact criteria in sustainable finance and impact investing. The SFDR is mentioned as a regulatory framework that influences the DD processes of investors (Gebhardt et al., 2023-a). The SFDR requires financial market participants, including VC funds, to transparently disclose how they integrate sustainability risks and factors into their investment decisions (Regulation (EU) 2019/2088).

Moreover, when considering potential portfolio companies, the DD becomes essential for managing risks related to negative reputational impacts. Often in their early stages, VC-backed firms may lack a significant track record, making it imperative for investors to thoroughly assess the potential impact of environmental and social factors on the company's performance (Williams & Huber, 2020). DD in VC is also linked to considerations of a company's scalability and disruptive potential, reflecting the high-risk profile of such investments (Vismara, 2019).

The performance of PE and, by extension, VC investments is attributed to selection and treatment effects (Block et al., 2019). PE investors emphasise their ability to select promising companies and add value through financial, governance, and operational engineering (Block et al., 2019). However, PE firms often lack standardised ESG procedures, focusing more on risk than value creation during the DD (Zaccone & Pedrini, 2020).

The impact of mandatory disclosure, as studied by Bruna et al. (2022), underscores the role of regulatory frameworks like SFDR in inducing companies to pay greater attention to the financial implications of ESG practices. Similarly, Chatzitheodorou et al. (2019) highlight the role of regulatory regimes in shaping enabling conditions for institutional investors to move towards Socially Responsible Investments (SRIs).

Winterberg et al. (2020) discuss challenges in sourcing and DD posed by emerging technologies. The impact DD involves evaluating the potential risks associated with technologies like artificial intelligence, quantum computing, autonomous vehicles, brain-computer interfaces, gene editing, and longevity treatments (Winterberg et al., 2020). This aspect emphasises the need for thorough evaluation amid resource constraints, acknowledging innovative technologies' transformative potential and risks.

PE investors actively engage in value-added activities for their portfolio companies and focus on direct benefits like coaching, network access, and indirect certification effects (Block et al., 2019). Research by Van Duuren et al. (2016) reveals that a significant number of traditional fund managers have incorporated elements of responsible investing into their investment strategies.

The strategic discussions and operational support facilitated by funds, as highlighted in the engagement between corporations and investors (Gond et al., 2018) and the interactions involving investment managers and their start-ups (European Private Equity and Venture Capital Association, 2007), become pivotal in overcoming challenges the portfolio companies might face including on ESG and Impact issues. The phases of corporate sustainability transformation, from risk mitigation to a holistic strategy (Varga, 2018), resonate with the need for funds to evolve progressively in supporting portfolio companies in the investment period. Fund operations must align with the changing landscape, incorporating sustainability considerations not only in investment decisions but also in the ongoing management of portfolio companies.

Engagement between corporations and investors facilitates knowledge dissemination on ESG issues (Gond et al., 2018). Lange and Banadaki (2023) identified that political and business associations can guide VCs in overcoming perceived barriers to ESG integration into their operations.

Companies are increasingly incorporating sustainability reporting into their practices, providing information on non-financial performance alongside traditional financial reporting (Reimsbach et al., 2018). However, Giannarakis et al. (2018) point out deficiencies in various corporate sustainability tools, including a lack of standardisation hindering comparability, intentional manipulation of stakeholder perception through greenwashing, and insufficient consideration of uncertainty in assessing sustainability performance. Despite these challenges, sustainability reporting is regarded as an accurate means of including credible and relevant information on environmental, social, and economic performance, with standalone annual sustainability reports becoming a common corporate practice in the last decade (Giannarakis et al., 2018).

Evidence has been identified that, in general, investors consider non-financial information relevant (Reimsbach et al.,2018). However, in the VC industry, these structured reporting requirements are relatively nascent, coming into effect with the

SFDR (Regulation (EU) 2019/2088). It is also noteworthy that whilst previously, as identified by Reimsbach et al. (2018), reporting from portfolio companies to investors was deemed relevant, the new SFDR regulation requires these VC investors to equally report to their LPs. This investor-to-investor reporting does not provide an immediate way for the receiving entity (the LPs) to actively assist their investees (the VCs) in operational improvements, as described by Gold et al. (2018). On the other hand, it forces the VCs to approach sustainability in a structured manner and engage with their portfolio companies on sustainability issues.

The incorporation of sustainability data alongside financial information in corporate reporting is a relatively new development in the field of sustainability disclosure (Reimsbach et al., 2018). Earlier research examined the relationship between financial and non-financial information, with proponents of integrated reporting advocating for a more comprehensive approach to company assessment. Concepts such as TBL reporting were introduced to represent this integrated viewpoint on corporate performance (Reimsbach et al., 2018). They identified a trend in the literature about corporate reporting that focuses increasingly on integrated financial and non-financial reporting, which has not yet been identified for VC reporting requirements. Indeed, Grueso-Gala and Zornoza (2022), in their bibliometric study of over 3000 articles, identified a gap in the literature on non-financial reporting linked to Germany and on decision-maker characteristics influencing such decisions. They suggest further research to investigate stakeholder pressure on the reporting entities. Opferkuch et al. (2021) trace the evolution of sustainability reporting, emphasising the TBL concept. The lack of availability and quality of sustainability information adds a layer of complexity, necessitating adjustments in how funds gather, analyse, and use sustainability data (Amel-Zadeh & Serafeim, 2018). Sustainability disclosure is considered crucial in progressing social and environmental aspects, albeit with associated costs (Khosroshahi et al., 2021). Problems in non-financial reporting stem from insufficiently detailed directive requirements, overlapping frameworks, and a lack of enforcement (Zarzycka & Krasodomska, 2022). Regulatory frameworks, such as the SFDR and other relevant regulations, significantly shape the sustainable finance landscape. In alignment with the SFDR, the German government actively pursues the establishment of Germany as a leading centre for sustainable finance (Federal Ministry of Finance, 2021). SFDR is particularly instrumental in influencing the behaviour of financial actors, including institutional investors and reporting companies (Gebhardt et al., 2023-a).

The literature further indicates that SFDR addresses institutional investors' disclosure requirements, aiming to bridge information asymmetries between financial service providers and end investors (Gebhardt et al., 2023-a). It emphasises the need for profound sustainability information from reporting companies to satisfy investor information needs and ensure compliance with new disclosure requirements. In exploring the impact of mandatory disclosure, Bruna et al. (2022) found evidence that the introduction of mandatory disclosure led companies to pay greater attention to the financial implications of ESG practices. The regulatory regime, as highlighted by Chatzitheodorou et al. (2019), can shape enabling conditions for institutional investors to adopt SRIs.

Research by Gebhardt et al. (2023-a) emphasises the importance of diverse sustainability reporting frameworks and guidelines. Their survey reveals that a majority of respondents (68%) view the Task Force on Climate-related Financial Disclosures (TCFD) as crucial for enhancing the quality of sustainability information. The study also highlights other significant frameworks, including the Sustainability Accounting Standards Board (SASB) guidelines, acknowledged by 58% of respondents, the Global Reporting Initiative (GRI) standards, recognised by 57%, and the Carbon Disclosure Project (CDP), noted by 39% of participants.

Pojasek (2009) explores the role of leading indicators in sustainability performance, providing early warnings and guiding future actions for proactive sustainability management. Permatasari and Narsa (2022) also link value creation ambitions to investors' information requirements.

ESG performance positively correlates with firm value, particularly in countries with weaker market-supporting institutions (Chouaibi et al., 2022). This aligns with the increasing importance of sustainability in investment decision-making, as evidenced by the challenges of implementing the SFDR (Gebhardt et al., 2023-a; Gebhardt et al., 2023-b).

It is evident that while the literature on integrating sustainability in DD processes and fund operations, including reporting, exists, a focus on Germany and the VC industry is less developed. From a CR point of view, the literature related to systems in VC investing focuses on observable structures such as DD processes, performance measures and reporting, and, more recently, regulatory requirements. Unobservable structures and mechanisms influencing the implementation or adaptation of processes are less investigated.

3.7.4. Shared Values

Shared values are defined as "*the core or fundamental set of values that are widely shared in the organisation and serve as guiding principles of what is important; vision, mission, and values statements that provide a broad sense of purpose for all employees*" (Kaplan, 2005, p. 41).

Individuals play a pivotal role in sustainable finance and investment, with motivations for engagement reflecting diverse perspectives. Bocken (2015) identified practical idealism, a belief in the positive impact of sustainability, as the prevailing motivation among interviewees. Disagreement with the status quo and the desire for radical change were notable factors (Bocken, 2015). Moreover, a short-term mindset was identified as a prevalent trait among VCs, indicating a variety of motivations, ranging from fear of global challenges to viewing sustainability as a business opportunity (Bocken, 2015).
An increasing number of investors are interested in sustainability issues when investing (Bocken, 2015). The sustainability clause mentioned above, adopted by many leading German VC firms, also evidences this (Engert, 2020).

Bocken (2015) provides a nuanced perspective on VC investment theses; noteworthy themes include seeking synergies across the TBL and prioritising transformative and innovative investments. Similarly, attention to ESG factors from media and public stakeholders indicates a growing shared value and interest in sustainability (Zaccone & Pedrini, 2020).

Despite diverse motivations among VCs, including fear of global challenges and business opportunities in doing good (Bocken, 2015), aligning these motivations with a short-term mindset prevalent among VCs is essential (Block et al., 2019). The study by Friede et al. (2015) reinforces the business case for ESG investing, emphasising the need for fund managers to integrate ESG considerations into their strategies.

The available literature on shared values focused on sustainability-related investment vehicles, ignoring ESG funds. This leads to a focus on observable structures prevalent at these impact investment vehicles, missing out on Article 8 funds or financially focused funds aiming to transition. Overall, it becomes apparent that the academic knowledge about shared values in a VC and its influence on incorporating TBL aspects is underdeveloped.

3.7.5. Skills

Skills are defined as "*the distinctive competencies of the organisation; what it does best along dimensions such as people, management practices, processes, systems, technology, and customer relationships.*" (Kaplan, 2005, p. 41).

The skills required by VCs in this context are multifaceted and differ by type of fund. Vismara (2019) highlights the dominance of personal capitalism among professional investors, requiring skills to navigate market logic and make decisions based on expected returns. Challenges in implementing the SFDR underscore the need for skills to integrate sustainability into investment decisions (Gebhardt et al., 2023-a).

While organisational skills have been extensively studied, despite best efforts, no additional literature could be identified applying directly to the VC or underlying mechanisms and unobservable structures.

3.7.6. Staff

Staff is defined as *“the people, their backgrounds and competencies; how the organisation recruits, selects, trains, socialises, manages the careers, and promotes employees.”* (Kaplan, 2005, p. 41).

Bocken (2015) identifies future requirements for VCs, emphasising the need for skilled 'sustainability investors' and successful sustainable business investment formats.

Despite best efforts, only limited literature could be identified relating to staff in VC organisations with an additional focus on ESG or impact, highlighting a gap in academic knowledge. The literature less explores the mechanisms driving change and the unobservable structures facilitating transitions.

3.7.7. Styles

Style is defined as “*the leadership style of managers - how they spend their time, what they focus attention on, what questions they ask of employees, how they make decisions; also the organisational culture (the dominant values and beliefs, the norms, the conscious and unconscious symbolic acts taken by leaders*” (Kaplan, 2005, p. 41).

In the context of Kaplan's definition, the reflection of these leadership styles is evaluated as expressed in the reputation of the VC in the external world. Reputation emerges as a critical aspect in this landscape, acting as a resource for VC firms and new ventures alike (Fernhaber & McDougall-Covin, 2009). The reputation of VC firms can positively influence the time-to-IPO of start-ups and impact stock price returns (Block et al., 2019; Fernhaber & McDougall-Covin, 2009). The connection between staff and reputation underscores the significance of skilled professionals in maintaining a positive image.

Styles within the entrepreneurial landscape are evolving, as seen in the changing perception of social and environmental sustainability efforts in start-ups (Lammers et al., 2022). While economic value creation remains a priority for start-ups, there is a growing acknowledgement of the importance of social and environmental sustainability (Lammers et al., 2022).

Williams and Huber (2020) highlight that VC-backed companies are vulnerable to negative reputational impacts, necessitating structured risk management approaches, which include ESG risks. Cremasco and Boni (2022) recommend standardisation efforts by institutions, emphasising a structured knowledge base for financial actors pursuing impact objectives. The challenges of greenwashing and managing risks, including reputational impacts (Gebhardt et al., 2023-a; Williams & Huber, 2020), emphasise the need for robust risk management within fund operations. This involves safeguarding portfolio companies against negative impacts, aligning with the notion that effective risk management provides downside protection.

Fund managers' reputations and track records are pivotal in securing funding, making reputational resources valuable (Fernhaber & McDougall-Covin, 2009). Therefore, VC management companies should focus on preserving and enhancing reputational assets, recognising that reputation is a magnet for attracting potential start-ups, LPs, and co-investors.

The reputation of VC fund managers is tied to their ability to select investments with the potential to generate high returns, as failure to do so may hinder their ability to secure further funding and reduce their labour market value (Block et al., 2019).

The importance of a fund's ESG performance on its reputation is recognised (Botsari & Lang, 2020). Indeed, the reputation of VC management companies and their start-ups represents the most investigated unobservable structure in the CR sense in the academic literature. This unobservable structure has an evident impact on VC companies' financial success. The structures become more observable when linked to risk management, including the social or environmental risks a start-up might face.

The gap in the available academic knowledge is identified and described in the next section.

3.8. Summary of the Gap in Academic Knowledge and Implications for this Research

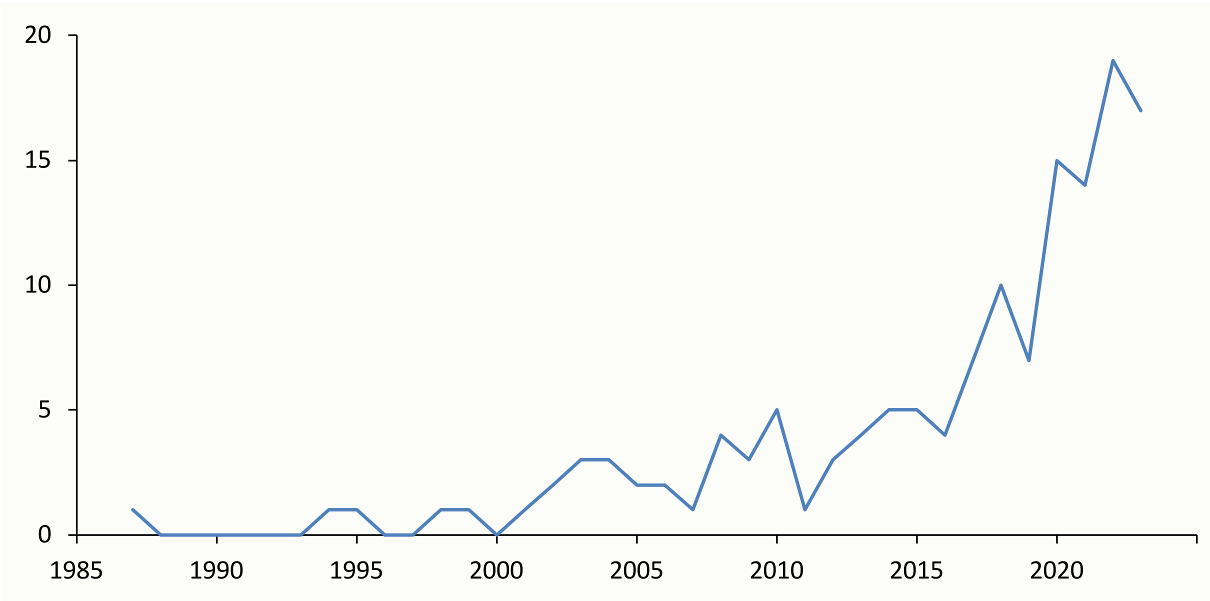
This section reviews the above-identified literature, considering the specific approach in this research, exploring VC from a TBL perspective in Germany based on CR foundations. More than 500 academic papers, laws and regulations, books, and industrial journal articles were evaluated as a foundation for this research.

While most of the identified literature does not mention the philosophical foundations on which it was developed, if researchers apply CR, this fact is usually mentioned. In addition, the authors will likely mention contributions by key authors like Bhaskar or Danermark in their bibliography. From the literature related to the VC, PE or finance industry in general or the related field of entrepreneurship, only three publications were explicitly influenced by CR (Arundale, 2018; Hu, 2018; Hu et al., 2020). Hu (2018) is focusing on using CR in empirical research with a specific focus on entrepreneurship subjects. Hu et al. (2020) explore the social entrepreneurship aspects of the surfacing of opportunities using the DREI(C) method of Describing the research focus, Retroduction, Elimination of contrarian elements, Interference of mechanisms and finally contextualisation. The applied DREI(C) process covers the same steps as the five stages by Danermark et al. (2019), albeit in a different initial order. Both papers by Hu (2018 and Hu et al. (2020) have primarily been helpful in the definition of methodological choices as described in Sections 1.5 and 4.2. Arundale (2018) conducted an analysis comparing US and European VC funds, applying CR aspects in the interviewing process. This did not influence the methodological choices in this research; however, the findings of the study have been incorporated for example in Section 1.2.

Whilst most available academic knowledge is not founded on CR, relevant CR elements can be deduced from the literature, as described in the sub-sections above. These findings are primarily concerned with observable structures, such as SFDR or DD processes or reporting, but with the aspect of reputation, unobservable structures also appear to be investigated. However, a comprehensive review of the VC value chain from a CR perspective is missing in the available literature.

Notably, the academic community's interest appears to be firmly based on the fund strategy and its systems, including DD processes and reporting. No research could be identified covering all the elements of the 7-S model comprehensively, resulting in a gap in academic knowledge. The historical distribution of the identified literature indicates an increasing interest by the academic community in the subject (see Figure 3.3).

Figure 3.3 - distribution of Relevant Research Over Time



Source: Own research

Whilst the earlier work focused on the origins of the TBL, the last decade has seen a strong increase in literature on sustainable finance, including VC and PE aspects. This is a sign of the relevance of this subject for the finance industry, particularly VC.

Overall, the investigation of relevant literature confirms the gap in academic knowledge, making a comprehensive evaluation of the VC value chain across all elements of the 7-S model a valuable contribution. The foundation of CR allows for a deeper investigation of not only observable structures but also mechanisms and unobservable structures, adding to the academic knowledge in this field.

3.9. Conclusion of the Literature Review Chapter

The literature review was conducted following a structured process throughout the doctoral journey. Dedicated searches on research databases, combined with ongoing identification of relevant papers through Google Scholar alerts and specific searches, ensured the generation of a comprehensive overview of the available knowledge of these fields. The dedicated searches generated a large number of papers and studies that had to be reviewed and evaluated to ensure the subject matter fit this research, providing the foundation of the accumulated academic knowledge of this research. Examining references in applicable texts identified additional papers to be reviewed and potentially incorporated. In addition, on an ongoing basis, individual papers went through the same process to stay current on the knowledge in the field.

The literature review highlights the available academic knowledge related to VC, which is linked to all elements of the 7-S Model and focuses on the TBL's environmental and social aspects. The identified content is not only captured in this chapter but also formed the basis of Chapter 2 and added context to the findings in Chapters 5-7. It provides a comprehensive overview of the current academic knowledge about applying the TBL in the VC industry.

This research focuses on applying the TBL in VC in Germany and on the most strategic decisions taken by fund management companies. The literature review identified a gap in the current knowledge in this regard, especially using a CR lens to identify mechanisms that drive the implementation of such aspects. In addition, the literature on DD processes related to environmental and social aspects is nascent. It focuses on sustainability overall in the financial industry with limited focus on the specific requirements of VC, considering the early-stage nature of start-up investing. Whilst the reputation of investment managers and start-ups has been a focus of some research, no literature could be identified focusing on the communication of VC management companies on their websites.

Therefore, this research has much potential to contribute to the academic knowledge in this field.

4. RESEARCH PHILOSOPHY, METHODOLOGY AND DESIGN

4.1. Introduction to the Methodology Chapter

Building upon this research's aim and objectives, this chapter explains the methodological approach, including the procedural choices of its execution. First, the underlying philosophical underpinnings are discussed, specifically focusing on the rationale for adopting CR as the most fitting philosophical framework. In this context, the key components related to CR are explored, including their application in this research.

Subsequently, an explanation of the methodological approach ensues for each research objective, leading to the applied research design. Data gathering for Objective 1 was primarily based on interviews with industry experts. The strategies to identify and approach interview participants and the focus of the semi-structured interviews are explored, including segmentation of the participants and the approach to running the interviews.

Following this, the approach for Objective 2, exploring investment evaluation frameworks, is elucidated. The data gathering is based on the previously mentioned interviews, academic literature, the information provided by funds on their websites and information from professional bodies in the industry. For the third Objective, 213 fund websites were evaluated using a custom-made tool. The approach taken and methodological choices are explored in the section about this objective.

In conclusion, this chapter culminates with an exploration of ethical considerations for this research, particularly those relating to the interviews with industry participants.

4.2. Methodology Overview

CR assumes that there is a reality independent from the researcher's interpretation, an objectivist ontological stance (Johnson & Duberley, 2000). Reality is split into three layers. The first, 'the empirical' layer, describes those things that can be observed; these are seen as sensations or appearances of the real world. These can be deceiving to the observer, and as they are observed by one entity only, they only make up a fraction of the full picture (Saunders et al., 2016). The second layer, 'the actual', comprises all these individual fractions, whether observed or not, providing a deeper picture as the fragments are not solely based on one individual or one observation but provide a more comprehensive picture. The third layer is 'the real', describing the underlying structures and mechanisms that cause the observable events in the 'empirical' and 'actual' layers (Danermark et.al. 2019).

Below, we explore the most relevant elements of CR, including how they are interpreted and applied in this research.

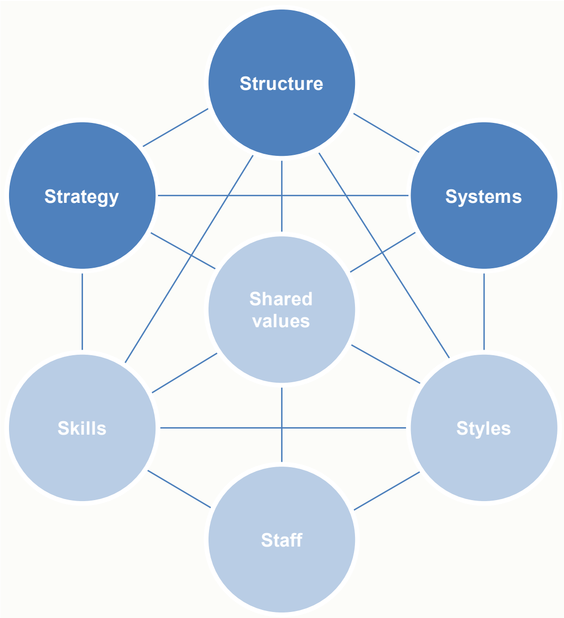
4.2.1. Structure

In the context of CR, structure refers to a set of internally related objects or practices. It represents the organised arrangement or pattern that exists among entities. Structures provide a framework or context within which entities interact, and they may influence or constrain the behaviours and relationships among these entities (Sayer, 1992).

Structures play a crucial role in shaping and influencing the behaviours and outcomes observed by the agents within a particular system. They are the underlying, often hidden, patterns that contribute to the emergence of observable phenomena (Easton, 2010). They are the organised arrangements or patterns of entities and practices that exist independently of observations. According to CR, there are both observable and unobservable structures (Sayer, 1992).

Observable structures are those aspects of the social world that can be directly perceived, experienced, or studied through empirical observation. These structures manifest in tangible ways and are accessible to our senses or research methods (Sayer, 1992). Observable structures are typically associated with the actual layer, representing the domain of observable events and experiences in the social world. Applied to the McKinsey 7-S model (see Figure 4.1), the observable structures refer primarily to the dark blue elements of structure (in this case, organisational structure), strategy and systems, as these are often documented in organisation charts, investment thesis and IT system documentation or policies and process maps but also in pertinent regulatory and legal frameworks.

Figure 4.1 - Dimensions of the McKinsey 7-S Framework



Source: Peters & Waterman, 2004

Unobservable structures, on the other hand, are aspects of the social world that are not directly accessible through empirical observation. These structures are often conceptualised as underlying or hidden elements influencing or giving rise to observable events and behaviours (Martin & Wilson, 2016). Unobservable structures are associated with the real layer, representing the domain of the real that includes latent causal powers, mechanisms, and deeper patterns that may not be immediately apparent in empirical observations. Applied to the 7-S Model, the unobservable structures are investigated through the light blue elements in Figure 1.4 of shared values, staff, skills, and style. It is worth noting that there can be unobservable structures in the dark blue elements and observable structures in the light blue ones, which will also be investigated.

4.2.2. Entities

Entities refer to individual elements or objects within a particular domain of study. These can be diverse and encompass various phenomena, including organisations, people, relationships, attitudes, resources, and other relevant elements to the inquiry (Easton, 2010; Sayer, 1992). Entities serve as the primary theoretical building blocks for explanations within the CR framework. They are the elements analysed and studied to understand the underlying dynamics and patterns in each context (Hu, 2018). Within the McKinsey 7-S model, the seven elements (strategy, systems, etc.) represent the entities of this structure. In the context of VC, these can be organisations like start-ups, VC management companies, LPs, etc., documents, such as the SFDR or AIF regulations, etc., or people like founders, GPs or LP representatives.

4.2.3. Mechanisms

Mechanisms are defined as the inherent ways in which entities or structures act, and they involve the capacities, powers, or liabilities within these entities (Sayer, 1992). Mechanisms are associated with the capacities or powers of entities to cause events or outcomes. These powers may include the ability to generate changes, influence behaviours, or produce specific effects (Sayer, 1992). Structures provide the context or framework within which mechanisms operate, influencing entity behaviours and relationships (Sayer, 1992). In the realm of VC, mechanisms can include processes like socialisation, power dynamics, societal or cultural influences, and institutional arrangements, as these mechanisms shape how individuals and groups behave within the industry (Easton, 2010). Mechanisms are conceptualised as part of the real layer because they represent the inherent ways in which entities or structures act and generate effects (Sayer, 1992). In the context of this research, for example, there are observable structures like the SFDR regulation classifying funds into Articles 6, 8 or 9. From the interview findings, mechanisms can be deduced that drive agents (e.g. GPs and LPs) to react to these laws in a certain way and decide to sign up for Article 8 or 9 classifications.

4.2.4. Events

In the CR perspective, events are the external and visible behaviours or outcomes of entities and structures in the social world (Easton, 2010). These can include actions, interactions, decisions, and other observable occurrences. Events are observable and tangible aspects of the social reality. They can be directly perceived, experienced, and studied through empirical observation (Easton, 2010). Events are the external manifestations of underlying mechanisms and structures. They represent the outcomes or results of the interplay between different elements in the social world (Hu et al., 2020). Understanding events involves exploring the external behaviours and outcomes to gain insights into the underlying structures and mechanisms that generate them (Easton, 2010). Events are attributed to the actual layer as they are external and visible behaviours, actions, or outcomes that can be directly perceived and studied through empirical observation (Easton, 2010; Hu et al., 2020). A VC example for an event could be the reclassification of funds to Article 8 or 9 following the implementation of SFDR.

4.2.5. Agents

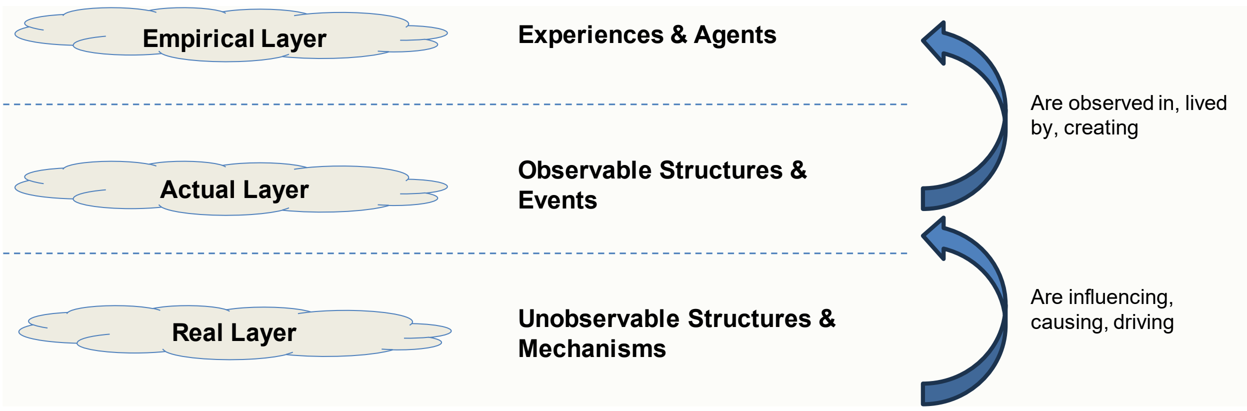
Agents refer to individuals or entities with the capacity for intentional action, decision-making, and influence within a given system (Kempster & Parry, 2011). Agents are actors within the social world who contribute to the unfolding of events and phenomena. Agents play an active role in the social processes. They may be influenced by structures (embedded patterns and arrangements) and, in turn, influence or contribute to the maintenance or transformation of these structures. Comparing agents with entities, entities are a broader term encompassing various elements; the concept of agents specifically emphasises the active capacity of individuals or entities to make decisions, take actions, and influence outcomes. Agents are, therefore, a subset of entities. All agents are entities, but not all entities are agents. In the context of VC, examples of agents are individual GPs and LPs and organisations like start-ups, VC management companies, FOs or SWFs (Kempster & Parry, 2011).

4.2.6. Experiences

Experiences are the subjective and personal encounters of individuals with the social world. They encompass the sensory perceptions, thoughts, emotions, and interpretations that individuals undergo in their interactions with their environment (Wynn & Williams, 2012). Experiences are often associated with observable events. Individuals experience and interpret events subjectively, and their experiences contribute to the broader understanding of social phenomena (Wynn & Williams, 2012). Underlying mechanisms and structures influence experiences. Experiences, although attributed to the empirical layer, are influenced by underlying mechanisms and structures in the real layer. CR emphasises the interplay between the empirical and real layers in understanding social reality's complexities (Kempster & Parry, 2011; Wynn & Williams, 2012). These structures and mechanisms are what is causing the sensations and appearances that an observer makes, but ultimately, these structures exist and are real. Epistemologically, whilst there is an objective reality ('the real'), the understanding of it is always influenced by the observer's perceptions in the 'empirical' and 'actual' layers (Saunders et al., 2016). Applied to this research, experiences are shared by interview participants (agents in the VC industry) related to events, for example, throughout the fundraising efforts of the VC management company.

Figure 4.2 provides an overview of the various elements of CR and the layer to which they are typically attributed. Unobserved structures and mechanisms of the real layer influence or cause the development of observable structures and events in the actual layer. These observable structures and events are recognised or lived by agents, creating experiences in the empirical layer.

Figure 4.2 Conceptual Overview of CR Elements by Layer

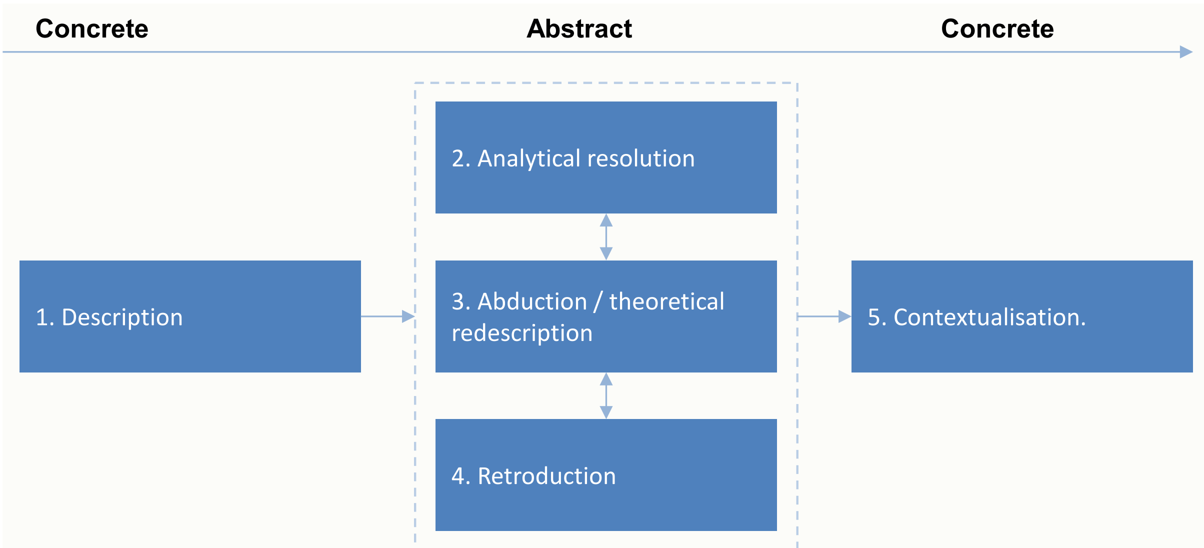


Source: based on Easton, 2010; Hu, 2018; Hu et al., 2020; Kempster & Parry, 2011; Martin & Wilson, 2016; Saunders et al., 2016; Sayer, 1992; Wynn & Williams, 2012

By subscribing to this philosophy, it is accepted that there is bias in the work, as the observation is only based on the 'empirical' layer, and axiologically, it is understood that the researcher's values and beliefs might influence the interview partners. This influenced the design of the interviews, which will be described in Section 4.3. The intention was to conduct in-depth conversations with the participants to identify the underlying structures of the real layer leading to strategic decision-making in the VC industry.

Applying these philosophical underpinnings to this research postulates that start-ups and VC companies in Germany are real objects, independent from the observer. These entities (companies, contracts, evaluation frameworks, etc.) are observable in the 'empirical' layer. Following the five stages of Danermark et al. (2019) allows for the identification of underpinning unobservable structures and mechanisms (the 'real' layer) of the strategic decision-making process of participants in the VC industry (see Figure 4.3).

Figure 4.3 Overview of Five Stages by Danermark



Source: Based on Danermark, et. al. (2019); Raduescu & Vessey (2008)

As intended by Danermark et al. (2019), the stages have also not been followed in a strictly sequential manner but are used as a guideline rather than a template, often cycling back between the stages. In the early stages of the research, multiple description and analytical resolution efforts were undertaken, crystallising the focus of the aim and the objectives. Notably, these five steps of this process have been conducted, leading to the outcome of a finished research project; however, the structure of this document does not reflect these five stages.

Having explored the CR fundamentals for this research, the next section explains how this was translated into the research design for the three objectives in more detail, covering the interviews, the investment evaluation process, and the website analysis.

4.3. Interview research design

In this section, the research design for the interviews with VC industry participants is elucidated. First, the design of the data collection tool is elaborated. Subsequently, the approach to identifying participants and securing the interviews is explored. Finally, how the data analysis was conducted is explained.

4.3.1. Interview structure

The main purpose of these interviews was to provide data by exploring the underlying unobservable structures and mechanisms that explain why some environmental and social aspects are used in the decision-making process of VC companies in Germany and others are not. In line with a CR approach, these interviews were semi-structured to extract deeper participant knowledge (Saunders et al., 2016). The relatively free-flowing process captured the industry experts' interpretations, social constraints, and contexts, generating deeper insights (Smith & Elger, 2014). Before each interview, the fund's website was reviewed to verify the SFDR classification and the prevalent investment thesis, evaluate past investments and review the published team structure. This process identified the observable structures of these funds. In addition, the participant’s CV was reviewed on LinkedIn to provide an understanding of the participant's background and identify commonalities that could be used as icebreakers.

The structure of the interview questions was based on Brönnimann (2022), who developed a framework for CR researchers to move towards the identification of underlying mechanisms in the real layer as described by Bhaskar (1978) by combining it with the works of Archer (1995) and Wynn and Williams (2012). In addition to Bhaskar’s three layers of reality, Brönnimann adds Archer's three morphogenetic phases, recognising that change does not happen instantaneously but over time, creating a 9-stage framework for interviews based on CR. He applies Wynn and Williams's (2012) principles to define the order of questions to move from events to underlying structures and mechanisms. Brönnimann (2022) proposes establishing a second round of interviews to investigate the actual layer, which was impossible in this research due to the timing constraints of the interview participants. The actual layer, identifying observable structures and events, was also covered in the initial interviews.

An overview of the structure of the interviews is described in Figure 4.4; the numbers define the suggested sequence by Brönnimann (2022).

Figure 4.4 Interview Structure

	Conditioning	Interaction	Morphogenesis /Morphostasis
Empirical	5.	3.	1.
Actual	9.	8.	7.
Real	6.	4.	2.

Source: based on Brönnimann, 2022

The nine stages are now explained, including how they were applied to this research. The full interview guide is attached in the appendix.

Depending on the interview partner, the related fund could be classified as Articles 6, 8, or 9. It might also be a fund currently classified as Article 6 but in the process of setting up an Article 8 or even Article 9 fund. It could also be an Article 6 fund that has implemented some environmental or social measures in its decision-making processes. Information on such transitions is usually not publicly available, and the interview structure had to cater to all these cases.

The interview started with logistical elements, including additional consent for the interview to be recorded and a verification that interviewees would not be quoted by name unless the participant previously approved the exact quote. Subsequently, an introduction to the research project and the interview subject was provided, including an overview of recent changes to relevant EU legislature (SFDR Article 6, 8 and 9 classifications) and definitions of Impact versus ESG. This short introduction set the scene and allowed the interviewee to focus on the subject. Explaining the different SFDR classifications, particularly the differentiation between impact and ESG, allowed the participants to confirm or gain clarity on these concepts early in the interview.

The interview questions commenced (following Brönnimann, 2022) with empirical morphogenesis/morphostasis events, first establishing whether the fund in question is transitioning (as described above) and, therefore, in a state of morphogenesis. Alternatively, the fund could remain an Article 6 fund or have already completed the transition to Article 8 or 9 and, therefore, be in a stage of morphostasis. This was followed by questions exploring the experiences and events reflective of the change / the prevention of the change. This stage established the status quo of the fund, leading to more specific questions depending on the morphogenetic/ morphostatic state of the fund.

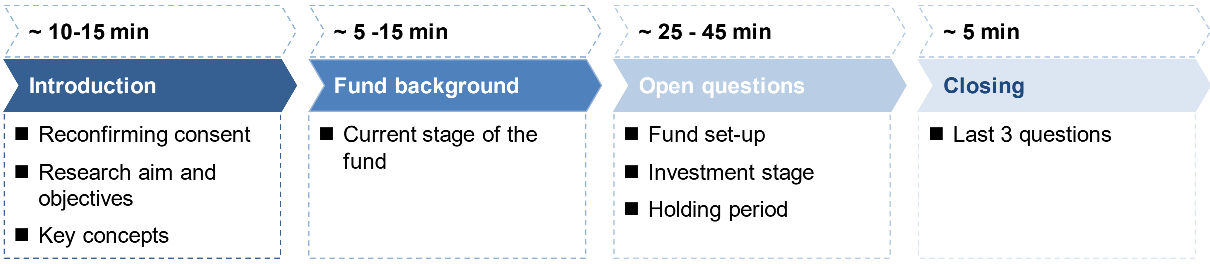
The next section was moving the questions to the real layer. As structure and culture cannot be directly observed (Brönnimann, 2022), the investigation focused on the agents, identifying who launched the shift to more environmental and social measures or switched to Article 8/9 or prevented it. Subsequently, the investigation focused on specific occasions where decisions were made to change the status of a fund to Article 8 or 9, to include environmental or social measures in a decision-making process, or to prevent these. If it was decided against a shift to Article 8 or 9, the participant was also invited to describe the events and experiences related to these decisions.

The interviews continued with questions in the real layer about interacting agents, structure, and culture. These questions explored the rationale of the agents behind the specific decisions discussed in the previous section. While structure and culture cannot be observed, an account of the interaction between agents gave insight into both.

Subsequent questions focused on exploring instances in which interviewees might recall where they had been exposed to experiences that influenced them or the decision-makers to start changing the processes. As the purpose of the interviews was to find out about the mechanisms and unobservable structures that bring about such changes, this section was the main focus of the interviews.

While the interview questions were structured as described above, following the layers of reality by Bhaskar and the three states defined by Archer, this will not be made obvious to the participants, as it would have distracted them from the core of the investigation. Switching between CR layers allowed the participants to link their explanations about structure, culture, and agency to real-life events and personal experiences, creating mini case studies. The interview sequence, the emphasis and the time spent on the four interview phases are displayed in Figure 4.5; the timings of the phases, however, varied slightly from interview to interview.

Figure 4.5 Indicative Interview Structure



Source: Own research

In the beginning, after re-establishing consent to the recording and elucidating on confidentiality commitments, the study's research Aim and Objectives were explained in more detail. In addition, key terms like TBL, SDFR fund classifications and the difference between ESG and Impact were explained. The time for such explanations was increased after the pilot interview to allow the participants to focus on the subject and fully understand the purpose of the interviews. In addition, this section aimed to demonstrate the interviewer's knowledge of the subject matter to increase the rapport with the participants.

In phase 2, the participant was invited to speak freely about their current and potentially prospective funds; in some cases, the interviewees were in the holding period of one fund whilst still fundraising with another financial product. The explanations from phase 1 allowed the participants to frame their explanations to the TBL considerations expressed in the aim and objectives of the study. This allowed the participants to speak freely about their fund’s investment thesis and considerations and to turn the interview into a two-way conversation rather than a highly structured questionnaire setting. It allowed the interviewer to pick up on aspects of further questioning in the following interview phase. The meticulous research and preparation before the interview allowed for probing questions where necessary to increase the conversational flow. In this part of the conversation, the morphogenesis/morphostasis status of the fund was identified (Brönnimann, 2022), allowing for increased focus on the subsequent questions. In one case, the fund was at the beginning of a morphogenesis stage, considering shifting the status of the fund between SFDR classifications. All other funds were at the end of the morphogenesis stage, finalising their fundraising and therefore only fine-tuning their investment thesis or in the morphostasis stage, having already closed their fundraising and investing.

The third stage of the interviews followed the guide (see Appendix), focusing on open subjects that the interviewee did not already raise in their opening remarks. Findings from the research on the fund and the participant, the previous literature review, and industry events were used to maintain a conversational style. In addition, this allowed the participants to get something back from the interviews, increasing the rapport between the interviewee and interviewer.

The final stage of the interview consisted of three questions. First, the interviewee was asked if any subjects were forgotten that should have been raised. The research Aim and Objectives were summarised again to give focus. Finally, referrals to other potential interview partners were solicited, and it was asked whether the due diligence questionnaire could be shared with the researcher.

It is noteworthy that the semi-structured interviews intended to get the participants to speak as freely as possible while using Brönnimann's (2022) structure. The interviewees naturally jumped between the empirical, actual, and real layers, often highlighting specific events they encountered and then explaining the structures and mechanisms that incentivised them to shift into a morphogenesis status.

The timeframe for the interview was 1 hour overall, including the introductions and close-out. This fit into the usual timeslots of the target audience, comprised of finance professionals, who were expected to have many meetings daily.

Using semi-structured interviews allowed the conversation to be guided by the structure mentioned above whilst still catering for the identification of a deeper understanding of the subject. The interview questions were adapted slightly depending on the state of the fund the interview partner represented (e.g., fund set-up, investment stage, holding stage), the participant's knowledge and the decision towards which SFDR classification was taken or anticipated.

One-to-one interviews were the most appropriate to conduct this part of the research. They allowed the participants to talk freely about previous experiences and allowed for follow-up questions, which might not have been possible with additional people in the room.

Using semi-structured interviews allowed the conversation with the participants to flow more freely, increasing rapport building and permitting more depth with the questioning about specific case examples the participants might share. Compared to surveys, it also allowed for further explanations at the beginning to give sufficient context for the conversation. While the interviews emphasised the fund set-up and the related investment thesis, defining the fund strategy throughout the fund lifecycle, it also covered more specific elements of the investment evaluation process. Therefore, the interview findings catered for research Objectives 1, 2, and 3.

Once the aim and objectives had been defined and the questionnaires developed, the most prospective interview participants were identified.

4.3.2. Identification of Interview Participants

Two methods were employed to identify and approach the interview participants. First, the comprehensive list of VC companies in Germany was used to identify participants. Referrals, either through own personal networks or through the interviews, provided the second means to approach interview partners.

For the first approach, the list of VC companies (see Chapter 2) was used, and all GPs and partners of the funds were identified on LinkedIn. Wherever the prospect allowed for direct connection, a connection request was sent without any commentary or note to reduce the initial rejection rate from the connection request. If the connection request was accepted, a direct message was sent asking whether the person would like to participate in the interviews, requesting an email address for further correspondence. These were sent primarily in German unless, from the profile of the potential participant, it became apparent that they were not German-speaking.

It is noteworthy that the email addresses of GPs can often be found on the fund websites or their LinkedIn profiles. Asking for the email address through LinkedIn messaging ensured a positive opt-in to the interview process by the participants. Two potential interviewees dropped off after having received a positive opt-in through LinkedIn. Once the contact details were shared, a follow-up email was sent with the interview participation sheet and the consent form, and appointments were established through an email exchange.

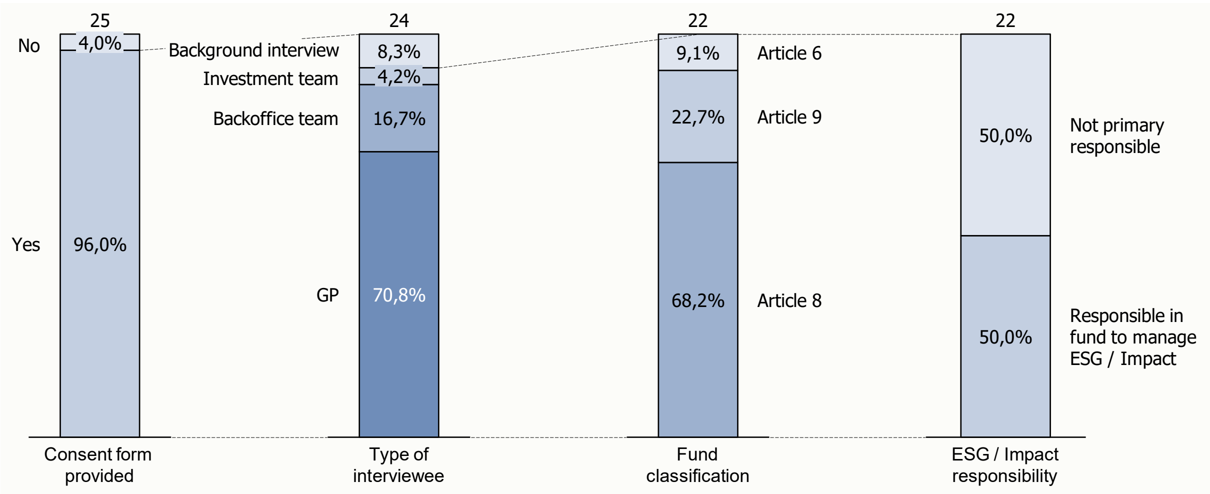
The second method of gaining interview participants was through personal networks and referrals from the conducted interviews. These interview partners were directly approached via email.

Initially, a pilot interview was conducted to test the interview guide and the conversation timeframe and gain experience in the interview process, including the technology. The interview partner was identified in the personal network as a representative GP of an Article 6 fund and agreed to the interview; the participant information sheet and the consent form were shared and signed. The pilot confirmed the overall validity of the interview structure; however, it also identified the need to increase the level of preparedness to ensure a smoother conversation and slightly increase the time spent explaining the different SFDR article classifications and the difference between Impact and ESG. The findings from this pilot were not included in the results.

4.3.3. Interviewee segmentation

Of the 25 interviews, 1 participant never managed to submit the consent form; the findings from this interview were subsequently not used in further steps. Of the remaining 24 participants, 17 were GPs or partners who had been directly involved in the development of the investment thesis and the fundraising with LPs. 4 Interviewees were part of the back-office team not directly involved in the investment process but responsible for ESG / Impact at the fund. One interviewee was part of the investment team but below partner level. 2 interviews were conducted as background interviews with prominent LPs in Germany; in Figure 4.6, these are described as "Background Interviews" in the classification by type of interviewee.

Figure 4.6 Interviewee Segmentation



Source: Own research

Among the remaining interviews, the majority were with representatives from Article 8 funds (68%), five were from Article 9 funds (23%), and two were from Article 6 funds (9%). It is worth noting that even representatives of Article 6 funds, which are not primarily focused on ESG and Impact, showed a significant interest in these subjects and recognised their importance. This finding underscores the relevance of the research, which aims to identify the structures that drive VC funds to engage more with environmental and social aspects in their decision-making. The target audience, therefore, was deemed appropriate, as fund representatives with no interest in these subjects would not have contributed to identifying these structures and mechanisms.

Half the interviewees were directly responsible for implementing or managing ESG or Impact in their fund. The other half, however, would also have been involved in the process in case of GP / partner level interviewees but not actively driving it.

Table 4.1 provides an overview of the conducted interviews and the fund vehicles represented. To ensure the participants ' anonymity, the names of the entities represented by the interviewees and the detailed funds raised are not mentioned.

Table 4.1 Overview of Interview Participants by Type of Entity

Participant	Fund vehicle	Type of entity	Fund size	Responsibility for ESG or Impact
Interviewee 01	A /B	VC	50-150 million	Not primary responsible
Interviewee 02	C	VC	>250 million	Not primary responsible
Interviewee 03	D	VC	50-150 million	Not primary responsible
Interviewee 04	E	VC	150 - 250 million	Not primary responsible
Interviewee 05	F	VC	150 - 250 million	Responsible in fund to manage ESG / Impact
Interviewee 06	G	VC	>250 million	Responsible in fund to manage ESG / Impact
Interviewee 07	H	VC	<50 million	Responsible in fund to manage ESG / Impact
Interviewee 08	I /J	VC	50-150 million	Not primary responsible
Interviewee 09	K	VC	<50 million	Not primary responsible
Interviewee 10	E	VC	150 - 250 million	Responsible in fund to manage ESG / Impact
Interviewee 11	L	VC	<50 million	Not primary responsible
Interviewee 12	M	VC	150 - 250 million	Responsible in fund to manage ESG / Impact
Interviewee 13	C	VC	>250 million	Responsible in fund to manage ESG / Impact
Interviewee 15	N	LP	Confidential	Confidential
Interviewee 16	O	LP	Confidential	Confidential
Interviewee 17	P	VC	>250 million	Responsible in fund to manage ESG / Impact
Interviewee 18	Q	VC	50-150 million	Responsible in fund to manage ESG / Impact
Interviewee 19	R	CVC	>250 million	Not primary responsible
Interviewee 20	S	VC	>250 million	Responsible in fund to manage ESG / Impact
Interviewee 21	T	VC	<50 million	Not primary responsible
Interviewee 22	U	VC	>250 million	Responsible in fund to manage ESG / Impact
Interviewee 23	U	VC	>250 million	Not primary responsible
Interviewee 24	V	VC	50-150 million	Not primary responsible
Interviewee 25	B	VC	150 - 250 million	Responsible in fund to manage ESG / Impact

Source: Own research

The interviewees were numbered in chronological order based on when the interviews were conducted. Interviewees 1 and 8 were in the process of setting up new fund management vehicles at the time of the interview. Therefore, each represented two separate fund management companies, the one currently running and the new one in establishment.

The fund management companies represented are noted alphabetically, and the interviewees represented 23 vehicles. For funds B, C and U, interviews were conducted with 2 participants, initially with a representative not directly responsible for ESG / Impact and later with the nominated expert in the respective vehicle for these subjects. In all three cases, both interviewees were partners or GPs in the fund management company and formed part of the decision-making team in the fund set-up. This allowed for a juxtaposition of insights from participants with more intimate knowledge of environmental and social aspects and those with less knowledge of these themes, who nevertheless agreed with the priority given in the funds.

Most interviews were conducted with representatives from VC funds. One participant represented a Corporate Venture Capital company (CVC). CVCs are not obliged to adhere to SFDR disclosure regulations, as they only have one major investor, a corporate company. The investment strategy is linked to that corporation's strategy; in all other aspects, these funds execute similar processes to traditional VC funds. While CVCs were not this research's focus, one interview was conducted with a CVC (interviewee 19, representing fund vehicle R) to contrast the findings.

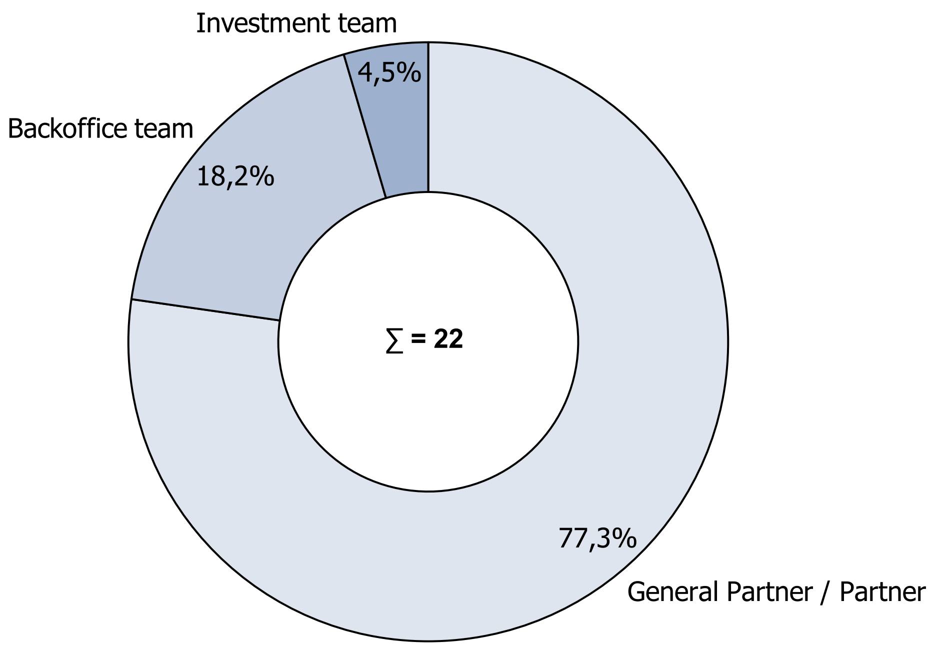
Participants 15 and 16 came from LPs, the investors in VC funds. These interviews were conducted to gain additional background insight into the incentives of LPs in the VC industry. These interviews did not follow the usual structure defined for VC fund participants. However, they were more conversational, discussing the various incentives of VC fund management companies to incorporate environmental and social aspects in their investment thesis. These participants belonged to the category of institutional/sovereign wealth fund LPs; to maintain their anonymity, no further details are shared.

All funds represented were either in the later stages of fundraising for their latest financial product or already in the investment stage; none were in the holding period. The total amount raised for the latest financial product (either still in fundraising or already closed) was Euro 3.8 billion (counted by fund, not by participant, avoiding double counting). Notably, these funds had closed their financing rounds between 2021 and 2023 or anticipated closing in 2023. Whilst a direct comparison with the total amount of funds raised over the years, as described in Figure 2.7, is not possible, it can be ascertained that the interviewees represented a substantial portion of the VC industry.

Half of the participants displayed subject matter expertise related to environmental and social aspects and SFDR classifications, as they were or are still responsible for the ESG / Impact aspects of the funds they represented. The other half of the interviewees were part of the leadership team defining and finally approving the investment thesis, including the targeted SFDR classification. This allowed for a more in-depth evaluation of incentives from those already convinced (and driving the environmental and social subjects) and those in funds who might have a more traditional VC viewpoint.

The split of interview partners by seniority (see Figure 4.7) illustrates that most of the participants from VC funds (77.3%) belonged to the fund's leadership team, either as partners or GPs. This was a conscious decision to add to existing research focusing on more junior VC fund representatives (Botsari & Lang, 2020).

Figure 4.7 Split of Interview Partners by Seniority



Source: Own research

The remaining interviewees (22.7%) either belonged to the back office as responsible staff for ESG / Impact or were part of the investment team whilst being allocated to ESG / Impact subjects. Some of the back-office representatives of funds were specifically hired to progress ESG subjects and were not necessarily involved in the fund establishment. Those interviews touched on the fund establishment and what was communicated to them in the hiring process. They then focused on the investment and holding stages of the fund lifecycle.

It is noteworthy that this study deliberately focuses on interviewing GPs of VC funds and select LP representatives to unearth the observable and unobservable structures affecting strategic decision-making in German VC funds. While laws and regulations undoubtedly form a framework of observable structures within which GPs operate, these are external factors that VCs cannot directly influence (at least in the short term). The aim is to explore the less visible structures that shape VC strategies. Interviews with policy makers and regulators, while potentially informative about the broader regulatory landscape, would not have significantly contributed to the understanding of the VCs' internal strategic considerations and the unobservable structures influencing their decisions. For the same reason other tangential industry participants, such as business angels, lawyers or consultants were not interviewed.

4.3.4. Data analysis

All interviews were conducted using internet-mediated tools. While Saunders et al. (2016) describe this as a different means from in-person meetings, the COVID-19 situation has increased the acceptance of this meeting form, reducing the gap to face-to-face interviews (Keen et al., 2022). In addition, with the participants' permission, the interview was recorded, offering an audio track and covering the video. The use of video allowed the establishment of a more personal connection than conversations using only audio. Through the video conferencing approach, multiple interviews could be conducted on the same day, which would have been difficult in a face-to-face setting.

The audio files were used to create an initial draft transcription via Microsoft Office 365—Word. Initially, it was considered to conduct the interviews directly in MS Teams, allowing for a direct transcription. Zoom was chosen as it was deemed more user-friendly for the interviewer and the participants.

The interviews were evaluated using thematic analysis, going through multiple stages to identify the themes. NVIVO 12 was used to document the coding and to support the analysis following Charmaz (2006) defining that "*coding is […] categorising segments of data with a short name (a code) and using these codes to sort and develop an understanding of what is happening in the social situation being studied*" (pp. 42-43).

Fryer (2022) defined five stages to conduct CR thematic analyses based on interview findings (see Table 4.2); step 1 is already explored in detail in Chapter 1.

Table 4.2 - Development of Codes based on CR

Step	Activity
Step 1: Develop your research questions	• Determine the specific area of interest. • Create relevant research questions.
Step 2: Familiarize yourself with the data	• Examine a sample of the collected data. • Note initial observations and potential themes.
Step 3: Apply, develop and review codes	• Implement a data-driven approach to coding. • Refine codes by standardising terminology (using consistent wording for similar codes) and consolidating them (using theoretical terms to unify different codes).
Step 4: Develop and review themes	• Develop themes that explain the causal relationships of experiences or events. • Validate these themes by reviewing their accuracy.
Step 5: Generate conclusions and reports	• Analyse and discuss the findings. • Assess the validity of the conclusions drawn.

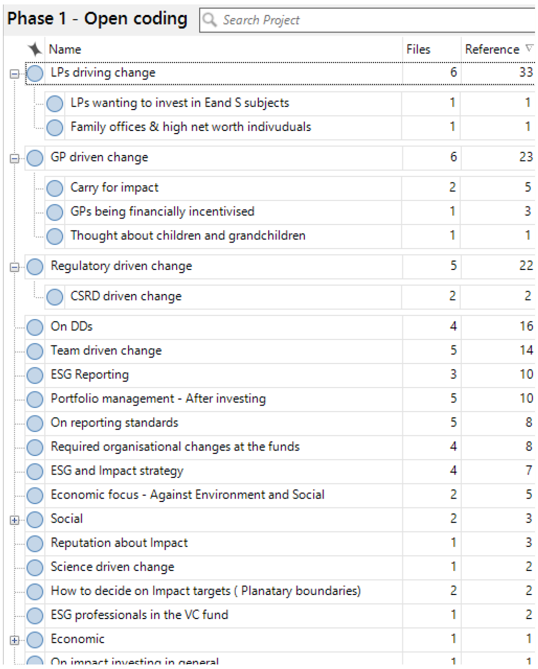
Source: adapted from Fryer, 2022

Following step 2, the first six interviews were transcribed as described above, based on the original MS Office automatic transcription, which was then quality-controlled manually. Common categories were identified in the subsequent open coding, and interview quotes were attributed (see Figure 4.8).

One interview was conducted in German, all other interviews in English. The interview conducted in German was transcribed and coded as described above, like the English interviews, however in German and only those quotes used were translated to English.

This was specifically done at the beginning of the process to ensure that the category structure was developed early to ease the thematic analysis for later interview transcripts. This process increased familiarity with the data, allowing for continuous fine-tuning of the interview process. The structure of the interviews was not changed; given their semi-structured nature, they already allowed for some free conversations; however, the choice of wording was developed continuously.

Figure 4.8 Open Coding in NVIVO


Phase 1 - Open coding

Name	Files	Reference
LPs driving change	6	33
LPs wanting to invest in Eand S subjects	1	1
Family offices & high net worth indivuduals	1	1
GP driven change	6	23
Carry for impact	2	5
GPs being financially incentivised	1	3
Thought about children and grandchildren	1	1
Regulatory driven change	5	22
CSRD driven change	2	2
On DDs	4	16
Team driven change	5	14
ESG Reporting	3	10
Portfolio management - After investing	5	10
On reporting standards	5	8
Required organisational changes at the funds	4	8
ESG and Impact strategy	4	7
Economic focus - Against Environment and Social	2	5
Social	2	3
Reputation about Impact	1	3
Science driven change	1	2
How to decide on Impact targets (Planatary boundaries)	2	2
ESG professionals in the VC fund	1	2
Economic	1	1
On impact investing in general	1	1

Source: Own research

As a next step, the first set of categories was developed, focusing on the fund set-up and its operations (see Figure 4.9). These categories matched the study objectives but were deemed to be too broad to identify the underlying structures and mechanisms specifically. This early categorisation further increased the familiarisation with the data, allowing for a deep dive into these initial findings and fine-tuning the categories.

Figure 4.9 Phase 2 A Developing Categories in NVIVO

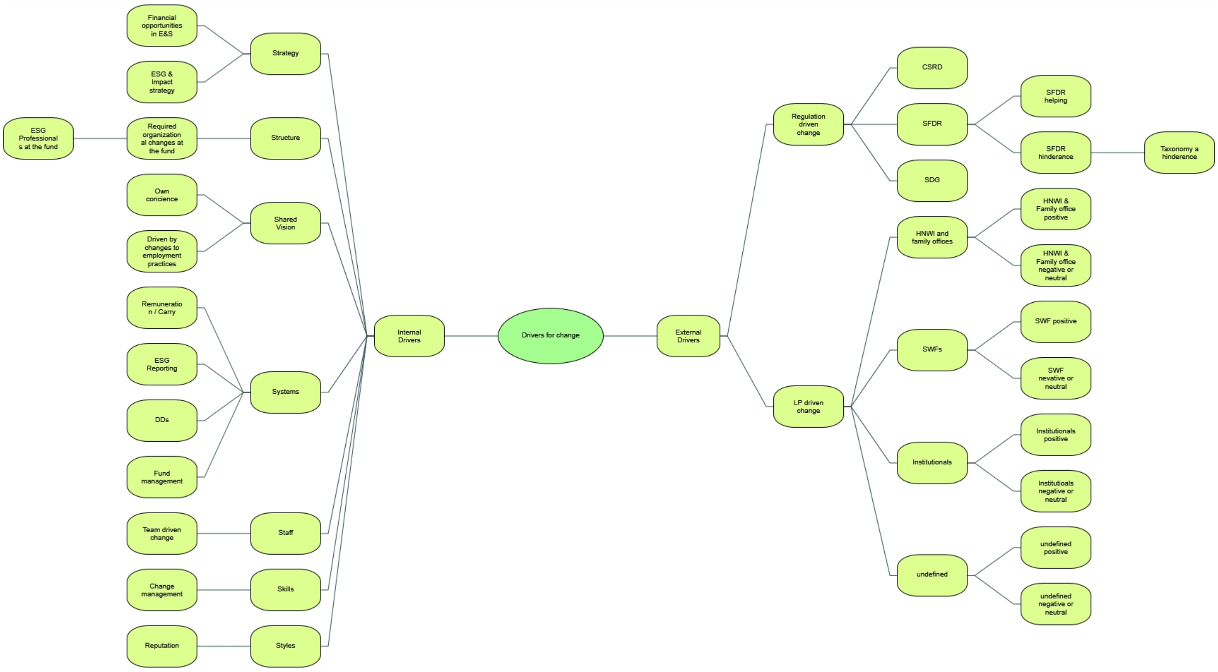
Phase 2 A - Developing categories

Name	Files	References
1. Fund set up	0	0
1.1 LPs driving change	6	33
1.2 GP driven change	6	21
1.3 Regulatory driven change	5	22
1.4 Team driven change	5	13
1.5 Rationales for not looking into E and S	1	1
2. Fund operations	0	0
ESG and Impact strategy	4	7
ESG Reporting	3	10
On DDs	4	16
Portfolio management - After investing	5	10
Required organisational changes at the funds	4	8
3. On impact investing in general	1	1
4. Change management	4	10
On becoming up or downgraded	1	1

Source: Own research

The categories were split into internal and external drivers for change as a next step. The rationale for this was to identify these mechanisms that are primarily driven by internal actors to the fund and separate those from those mechanisms driven by actors external to the fund (see Figure 4.10). The internal mechanisms were segmented based on the 7-S model in combination with the previously identified categories. The external drivers were segmented into the LPs who influence the decision-making process and the regulatory environment providing the legal structure. The sub-structures focused on mechanisms and structures encouraging and discouraging increased environmental and social aspects in the strategic decisions of funds.

Figure 4.10 Phase 2 B Internal – External Categories in NVIVO

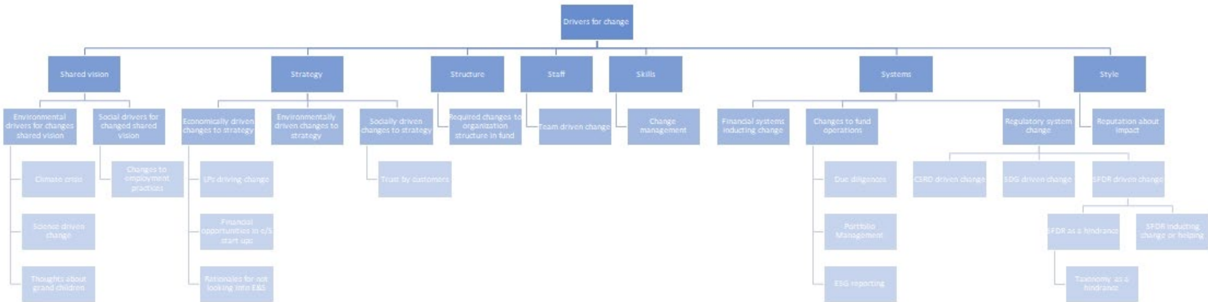


Source: Own research (see full page picture in appendix)

The reflection on the strategic decisions of a fund caused the final update of the categories. The external factors, whilst originating outside of the fund (LPs and regulation), influence the fund strategy that the GPs are setting. GPs have a choice of which LP to pursue in their efforts to raise money for the fund; it is an internal strategic decision of the GPs if they want to adhere to the LP's requirements for the allocation of money. Whilst a fund has arguably little influence on the regulatory environment and the resulting structures in the industry, the fund can nevertheless decide on the pursued SFDR classification.

Therefore, the category structure was reviewed again to internalise all external factors into the fund, still based on the 7-S model (see Figure 4.11). The choice of LP and subsequent environmental and social performance requirements were allocated to the strategy segment. The regulatory structures were attributed to systems in which the fund must operate.

Figure 4.11 Phase 2 C Internalisation of Categories in NVIVO



Source: Own research (see full page picture in appendix)

Developing these categories was an iterative process, in line with the above-described CR approach to code interview findings and circling between the Abduction /theoretical redescription and the Retrodiction stages by Danermark et al. (2019). It allowed for deeper immersion in the data from an earlier stage of the interview process.

Subsequent interviews were coded against these defined categories. The transcription and coding process was optimised by simultaneously reviewing and correcting the automated transcription and coding. The major categories were maintained, but some modifications on the lower levels of the categories were still conducted based on the interview data. In the subsequent chapter, the identification of themes will be discussed in more detail.

The next section provides a detailed outline of the research design of the investment evaluation framework.

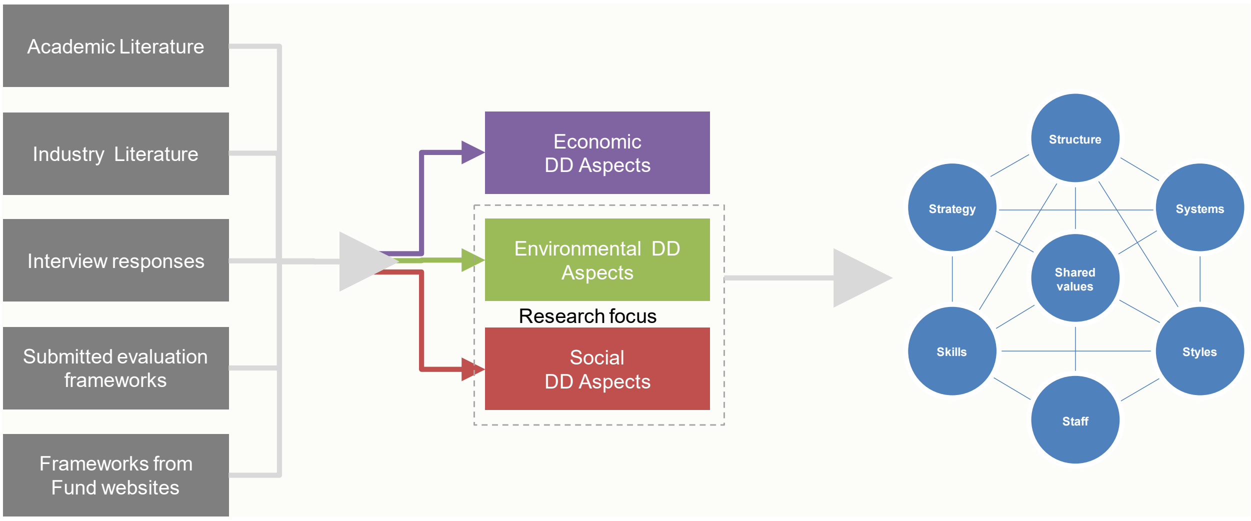
4.4. Investment evaluation framework research design

The evaluation of investment frameworks, particularly the DD process of VC companies, was a priority from the onset of this doctoral journey. This part of the VC business model describes how VC companies evaluate their target start-ups and decide whether an investment should be conducted. Fundamentally, the success of a VC management company is based on these decisions, as the success of these start-ups defines the financial returns of the fund. If the fund invests in start-ups that grow and allow for an exit, either through an IPO or through secondaries, the returns for investors are generated.

The information obtained by evaluating start-ups, often at early stages (e.g., pre-seed or seed), substantially influences these strategic decisions. How much emphasis is given to environmental and social aspects in the evaluation has the potential to influence the success of a fund directly. DD questionnaires are established to provide a structured and trackable way to evaluate start-ups against the set criteria linked to the investment thesis of a fund. The DD process takes place in the investment stage of a fund (see Figure 2.7), after identifying a start-up and before an investment is conducted. The intention of a DD is to review different aspects of a start-up, including financial, legal, technical or sustainability-related subjects.

This section describes how this objective was pursued from a data collection perspective (see Figure 4.12).

Figure 4.12 Data Inputs for Evaluation Framework Investigation



Source: Own research

To ensure a comprehensive review of the current knowledge and approaches taken by funds, the findings are based on academic and industry literature, the interview findings, the evaluation frameworks submitted by participants and the information provided on fund websites. Combining the academic knowledge with practical applications from the VC funds provided a deeper insight into the DD processes and frameworks used. At the beginning of the research journey, the intention was to provide one generic DDQ for all funds relating to ESG or Impact. The literature review, combined with the findings from interviews, shifted this focus to identifying and reviewing frameworks that can be used for ESG and Impact DDs. Chapter 6 provides more background on the rationale for this shift.

Academic and industry literature identified the most frequently used frameworks by VCs to conduct ESG and Impact DDs.

The interviews with industry participants provided insight into the DD process and the roles and responsibilities of the funds conducting such DDs. Some interview participants shared their ESG / Impact DD questionnaires or frameworks used. This highlighted the varying approaches to the DD process between the different funds. It is noteworthy that whilst Article 9 funds also must conduct an ESG DD, the conversations with interview participants from such funds focused on the Impact DD.

The McKinsey 7-S model was used to normalise different approaches to structuring the DDs. While the 7-S framework was applied in Objective 1 relating to the fund management company, investigating the VC business model, it formed the basis of the start-up investigation for Objective 2. In the DD process, the VCs explore the entire business model of the targeted start-up. Subsequently, each identified DD item was allocated to this framework's relevant dimensions.

The following section details the research design for the website analysis.

4.5. Website Analysis Research Design

The evolution of the website analysis concept underwent significant transformation during the research period. Initially, it served as an incentive for interview participants to engage in the research interviews. The website analysis aimed to encompass a word-counting mechanism to assess the emphasis on the three core dimensions, accompanied by including information related to website security. Both data points were intended to be procured from commercially available sources.

This section delves into the research design employed for the website analysis, which, akin to the interview research methodology, formed part of an iterative process based on the 5-stage model by Danermark et al. (2019), cycling between stages 3 (Abduction / theoretical redescription) and 4 (Retroduction).

It is noteworthy that the websites of VC firms not only present general information about the VC itself but also offer insights into past transactions. This information serves the dual purpose of showcasing the VC's target companies for prospective start-ups and informing investors about the allocation of their funds. These descriptions or value narratives aim to create and augment the start-up's value for future investment rounds (Elder-Vass, 2021). These sections will likely be updated most frequently on the websites as new deals materialise. In preparation for the interviews, these sections were explicitly reviewed.

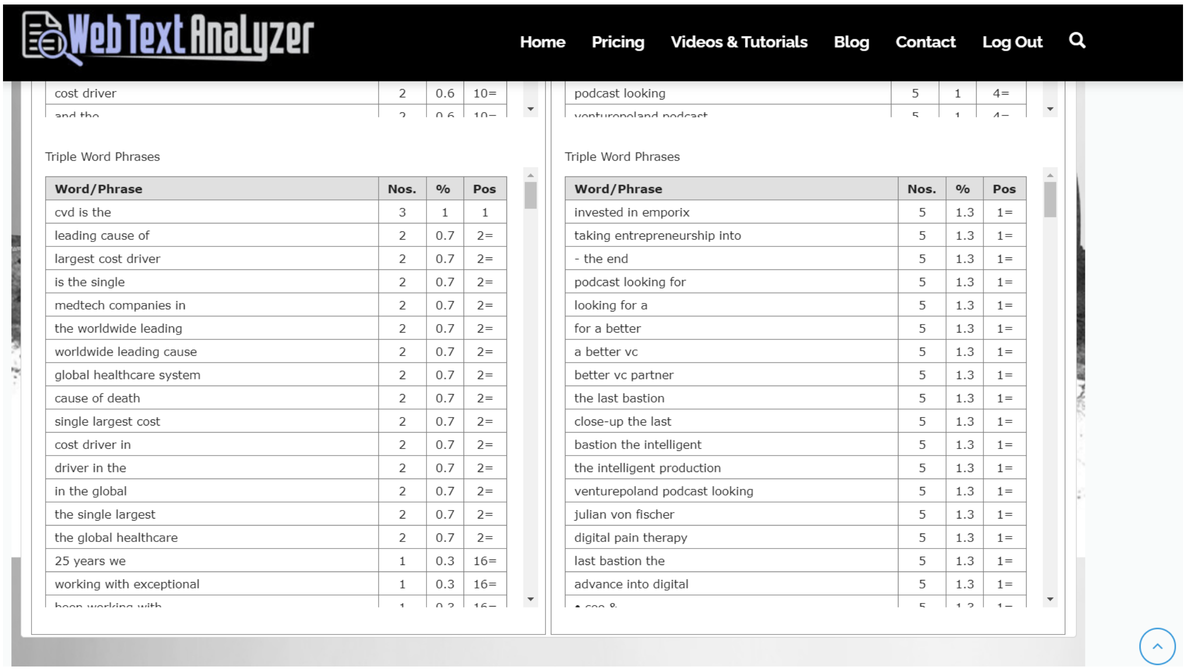
4.5.1. Website Analysis Data Collection Tool

The WA could be conducted intensively, focusing on a few selected sites as in-depth case studies, scrutinising the textual content and visual elements such as images and colour schemes (Ackroyd & Karlsson, 2014). The WA was also meant to be used as an incentive for the interview participants, who would require a comparison with other industry participants to ensure that the provided data is placed into the wider industry context. However, conducting in-depth case studies for all 231 fund websites would have been time-consuming and unjustified when weighed against the expected insights from interviews. Consequently, an extensive approach was adopted, covering all 231 funds with operational websites and utilising automation for data collection.

Three methods were considered for data collection: two commercially available online tools, Webtextanalyser (WTA) (*Webtextanalyser*, n.d.) and Sitebulb (SB) (*Sitebulb*, n.d.) and a custom-developed tool. The primary objective of both WTA and SB was to aid companies in enhancing their online presence, which encompassed improving their search engine performance. To this end, WTA allowed users to quantify the occurrence of specific words or 2–3-word phrases on specific websites (see Figure 4.13).

Of particular relevance to this research was not merely the frequency of mentions of environmental or social aspects on VC fund websites but their relative importance when juxtaposed with economic terms. However, using WTA posed two constraints: First, it necessitated the manual input of the websites under scrutiny, allowing for a maximum of two sites to be entered simultaneously. Second, the data output required manual copying and pasting into an analysis spreadsheet of three tables for each company. Given the need to conduct this analysis for 231 companies, this presented a substantial workload, albeit one that was manageable.

Figure 4.13 Sample Output from Webtext Analyser Tool



WebTextAnalyzer

Home Pricing Videos & Tutorials Blog Contact Log Out

cost driver	2	0.6	10=

podcast looking	5	1	4=

Triple Word Phrases

Word/Phrase	Nos.	%	Pos
cvd is the	3	1	1
leading cause of	2	0.7	2=
largest cost driver	2	0.7	2=
is the single	2	0.7	2=
medtech companies in	2	0.7	2=
the worldwide leading	2	0.7	2=
worldwide leading cause	2	0.7	2=
global healthcare system	2	0.7	2=
cause of death	2	0.7	2=
single largest cost	2	0.7	2=
cost driver in	2	0.7	2=
driver in the	2	0.7	2=
in the global	2	0.7	2=
the single largest	2	0.7	2=
the global healthcare	2	0.7	2=
25 years we	1	0.3	16=
working with exceptional	1	0.3	16=

Triple Word Phrases

Word/Phrase	Nos.	%	Pos
invested in emporix	5	1.3	1=
taking entrepreneurship into	5	1.3	1=
- the end	5	1.3	1=
podcast looking for	5	1.3	1=
looking for a	5	1.3	1=
for a better	5	1.3	1=
a better vc	5	1.3	1=
better vc partner	5	1.3	1=
the last bastion	5	1.3	1=
close-up the last	5	1.3	1=
bastion the intelligent	5	1.3	1=
the intelligent production	5	1.3	1=
venturepoland podcast looking	5	1.3	1=
julian von fischer	5	1.3	1=
digital pain therapy	5	1.3	1=
last bastion the	5	1.3	1=
advance into digital	5	1.3	1=

Source: Webtextanalyser*, n.d.*

The second limitation pertained to the tool's restricted evaluation scope, as it exclusively assessed the initial site, typically the front page specified for analysis. It did not crawl the entire domain, which involves traversing the links to various sections within the company's website. While analysing the front page could yield valuable insights into the company's language use, thoroughly examining the entire domain was deemed more comprehensive and desirable. Achieving this required the tool to possess crawling capabilities, which is lacking in the WTA tool. This limitation underscored the importance of comprehensive domain analysis in understanding language usage and content across a VC company's entire website, as opposed to the narrower focus on individual pages. Such an approach was critical for gaining a holistic perspective on a company's online presence.

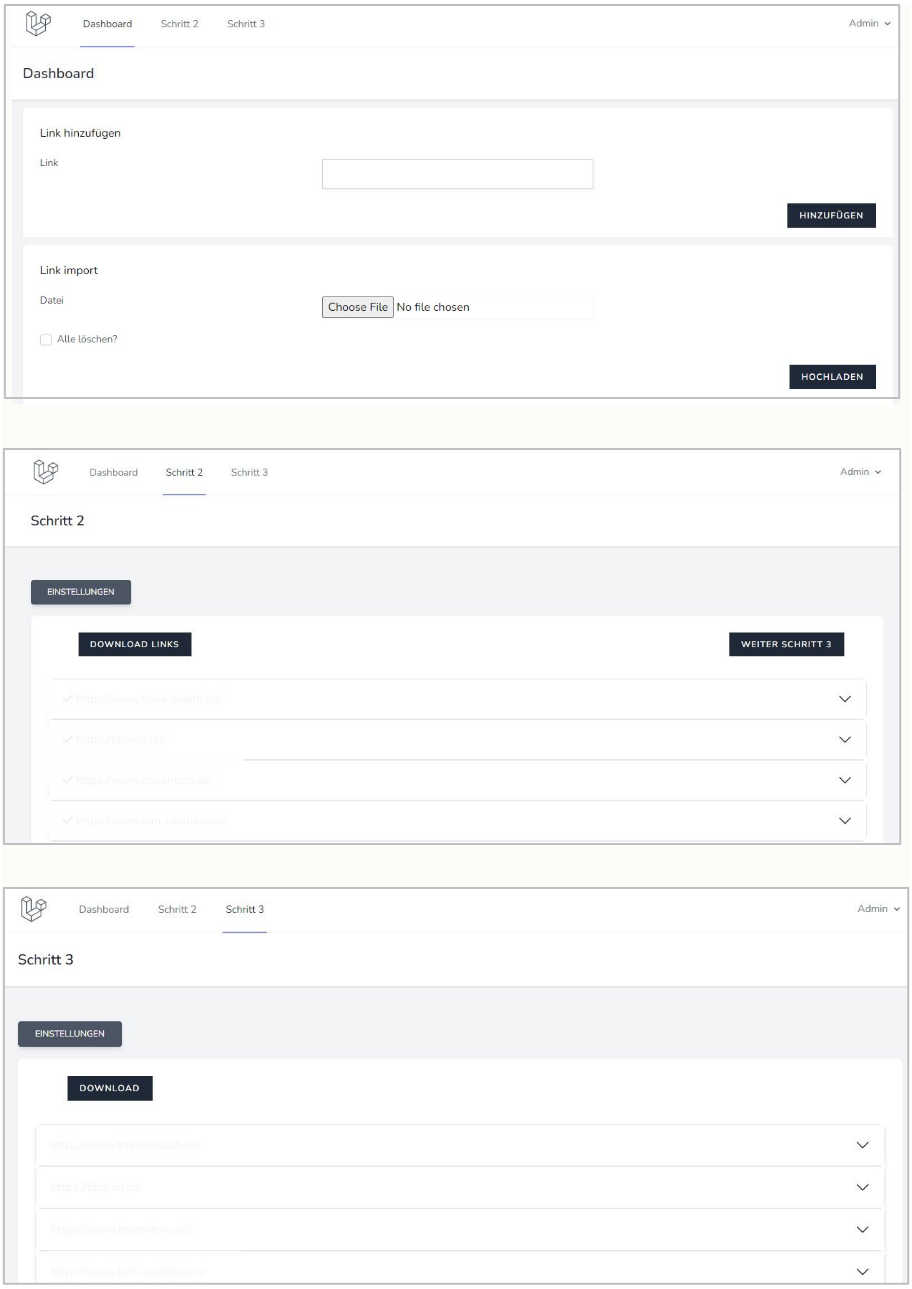
In contrast to WTA, SB offered a comprehensive crawl of the designated websites, enabling the exploration of links within the same domain. For instance, when analysing the Sheffield Hallam University website (https://www.shu.ac.uk), SB would cover links within the domain, such as the research area (https://www.shu.ac.uk/research), while excluding external content like the Facebook page (https://www.facebook.com/sheffieldhallamuniversity).

However, SB had a notable limitation. It required predefined search terms and focused solely on counting the occurrences of these specified words on the website. This limitation posed a significant challenge due to the extensive number of keywords related to the TBL, both in German and English. SB was contacted and confirmed that it could not address this constraint and had no plans to introduce such a feature.

To overcome these limitations, the development of a software application was commissioned, combining the required features from the two commercial tools. The two main features were combining the required crawling capabilities and supplying the required word count. In addition, the tool had to allow for the entry of all required websites simultaneously and provide an export feature to Excel.

While the software development was outsourced to professional developers, all business requirements were created through this research and the intellectual property rights remain with the researcher. For a visual representation of the application's front end, refer to Figure 4.14.

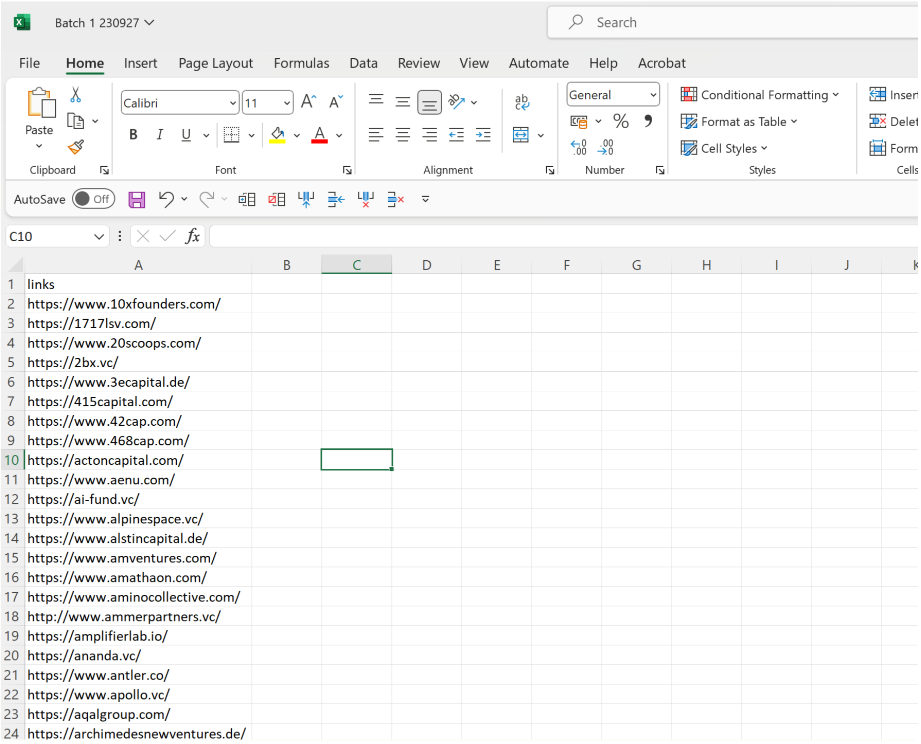
Figure 4.14 Impressions of the Website Word Counting Tool



Source: Own research

An upload mechanism was used to input the funds' websites into the tool. This process involved using a CSV (Comma-Separated Values) file for the initial entry (see Figure 4.15).

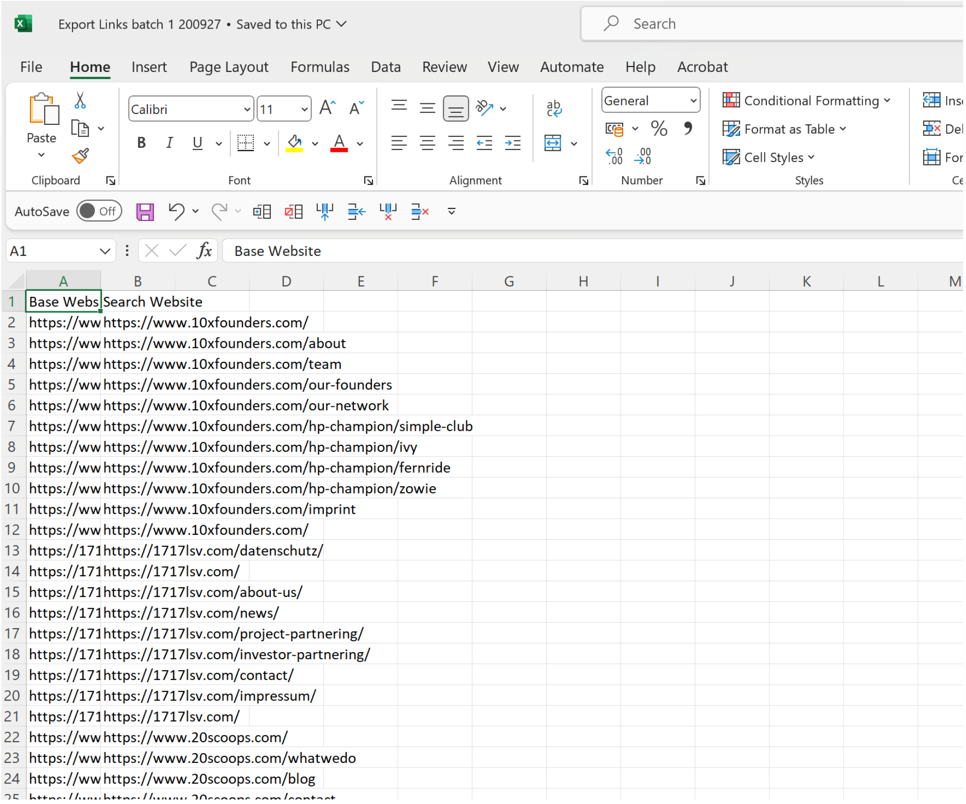
Figure 4.15 Sample UPLOAD file for Website Word Counting Tool



Source: Own research

After uploading all the websites, the tool proceeded to phase 2, systematically identifying all the sites associated with a particular domain (see Figure 4.16). At this stage, it was possible to choose which sites within a domain were meant to be the basis for the word counting in phase 3. The full list of identified sites was then exported to separate CSV files to ensure transparent documentation.

Figure 4.16 Sample List of Identified Sites within a Domain



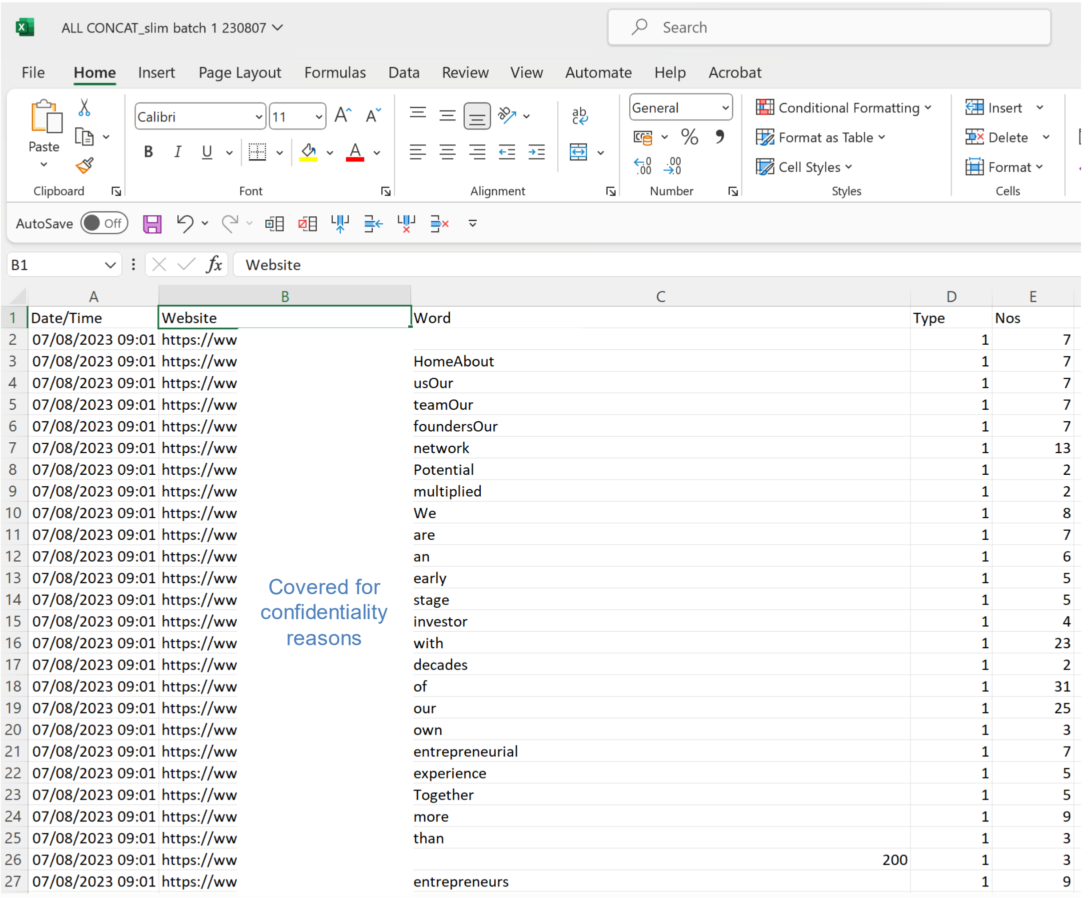
Source: Own research

The significance of selecting specific sites within a domain became more pronounced with the full implementation of the SFDR in early 2023, which coincided with the advanced stage of the doctoral journey. SFDR mandated that funds disclose their sustainability practices and fund classifications on their websites. During this period, it was observed that approximately 50% of the funds had incorporated the required declarations on their websites. These declarations included sustainability-related language, even for Article 6 funds, which did not have explicit ESG or impact objectives. The system provided a mechanism to exclude these sites from data collection.

In the third and final phase, the system counted the words from the chosen websites. The results of this phase were presented as a downloadable CSV file (see Figure 4.17).

This file included the date and time of data collection, the source website's name, the words counted, whether they were single words or two—or three-word strings, and the frequency of usage of these words. This comprehensive data collection and analysis process aimed to provide valuable insights into various funds' sustainability practices and linguistic choices.

Figure 4.17 Sample Output from Word Counting



	A	B	C	D	E
1	Date/Time	Website	Word	Type	Nos
2	07/08/2023 09:01	https://ww		1	7
3	07/08/2023 09:01	https://ww	HomeAbout	1	7
4	07/08/2023 09:01	https://ww	usOur	1	7
5	07/08/2023 09:01	https://ww	teamOur	1	7
6	07/08/2023 09:01	https://ww	foundersOur	1	7
7	07/08/2023 09:01	https://ww	network	1	13
8	07/08/2023 09:01	https://ww	Potential	1	2
9	07/08/2023 09:01	https://ww	multiplied	1	2
10	07/08/2023 09:01	https://ww	We	1	8
11	07/08/2023 09:01	https://ww	are	1	7
12	07/08/2023 09:01	https://ww	an	1	6
13	07/08/2023 09:01	https://ww	early	1	5
14	07/08/2023 09:01	https://ww	stage	1	5
15	07/08/2023 09:01	https://ww	investor	1	4
16	07/08/2023 09:01	https://ww	with	1	23
17	07/08/2023 09:01	https://ww	decades	1	2
18	07/08/2023 09:01	https://ww	of	1	31
19	07/08/2023 09:01	https://ww	our	1	25
20	07/08/2023 09:01	https://ww	own	1	3
21	07/08/2023 09:01	https://ww	entrepreneurial	1	7
22	07/08/2023 09:01	https://ww	experience	1	5
23	07/08/2023 09:01	https://ww	Together	1	5
24	07/08/2023 09:01	https://ww	more	1	9
25	07/08/2023 09:01	https://ww	than	1	3
26	07/08/2023 09:01	https://ww	200	1	3
27	07/08/2023 09:01	https://ww	entrepreneurs	1	9

Source: Own research

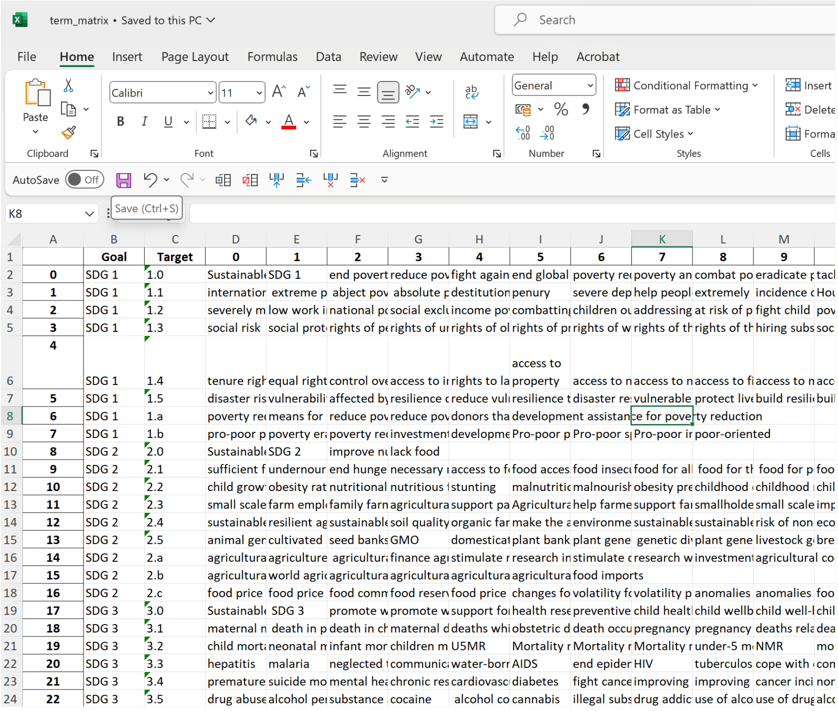
It is worth noting that the full data collection was conducted in 9 batches as the available 1 million rows in Microsoft Excel could not accommodate the 2.3 million lines of generated data. Uploading the websites, creating lists of sites within a domain, filtering the sites, and then calculating the final word count took approximately one full day each time the data was sourced. It can safely be assumed that manual word counting, even on a much-reduced number of sites, would have taken longer.

4.5.2. Development of the TBL Codebook

Parallel to the software development, including the definition of business requirements, coding, and quality control and assurance, the code book for the evaluation was established.

The starting point was based on the work of the European Commission Joint Research Centre, which developed a list of keywords linked to the UN sustainable development goals (SDG). This list contained 3,500 keywords and word strings associated with the respective SDG and was later used to evaluate EU policies against their contribution to the SDGs (Borchardt et al., 2022). A link to the TBL was created from this term matrix (see Figure 4.18) and the link between the keywords and the UN SDGs. Using manifest content analysis techniques, the identified words were coded into five categories (environmental, social, economic, neutral and impact).

Figure 4.18 Sample of EU JRC Term Matrix



	A	B	C	D	E	F	G	H	I	J	K	L	M	
1		**Goal**	**Target**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
2	**0**	SDG 1	1.0	Sustainabl	SDG 1	end povert	reduce pov	fight again	end global	poverty re	poverty an	combat po	eradicate p	tacl
3	**1**	SDG 1	1.1	internatior	extreme p	abject pov	absolute p	destitution	penury	severe dep	help peopl	extremely	incidence c	Hou
4	**2**	SDG 1	1.2	severely m	low work i	national pc	social exclu	income po	combatting	children ou	addressing	at risk of p	fight child	pov
5	**3**	SDG 1	1.3	social risk	social prot	rights of pe	rights of ur	rights of ol	rights of pr	rights of w	rights of th	rights of th	hiring subs	soc
6	**4**	SDG 1	1.4	tenure righ	equal right	control ove	access to ir	rights to la	access to property	access to n	access to n	access to fi	access to n	acc
7	**5**	SDG 1	1.5	disaster ris	vulnerabili	affected by	resilience c	reduce vul	resilience t	disaster re	vulnerable	protect live	build resili	buil
8	**6**	SDG 1	1.a	poverty re	means for	reduce pov	reduce pov	donors tha	development assistance for poverty reduction					
9	**7**	SDG 1	1.b	pro-poor p	poverty era	poverty re	investment	developme	Pro-poor p	Pro-poor s	Pro-poor ir	poor-oriented		
10	**8**	SDG 2	2.0	Sustainabl	SDG 2	improve nu	lack food							
11	**9**	SDG 2	2.1	sufficient f	undernour	end hunge	necessary	access to f	food acces	food insec	food for all	food for th	food for p	foo
12	**10**	SDG 2	2.2	child grow	obesity rat	nutritional	nutritious	stunting	malnutritic	malnourish	obesity pre	childhood	childhood	chil
13	**11**	SDG 2	2.3	small scale	farm empl	family farn	agricultura	support pa	Agricultura	help farme	support fa	smallholde	small scale	imp
14	**12**	SDG 2	2.4	sustainable	resilient ag	sustainable	soil quality	organic far	make the a	environme	sustainable	sustainable	risk of non	eco
15	**13**	SDG 2	2.5	animal ger	cultivated	seed banks	GMO	domesticat	plant bank	plant gene	genetic div	plant gene	livestock g	bre
16	**14**	SDG 2	2.a	agricultura	agriculture	agricultura	finance agi	stimulate r	research in	stimulate c	research w	investment	agricultural co	
17	**15**	SDG 2	2.b	agricultura	world agric	agricultura	agricultura	agricultura	agricultura	food imports				
18	**16**	SDG 2	2.c	food price	food price	food comn	food reser	food price	changes fo	volatility fc	volatility p	anomalies	anomalies	foo
19	**17**	SDG 3	3.0	Sustainabl	SDG 3	promote w	promote w	support fo	health rese	preventive	child healt	child wellb	child well-l	chil
20	**18**	SDG 3	3.1	maternal n	death in p	death in ch	maternal d	deaths whi	obstetric d	death occu	pregnancy	pregnancy	deaths rela	dea
21	**19**	SDG 3	3.2	child morta	neonatal n	infant mor	children m	U5MR	Mortality r	Mortality r	Mortality r	under-5 m	NMR	mo
22	**20**	SDG 3	3.3	hepatitis	malaria	neglected t	communica	water-borr	AIDS	end epider	HIV	tuberculos	cope with	con
23	**21**	SDG 3	3.4	premature	suicide mo	mental hea	chronic res	cardiovasc	diabetes	fight cance	improving	improving	cancer inci	nor
24	**22**	SDG 3	3.5	drug abuse	alcohol per	substance	cocaine	alcohol co	cannabis	illegal subs	drug addic	use of alco	use of drug	alco

Source: Borchardt et.al., 2022

A list of 3,399 keywords was initially used in the keyword extraction process. However, it contained 1,190 expressions with more than three words, which exceeded the limit of the word-counting application. Many of these expressions were not likely to be found on VC websites, such as lengthy phrases like "helped 3.5 million young people a year to get in training, education, or work" or technical terms like "Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation." Moreover, the original list was designed to evaluate EU policy documents, and some expressions were irrelevant to VC websites, such as "aid for trade" or "vulnerability to earthquakes".

Resultingly, an additional approach to the development of keywords was adopted. A pilot list of words was extracted from VC websites, and three sample funds were selected for this process:

- *Ananda Impact Ventures, an impact fund (SFDR Article 9), was chosen because its website was expected to contain more environmental and social keywords (Ananda Ventures GmbH, n.d.).*
- *Bayern Kapital (SFDR Article 8) had a relatively high number of words on its website, including over 8,000 single words and over 59,000 1-, 2-, or 3-word combinations (Bayern Kapital GmbH, n.d.).*
- *Cavalry Ventures (SFDR Article 8) was randomly selected as the third fund (Cavalry Ventures Management GmbH, n.d.).*

In the keyword identification process, a substantial number of additional words, totalling 79,594, were identified (see Table 4.3). This expanded the overall count of coded keywords to 85,471. These keywords included German and English terms, as sourced from the websites.

Table 4.3 Pivot Table of Coded Words for Three Pilot Funds

Count of Date/Time	Column Labels			
Row Labels	**https://ananda.vc/**	**https://bayernkapital.de/**	**https://cavalry.vc/**	**Grand Total**
economic	Hidden to ensure confidentiality			625
environmental				91
impact				58
neutral				78,635
social				185
Grand Total				**79,594**

Source: Own research

To categorise these keywords effectively, a specific approach was adopted:

- *Keywords directly related to one of the TBL, environmental, social, or economic, were allocated to their respective categories.*

- *Any words encompassing social and environmental aspects were categorised as "impact."*
- *Words that could be used in multiple categories, such as "sustainability" (applicable to both financial and environmental sustainability), were classified as "neutral." Two-word combinations were classified into the appropriate categories.*
- *All other words, including names, numbers, country references, dates, and currencies, were uniformly categorised as "neutral".*

This meticulous keyword development created a comprehensive codebook suitable for evaluating TBL-related language on the websites of VC companies based on the original work of Borchardt et al. (2022).

It is worth noting that Artificial Intelligence and Natural Language Programming were considered but dismissed for this research. Initially, the development of a codebook might have been faster. However, given the prevalent constraints of the publicly available systems, a manual check would have to be done, eliminating any potential time savings.

4.5.3. Approach to Evaluate TBL Data

The data collection created tables in CSV format for each of the nine collected batches. The equally Excel-based codebook was referenced through a lookup function to classify the collected words according to the TBL. Subsequently, Excel pivot tables were created indicating the number of words allocated to the TBL by each fund. These were then combined into a master database (see Figure 4.19), to which the fund classification was added.

Figure 4.19 Illustrative of Wordcount Database

Fundwebsite	Date	Fund type	economic	environment	impa	neutr	socia	#N/A	(blan	Grand Total
https://	2405	8	349	9		4751	9	9354		14472
https://	2405	Fund type not define	216	2		3439	20	7063		10740
https://	2405	Fund type not define	28			646		1504		2178
https://	2405	8	104	42	1	2048	25	4353		6573
https://	2405	Fund type not define	238	1		2736	6	5098		8079
https://	2405	8	707	2		7418	83	16006		24216
https://	2405	Fund type not define	270	2	4	2733	3	5067		8079
https://	2405	8	221	11	7	1863		3946		6048
https://	2405	8	1979	17	12	24046	39	66241		92334
https://	2405	9	584	56	11	11433	146	19654		31884
https://	2405	Fund type not define	519	1		11351	95	21856		33822
https://	2405	6	76	2	3	1045		1913		3039
https://	2405	8	204		18	1678	4	3640		5544
https://	2405	Fund type not define	446	56		9701	55	18038		28296
https://	2405	Fund type not define	69			1024	1	2008		3102
https://	2405	8	51	4		2209	48	5809		8121
http://w	2405	Fund type not define	45	10		2460	4	2563		5082
https://	2405	Fund type not define	19	1		276		619		915
https://	2405	8	755	18	60	13786	93	25686		40398
https://	2405	9	367	46	82	16532	175	4209		21411
https://	2405	8	2264	253	12	46011	176	94198		142914
https://	2405	8	231	1		6226	24	11611		18093
https://	2405	Fund type not define	3938	595	162	63727	434	133125		201981
https://	2405	Fund type not define	50			633		1243		1926
https://	2405	Fund type not define	335	1		5129	7	10524		15996
https://	2405	8	7	3	1	121	1	254		387
https://	2405	8	165	10	6	3998	104	8215		12498
https://	2405	Fund type not define	249	2		2074	8	4273		6606
https://	2405	9	76	5	15	1420	46	3007		4569
https://	2405	6	39			294		594		927
https://	2405	8	251	5	9	4041	18	8045		12369
https://	2405	Fund type not define	160	9		2904	9	5561		8643
https://	2405	8	222	2		3126	12	6769		10131
https://	2405	8	1248	28		22158	109	30403		53946
https://	2405	Fund type not define	2			24		49		75
http://b	2405	Fund type not define	71	1		1501	2	3591		5166
http://w	2405	Fund type not defined				19		56		75
https://	2405	Fund type not define	679	36		9708	12	25595		36030
https://	2405	Fund type not define	79			1380	4	2461		3924
https://	2405	Fund type not define	554	17		16072	48	31414		48105
https://	2405	8	565	2		8077	48	15203		23895
http://w	2405	Fund type not define	36			582		1200		1818

Covered for confidentiality reasons

Source: Own research

This comprehensive database contained the counts for the collected TBL words, including general impact ones, neutral words, and words not covered by the codebook (#N/A in Figure 3.20). The word count of each TBL category was then divided by the sum of identified words to calculate their percentage contribution to the communication of each of the VC funds (see Figure 4.20).

Figure 4.20 – Illustrative of Calculated Results

Fundwebsite	% economic of identified words	% environment of identified words	% impact of identified words	% Neutral of identified words	% social of identified words	% economic of non-neutral identified words	% environment of non-neutral identified words	% impact of non-neutral identified words	% social of non-neutral identified words	% of TBL words of total identified words
https:/	6.82%	0.18%	0.00%	92.83%	0.18%	95.10%	2.45%	0.00%	2.45%	7.17%
https:/	5.87%	0.05%	0.00%	93.53%	0.54%	90.76%	0.84%	0.00%	8.40%	6.47%
https:/	4.15%	0.00%	0.00%	95.85%	0.00%	100.00%	0.00%	0.00%	0.00%	4.15%
https:/	4.68%	1.89%	0.05%	92.25%	1.13%	60.47%	24.42%	0.58%	14.53%	7.75%
https:/	7.98%	0.03%	0.00%	91.78%	0.20%	97.14%	0.41%	0.00%	2.45%	8.22%
https:/	8.61%	0.02%	0.00%	90.35%	1.01%	89.27%	0.25%	0.00%	10.48%	9.65%
https:/	8.96%	0.07%	0.13%	90.74%	0.10%	96.77%	0.72%	1.43%	1.08%	9.26%
https:/	10.51%	0.52%	0.33%	88.63%	0.00%	92.47%	4.60%	2.93%	0.00%	11.37%
https:/	7.58%	0.07%	0.05%	92.15%	0.15%	96.68%	0.83%	0.59%	1.91%	7.85%
https:/	4.78%	0.46%	0.09%	93.48%	1.19%	73.27%	7.03%	1.38%	18.32%	6.52%
https:/	4.34%	0.01%	0.00%	94.86%	0.79%	84.39%	0.16%	0.00%	15.45%	5.14%
https:/	6.75%	0.18%	0.27%	92.81%	0.00%	93.83%	2.47%	3.70%	0.00%	7.19%
https:/	10.71%	0.00%	0.95%	88.13%	0.21%	90.27%	0.00%	7.96%	1.77%	11.87%
https:/	4.35%	0.55%	0.00%	94.57%	0.54%	80.07%	10.05%	0.00%	9.87%	5.43%
https:/	6.31%	0.00%	0.00%	93.60%	0.09%	98.57%	0.00%	0.00%	1.43%	6.40%
https:/	2.21%	0.17%	0.00%	95.54%	2.08%	49.51%	3.88%	0.00%	46.60%	4.46%
http:/\	1.79%	0.40%	0.00%	97.66%	0.16%	76.27%	16.95%	0.00%	6.78%	2.34%
https:/	6.42%	0.34%	0.00%	93.24%	0.00%	95.00%	5.00%	0.00%	0.00%	6.76%
https:/	5.13%	0.12%	0.41%	93.71%	0.63%	81.53%	1.94%	6.48%	10.04%	6.29%
https:/	2.13%	0.27%	0.48%	96.11%	1.02%	54.78%	6.87%	12.24%	26.12%	3.89%
https:/	4.65%	0.52%	0.02%	94.45%	0.36%	83.70%	9.35%	0.44%	6.51%	5.55%
https:/	3.56%	0.02%	0.00%	96.05%	0.37%	90.23%	0.39%	0.00%	9.38%	3.95%

Covered for confidentiality reasons

Source: Own research

This provided the basis for calculating the percentage of TBL-related words out of all identified words.

Subsequently, the relative importance of each TBL dimension was calculated by dividing the word count of each dimension by the sum of the words for TBL-related words (including general impact words) for each SFDR category overall and on a fund-by-fund basis.

The data gathered through this approach already allowed for the identification of mechanisms potentially affecting the VC companies' communication on their websites. In the next section, ethical considerations about this research are discussed.

4.6. Ethical Considerations

When considering the ethical implications of this research, the framework from Saunders et al. (2016) was applied as described below. Considering ethics at the beginning of a research project ensures that all participants, particularly the interview participants, are protected during the study. The research has been classified as very low-risk human participants studies and approved through the SHU ethics review process (Ethics Review ID: ER28090313), declaring that "*the supporting documents submitted by the researcher are in line with SHU ethics policies and fulfil the necessary requirements for research data collection."* The date of the final decision was 15.09.2021.

Participants were not directly involved in the collection of the website analysis data. Two separate companies conducted the software development process. The first was procured through Fiverr (*Fiverr*, n.d.); all contracts and payments were managed through the site, ensuring transparency and adherence to legal requirements. The second contract was established with a German software development company following German law. Both suppliers created project proposals, including financials; pricing was not negotiated. The researcher initially paid both contracts; for the second supplier, the fees were later reimbursed through the Sheffield Hallam University budget for doctoral researchers. No other external funds were received for this research.

Interview participants were chosen as industry experts who were used to in-depth negotiations with financial institutions, other investors, politicians, and start-ups. They were consenting adults, fully informed about all relevant aspects of the study, to which they would otherwise not have agreed to partake. As an incentive, research findings were promised to be shared after completing the DBA journey. The research findings include the results from the interviews and specific results from the website analysis of their respective funds compared to the overall averages of similar funds.

Evaluation of this research based on the ethical principles by Saunders et al. (2016):

4.6.1. Integrity, Fairness, and Open-mindedness of the Researcher

All communication with interview participants and other stakeholders was 100% transparent, using all appropriate information sheets; see the appendix for the participant information and consent form sample applied to this research. In the process of gaining interview participants, potential targets were contacted through direct messages on LinkedIn once an initial contact was made. If the participants directly agreed to an interview, an email address was requested for further scheduling, requiring a positive opt-in of the participants. Any potential target not responding to the direct message on LinkedIn was not contacted again.

4.6.2. Respect for Others

Interview participants were chosen based on their expertise and knowledge of the German VC market. Their insights were integral to the overall research findings. A trust relationship was forged through full transparency of research objectives, approach, and procedures, maintaining full confidentiality. The participants were treated courteously, and all their insights were appreciated and incorporated into the research findings.

4.6.3. Avoidance of Harm (Non-maleficence)

Interview participants were industry professionals, and the subject of the interviews did not relate to any personal or private information. None of the research posed any threat of physical or psychological harm to the participants. Strict confidentiality of the provided information was ensured, and answers given by participants could not be directly or indirectly attributed to them. Interviewees had the right to refuse to provide information if company confidentiality clauses were affected.

4.6.4. Privacy of those taking part

The participants in the study were selected based on their voluntary participation and their experience in the VC market in Germany. They were professionals with a high level of negotiation skills, which were essential in their day-to-day work. It was made clear to them that they had the right to refuse to answer any questions, further emphasising the voluntary nature of their participation.

4.6.5. Voluntary Nature of Participation and Right to Withdraw

Most anticipated participants had no previous relationship; only four interviewees were previously known. The rest of the target group of interviewees were contacted through cold calling or referrals and had the choice of taking part in the study. They could withdraw at any stage throughout the interview process with no negative impact on them. The interviewees were the investment decision makers of VC companies in Germany and expected to be seasoned enough to withdraw from the process whenever they like.

4.6.6. Informed Consent of those taking part

Interview partners were unknown from the start and were reputed to have busy work lives. The participant information sheet and consent form were sent to all in advance to ensure that participants were fully informed. At the beginning of each interview, participants were again informed about the logistics and confidentiality of the interview process and reconfirmed consent.

4.6.7. Ensuring Confidentiality of Data and Maintenance of Anonymity

With the explicit permission of the participants, the interviews were recorded, capturing both video and audio streams. These recordings were then transcribed and anonymised, a process that was fully transparent to all participants before the interviews. This ensured the complete confidentiality and anonymity of the participants, further reinforcing the ethical conduct of the study.

4.6.8. Responsibility in the Analysis of Data and Reporting of Findings

A full track record and audit trail were maintained, from data collection through analysis to producing outcome reports.

4.6.9. Compliance in the Management of Data

The study fully complied with the data management policies of Sheffield Hallam University.

4.6.10. Ensuring the Safety of the Researcher

Interviews took place using videoconferencing tools, which all participants have been familiar with since the COVID-19 pandemic. No travel risks or exposure to any other safety risks were identified.

4.6.11. Quality Criteria (Generalisability and Transferability)

In CR research, several quality criteria can be used to ensure the robustness and credibility of findings, including ontological appropriateness, contingent validity, multiple perceptions, methodological trustworthiness, analytic generalisation and construct validity (Healy & Perry, 2000). Ontological appropriateness was maintained by designing the research to explore the underlying structures and mechanisms influencing the observed phenomena in the VC funds. Contingent validity was ensured by providing a detailed account of the research context, recognising that the identified causal mechanisms may operate differently in other settings, such as other geographies not exposed to SFDR. Multiple perceptions were incorporated by triangulating data from the semi-structured interviews, academic and industry papers, industry publications and the website analysis. Methodological trustworthiness was achieved through transparent and systematic data collection and analysis procedures described in sections 4.3, 4.4 and 4.5. Analytic generalisation was employed to apply the findings to broader theoretical propositions identified in the literature review, for example, those related to previous studies' DD frameworks and those contributing to existing theories. Construct validity was ensured by providing and using clear operational definitions for each of the 7-S model dimensions and the identified themes. Finally, reflexivity was practised throughout the research process, with the researcher reflecting on their role and potential biases that may have influenced the study.

4.7. Conclusion of the Methodology Chapter

This chapter describes the doctoral journey of defining and executing this research, leading to the data collection and findings. It appears highly structured, from identifying philosophical underpinnings leading to methodological choices and, finally, research design and data collection and analysis techniques. However, after subscribing to CR as a research philosophy, the details developed subsequently were subject to repeated review, challenge, and revision, leading to the research being executed as it was. The ambition was always to identify the underlying structures and mechanisms that drive VC fund managers to implement environmental and social aspects into their strategic decision-making. The choices that were made in terms of data collection and evaluation always reflected that ambition. In Chapters 5 to 7, the collected data is presented, analysed, and identified findings explored.

The methodological choices are grounded on an initial understanding of the available literature and were reconfirmed throughout the literature review process documented in the previous Chapter. This circling between Danermark's stages, between the development of in-depth knowledge on VC and the TBL (stage 2) and the finetuning of methodological choices (stage 3), ensured that the findings presented and discussed in this research contribute additional insights to the existing body of scholarly work. In addition, the developed word-counting tool can be applied in other research areas to generate insights. Danermark's model concludes with the contextualisation stage returning to the concrete, allowing findings to be evaluated from a practical point of view and providing recommendations for management practice.

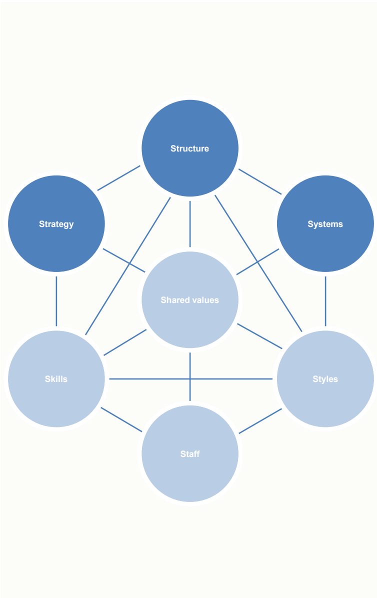
The next Chapter illustrates and discusses the findings of Objective 1.

5. FINDINGS OBJECTIVE 1

5.1. Introduction to Findings Objective 1

When investigating what drives a fund management vehicle to incorporate environmental and social aspects into their investment thesis, findings were structured based on the McKinsey 7-S model (Peters & Waterman, 2004) to ensure a comprehensive review of all aspects influencing the adaptation of environmental and social aspects in VC funds. The interviews were coded using multiple iterations of structuring to derive the final version described in Figure 5.1, identifying the broad categories of themes for each of the seven aspects of the 7-S model. It is noteworthy that structure in the context of the 7-S model refers to the organisation structure of the fund, not in a CR sense of the word (see Section 1.5).

Figure 5.1 Application of the McKinsey 7-S Model



Dimension	Definition
Strategy	The alignment of an enterprise's actions to achieve competitive advantage by responding to or anticipating external changes.
Structure (Organisational)	The division of tasks, distribution of authority, grouping of activities and reporting relationships, and methods for coordinating organisational activities.
Systems	The formal and informal procedures utilised in the organisation, including control systems, performance measurement, planning, budgeting, resource allocation, and information systems.
Shared Values	The core set of principles and beliefs widely shared within the organisation, expressed through vision, mission statements, and guiding tenets that direct employee behaviour and provide a sense of purpose.
Skills	The distinctive organisational strengths and capabilities in areas such as personnel, management practices, processes, systems, technology, and customer relationships providing a competitive edge.
Staff	The organisation's human resources - their skills, backgrounds, and how they are recruited, trained, socialised, and promoted.
Styles	The leadership approach that shapes the organisational culture and values, as well as the conscious and unconscious actions, symbols, and norms exhibited by leaders that influence the organisation's public image and standing.

Source: Peters & Waterman, 2004; Own research

Within each category, themes were identified and described below in each sub-section.

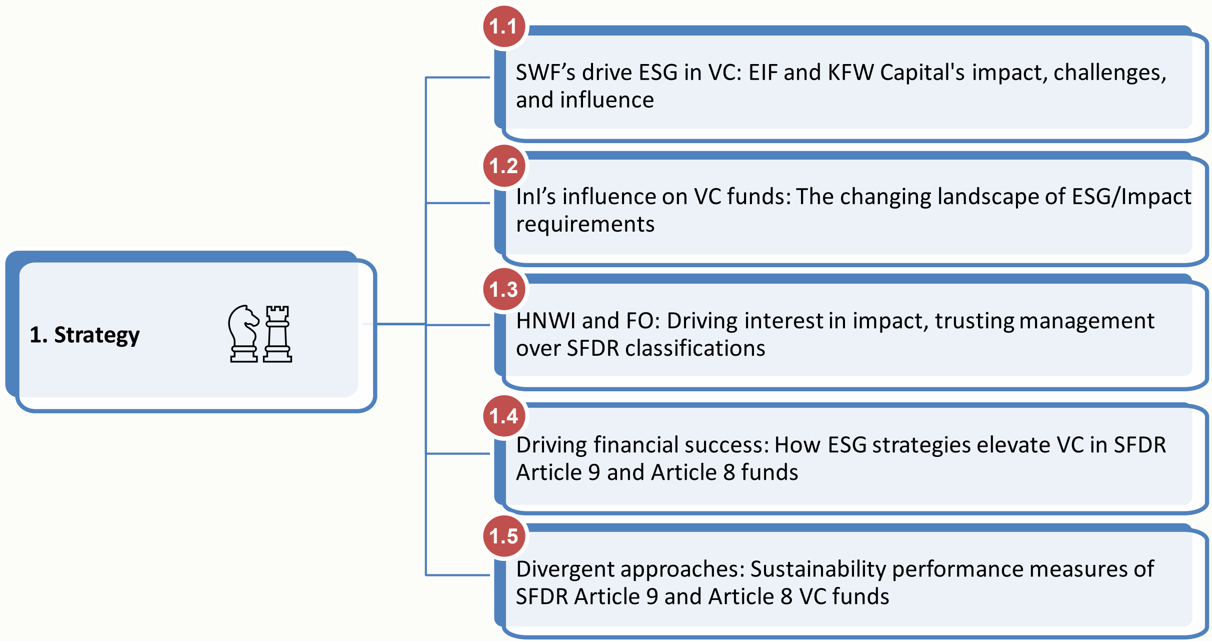
5.2. Strategy

Applied to the VC industry, the strategy is defined in a fund's investment thesis, which describes how the fund intends to invest the money collected from LPs in start-ups. A VC fund management company positions itself twice: initially, it is towards the LPs to solicit the funds for investments, and then, during the investment stage, it is towards start-ups to participate in the most lucrative deals.

The themes related to strategy follow the same logic (see Figure 5.2), investigating the three different types of LP, SWFs, Institutional Investors (InI), and High Net Worth Individuals and Family Offices (FO). Subsequently, themes 1.4 and 1.5 investigate drivers related to start-ups, looking at anticipated financial opportunities and the establishment of impact targets for start-ups in a fund’s portfolio.

Notably, interviews were primarily conducted with VC fund representatives, who incorporate anticipated requirements from LPs and opportunities relating to start-ups into their strategy. The results, therefore, reflect the perceptions of the interview participants towards the LP’s underlying strategies and requirements.

Figure 5.2 Overview of Themes (Strategy)



Source: Own research

Background interviews with SWF and InI representatives were conducted to contextualise these anticipations of the VC fund managers.

Given the semi structured nature of the interviews, the findings presented below do not necessarily reflect the chronological order in which the answers were given. The findings are presented in tables indicating the interviewee in the first column, the type of fund the participant represents in the second column, and the quote in the third column. The findings are grouped by the SFDR type of fund the participant represents.

5.2.1. Theme 1.1: Sovereign Wealth Funds' Role in ESG for VC

When discussing SWFs, interviewees primarily referred to the European Investment Fund (EIF) and KFW Capital. Regional state banks also act as SWFs, as they aim to maximise the financial returns of their investments and geographical development objectives in environmental and social aspects. However, the interviewees did not specifically mention these banks.

The available literature confirmed that it is part of the mandate to promote ESG and sustainability in the German VC ecosystem of these SWFs. The German sustainable finance strategy of the federal government confirms that protecting the environment and human rights in KFW co-financed projects is guaranteed through rigorous environmental and social impact assessments adhering to globally recognised standards (Federal Ministry of Finance, 2021). Equally, European public funds continue to exert significant influence relating to environmental and social measures, exemplified by the European Commission's augmentation of funding for the European Investment Fund (the primary VC entity in the EU) (Mocanu & Thiemann, 2023).

5.2.1.1. Sovereign Wealth Fund’s Active Drive for Change

Among Article 9 fund representatives, there is consensus that in addition to aiming for financial returns, both EIF and KFW Capital are actively driving the VC industry to adopt more ESG / Impact aspects in the investment process (see Table 5.1).

Table 5.1 Findings for Theme 1.1: SWF-Driven Change (Article 9 Fund Respondents)

Int.	SFDR	Sample Quotes
1	9	• *[EIF] is in line [with SFDR reporting, there are no additional requirements] and the only thing which was on top is that they used the theory of change as the tool.*
2	9	• *The main pockets are being filled by the sovereign wealth funds like in Germany, KFW capital that have a mandate to push this industry on the climate theme.*
13	9	• *If it comes to sovereign wealth funds or KFW, that's a totally different game. Then it's really digging deep into the [Impact / ESG] data, understanding the processes, who is doing what on which basis, how often, which figures will be delivered, and so on.*
25	9	• *They [EIF] really want to shape the market in this area [Impact], and they are really at the forefront of the topic. They are incredibly supportive* • *[The EIF] are really pushing us to do more work in this in this field [Impact], to make sure that this under-asset class of venture capital which is impact venture capital will be shaped the proper way and that they don't take the risk of having invested in funds that do at the end greenwashing. So that's why they are very concerned about the topic, and they really want to push it.* • *They have incredible amounts of money that they're now pushing into the market out of the mandates from the European Commission and they have a very intense ESG due diligence, and they are looking actually for a framework to accept the different ways of measuring impact of the different fund managers.* • *They work with the theory of change which they have used at the beginning for analysing social impact. And the transmission between for the theory of change to environmental impact is not trivial.*

Source: Own research

The background interviews with SWF LPs proved this perception and that *"the whole issue of ESG and sustainability is another very important approach for us which we have set as a minimum requirement, or we have defined a set of minimum requirements. That needs to be implemented in a fund with regard to ESG, before we are even able to invest in the fund and this needs to be increased over the time"* (Interviewee 16).

This notion is corroborated by the interviewees representing Article 8 funds (see Table 5.2), who recognise that the KFW and EIF have high requirements in terms of ESG / Impact and are setting the standards for these subjects in Europe. KFW Capital provides up to 20% of the money invested in VC funds and, therefore, significantly influences how the VC funds are set up (KfW Capital, n.d.-a).

Table 5.2 Findings for Theme 1.1: SWF-Driven Change (Article 8)

Int.	SFDR	Sample Quotes
5	8	• *We have two side letters with two LP's, one private one and well, there's nothing about ESG, so it's not relevant in this discussion. The other one is KFW Capital, so our main LP, and this is especially about the topic of ESG.* • *The exclusion list is based on the exclusion list of the EIF, KFW capital and the KFW. So, three of them and it's kind of a mix and it's a bit adjusted because we have three investment pillars and one is life science and therefore animal testing, et cetera, we had to do some small adjustments on there.*
8	8	• *We have seen there are clear, clear strategies from EIF and KFW on diversity and green topics*
9	8	• *They look at our portfolio and see what kind of investment thesis we have, what kind of sustainable business we are investing in, what kind of impact they have on triple bottom line for example. And then this is underset with the financial performance and that is the second criteria because first they look at the portfolio and then they look at the numbers if this is matching their kind of thesis.*
10	8	• *We adapt [the due diligence questions] with regard to special topics of the European Investment Fund and KFW, because they sometimes have special views on ESG topics. So we included them.*
20	8	• *OK, it's extensive, but as it sets the standard, so it's good. And now when LP's, institutional LP's or other LP's are asking, we are like, OK, we use the KFW standards, here it is. Are you OK with that? And most of them are like, OK, right. That's better than what we would have asked.* • *I'm contacting the KFW and only contacting the KFW and setting this standard and monitoring these KPIs is also sending the signal to other LP's that we do a lot and that we are ready to go to this high standards. I'm not German and I know a lot of friends in France and in the UK especially, and I know that Germany is setting a standard that is probably going to be one of the highest in the EU for VC funds* • *[KFW] has had a greater impact in the sense that it's clearer than SFDR, so it's easier for teams to use.*
22	8	• *EIF and KFW are really pushing the ESG agenda for the funds they invest in.*
23	8	• *EIF and KFW are clear pioneers [on ESG] and everything that comes from America and the UK*

Source: Own research

The interviewees recognised this fact and incorporated the increased environmental and social aspects into their investment thesis to gain access to these funds. Indeed, even a respondent representing an SFDR Article 6 fund, without any requirement for ESG / Impact aspects in their investment thesis, confirmed that they would have incorporated such aspects if SWF money were available (See Table 5.3). They could not access the SWFs because they considered themselves too small and under the KFW Capital / EIF investment threshold.

Table 5.3 Findings for Theme 1.1: SWF-Driven Change (Article 6)

Int.	SFDR	Quote
11	6	• *The EIF and the KFW have an economic policy objective and an environmental policy objective. If they would say we are also able to invest in smaller funds, with of course smaller tickets, one or two million. But if we put that in then you should have those ESG requirements met. We would probably instantly have agreed to that.*

Source: Own research

The interviewees confirmed that they not only have to undergo an ESG / Impact DD process with the SWFs when they set up the fund but that through side letters, additional reporting requirements are added to the usual financial reporting of funds. This ensures that the environmental and social aspects promised in the DD are also fulfilled during the fund lifecycle.

5.2.1.2. Sovereign Wealth Funds Setting Standards

The interviewees feel that the additional focus on ESG / Impact creates an additional workload, and they must demonstrate additional competencies to these LPs (see Table 5.4). On the other hand, they recognise that once they underwent the DD process of either KFW Capital or EIF, further evaluations of other SWFs or InI are simplified, as these investors accept the standards set by the SWFs. Some interviewees consider the KFW Capital requirements the best standard in Europe and potentially beyond.

Table 5.4 Findings for Theme 1.1: SWF-Driven Change – Standard Setting (Article 8)

Int.	SFDR	Sample Quotes
17	8	• *It was KFW and they pushed the topic very hard. And also the European Investment Fund pushed the topic. And when the topic is pushed from these large players, a small VC should understand the topic a little bit better and then the decision was made. We need somebody who understands the topic.*
20	8	• *OK, it's extensive, but as it sets the standard, so it's good. And now when LP's, institutional LP's or other LP's are asking, we are like, OK, we use the KFW standards, here it is. Are you OK with that? And most of them are like, OK, right. That's better than what we would have asked.* • *I'm contacting the KFW and only contacting the KFW and setting this standard and monitoring these KPIs is also sending the signal to other LP's that we do a lot and that we are ready to go to this high standards. I'm not German and I know a lot of friends in France and in the UK especially, and I know that Germany is setting a standard that is probably going to be one of the highest in the EU for VC funds* • *[KFW] has had a greater impact in the sense that it's clearer than SFDR, so it's easier for teams to use.* • *We can think of other LP's outside of Germany seeing this trend [of ESG reporting implemented by KFW] , saying yeah, why not, we could ask this from other funds.*
22	8	• *EIF and KFW are really pushing the ESG agenda for the funds they invest in.*
23	8	• *EIF and KFW are clear pioneers [on ESG] and everything that comes from America and the UK*

Source: Own research

Notably, some participants consider these SWF requirements more extensive than those set by the SFDR law. The interviewees anticipate that the SFDR requirements will become more stringent over time and that adhering to the KFW Capital or EIF standards will put them in an advantageous position when this happens, as their organisation will already have built the required competencies.

Despite some reservations about the KPIs and ESG questionnaires, the fund recipients generally appreciated the DD process by the SWFs. One interviewee candidly shared, *"There are many KPIs which, if you ask me, do not make sense at all, and there are some KPIs in the in these ESG questionnaires which do not make sense for the early stage of our companies or which you are not able to ask in specific jurisdictions. Maybe a good example is the KPI that we have to report, if there is a binary or nonbinary founder"* (Interviewee 17). However, it is important to note that the fund still received funding from these SWFs. This underscores the strategic decision to view the supplementary funds as a worthwhile trade-off for the additional requirements.

When reviewing these interview findings from a CR viewpoint, the interview participants (agents) describe observable structures like the stated requirements of SWFs for exclusion lists, ESG DD processes and reporting. It can also be inferred that these structures are in morphogenesis; they are changing and are expected to become more stringent in the future. Participants also describe higher-level structures driving the SWFs as agents, particularly requirements from the European Union and the German government to increase ESG and impact requirements. The agents anticipate more changes to materialise, signifying mechanisms from the real layer that are expected to be translated into changes of structures in the actual layer in the future.

5.2.2. Theme 1.2: Institutional Investor's influence on VC funds

When mentioning institutional investors, interviewees referred to banks, insurance companies, pension funds, corporate investors, fund-of-funds and endowments of universities. Notably, while the KFW is technically also a bank, it manages state-allocated funds and is, therefore, added to the SWF category. These INIs have in common that professional investment or asset managers invest the money of their depositories based on a predefined strategy. Limited literature is available on the relationship between INIs and VC management companies. However, Lin (2022) found that during the fundraising phase, environmentally sustainable VC funds may choose to employ a distinct approach in negotiations with investors, providing more flexible contractual terms to their INIs. Lin combines this with a recommendation for governmental bodies to actively contribute by broadening the funding base for sustainable VC funds. Lin argues that this could be achieved by relaxing regulations for institutional investors, establishing a well-defined and authoritative framework for sustainable investment, and consolidating sustainability standards (Lin, 2022).

The interview participants representing Article 9 funds judged the requirements from institutional investors regarding ESG / Impact as manageable (see Table 5.5). They differentiated the interests of the different types of institutional investors and the associated incentives behind these requirements. On the one hand, they described financial institutions, such as banks, insurance companies, funds-of-funds, and pension funds. The participants perceive that these institutions are driven to invest in Article 9 funds as their own financial products used for the investment are classified as Article 9.

Table 5.5 Findings for Theme 1.2: INI-Driven Change (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *From the big institutionals they are asking for the reporting. And we recently had an interaction with two groups in the same company and the one group was the one responsible for all the reporting and they basically came back and said, you know, I never saw PE or VC fund with such a closed system like you have with all the reportings with all the views including social and stuff.* • *And I think even if individuals in big corporations have the drive and the idea to do more cleantech impact investment, the organisation is not ready there. But in in that other group and that was an insurance company, the investment team said well, you know we hardly invest at all. If we do, we do it in North America because they deliver 3 to 4x net return.* • *So and I think that's a typical situation, a big corporation, they are people knowing what to do and they're intrinsically motivated and they see the push and pull from the outside.* • *And the other thing is from all the big institutional ones, we haven't heard that they that they have a certain budget to fulfil for Article 9.*
13	9	• *Investors or also corporates, pension funds, private pension funds. They have a more standardised process and asking how we measure things. But that is also still very easy to handle.*
25	9	• *There is one of the of the fund of funds. They have started an Article 8 fund of fund and they have now shifted to Article 9 fund of fund because they say you need these differentiator on the market. And they have now developed a method to assess foreign funds and to bring them at the level of Article 9. But that's tricky. I mean, that's a lot of work behind because you need this approval and so on.* • *And the corporates, they also have this CSRD and that's very interesting because in some of the corporates it always depends on one or two people. And they say well OK we have a sustainability strategy at holding level and we have to apply it everywhere and if we have a CVC we have to apply it to the CVC too. And then they are looking for this type of investment. That's still a rarity, but it happens.*

Source: Own research

When a private investor opts to invest their personal wealth in a bank's financial product, they are required to specify their risk appetite, investment timeframe, investment experience, and ESG or Impact investment goals. For those investors who prioritise ESG or Impact, these financial institutions must provide an Article 8 or 9 financial product, respectively. These financial products, in turn, can only be invested in Article 8 or Article 9 VC funds, respectively, underlining the crucial role of SFDR in shaping investment choices.

In contrast, corporate investors' environmental and social focus is driven by individuals within the organisation. In addition, the Corporate Sustainable Reporting Directive

(CSRD) (Directive (EU) 2022/2464) is seen as an incentive for corporates to increase their investment focus on ESG / Impact themes. Article 19a of this directive describes the sustainability disclosure requirements that affect publicly listed companies and small and medium-sized undertakings. Like SFDR, CSRD has been established to provide increased transparency on sustainability matters to the public (Directive (EU) 2022/2464, introductory remarks point 9). A corporate investor might, therefore, aim to improve its environmental and social performance report by investing in an ESG or impact fund. In addition, as these disclosures cover not only the corporation's internal operations but also those of the supply chain of the corporates (Directive (EU) 2022/2464, article 19a, 3), any investments might have to be documented as well. Even when corporations do not aim to balance their environmental or social performance with appropriate investments in Article 8 or 9 funds, they might be driven to invest in such funds to avoid perceived negative reporting requirements.

Interview participants from Article 9 funds did not describe instances where institutional LPs required the Article 9 investment classification. By contrast, there were instances where SFDR Article 8 VC fund managers were told that they would not receive funding from specific INIs if they were not at least classified as Article 8 (see Table 5.6). Going further, some INI LPs appear to request Article 9 classification. Interviewee 10 described such an instance when the VC fund decided against receiving the investment by the LP and maintained the lower SFDR status, demonstrating the strategic choice VC funds have about their LPs.

The CSRD requirements of INI LPs mentioned above were also noted by Article 8 participants, who confirmed an increased focus on Article 8 and 9 funds from financial institutions, such as pension funds and insurance companies. The pressure towards ESG and Impact was anticipated to further increase by the end of 2023. While not explicitly mentioned in the interviews, a potential reason for this increased pressure could be that CSRD is becoming applicable to small and medium-sized companies, which must report their sustainability progress from the financial year 2024 onwards (Directive (EU) 2022/2464).

Table 5.6 Findings for Theme 1.2: INI-driven change (Article 8)

Int.	SFDR	Sample Quotes
5	8	• *We have two side letters with two LP's, one private one and well, there's nothing about ESG.*
6	8	• *Some institutional investors said no Article 8, no money. So obviously that made a very compelling argument since, as you know, you can have a lot of small investors, or you can have the institutional investors on board. So definitely having that kind of push is very influential.* • *When you see those big pension funds across the globe, the asset owners the ones every VC would love to have as an LP. They were quite clear in the direction that they're going and on the other hand, what is happening now in the US with the push anti ESG and how it's failing in many cases and then we are seeing well, even the Republicans are realising that the argument is political is not economic. There are big losses that could happen if they don't take into account ESG. This is showing me that the market is going to go forward in this direction.*
9	8	• *The financial reporting requirements are rather high for them [Institutional investor], but it's nothing which is on the ESG perspective.*
10	8	• *On the institutional investor side, definitely the ESG topic is for most funds now a topic. If you're not at least article 8 fund it will be difficult to find an institutional investor, especially from Europe, that is investing in your fund.* • *If you're looking on the corporate side, I would say in Europe, definitely all of the corporate investors have the ESG topic in their mind and they're saying, OK, it's good that you have it. It's not 100% must have, but definitely we would prefer to invest in a company that is an article 8 fund and less in the article 6 funds. But you don't have to be Article 9 fund.* • *Sometimes we have trouble because some institutional investors say I will market my fund in Article 9. If you're not Article 9, I cannot invest in you. Then we say OK, then this is not for us.* • *The discussion is quite healthy because then they [institutional investors] are forcing a lot of mechanisms and good business principles into the market.*
17	8	• *The insurance businesses they are pushing the topic a little bit harder now starting in 2023 or maybe at the end of 2022 and I think that's only because they have to report on their own.*
20	8	• *We have pension funds also asking for this [ESG reporting] also non-European actually, which is interesting.*

Int.	SFDR	Sample Quotes (continued)
22	8	• *It is something which a number of institutional investors do as well, especially for example, German insurance companies are quite behind it, you know, because they again are regulated have to do reporting.* • *But even coming from the US, you have these big feeders. The fund of funds and because they have such a diverse capital base behind them, they also need to have a quite structured approach on ESG, because if they're getting money from the Kentucky Firefighters Retirement Fund who is investing in VC's all around the world, they need to know, if it fits a certain criteria.* • *And so I think the requirements are actually going up also for institutional investors.*
24	8	• *Especially at the banks or fund of funds, they have special vehicles which are on impact. These vehicles are quite tricky because if they have to set it up as an Article 9 fund then you need to have only Article 9 approved assets. Or, if you have any asset which is not Article 9, it means that you can for the time being only have European assets in the fund and Article 9 assets. So that's why some of them have decided to brand themselves as Article 8 in order to be able to have extra European assets or to be able to invest in funds that have an impact but are not Article 9 funds.* • *At the insurance, that's a very interesting thing because actually they are all also under the CSRD and they are aware of this. So, at the end they will have to report which assets they have. But they still haven't transmitted it from the top management to the asset managers, so the asset managers don't really care.*

Source: Own research

Notably, whilst INI LPs increasingly request SFDR Article 8 or 9 classifications, no additional requests or detailed ESG / Impact DD processes were described. This juxtaposes with the SWF LPs, where detailed ESG / Impact DDs are conducted, and further ESG-related requests are documented in side-letters to the shareholder's agreements. In Bocken’s (2015) research on sustainable VC, it is recommended that VC investment theses, which are geared to attract investors to funds, should focus on seeking synergistic investment areas across the TBL and on underfunded areas. Other researchers have found that INIs require the inclusion of sustainability parameters in their investments (Clark et al., 2014; Gebhardt et al., 2015).

INIs were always discussed after the SWFs in the interviews, allowing the participants to directly juxtapose these two types of investors. While SWFs, particularly the KFW Capital and EIF, provide a large proportion of the overall funding of a VC fund and, therefore, have large bargaining power, INIs provide comparatively lower sums and, therefore, individually, have less bargaining power than the SWFs.

When reviewing these findings from a CR point of view, it helps to differentiate between the two identified clusters of investors, the financial institutions on the one side and the corporate LPs on the other. Fund of funds (investment vehicles with the purpose of investing in other funds) and other financial institutions are exposed to the same visible SFDR structure as VC funds. As private investor agents shift their investments into more sustainable products, so do professional investor agents in these financial institutions. This shift represents a morphogenetic movement in these investment firms' structure of investment practices. It can be assumed that the underlying mechanism of the real layer is private investors' personal drive to prioritise sustainability-related investments over purely financial ones.

On the other hand, the corporate LPs are exposed to the visible structures of CSRD, which affects all their operations, including their investments in VC funds. However, interview participants also describe undefined mechanisms that drive the agents from these corporations towards more interest in ESG / Impact subjects. It is conceivable that the mechanisms influencing these agents are the same as those influencing other private investing agents, such as HNWI, FO, and the VC management team, which is explored in subsequent sections.

5.2.3. Theme 1.3: High-Net-Worth-Individuals and Family Offices interest in impact

The third theme in the strategy aspect is High-Net-Worth Individuals (HNWI) and family offices (FO) as investors in VC funds. HNWI sometimes constitute previous start-up founders who have completed a successful exit and received significant returns for their shares in their start-up. Being highly familiar with the start-up and VC ecosystem, these individuals sometimes invest directly into start-ups or indirectly through VC funds as LPs.

Investment professionals associated with FOs typically possess greater experience than their counterparts in different investment entities, boasting an average tenure of 13.5 years as investment professionals (Block et al., 2019). Additionally, professionals from FOs exhibit a relatively elevated level of practical expertise gained through extensive involvement with start-ups or small and medium enterprises (SMEs) (Block et al., 2019).

FOs manage the wealth of entire families, either as single-family offices or multi-family offices, when one office management company takes care of the wealth of several families. The Association of Independent Family Offices in Germany (Verband Unabhängiger Family Offices – VUFO) estimates that there are approximately 400 single-family offices and 50 multi-family offices in Germany (Verband unabhängiger Family Offices, n.d.). FO and HNWI have in common that they invest either their own money, the money of their own family or on behalf of one or more families. Therefore, these individuals set the investment strategy rather than governmental directions (SWF) or corporate strategies (INIs).

5.2.3.1. Generational Shift in Family Offices

Regarding these types of LPs and environmental and social aspects in the investment focus of VC funds, the participants from Article 9 funds identified a generational shift taking place (see Table 5.7).

Table 5.7 Findings for Theme 1.3: HNWI / FO – Generational Shift (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *Big shift [at FO], especially whenever there's a generation change from the 60 plus people. There we see a lot of requests from like "we want to do more impact. Can you help us?". They [FO] want to do something good and to impact investment and have no idea what to do.* • *[A few years ago] we had a 15 minutes presentation of our ESG reporting and one of the investors basically said after 5 minutes I'm not interested in this and left the room in a very unpolite way. Now if you talk to them, ESG is in their core investment focus three years after. Now they do. I mean, for the next fund, they are the cornerstone investor, placed a large ticket already. The other three or four investors still don't care [about impact].* • *And in a year from now, maybe Article 8 is the standard, and Article 6 will basically disappear, and then the original intention to have a kind of classification is not there anymore because maybe 90% will be Article 8, 5% Article 6 and 5% Article 9.*
2	9	• *To date, no investor has said I like to invest in you because you're an Article 9 fund.* • *[Ex-start-up founder] with his partners, who sold [the start-up] for 1 billion Euro. They allocate significant wealth of their exit into climate. The other half of investors came on board through some sort of a reference, but you know we had no past relationship, but they had their own motivation to do something in this climate field.* • *One [FO] coming from the shipping industry, they want to move into clean shipping for example,*
25	9	• *There is a push by the younger generations in the FO to change the strategy. But the FO managers are well, their job is to be conservative. They have to take care of the risk appetite of the family and they are more reluctant to do new things. But the individuals are pushing and well that's very different from one to the other.*

Source: Own research

The shift towards ESG and impact investing is more pronounced when there is a generational change within FO, with younger generations showing greater interest in impact investing. Whilst younger generations push for change, FO managers, who manage families' wealth on their behalf, are perceived to be more conservative. This perceived conservatism of older generations in FOs and FO managers aligns with the findings from Block et al. (2019), who identified a focus on financial results from these agents.

The interview participants representing Article 8 funds share the experience of Article 9 funds regarding the generational shift in FOs (see Table 5.8). Younger family members of FOs are perceived as more environmentally and socially focused, giving higher prominence to these themes in their investments. Notably, FOs who already have philanthropic engagements are perceived as being more interested in ESG and Impact subjects than others.

Table 5.8 Findings for Theme 1.3: HNWI / FO Generational Shift (Article 8)

Int.	SFDR	Sample Quotes
10	8	• *Certain kind of investors are still struggling with the idea that if you're [focusing on ESG] that this is reducing their return. With a lot of more traditional investors this is sticking into their mind.* • *I think maybe the younger generation has a different point of view, but the more numbers you can deliver and results you can deliver to these kind of investors saying, OK, there are a bunch or a lot of investors improving their returns by looking at ESG factors and the impact and they are more successful than the traditional investors, that would help a lot because these traditional investors are ticking on the return side and if you can show them that you're gaining higher returns then they probably think OK then I have to switch, but otherwise they're saying no.*
12	8	• *What was happening during our fundraising is that at many families, the second or third generation is now involved in the investment decisions, and they want to know not only how much return they can make, but what is the impact. And if you then can show that you have some cool examples that you have some success cases and also let's say a framework, they most often do like a lot.* • *And if the family is not so active on the philanthropic side, then most often the junior members of the families are driving this. We had one meeting where we had the principal and the daughter and the son. They were thinking about a ticket, and this was pre discussed between the principal and the family and afterwards we got double the amount because the daughter said we are doing good, and we should get more money.*
22	8	• *For FO, it really depends on the principle behind the FO. Some are very into it, some less so. It really depends.*
24	8	• *The younger ones [FO representatives] do like that. We're doing these impact investments. So, we're doing calls with our LP's every six months and tell them about our new investments. And usually everyone likes it when we [talk about the impact investments].*

Source: Own research

5.2.3.2. High-Net-Worth-Individuals and Family Offices Commitment to Impact

HNWIs and FOs, who are genuinely committed to impact investing, are actively seeking out impact strategies and competent VC managers to ensure their investments align with their values (see Table 5.9).

Table 5.9 Findings for Theme 1.3: HNWI / FO – Impact Focus (Article 9)

Int.	SFDR	Sample Quotes
13	9	• *I would say the high-net-worth individuals and family offices that we have, they are generally interested in it [impact]. They look at it to say that they that they like to spend their money on this, but [their information needs pre investment] can be easily satisfied by the pitch decks we have, or in in some conversations with them on the phone that is very easy.*
18	9	• *If they are investing in in a VC fund, specifically an impact one it's because they care about impact, right? They wouldn't do it just because they want to diversify all of a sudden, right? There are enough other strategies to focus on. They are looking for an impact strategy and they are looking for the right managers.*
25	9	• *At the FO manager, there is a huge lack of understanding for the topic, so they are still in, do I do real estate or VC or PE? But then the differentiation within the venture capital and PE, so that's not very much developed for the time being, so yes, there are some that are pushing, but it's more the individual level than the real strategy.*

Source: Own research

According to the interview participants, many FOs desire to engage in impact investments but lack a clear strategy or knowledge of how to do so effectively, seeking advice from the VC funds they potentially invest in. Some investors initially dismissed ESG reporting, but it is now a core focus for them, with ESG becoming integral to their investment strategies.

5.2.3.3. Relevance of SFDR for High-Net-Worth-Individuals and Family Offices

The participants highlighted the diversity in preferences between FOs regarding the environmental and social aspects of their investments; some are financially focused, and others consider these aspects (see Table 5.10). However, it is common for the SFDR classification to be less important for FOs and HNWIs. Trust in the management team, as demonstrated in pitch decks, past investment track records, and conversations with the GPs, appears to be of higher importance.

Table 5.10 Findings for Theme 1.3: HNWI / FO SFDR Classifications (Article 8)

Int.	SFDR	Sample Quotes
7	8	• *The first learning was that LPs didn't care actually. I think in all of our conversations, there were one or two maybe who really needed it to be an Article 9 fund. Everyone else was like we are more interested in the thesis and if this can make money, if it's Article 8 or 9, it's fine.* • *[We] got the feedback too that this [choice between Article 8 or 9] doesn't seem to be super important for LPs. I was surprised. I was speaking to a Munich based fund, they're raising a new fund, and it is an Article 6, and I was surprised. I haven't heard the term Article 6 in months. There might be still some out there, but it's not their first-time fund, so it's they have a certain LP base and I think they're investing in software.* • *The main focus is on family offices and from them the feedback was Article 9, it's not so important to us. We are more interested if you can make money. If you're doing something good with it, fine, very good, but priority number one was financial return.*
8	8	• *I would say it's almost a mandatory to have at least an Article 8 fund at the moment to position yourself [towards FOs].* • *From our understanding, almost every first-time fund has a better position when they start fundraising with at least Article 8, and some are starting with Article 8 and switching to Article 9 afterwards. When everything is set up and this seems to be the best way.* • *I just know from one investor which already started with Article 9. And it seemed to be a real struggle. I heard about some legal stuff, and they had to really force it and push it to get this Article 9 label. From all the others, I have seen their strong positioning as Article 8 at the moment. Appetite from the family offices side, some require it to have it.*
12	8	• *[FO] don't care about Article 8 or 9, most often they don't know it. They simply want to know, what are you doing with my money and how can you show me that you are doing good? And if they are satisfied then they say OK, I'll do it now.* • *There are still the pure financial investors left [as FO], but there are other ones who see this very interesting and they don't care about the SFDR stuff because this is regulated and too complicated, they just want to have something that is memorable, and these are most often families that are very active on the philanthropic side as well.*
21	8	• *Also, larger family or multifamily offices ask for us about Article 9.* • *The E part of ESG is baked into our investment thesis already so that's very obvious to all potential LPs that we speak with. And that's how we attract some of the more impact ESG driven types of investor groups and these types of investors obviously are more inclined to ask about SFDR.*
23	8	• *When I work with my personal financial advisor today, I also get asked how important SFDR, ESG issues are to me, there has been a change in the law nine months or one year ago. And when we launched this fund, that wasn't the case yet and if, in practice, we had already had this back then, we would have lost 95% of the investors. Because these underlying funds were not all SFDR 8 relevant.*

Source: Own research

FOs in contact with Article 6 funds appear to focus only on financial gains, which aligns with the classification (see Table 5.11).

Table 5.11 Findings for Theme 1.3: HNWI / FO Driven Change (Article 6)

Int.	SFDR	Quote
11	6	• *I think they're happy with investment thesis and these are investors, They're financial, you know, they're looking for financial returns. So they're saying, OK, it makes sense, it makes financially sense to invest in these kind of companies. For their ESG activities, you know they do other things, I think.*

Source: Own research

Interview participants across the different SFDR classifications stated that FOs are more interested in the investment thesis, including the chosen sectors. Article 9 fund respondents described more of an interest in and questions about the generated impact by FOs than the participants representing Article 8 or 6 funds. With over 450 single- and multi-family offices in Germany (Verband unabhängiger Family Offices, n.d.), it appears that those FOs are interested in impact work with Article 9 funds, not because of the SFDR classification but because of the expected impact from the investment thesis. It was suggested that Article 8 may become the industry standard, potentially leading to a decline in the original intention of classifying investments when most funds are classified similarly. The interviewees were aligned with the European Commission’s efforts to overhaul the SFDR classifications, as described in Chapter 2.

5.2.3.4. Investor Influence on VC Fund ESG / Impact Commitments

The interviewees state that LPs’ role is pivotal in driving funds toward Article 8 or Article 9 status (See Table 5.12). It was suggested that if LPs allocated more money to Article 8 or 9 funds, the VC industry would move in that direction. In contrast, at least one participant had refused an investment by an LP, who demanded an Article 9 classification.

Table 5.12 Findings for Theme 1.3: LP Influence on ESG/Impact (Articles 8 & 9)

Int.	SFDR	Sample Quotes
1	9	• *We see a shift that basically everybody is saying, OK, we do Article 8 because otherwise we're kind of out of the market and people will not invest.* • *What would drive people towards Article 8, Article 9 is if the LP's are saying I give you more money. At the end of the day, fundraising is not easy right now and if you get more money [by being Article 8 or 9 fund] that would be good.*
4	8	• *We had good feedback regarding the ESG kind of points. It was not about us needing to adapt a lot, but we anyway want to go with the time of course and are improving it.*
6	8	• *I don't think it would happen [that they are going to be pushed to become an Article 9 fund]. We would go in another direction because I believe this is not the way that we want to run such a big fund because it will be our main fund. I think if they told us they were in Article 9 fund, we would open a second fund.* • *They [HNWI / FO] are not following up on it [ESG / Impact]. We don't get any questions. We don't receive any questionnaires. We will see, the next AGM [Annual general Meeting] will be the first one where I do an ESG update and then I will see if someone approaches me from the FO side. But I think they're not there yet, and maybe they have some philanthropic investments and that that's the way they think about it. They have their purely philanthropic foundation work, and then they have their VC and I think in their mind they separate both.* • *I'm here to interpret what the market wants, what LPs are expecting from us and deliver on it.*
8	8	• *You have to speak the LP language at this point and the LP's point of view is not that that we're going to change the world, right? And if it's a FO, they want at least to get their money back. And when all the interest rates are rising at the moment, they also want to make money with you and so I would say this is the clear answer and if at the same time, you make the world a little more green, then it's fine.* • *FOs, I don't see the appetite for these topics around ESG criteria, the typical FO who is investing, I don't know between 2 and 5 million Euro in your fund they don't seem to pay extra fees just for this ESG.* • *I just know from one investor which already started with article 9. And it seemed to be a real struggle. I heard about some legal stuff, and they had to really force it and push it to get this article 9 label. From all the others, I have seen their strong positioning as article 8 at the moment. Appetite from the family offices side some require it to have it.*
20	8	• *If a bigger base of LPs say, look we won't give you money, that's a deal breaker [the lack of ESG components]. It comes not only from the KFW but there are a couple of others like, 40% of our commitment for example, then we would change for sure.*
23	8	• *Yes, LPs will no longer invest in funds if they are not ESG compliant.* • *I think in the foreseeable future whether it is 3 or 5 or 10 years, all funds will be impact funds.* • *The monetary aspect comes back hard , VCs won't get any more money if they don't at some stage, sometime soon also create positive impact.*

Source: Own research

The three different types of LPs and their respective investment amounts should be considered in this regard. A single SWF providing up to 20% of a fund's total investment sum would be expected to have much higher bargaining power to push for impact investments than a relatively small FO.

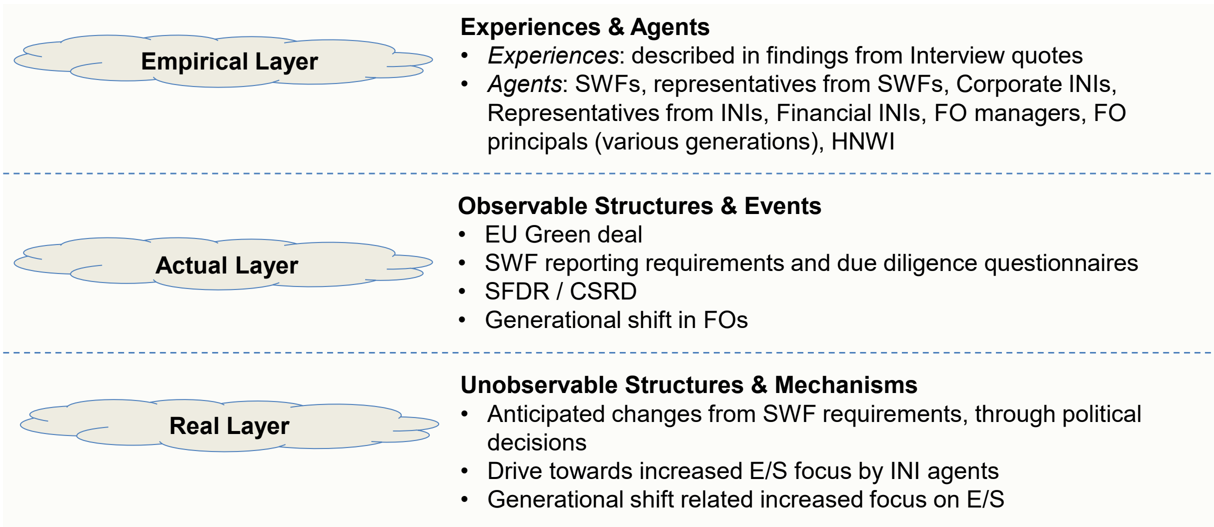
Reviewing these findings from a CR perspective, it becomes evident that the previously identified observable structures relevant to SWFs and INIs, such as SFDR or CSDR, do not apply to FOs and HNWIs. On the one hand, the participants described experiences of FO managers' and older generation principals' primary focus on financial returns. On the other hand, there appears to be a mechanism related to the generational shift within FOs, driving increased focus on environmental and social aspects for their VC investments.

Interview participants from all fund categories confirmed the substantial influence all types of LP have on the strategy of the VC firms and their respective funds. There appears to be an increasing demand for ESG and Impact investment opportunities from all LP types.

5.2.4. Discussion for Themes 1.1 – 1.3

Structures and mechanisms impacting the focus on sustainability can be deduced for all three types of investors in VC funds. Representatives (agents) from all LP types have incentives to drive increased focus on sustainability at VC funds.

Figure 5.3 Identification of CR layers for Strategy – Themes 1.1 – 1.3



Source: Own research

These can be observable, for example, with SWFs executing instructions by their respective governments to implement the SFDR standards, which are experienced by the interview participants in their DD processes and the reporting afterwards. Structures and mechanisms are anticipated that drive the EU and German government agents to increase their focus on sustainability, resulting in observable structures, such as SFDR and CSRD.

INI agents are driven both by observable structures of SFDR for financial institutions, selling their ESG or Impact financial products to end customers or by CSRD for corporations reporting on the sustainability of their entire operations, including their investments. Both regulations, therefore, incentivise these LPs to invest in funds with ESG or Impact focus. Interestingly, there appears to be an active mechanism for these corporate INI agents that drives additional focus on sustainability beyond CSRD requirements.

This mechanism affecting the individual agents from INI and FO / HNWI can be assumed to be similar to the one impacting the individual agents within the leadership teams of the VC funds, which is explored below in more detail in the section about themes related to shared values. The events of generational changes in FO combined with these mechanisms affecting the younger agents, particularly, is driving an increased focus on sustainability by this category of LP. This adds to the extant literature, as previously, investors were investigated holistically and with a focus on ESG (Lange & Banadaki, 2023) rather than in a differentiated manner for both ESG and impact.

Whilst the observable structures relating to the regulations in VC are in a state of morphogenesis and are currently being reviewed by policy-making agents, given the morphostasis of the observable structure of the EU Green Deal, it is unlikely that sustainability requirements will be reduced.

5.2.4.1. Recommendation for Management Practice 1

For VC fund managers, a comprehensive understanding of the observable structures linked to SFDR, CSRD, and LPs' reporting and DD requirements is not just a necessity but a strategic advantage. Fund managers can proactively align their strategies with the evolving investment landscape by building ESG or impact-related competencies and closely monitoring any changes to these regulations. This strategic approach will not only maintain attractiveness to all three investor types but also position them as leaders in the industry.

5.2.4.2. Recommendation for Management Practice 2

Agents from the HNWI and FO group of LPs could also consider increased focus on sustainability for their investments, even if their declared purpose is financially driven. Given that SWFs and INIs will have an increased focus on sustainability, an increasing number of later-stage funds should transition more and more towards Article 8 and 9 funds. Equally, corporations are driven by CSRD towards increasing focus on sustainability. Resultingly, the number of available options for non-sustainable follow-up rounds and industry exits should be reduced, which would diminish the potential for financial benefits for LPs who only invested in Article 6 funds. It is noteworthy that whilst this logic is in place, the timeframe for when this will occur remains undefined.

5.2.5. Theme 1.4: Driving Financial Success

In addition to pressure from LPs, VC funds include an environmental and social focus in their strategy because of the expected positive impact on their financial bottom line. This could be either through opportunities for financial benefits that impact start-ups might realise or by mitigating ESG risks that any start-up faces.

Participants from Article 9 funds highlight those start-ups working on solutions for the climate crisis as having the potential to generate increased financial returns to these funds (see Table 5.13). Historically, participants have, on the one hand, realised superior returns through investments in clean technologies, particularly in sectors such as biogas, biomass gasification, and waste management. These investments were initially driven by market opportunities, with Germany being a significant player in the global biogas sector, for example. On the other hand, participants mentioned funding gaps for their climate-tech portfolio from previous (early stage) funds, which they aim to close with their current (later stage) VC funds in line with Bocken (2015), allocating funds to underfunded impact areas. The need to solve the climate crisis is presented as a key driver for the financial success of Article 9 funds.

Participants emphasise the interconnectedness of impact and profitability, suggesting that companies with high impact will also be highly profitable and valuable. Start-ups with a significant positive environmental impact, especially if achieved in the short term, will likely experience higher valuations in the future. Climate technology has been globally recognised as the next significant wave of innovation comparable to the developments related to the internet.

Table 5.13 Findings for Theme 1.4: Economic Opportunities in E/S Start-ups (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *It started with a few interesting investments in the biogas sector, biomass gasification, waste management business. If you wanted to invest in clean technologies, you needed to look at Germany because we have the EEG and you know half of the worldwide biogas deployments were in Germany. So that was born out of an opportunity. And these investments were in the first 3-4 years, the rock stars in the portfolio, I mean the North American based management business was at that time virtually a fund maker and then when the colleagues prepared the second fund, they said OK, this is what went well then Cleantech was the flavour of the month, let's focus on that.* • *It was a natural evolvement out of the market opportunities which were there rising ecosystem. Because frankly, these, at least the 1st and 2nd exits in the 300 million range were the can openers for the industry.*
2	9	• *The main trigger was we have invested into climate tech few years back. At that time, it was at least called Umwelttechnologie topics. It was not the fancy expression of climate tech, and we were highly frustrated that we didn't get any follow-on capital.* • *You know, people were starting to think about climate as an investment field potentially an opportunity and there was more the entrepreneurial hat of me on where I thought, OK, does it make sense to continue investing into another platform app, software type of thing and repeat this vicious or holy cycle of how to build those companies or not to build those companies?* • *I wanted to solve the immediate problem of funding gap on our own portfolio companies. So that's yes to a certain degree a financially driven motivation.* • *I saw the biggest investment opportunity in the history of mankind coming. If you don't fix the big problem on the climate side, then there's nothing else to fix, so it has to be an opportunity. By chance, this problem has a big financial opportunity.* • *It's not a trade-off I would say, a company that does not have a high impact will not be a highly profitable company or valuable company. And vice versa as well, a highly profitable company, a company with high profit, high valuations, will be a company that has a massive impact.* • *You won't have a successful company if it doesn't achieve a high impact.* • *If this impact is even achieved in the shorter term, than beyond 2050 I think even that will drive the valuation of companies.*
13	9	• *We all had the impression that after the clean tech wave 2008 / 2009, now the time really has changed and that the next wave in this sector will be, a more reliable one and a more important one, maybe a little bit compared to the to the internet development, new market and so on. So we saw the potential that this topic will have globally, in general, as the next very important wave.* • *If you have the next engine, heat engine, geothermal technology, which really is a solution and will be a solution globally. Then it's highly interesting of course also from a monetary perspective for investors and for us.*
18	9	• *I think this is more in the impact VC industry, on people who are already impact aligned, if you have a truly impactful product, you know it does benefit the bottom line.*

Source: Own research

Interviewees underscore the monetary perspective for investors, highlighting the attractiveness of investments in solutions which can have a global impact, like heat engines and geothermal technology.

Article 9 interview participants expressed that impactful products can positively affect the financial bottom line, reinforcing that impact and profitability are closely intertwined. Conversely, Article 8 participants consider it important to balance making a positive impact and generating financial returns in investment decisions. They claim that impact should not come at the expense of profitability (see Table 5.14).

Interviewees from these ESG funds are more focused on reducing environmental and social risks and maintain that start-up professionals should proactively monitor market developments and prepare for the applicable industry's future landscape, building processes fit for anticipated changes. This translates into considering climate-related factors and risks in DD processes for funds, even when a direct link to ESG may not be evident.

Investors are increasingly aware of climate change's market pressures and risks, influencing investment choices. According to interviewees, start-ups and funds focusing on long-term sustainability must consider ESG criteria as a fundamental component for success, not as a trade-off with profitability. The focus is on ESG, the management of environmental, social, and governance aspects in a start-up, not the generation of positive impacts on the environment or society.

Table 5.14 Findings for Theme 1.4: Economic Opportunities in E/S Start-ups (Article 8)

Int.	SFDR	Sample Quotes
3	8	• *When you have a working business model and you're happy with your business model, I would usually try to avoid a radical pivot and change which nobody has helped. If we are an unsuccessful impact fund with no LP's even from an ESG perspective, it's better to funnel money and take things into account and help the ecosystem to evolve as opposed to making it a principled thing like our number one goal is not to make money, our number one goal is to save the planet.* • *We love [Impact]. It's just we would not go as far as avoiding returns.*
6	8	• *That is where the ESG professional looks into the market developments and looks into what could be coming next. You look into PE and you need to just start telling them this is how it might look in three years. Not because I say so, but because the industry has already gone through it. So, let's just build processes fit for purpose. Not today necessarily, but in the next three years.* • *They understand the market pressure, they understand the risks created by climate change.* • *All this is understood, some of the issue that we have as humans is how much we think that we are owners of impact. How much do we think that us changing things is going to make a difference? And I think that's where things, when they might understand that there is this part of their portfolio at risk. But then what is the trade off? How much am I going to authorise of a budget [foe ESG] and for what purpose?*
9	8	• *The article 8 is coming from the fact that our belief is that investments which are sustainably from ESG perspective are also more profitable for investors, so it's not a decision to take either profits or be ESG compliant or ESG positive companies. It's rather the opposite. It's if you want to have a long-term sustainable business then you need to consider ESG criteria.*
17	8	• *I strongly believe and it's not just my belief, there are many studies in the market, that prove statistically that there is a link between ESG or let's say ESG/ impact and financial performance.* • *We have to differentiate a bit between ESG and impact, because let's take a firm getting in trouble on the environmental end. It can be easily punished by the regulator leading to higher costs. Also, the customer can say OK I will not buy this product again, leading to lower returns in the end. This is from my side the important part, ESG and proper processes in place are very important that the firm is not getting in trouble in these, E, S and G spheres.* • *The customers from our or the suppliers from our portfolio companies, because if they are large companies and I have exactly this case on the table right now when one of our portfolio companies is working for example with Amazon or another large company like Nestle. They will definitely need these ESG KPIs. They will need it and they do not care if the company has to report because we are in Article 8 fund and they do not just care about transparency.*
20	8	• *But these [ESG measures] is still financially important for the future and for [the start-up's] growth. There are a lot of studies on how companies that addressed ESG early then went on to having a better exit or a better IPO because they were ready for bigger investors in the public market.*
21	8	• *There's an environmental aspect to it, but it's also an investment opportunity, a financial investment opportunity.*
22	8	• *I think even if you're purely capitalist, I truly believe companies with a positive impact look as the star in our portfolio right now [Environmental Start-up] combine the two [ESG / Impact and financial success]. And companies which don't combine the two will struggle going forward and that's why it's not [financial performance or impact].*

Int.	SFDR	Sample Quotes (continued)
23	8	• *These are big topics [impact], a lot of money will have to flow into them, there will have to be a demand and that's why there is of course a market that is completely okay. Then you just switch. It's so typical of our industry. When you say, don't do it because of social and governance and the environment, but guys, it's actually exactly where you can make really good money.*
24	8	• *It was intrinsically driven, but also financially driven, I would say that we invest into sustainable businesses. I mean just as for me; I think it's right for the earth. But also, right in terms of it could make sense financially.*

Source: Own research

ESG measures are not solely for fundraising by VC funds but are also seen to help portfolio companies implement good practices and techniques to enhance customer value, which in itself would increase the company's valuation.

5.2.5.1. Discussion for Theme 1.4

There are differing observable structures in place driving fund managers to incorporate environmental or social aspects into their strategies related to financial opportunities (see Figure 5.4)

Figure 5.4 Identification of CR Layers for Strategy – Theme 1.4

Source: Own research

Becker et al. (2022) identified that funds focusing on sustainability attract higher inflows from investors. Friede et al. (2015) affirm the business case for ESG investing, supporting the idea that sustainable investments can be financially beneficial. Zaccone and Pedrini (2020) emphasise the increasing interest in ESG investments by major asset managers and hedge funds (the potential VC LPs), along with integrating ESG factors to reduce risks and enhance returns.

Interview participants from Articles 9 and 8 funds confirm these findings. For Article 9 fund representatives, the climate crisis and other observable environmental and social issues create an opportunity for increased financial returns. It is noteworthy that Article 8 funds can also make impact investments but are not committing themselves to a fixed percentage of their overall portfolio to such investments. Participant 21, for example, recognised these opportunities.

In addition to this observable structure of the climate crisis (and other scientifically accepted environmental and social issues), a mechanism can be deduced that drives fund managers to shift to impact investing at this current time and the commitment to focus solely on such investments by registering as Article 9 funds. The observable structures of financial opportunities related to the climate crisis are experienced and related by the agents. The fund managers do not know ex-ante, at the fund setup stage, which start-ups they can invest in. There is a potential that at the end of the investment stage, of all available start-ups at that time, the ones with limited or no environmental or social impact have the highest potential for financial success. Nevertheless, a mechanism drives these fund managers to commit themselves to Article 9 status. This commitment is observable by the industry, including potential impact start-ups, and could result in a virtuous circle, where founders focus on impact as they expect funding to be more easily available than before.

The primary observable structure for Article 8 fund representatives is risk management for the portfolio companies, which are expected to be less exposed when ESG measures are implemented. Article 9 funds must also consider ESG measures in their investment appraisals, DD processes, and annual reporting. However, from interviews, another mechanism that drives agents to adopt ESG measures with the expectation of future financial returns or the avoidance of future financial downsides from not doing so can be deduced.

5.2.5.2. Recommendation for Management Practice 3

Fund managers from Article 9 and 8 funds could create a virtuous circle by communicating the financial success of impact start-ups or ESG success stories in their existing portfolios, such as prominent financing rounds or exits. This could encourage more impact or ESG-compliant start-ups to be established, increasing the pool of available investments at a later stage.

5.2.6. Theme 1.5: Sustainability Performance Measures

Performance measures (PM) are used to quantify the achievement of a strategy. In VCs, performance is traditionally measured in the financial returns of the fund’s investments. However, with additional focus on environmental and social aspects throughout the fund lifecycle, some VC management companies have defined corresponding measures.

PMs are relevant to this research as communicating them and their potential targets to the LP base of a fund demonstrates the fund's commitment to environmental and social causes. Conversely, these reporting commitments might prevent a fund from adopting environmental or social measures.

5.2.6.1. Defining Impact Performance Measures

The interviews' findings clearly distinguish between Article 9 and 8 funds, as the purpose of Article 9 funds is to generate positive environmental or social impact, which is then communicated through pre-contractual disclosures defined in SFDR and the fund's investment thesis. As part of the pre-contractual disclosures, Article 9 funds must declare what is measured regarding impact and how it is calculated (Regulation (EU) 2019/2088, Annex 3). It can be observed that impact funds focus on generating positive environmental and social impacts while aiming to achieve superior financial returns (see Table 5.15). Participants reject the idea of solely philanthropic or non-profit investments. Emphasis is placed on forward-looking questions that address how a company can reduce waste, emissions, or other environmental and social impacts rather than dwelling on past performance or future predictions.

Table 5.15 Findings for Theme 1.5: Defining Impact Performance Measures (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *Impact in Germany is still and doing something good and no returns. Philanthropic right? That is obviously wrong, at least not in in in our interpretation.* • *But if you ask the question, how can the company reduce its waste factor and the production, it's not about last year's waste factor it's about how can we reduce it? It's not even what will it be next year? How can we reduce it?* • *It's a strategy tool, but at the same time we can measure it. We can define KPIs, we can do it company specific.*
2	9	• *For us, it was always around reducing CO2 as a measurement that defines in our impact from this environmental point of view. Investing into climate then you can say, OK, you can measure impact in this climate area or planetary health area in in different aspects. But the real enabler is CO2. For us that's a little bit like our North Star where we said OK anything we do or don't do, anything we invest in that we don't invest in is firstly driven by the impact that we can achieve by CO2 reduction.*
13	9	• *Our decision process was also driven by the fact that we cannot be everywhere, we cannot cover all the parts that are important in this respect, and so we just focused on CO2 driven stuff. Almost no software, but rather concentrated on hardware because we think that from a financial perspective that will be highly important. If you have the next engine, heat engine, geothermal technology, which really is a solution and will be a solution globally.* • *If it's highly successful, then of course it's also successful for all people living on the planet. We realised that there are two very positive driving forces, which is a win, win, win situation for all, for investors, for us as a GP for, for climate and for the whole society in general.* • *We only like to concentrate on those [start-ups] who really make a difference on a global perspective. And not in 20, 30, 40 years if you think about nuclear fusion, but today or tomorrow, we need something that is that is highly usable already in 1, 2, 3,4 years' time but not in. 20 years time. Because the change is happening now.*
18	9	• *Within social we had listed education, access to finance and inequalities as the three areas that we care most about within social impact and where there could also be intersections with climate and are actually most interested in exploring those intersections, because that's where our true value add can come in.* • *The problem with social impact is that each area has totally different outcomes, total different metrics and so it's not possible like in climate to say we are tackling CO2 emissions. It's just not possible. We thought long of what is the one word that could describe all the different social things that we do, in a way that doesn't narrow us down. And that word was well-being so that that's how the word came about, and I think it's pretty good because we use the OECD well-being framework with the different well-being areas for humanity from environmental well-being to mental health well-being and so.*
25	9	• *How should we measure this impact? It's very tricky. There are 2 two ways, one is top down, so you say well, OK, I decide I want to track some KPIs, and you put these KPIs on all your portfolio That has a huge issue that you decide from your side what is necessary. And then you take your investment decisions according to only these KPI's, because you want to show this impact. Most of the Article 9 funds have chosen CO2 reduction. So you track business models with a lot of CO2 reduction potential. Then it pushes you to invest into Infrastructure and big plants.* • *We are a bit sceptical about this approach top down and that's why [we work bottom up], which is a way of analysing the business model and then finding out what are the sustainability drivers in the business model and then to put them bottom up into the into the reporting.*

Source: Own research

The participants described two general approaches when quantifying a fund's expected strategic impact outcome. With the first one, the fund focused on one single measure linked to the purpose of the fund. GHG reduction potential is often mentioned as a core metric and the north star of the strategy, defining its environmental impact approach. In this case, all investments are evaluated based on their potential to contribute to GHG reduction. These strategies often prioritise hardware solutions over software and focus on innovations like heat engines and geothermal technology to address global challenges. Software solutions are not ex-ante excluded from investments; however, interview participants expressed that bigger GHG reduction potentials are expected from hardware solutions.

Alternatively, funds can focus on a structured approach to defining PMs, allowing them to customise them based on each portfolio start-up's business model. These strategies employ a bottom-up approach for impact measurement, identifying sustainability drivers within business models and incorporating these into reporting. This approach avoids relying solely on top-down KPIs and assumptions, making it more difficult to define ex-ante the environmental or social impact generated throughout the fund lifecycle. The start-ups being invested in and their solutions to environmental and social challenges are unknown at the beginning of the fund's lifecycle. This requires these funds to define how such impacts will be evaluated in their investment thesis. Participants described past examples of investments that help prospective LPs understand this strategy.

To address social impact, the respondents described the concept of well-being as a framework. That encompasses various aspects of social well-being, including education, mental health, and environmental well-being.

Participants describe a focus on investing in solutions that make an immediate global impact rather than waiting for long-term results. They acknowledge that change is happening now, irrespective of whether a single impact measure or a bottom-up approach was employed.

While Article 8 funds do not have to declare any impact investment targets, some participants still declared a focus on impact investments (see Table 5.16).

Table 5.16 Findings for Theme 1.5: Defining Impact Performance Measures (Article 8)

Int.	SFDR	Sample Quotes
12	8	• *There are dedicated reports and articles about why there's an impact on cybersecurity and why there's strong impact. And the impact is around the protection of the IT infrastructure because literally what you are doing with many of the protection is you prevent fraud and crime, and this has an inherent impact as well. Our colleagues have put out these studies and we are still looking there at the KPIs that are suggested to measure the impact we have to explain this to LPs because they are not, there's always the misconception that impact is only around CO2. I'm also struggling with it internally to explain this.* • *We have a combination of what is the CO2 target and what is the positive touch points they want to have in people's lives. This is the healthtech side and in investing and we were struggling a bit on that one. On the CO2 side, it's a bit I would say it's easier to do that, but there we struggled a lot on the side by side because we don't have benchmarks for this.*
21	8	• *It [sustainability] was built in from the very start. We set out as a group of investors to invest in companies that move the energy transition forward that drive decarbonization forward by electrification, because we believe in it. Because we believe that that's the one of the big changes in our society in the coming years.*
22	8	• *While we're not allowed to engage in business decisions with the companies in the portfolio, one of the things we are relatively strongly involved in is hiring of executive talent because typically we put in money and then they hire people. We work with the teams on diverse and inclusive hiring processes, and we hope to push the share of female executives within our portfolio companies. Which we believe will then in the second step lead to also more female founders, etc., because that tends to be the career trajectory of founders.*

Source: Own research

Participant 21, for example, describes an investment focus on energy transition and decarbonisation through electrification, which would generate a positive environmental impact. Participant 22 describes the focus on gender diversity measures not through an ESG lens, which would postulate that benefits associated with more diverse teams are created within the start-ups. The participant desires to create societal change by encouraging more women to become founders, which is an impact goal.

5.2.6.2. Defining ESG Performance Measures

Contrary to Article 9 funds, Article 8 funds do not have to declare specific impact goals as part of their pre-contractual disclosures (Regulation (EU) 2019/2088). Article 8 funds ensure that their portfolio companies consider the ESG risks associated with their business model, where a standard is already provided with the PAI. Impact targets do not necessarily have to be defined; however, it is noteworthy that some of these funds have declared themselves Article 8 but are working on impact objectives with the associated PMs.

Interview participants from that group have expressed reservations about setting strict quotas for sustainability investments, particularly aligning with the EU taxonomy for sustainable investments (see Table 5.17).

Table 5.17 Findings for Theme 1.5: Defining ESG Performance Measures (Article 8)

Int.	SFDR	Sample Quotes
3	8	• *We need to create awareness of for it needs to sync with our vision and our strategy. What type of company do we want to be and how do we define success at the end of the day? And even if we have a hardcore commercial oriented founder, who's single founder, so he has a lot of power in the business. Even he should understand, even if his only objective is like biggest fundraising round ever, biggest exit ever, he should realise that if he is too sloppy on ESG, then it becomes a threat to his overarching goal.*
6	8	• *The feeling from the fund being a generalist fund is not wanting to be too restricted. Not putting ourselves a quota of we're going to do x percent of sustainability investments or EU aligned investments, especially because the EU taxonomy is only environmental, it's not even social. So that just puts you in how many investments can you do, aligned with the EU taxonomy, as a generalist fund? I do not think that this is the direction that we're taking, at least not with our main fund. I don't know if they will do a specialised fund that will only look into this in the future. I'm guessing maybe. The feeling right now is that, and also part of my messaging is that we don't need to have impact investments to be very good at ESG.*
12	8	• *And one other common way, we were also struggling a bit was to set an overall target for the fund. We have seen this with other funds like the World Fund and Revent in Berlin, they have overall targets for the fund in terms of how much CO2 they want to save.*
20	8	• *That actually integrates ESOPs and VSOPs for example, as good governance or good social practises. As well as diversity and inclusion because we feel that there is an acceptance and society is shifting It's in the debates the #metoo debate, and we have a lot of talks and debates around social diversity components, so this is something that we feel is easier for portfolio companies to integrate because they know that candidates are going to be sensitive about [it].* • *We don't invest in the industry or in production. Most Fintechs are software companies, they have office energy consumption, sometimes servers, but even this it's always more of a scope 3 thing that is outsourced. It's easy for them to take a green energy contract or build solar panels on the roof. This is not cost intensive for an early-stage company.*
21	8	• *The S part in ESG is so, I wish there was more we could do. Or more, we could measure, more that could be done on that dimension. For our investments, it's mostly the environmental impacts that that we're looking at. We look at diversity in the teams. Sure, yes, but even there it's always about gender equality. What about people of colour?*
22	8	• *While we're not allowed to engage in business decisions with the companies in the portfolio, one of the things we are relatively strongly involved in is hiring of executive talent because typically we put in money and then they hire people. We work with the teams on diverse and inclusive hiring processes, and we hope to push the share of female executives within our portfolio companies. Which we believe will then in the second step lead to also more female founders, etc., because that tends to be the career trajectory of founders.*

Source: Own research

This demonstrates the linkage between the DD process evaluating PM before an investment and the reporting process, requiring regular updates on these measures. Both are documented in the fund's thesis/ strategy. The importance of balancing environmental and social goals with financial returns is stressed, emphasising that a high ESG score alone is seen as insufficient without a solid business model. Participants emphasise a desire towards practicality in implementing sustainability measures for early-stage companies without being overly cost-intensive.

Subjects such as integrating initiatives like employee stock option programs (ESOP), virtual stock option programs (VSOP), and diversity and inclusion are named as appropriate focus areas. Interviewees from Article 8 funds express a wish for more actionable measures in the social aspect of ESG, particularly in achieving diversity beyond gender and acknowledging the difficulties in influencing certain social aspects. They acknowledge the scarcity of female founders and promote avoiding overly harsh criteria but expressing a commitment to diversity in the long term.

5.2.6.3. Diversity and Inclusion and Climate Focus

The respondents consistently focused on diversity on the social aspect and decarbonisation or GHG reductions on the environmental side (see Table 5.18).

Table 5.18 Findings for Theme 1.5: DEI and Climate Focus (Article 8)

Int.	SFDR	Sample Quotes
4	8	• *We will not go in and have very harsh criteria to say if there's not a female founder, then we don't invest. Because the we also have to be real and realistic what is out there. Unfortunately, there are not many companies with female founders.* • *It's a good underlying value or currency of all healthcare investments at the end it's for the patients good and of course with innovation, we try to enhance the therapy outcome. Or via prevention or whatever. That's always an underlying and given kind of target or goal from all the investments. But it's not that we are then doing a 1 to 10 score at the end. It's about also having a good investment. So just having ESG score of 10 but no business model doesn't make sense as well. So we try to balance things out.*
20	8	• *We're going to add environmental one [to a diversity and inclusion KPI] that concerns energy conservation probably and green energy and try to incentivize them to use green energy. The idea is to [ask if the start-up has] any initiatives, if not here, here are some that will be the same for environmental and that's how we try to address SFDR and how we will address it in our pre contractual disclosure. This is the strategy that we use. [We came up with the PM by] what's practical, and a good use case for early-stage companies, it's easy for them.*
22	8	• *We have the [climate action] commitment and the female representation in leadership commitment.* • *I think the [climate action] is an interesting one because it's a decision made initially when we decide to invest into a company, which is per se one of the key decision points for us, where we can say is it a [climate action] compatible company, yes or no.*

Source: Own research

None of the participants described a differentiated approach to ESG through the assessment of material subjects relevant to the focus industries of their fund or the underlying business models of their start-ups. The funds represented in the interviews do not commit to the reporting of PAI as part of the SFDR declaration, which would allow these funds to focus their ESG performance measurement on those indicators most relevant to their industry focus or sector.

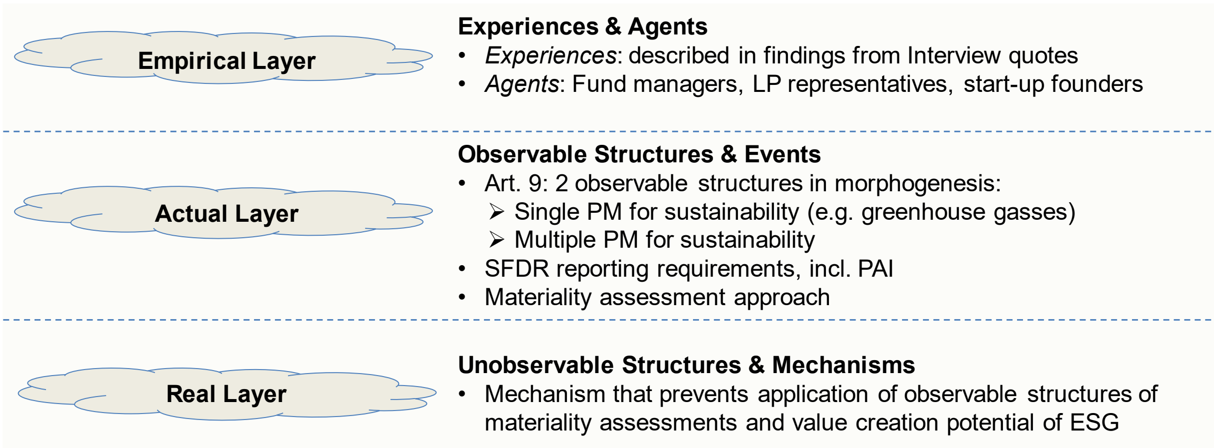
The participants do not mention the intention to improve the chosen ESG metrics from the portfolio over time. SFDR requires funds to report their sustainability data annually, demonstrating year-on-year progress from the start-ups (Regulation (EU) 2019/2088, article 11). However, a generic improvement of their sustainability scores on a year-to-year basis does not form part of any of the represented funds in the interviews.

Participants discuss the struggle to define clear benchmarks for positive environmental impact and the importance of measuring carbon impact on revenue development.

5.2.6.4. Discussion for Theme 1.5

VC management companies representing Article 9 funds describe two observable structures to define impact KPI related to the thesis of their financial products (see Figure 5.6).

Figure 5.5 Identification of CR Layers for Strategy – Theme 1.5



Source: Own research

Either a single measure is used; in most cases, the reduction potential of GHG and all targeted investments (start-ups) are evaluated against this metric. The advantage of this approach is that it makes the impact potential of start-ups more comparable. Each start-up must demonstrate how high they estimate the reduction potential stemming from their solution, in which timeframe this is intended to be achieved, and at what cost. By correlating these three figures, VC management companies can compare different solutions from various industries, processes, and business models. A firm commitment to do-no-significant-harm (DNSH), as required by the observable structure of SFDR, ensures that no other environmental or social aspect is put at risk (Regulation (EU) 2019/2088, article 11).

On the other hand, a strict focus on only one sustainability measure has the potential to reduce the pipeline of start-ups that a fund can invest in. For example, if a fund focuses on reducing GHG and has defined a minimum potential reduction threshold for investments, the pool of potential investments is more limited. In addition, reducing GHG often requires an investment in physical infrastructure, potentially elongating the investment timeframe compared to business models based on software applications.

The other observable structure to define impact measures for Article 9 funds is the bottom-up approach, where an evaluation is conducted for each targeted investment to define the expected impact. The impact focus of the fund can be given to specific social or environmental challenges across industries. Alternatively, the fund focus can be based on specific industries or business models with no specification of impact characteristics. The advantage of this approach is that the pipeline of potential investments remains larger than in the case of a single sustainability target. On the other hand, comparability between start-ups is reduced, and the VC management company must evaluate start-ups against many different metrics, putting additional constraints on human resources.

Fundraising from LPs might be easier for funds with a single measure, as a clear impact target can be communicated from the beginning. For example, a fund might declare the ambition to produce a GHG reduction potential of 100 gigatons by 2050. Funds applying a bottom-up approach ex-ante do not necessarily know the impact characteristics of their ultimate portfolio and would have to describe the impact in broader terms.

Both observable structure options are in a stage of morphogenesis. Impact funds existed before the applicability of SFDR, and they used either of these observable structures to define their sustainability PM. However, SFDR requires a clear declaration of the approach used to define these measures, creating a re-evaluation of these structures by industry agents. While the two main structure options remain, the details on how the PM is calculated, particularly in the case of multiple PMs, are still being defined.

While the representatives from Article 9 funds clearly describe their impact targets, no participant mentions an additional focus on ESG.

The interview participants from Article 8 funds acknowledge the observable structure of SFDR reporting requirements and describe a requirement for these ESG measurements to be cost-effective. In addition, they express their desire for these reporting structures not to put too much of a burden on the staff managing these processes in the fund (see Section 5.3). They do not describe the value creation potential that a focus on ESG could have on the financial returns of both the start-ups and the funds themselves. Through implementing measures improving the ESG performance, start-ups could reduce costs, attract or retain customers, reduce business model risks and attract human resources, all with potential positive financial returns (Friede et al., 2015).

There appears to be a mechanism affecting the agents representing the multiple PM approach that prevents them from conducting materiality assessments linked to their investment thesis in their definition of sustainability PM. The observable structure of materiality assessment has been extensively documented in academia (see, for example, the literature review of Fiandrino et al., 2022). It identifies the most relevant sustainability aspects of specific industries, sectors or business models, which can then lead to the definition of PM. Arguably, those funds with a single PM have identified, for example, the climate crisis as the most material subject to focus on. The materiality assessment could also be applied to ESG, identifying the most relevant aspects in ESG reporting for Article 8 funds, which would lead to identifying the value-creation potential of these funds (Friede et al., 2015).

5.2.6.5. Recommendation for Management Practice 4

Agents from Article 9 funds could focus additional attention on materiality assessments both for their impact measures (for the multiple PM approach) and for the ESG performance of their portfolio companies, recognising the potential for this aspect to create value.

5.2.6.6. Recommendation for Management Practice 5

Article 8 funds could focus more on the value creation potential of ESG for their portfolio companies rather than consider reporting a compliance issue.

5.3. Structure (Organisational)

This research investigates the required organisational changes when implementing environmental or social aspects in a VC fund (see Figure 5.6). Coffay and Bocken (2023) have identified these required organisational changes on a high level. The associated costs and benefits might create mechanisms to incentivise or dissuade funds from implementing such measures.

Structure in this context refers to the organisational structure of the VC funds as defined above, not to structure in the CR sense.

Figure 5.6 Overview of Themes (Structure)

Source: Own research

5.3.1. Theme 2.1: ESG Integration in Organisational Structures and Roles

Interviewees identified additional position requirements in Article 9 and 8 funds and the changing roles of current staff, which require change management efforts, as instrumental.

5.3.1.1. Additional Overhead for Impact Funds

Participants from Article 9 funds describe the challenges and overhead associated with integrating sustainability factors into investment management processes (see Table 5.19). Two main additional tasks are mentioned; on the one hand, the role of investors as educators and advisors to portfolio companies emphasises the need to educate them on various sustainability-related aspects. On the other hand, it is important to have a specialised team with scientific expertise (e.g., head of science, head of carbon math) to address the complexities of impact calculations and ensure a reliable approach for the company's development is explored. These calculations also create the need for administrative personnel responsible for reporting, proposing the integration of financial reporting and ESG /Impact reporting under a single individual.

Table 5.19 Findings for Theme 2.1: Organisational Structure Changes at Funds (Article 9)

Int.	SFDR	Sample Quotes
2	9	• *It's an overhead that is normally not part of an investment management structure and that has to be recognised. You need to have on the ESG side more people; you need to have people on the controlling side. You're not just asking for the financial reports, you're asking completely different things.* • *You have to educate the portfolio companies on all these aspects. So, we are becoming an educator and an advisor. We have to be careful how deep are we dragged into helping them to fulfil our criteria and their criteria, because we have that in contract with them as well.*
13	9	• *We hired scientists like our head of science. She has a doctor in chemistry and we have a head of carbon math, who created with us the impact calculation in order for us to make a reliable thesis how this company could develop over the next 20 years and is there really the scale that we need in order to reduce CO2. And by all this I mean we are clearly SFDR 9 and we are light years away from 8.*
25	9	• *We need an administrative person doing the reporting and so on. This is probably the same person doing the financial reporting. I want to really to merge both softwares that are needed and to have one person responsible for them.* • *We have integrated these topics at each investment manager, so there is in our fund no one responsible for these topics. I am the one going out doing this pedagogic exercise everywhere now and [ESG / Impact responsible] has transformed [the impact framework] from a product development tool into a business model development tool. So, she is the expert, and so the two of us are more the brains behind the structure.* • *But we have implemented it the way that every investment manager is responsible for these topics in his company because it's so inherent into the business model. So each one is doing the exercise with his or her portfolio company. And every investment analyst working with us will have to understand this, otherwise it makes no sense.* • *If everyone in our company is doing this job, then at our level we can transfer the information from one portfolio company to the other. We will have a lot of exchange at our levels and we will give it back or we will make it possible that one company talks to the other portfolio company.* • *That's just a really important mindshift that it doesn't make sense to have one person doing these things in a company. You really have to integrate it in the job of each investment manager, the ESG part and the impact part. Both of them have to belong to each his or her job otherwise it is not value creating in the business model. It's just an exercise which is time consuming and extracting value actually and not adding value.*

Source: Own research

Some interviewees promote the distribution of responsibilities among investment managers, with each manager responsible for ESG and impact considerations within their respective portfolio companies. They emphasise the importance of every investment manager integrating ESG and impact considerations into their role, making it an inherent part of the business model. The significance of information exchange and collaboration at the organisational level is stressed, enabling portfolio companies to share insights and experiences. This information exchange and general approach guidance is then fulfilled by the abovementioned experts, who must be added to the organisational chart.

Notably, in Article 9 funds, the defined fund purpose and objectives encompass both the financial results and sustainability-related goals. Employees working for such funds have been hired under this premise and likely share this purpose, taking on roles that would be considered extra workload in traditional funds. From an organisational point of view, however, participants describe that this additional workload and its associated costs should be incorporated into management fees.

5.3.1.2. Changing Role of Investment Managers

Article 8 funds also recognise implications to the role of investment managers due to the implementation of ESG (see Table 5.20). Interview participants describe the division of responsibilities within the team, with one colleague focusing on ESG DD. They suggest that investment managers should be familiar with at least the exclusion list. Exclusion lists provide guidance on industries or sectors that the VC fund has decided not to invest in, such as tobacco, drugs, or gambling.

Table 5.20 Findings for Theme 2.1: IM Role Change in Funds (Article 8)

Int.	SFDR	Sample Quotes
4	8	• *So my colleague is doing the ESG due diligence. I would say I'm more responsible for teasing investors and then we have a fundraising team and a controlling department and stuff.*
6	8	• *Then I take care of the DD process with the investment team. It is divided between a part that I'm the owner of and the other part the investment team is owning.*
7	8	• *I'm doing this [all activities linked to ESG] all on my own at the moment. There are so many things to understand and to work on. The main focus is on fundraising to get this fund ready and then have some time in the next two 3-4 years to learn it all. And if I'm being really honest, I don't know how much you can do as a single GP and you have to be realistic on that.*
10	8	• *I'm head of ESG, yes, but everybody in the team has to or nearly everybody in the team has to be involved, especially the investment professionals when we are having discussions with our portfolio companies. I'm not the one who's discussing with each and every portfolio company the ESG topics. No, this is done by the people or by my colleagues who are in charge*
12	8	• *We have two persons from the investment team that are basically preparing everything for the impact reporting and also the advanced ESG reporting. And we have also recently hired and dedicated intern to support us there.*
17	8	• *I was hired to overlook the whole ESG area for our own fund for our portfolio companies. But I'm part of the investment team. And if you have the situation in the company that you are just working in the ESG department and the investors are just working on the investment end it's a completely different story.*

Source: Own research

The exclusion list is a critical decision point and a basic checklist. By singling out the exclusion list, interviewees indicate that additional aspects of ESG, such as DDs, value creation during the holding period, or reporting, have not been accepted by the investment team yet.

5.3.1.3. Managing the Change in Roles in Funds

Participants primarily responsible for ESG view the role as attractive due to its emphasis on creating meaningful change rather than just ticking boxes (see Table 5.21). They aim to make the role redundant by educating and integrating ESG considerations across the team. They describe internal discussions on structuring the ESG area within the fund, considering the feasibility of having one person in charge while involving the entire team in ESG matters.

Table 5.21 Findings for Theme 2.1: Change Management (Article 8)

Int.	SFDR	Sample Quotes
4	8	• *We have one head of ESG and of course in all due diligences, we are doing also ESG due diligences, it's part of the investment decision. But on the other hand, it's not my direct responsibility.*
5	8	• *I think that's also a positive aspect and made it also attractive for me [ESG professional] to join the fund. Because otherwise when you're just saying we have to do it and tick some boxes, and then we leave it, that's not where that change is going to come from.* • *The first interaction with a venture, in the ideal case, the investment manager should already know about our exclusion list.* • *We actually have to make ourselves redundant and then done our job.*
6	8	• *I think that there's always this trade off, which is seen very much with ESG because they hired people like us [ESG professionals]. They also are expecting us to create loads of change. And sometimes it's not understood that we also need more resources on top.* • *No one wants to be around you if you're the police that is absolutely true. But by the way, I'm saying I think that there's already cases of that.*
9	8	• *We don't have a head of sustainability. We rather have people who have more interest in that area, but the full team is committed.*
10	8	• *And if there are issues coming up from our gaps from our ESG monitoring and the questionnaire we are using, then we are thinking about an action plan for each company for every year how to improve the ESG status of the company. All the investment professionals dealing on a weekly basis with the portfolio company, they have to discuss with them if there are coming up some issues. Sometimes the management is not so happy about that because they're saying, OK, it's an additional workload and maybe we have some other issues or some other problems which are more important than the ESG topics, and then they're asking, well, can we postpone it for six months, or maybe to move that to the next year because we have some regulatory issues we have to deal with the authorities here to get approved and that's more important because otherwise we are not living for another year.*
17	8	• *I [ESG responsible] knew when I started to work for [fund], I knew it's not an impact fund. And you can also choose an impact fund if you are completely different from your mindset, but I think I can do more in a setup that I am in right now than in an impact fund.* • *Our goal is that every investment manager is able to do the ESG due diligence by her- or by himself in the end. It's a long way to go now.*
20	8	• *It has since then evolved through me [ESG responsible] to be more than a compliance only job and also evolved out of me to also concern other parts of the team, both in the front and the back office. When I say front and back office is the operation teams and the investment team. And so now concerns more people. More people are involved. We developed the task force.*

Source: Own research

The evolution of the ESG role from a compliance-focused position to one that involves various team members, both in the front (investment team) and back offices (ESG / finance, etc) is highlighted.

These interviewees recognise the trade-off in expectations for ESG professionals, stating that while they are expected to drive change in the interim, there might be a lack of understanding regarding the need for additional resources.

5.3.1.4. Additional Position Requirements in ESG Funds

Other participants concur, discussing the need for additional positions, including an ESG team, to effectively incentivise and engage in ESG-related tasks (See Table 5.22). It is acknowledged that a balance is required between covering the challenges in ESG reporting and considering more senior personnel for tasks that involve communication with LPs.

Table 5.22 Findings for Theme 2.1: Additional Positions (Article 8)

Int.	SFDR	Sample Quotes
8	8	• *If you're talking about first time funds or first strategy funds, it's normally three to five people, most of them doing this for the first time ever and they don't have capacities to hire someone who's exclusively on ESG.*
10	8	• *We had this discussion internally how to structure this kind of area within our fund. It makes sense to have one person in charge of it. Because that makes it easier not only to structure it, but also to fulfil it at the end.* • *I have also another employee which is working together with me. We are doing all the monitoring and establishing the action plans and the follow-ups and so on. So, 1 1/2 people are working on this issue.*
12	8	• *If you have a dedicated person who can help them with this, not only to fill out the reports but actually providing value with the support in terms of customer value, then this is something that we will most likely do in the future, when the fund is raised and we find a suitable candidate and we have sufficient management fee available.*
20	8	• *The incentivizing part of thing would need more manpower, would need an ESG team or people that would really in the portfolio management be engaged in like searching tools or at the start up directly.*
21	8	• *One person in our team, who does all the ESG stuff, he does all the reporting stuff, et cetera. He leads the ESG/ Impact questions internally. But we very much agree on that.*
22	8	• *And those were kind of the two groups of candidates where we were unsure. On the one hand, if someone [senior] would be bored by the [reporting tasks]. On the other hand, if we had hired someone more junior, we then the task of communicating with LP's would have continued to be with me, and I need to do other stuff. That's the thinking which went into hiring someone with more seniority.*
23	8	• *People also do the reporting and that's expensive and strange. Maybe if you look back, but why do I actually have a finance department of 25 people? They also do all the HGB and controls and FAS. And why are the ESG criteria actually occupied by one person who has all the time to do it? Yes, it's not balanced yet and I think that will totally change.*
24	8	• *Our head of finance at least it was his job to help us on the ESG part as well. Unfortunately, we're also a fund that is too small compared to maybe [large German fund] to employ a full-time person to do that.*

Source: Own research

Participant 23 draws an analogy between the finance function and ESG, questioning the disproportionate allocation of resources to each. It is recognised that a fund's size may limit the ability to employ a full-time person dedicated to ESG compared to larger funds. In these circumstances, resources from the investment team or back-office functions must fulfil dual roles.

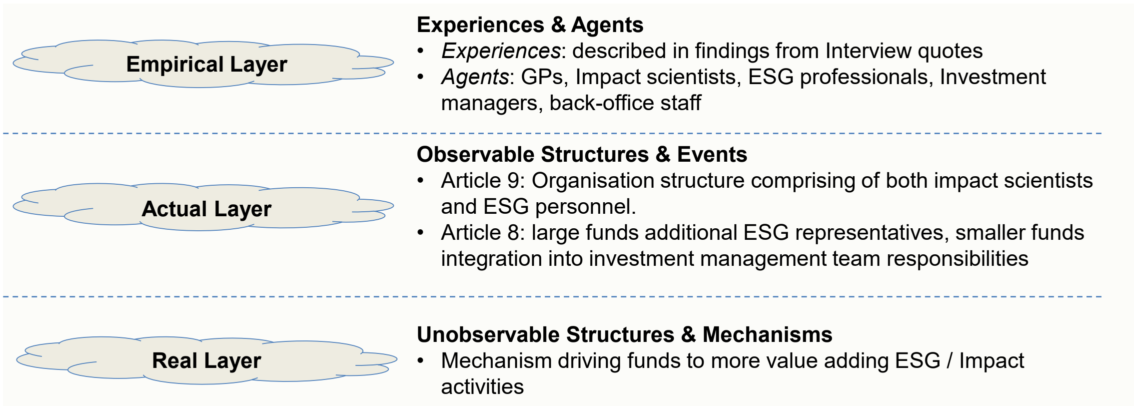
Notably, interview participants from smaller funds describe the financial constraints of hiring a dedicated person for the ESG role. For these funds, the role is directly integrated into existing back-office functions like finance or the investment managers' responsibilities. Larger fund representatives mention that a single ESG representative might not be sufficient in the future.

5.3.1.5. Discussion for Theme 2.1

Compared to purely financially driven funds (Article 6 funds), the additional requirements to establish an impact or ESG function are recognised as observable structures by Article 9 and Article 8 funds (see Figure 5.7). For Article 9 funds, an impact and an ESG function are to be filled. Some funds create separate positions for both, while others incorporate some responsibilities with the investment management team.

For large Article 8 funds, the ESG function is fulfilled by a dedicated person. In contrast, the smaller funds aim to integrate these activities within their existing organisation structure, either with investment managers or in the back office, for example, with the finance team.

Figure 5.7 Identification of CR layers for Structure Theme 2.1



Source: Own research

The additional functions for ESG in Article 8 funds are primarily viewed as DD and reporting tasks and, to a lesser extent, value-adding activities. On the other hand, interviewees recognise the potential for value addition. This indicates a mechanism driving funds beyond the compliance and procedural aspect of ESG towards recognising the benefits to both the invested start-ups and the resulting fund performance.

The agents operating in these observable structures and affected by them are most of the employees in the funds from the GPs, the investment managers, the back-office, and the Impact and ESG functions.

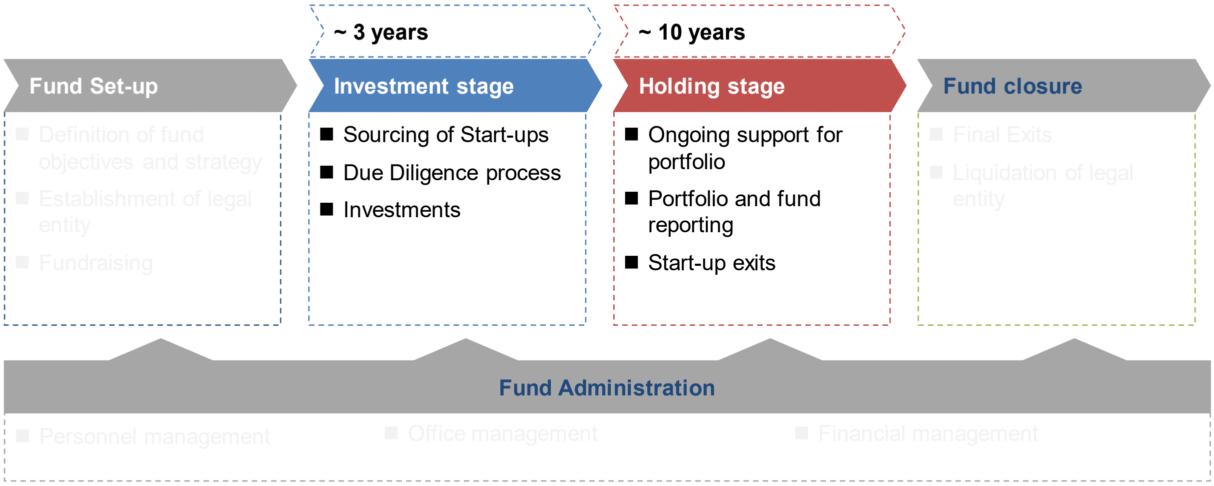
5.3.1.6. Recommendation for Management Practice 6

Article 9 and Article 8 funds could increasingly recognise the two aspects of ESG: on the one hand, compliance with SFDR DD and reporting requirements, and on the other, value creation opportunities by ESG. They could integrate both aspects into their organisational structure and the resulting definition of roles and responsibilities.

5.4. Systems

In fund operations, all aspects of a VC fund's lifecycle, including deal sourcing, the DD process, portfolio support, and reporting (see Figure 5.8), are considered. In this sub-section, the findings of the investment and holding stages will be explored first.

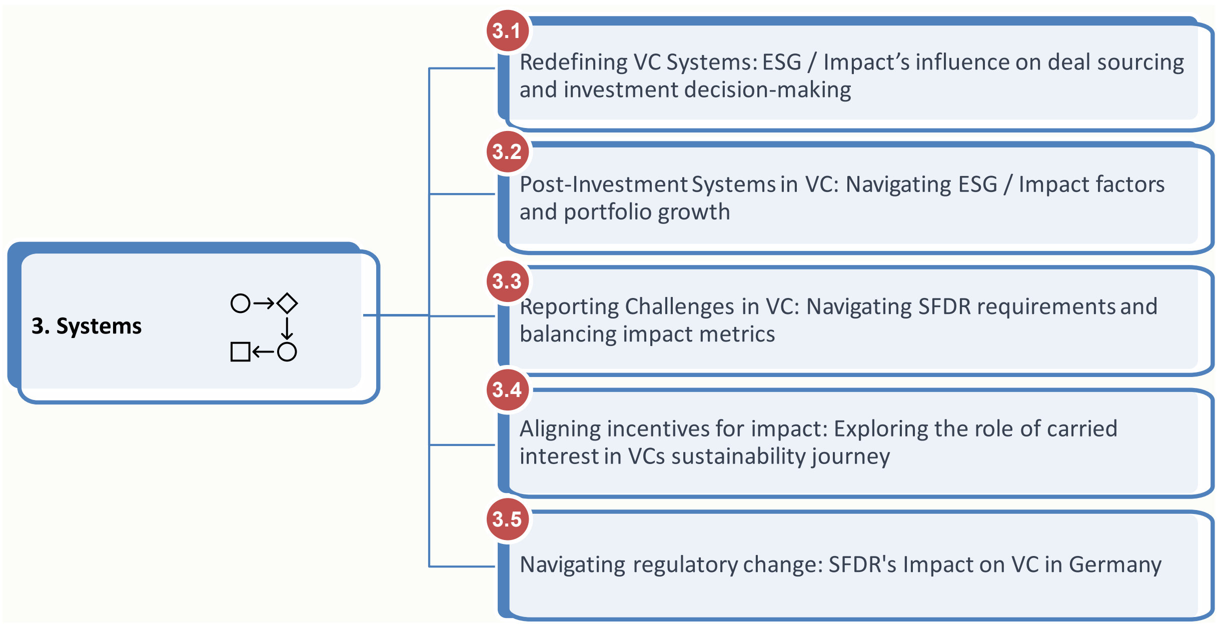
Figure 5.8 Fund Operations



Source: Own research

The systems-related themes include changes to fund operations, incentives, financial rewards, and regulatory requirements that influence the formal and informal procedures to manage fund operations (see Figure 5.9).

Figure 5.9 Overview of Themes (Systems)



Source: Own research

5.4.1. Theme 3.1: ESG / Impact’s influence on deal sourcing and investment decisions

The investment stage starts for funds with the sourcing of suitable start-ups to invest in, followed by the DD process, forming the basis for investment decision-making. Objective 2 deep dives into the DD process of VC companies; therefore, these findings are discussed in more detail in Chapter 6.

5.4.1.1. Deal Sourcing

Deal sourcing comprises all VC funds' activities to identify start-ups that could fit into the investment thesis and are currently fundraising. The feedback from interview participants from Article 9 and Article 8 funds is differentiated (see Table 5.23).

Table 5.23 Findings for Theme 3.1: Sourcing of Start-ups (Articles 8 and 9)

Int.	SFDR	Sample Quotes
13	9	• *We also see a tremendous amount of deal flow, which is important because so far, we checked more than 1000 companies over the last four years. I mean, not all in deep dive of course, but we saw more than 1000 pitches and we invested as of today in 17. So that's not much, and maybe that also shows that we really dig really, really, really deep. We try to understand what we invest in. We take help from the outside experts for the diligence process, not just tax and legal. That's given anyway. But really to have an idea about could that really work?* • *That was never a point of discussion internally that we don't see enough deal flow.*
25	9	• *The good thing is, if you have a clear view on that, I think that other funds will appreciate to work with you because they see the value add that you bring into a CAP table.*
9	8	• *We also do educational stuff, so we go to universities, we go to schools, we do female founder days, we are in close contact with migrant founders’ association and stuff like that. It's stuff that we do, that we are not very much promoting because for us it goes without saying. If you want to get the best start-ups, then you also need to look beyond the WHU [Otto Beisheim School of Management] bubble in Germany. So those are the aspects that we take into consideration on supporting the ecosystem because that's very important because that is where indirectly it has the most impact on sustainability.* • *Honestly on our fund side, we are not there yet on the female founder side. But we have great founder teams, female founder teams and also migrant founder teams and so on in our portfolio.*
17	8	• *Our that's that will be the third argument [why not to set up as an article 9 fund] I think the you can see more companies to be honest. Yeah, because if you're an Article 9 fund, you have a specific focus.*

Source: Own research

Article 8 participants describe a concern that sourcing deals is more difficult for Article 9 funds, as the additional focus on impact creates supplementary constraints. This view is not shared with the interview participants representing Article 9 funds; interviewee 13 elaborates that the fund had evaluated over 1000 pitches and presentations by start-ups aiming to receive funding. On the contrary, the focus on impact and the associated competencies appears to support deal sourcing through the network with other (Article 8) funds, which do not have the expertise for some of the impact subjects and aim to bring this to the cap table (capitalisation table, list of ownership shares of a company). Differentiation can be observed relating to the size of the interviewed funds. Interview participant 9, representing a relatively small fund with less than a Euro 50 million investment sum, describes proactive activities undertaken to source deals. By contrast, interviewee 13 represents an Article 9 fund with a Euro 300 million investment sum and suggests a more inbound deal flow.

5.4.1.2. Investment decision making

Once suitable start-ups have been identified, the funds commence the DD process as a foundation for investment decision-making, where the companies are evaluated from various angles. Interview participants agree that the DD process involves assessing start-ups not only on team and financial performance but also on their views and commitment to ESG criteria (See Table 5.24). The fund representatives acknowledge the importance of understanding the start-up's perspective on sustainability and ESG from the early stages of interaction. Notably, the DD process is explored in more detail in Chapter 6.

Table 5.24 Findings for Theme 3.1: Investment Decision Making (Article 8)

Int.	SFDR	Sample Quotes
6	8	• *The process before the term sheet is laid down it's [checking] founders' intentions and basic knowledge. So, if they are aware of what is their biggest environmental impact, for example. So where in their whole value proposition they would have more environmental impact, it can be across any type of commodity, water, forest, biodiversity. I just want to see if they thought about it. Then we have some questions around key areas like team building, diversity, data privacy, quite big obviously in tech. And this is integrated into the Investment Committee memo.* • *That is a must they have to fulfil. What we have observed in the first few months is that even though this was integrated into the investment memo, there was no questions by the investment committee on ESG. So the question is, is it so clear that everything is good, or do we need to find another process to bridge this?*
17	8	• *I use this ESG questionnaire to get a feeling about where the company is standing right now, so it's not that the company has to have an answer for everything. It's important for me to understand where can I start when I work together with these portfolio companies, if there's no red flag in the confirmatory due diligence.*
23	8	• *We'll have to get there [LCAs as part of the DD], because otherwise it's really difficult for us to get money.*
24	8	• *And on the ESG side it's really thin what we ask in terms of ESG beforehand, we definitely need to get better there. We now started to put in the term sheet that we also need ESG related information. So that's the first step. But the two deals we're currently looking at closer, those are both impact. So we don't really ask the questions. Maybe we should actually ask them here. But if you ask a food tech that is doing really great stuff to create basically proteins without touching animals. And even without touching crop. So that's really crazy technology. I think we would get really good answers, but we're not asking them.* • *The easy question is, is there a diverse team? We see that obviously. Currently, the one we're doing is a solo founder, male white person. Was that an issue for us not to invest? Not really, his number two is a woman.*

Source: Own research

Participants emphasise that as VC funds, their investments are in early-stage start-ups, where detailed ESG strategies and results are not yet expected. As a next step, term sheets are signed, outlining the main aspects of the investment, such as valuation, shares, etc. These term sheets also include an ESG clause, emphasising the integration of ESG considerations into the investment agreements.

The evaluation process also allows the funds to identify areas where they can support the start-ups during the holding period, prepare them for CSRD and future investment rounds, or heal potential shortcomings. Notably, none of the Article 8 or 9 participants challenges the requirement of conducting an ESG DD overall or the time commitment for this, irrespective of whether the person was primarily responsible for the fund for ESG. This indicates the value the participants place in the ESG DD process as a basis for investment decision-making.

Article 6 funds are not required to conduct an ESG or impact DD before investing. Participant 11, however, explains that exclusion lists are still being utilised (see Table 5.25), albeit not formalised in the investment process. On the other hand, no additional ESG DD is conducted directly by the fund but potentially by co-inventors.

Table 5.25 Findings for Theme 3.1: Investment Decision Making (Article 6)

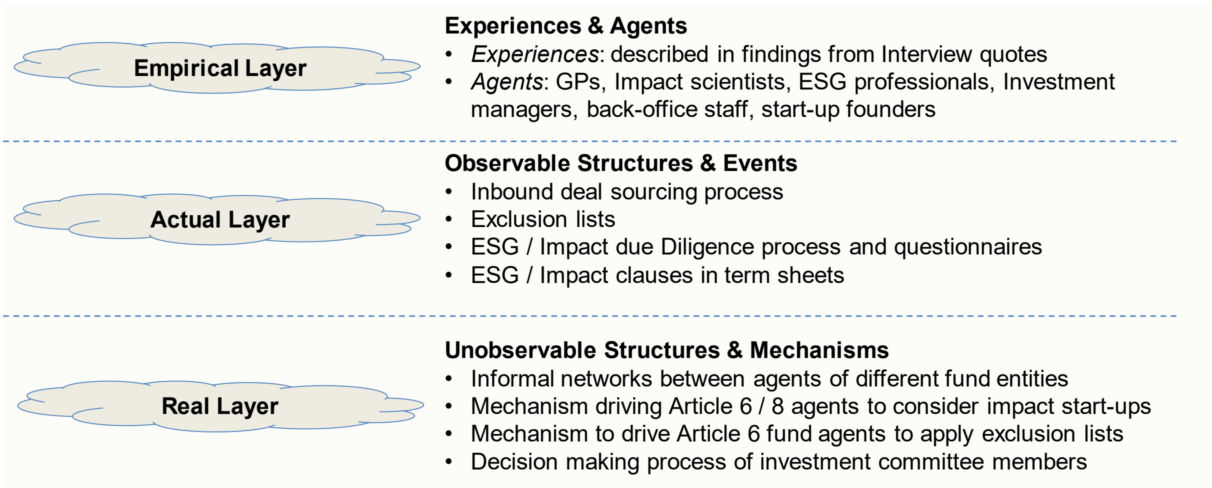
Int.	SFDR	Sample Quotes
11	6	• *We cannot do detailed checks, but we only invest with other co-investors. We try to invest only with other VC funds and some of the VC funds we invest with are of course much larger than us. So we also kind of trust them as well.*

Source: Own research

5.4.1.3. Discussion for Theme 3.1

The participants describe how they implement ESG and impact aspects from deal sourcing to investment decision-making. Evident observable structures related to the research objective are the inbound deal sourcing of impact start-ups, exclusion lists, ESG / impact due diligence questionnaires, and ESG / impact term sheet clauses (see Figure 5.10). This could be considered as some development already, as Winterberg et al. (2020) had identified the lack of a systematic approach for such evaluations.

Figure 5.10 Identification of CR Layers for Systems Theme 3.1



Source: Own research

The informal networks between fund representatives, sharing deal flow and collaborating on investments, as described by Participant 25, represent an unobservable structure. These rely on the personal relationships between these entities' agents, making them likely to differ from entity to entity. A mechanism that drives agents from Article 6 or 8 funds to consider impact start-ups for investments can be assumed to be in place, establishing the requirement for these unobservable structures. It can be assumed that if the rationale from the investment management agents was purely financially focused, a review by an impact fund would not be required. In this case, traditional technical DDs on the start-up's business model and technical solution would suffice. The check-in with experts on the impact side, particularly the requirement of a co-investment, described by Article 8 and 9 fund representatives, indicates that these agents aim to positively impact environmental or social aspects.

The decision-making process on whether to invest is an unobservable structure, with potentially differing mechanisms at play that influence the agents on the investment committee in one direction or another. As part of the larger PE industry, VC management companies highlight their capability in this investment decision process (Block et al., 2019). However, the success of these unobservable investment decisions can only be observed once reporting to LPs has commenced.

ESG or impact-related clauses in the term sheet are observable structures that allow for further DDQ and indicate the reporting requirements should the investment proceed. In Chapter 6, the findings related to the DD process, which is part of the overall investment decision-making, are explored in more detail.

5.4.1.4. Recommendation for Management Practice 7

Given that the ESG/ Impact DD provides the data inputs for assessing the potential impact opportunities and ESG risks of investing in a specific start-up, VC management companies should develop specific DDQs focusing on the material subjects of their target sectors, industries, or business models to ensure relevant risks and potential opportunities are identified.

5.4.2. Theme 3.2: Navigating ESG / Impact Post-Investment

Once the investment has been executed, funds support their portfolio companies through their business and market knowledge, network and relevant subject matter expertise, for example, in the fields of ESG or impact (Bocken, 2015).

This and the following section describe the activities a fund conducts when an investment has been made, albeit the full portfolio potentially not being complete for the financial product. These activities will, therefore, start for some portfolio companies already in the investment stage. Additional requirements at this stage, resulting from an increased focus on environmental or social subjects, might dissuade VC managers from implementing an increased focus on environmental and social aspects.

5.4.2.1. Post-Investment Portfolio Support

When elucidating about portfolio support, interview participants from Article 9 funds (see Table 5.26) describe their activities as value-adding, *"helping portfolio companies to grow into successful companies"* (Interviewee 2).

Table 5.26 Findings for Theme 3.2: Post-Investment Systems in VC (Article 9)

Int.	SFDR	Sample Quotes
2	9	• *You have to educate the portfolio companies on all these aspects. So we are becoming an educator and an advisor and there we have to be very careful how deep are we dragged into helping them to fulfil our criteria and their criteria.*
18	9	• *We have this thing called sustainability leaders group, which is a head of sustainability which sometimes are the CEOs of our portfolio companies to share insights and do peer learning. And we do usually for these sessions, choose one of our start-ups that we think is best in class or has done something really well to share those insights. And we do that on a quarterly basis.* • *We do not have select deep dive programmes how to facilitate on any dimension. But I think we have quite some valuable networks towards companies that are really state-of-the-art when it comes to CO2 footprint reduction.*

Source: Own research

Participants underscore their commitment to not only investing in companies but also actively contributing to their growth by providing education and advisory services and fostering a community of sustainable practices. The emphasis on systematic approaches and collaboration reflects a strategic and supportive approach to impact investing.

Interview participants from Article 8 funds equally emphasise aligning ESG considerations with the vision and strategy of the fund (see Table 5.27). They recognise that even commercially oriented founders should understand the importance of ESG in achieving their overarching goals. They highlight the importance of stakeholders driving discussions to make founders conscious of the trade-offs related to ESG, framing it as not just ethical but also in the best interest of the founders. The participants seek alignment with portfolio companies not just in terms of deploying capital but also in strategy and values, ensuring that there is a positive sum game in the partnership.

Table 5.27 Findings for Theme 3.2: Post-Investment Portfolio Support (Article 8)

Int.	SFDR	Sample Quotes
4	8	• *We are building that up [support on ESG]. But it's not fair to say that we can now provide them, after being invested one day, a full list of CO2 kind of alternatives.* • *It's about what I read in the yellow flags from the diligence, which need to be solved as soon as possible, and then we are still trying to improve on what can we offer to the portfolio companies.*
5	8	• *Post investment we onboard them to the topic of ESG, just from our side. I just have a chat 45 minutes. With what we have planned with the venture, so first of all, of course what they have to do on reporting side then also which tool we are using and how the tool should be used* • *We then have once a quarter an external consultant coming in and doing two hours, probably on the topic of how to really start the topic of ESG with ventures and then building on that they can then if they want to dig deeper And pay themselves the vendor, the workshop itself is paid by us, but they pay by themselves to just go further.* • *With the tool we selected when they want to create themselves a travel policy, they just have to answer eight questions and then they get a one-pager and this is your travel policy. So they don't have to go somewhere else and google what is scope 1-2 and 3. And then where do I calculate it?* • *We also want to put all the resources we have for the different ventures down on that one platform. It's one place to go because otherwise, you're going to lose some of the founding teams when they get 5 different logins to different platforms, and I have to work with my CO2 emissions there and then put it in there. It should be streamlined and that's what we are working on currently*
7	8	• *I think that this comes mainly down to really doing LCAs to really understand the numbers behind it, and to really monitor climate KPIs and set targets and to have a portfolio view on what has been achieved in the past and what will be achieved.* • *We wanted to have some dedicated person working with the start-ups on just understanding this [supporting start-ups on ESG after investing]. Just to provide workshops and knowledge about how to measure it and maybe understand all the overlaps and interdependencies between certain factors. We want to set achievable targets that everyone has a realistic view on what can happen and what can be achieved. This is still something we want to work with, but to be honest, I'm the only person in this fund doing this full time at the moment.*
8	8	• *On paper we have some action plans, we define this engine and one of the layers is also the E and the S and also the G where we want to work together with the start-ups. Maybe during the entire investment process where start-ups or founders can approach us and we talk about these.*
9	8	• *In our investor network, we have funds which are focusing on Article 9, and which are also helping. So, from a mentor perspective in case, [...] we have also start-ups, for example, and [portfolio company], who have the experience in that space and also providing support. We do due diligence to see what the focus topics are and also preparing start-ups for the next Investment round.*
10	8	• *Sometimes we are asking the companies and they said, OK, we have changed our standard contract with regard to suppliers. Then we said OK, send it please to me because I want to see it. And hopefully you're really using it. And sometimes I say, OK, send me a signed contract because then I see it's really inside of the signed contract, not just the template.*
17	8	• *We help them with workshops and stuff like that [coming up with an ESG policy].*

Source: Own research

Regarding the fund strategy, participants stress the need to set achievable ESG targets, acknowledging the challenge of additional milestones for start-ups and the need for realistic expectations. Despite challenges, there is a commitment to building support, tools, and resources for portfolio companies. Initiatives like knowledge-sharing groups between portfolio companies, external consultant sessions, and dedicated persons working with start-ups demonstrate a multifaceted approach to ESG integration. Interviewees explain that they engage in educational initiatives such as quarterly external consultant sessions and workshops to help portfolio companies understand and integrate ESG practices. They aim to streamline ESG processes for portfolio companies by, for example, providing a centralised platform for ESG-related tools and information to avoid overwhelming start-ups with multiple logins.

5.4.2.2. Initial Materiality Assessments

Post-investment, participants describe an onboarding process in which the funds communicate with portfolio companies about ESG material subjects and expectations for progress (see Table 5.28).

Table 5.28 Findings for Theme 3.2: Post-Investment Materiality Assessments (Art.8 & 9)

Int.	SFDR	Sample Quotes
25	9	• *The startup founders themselves have a lot of issues and the job of an investor, and especially of an impact investor, is to set up the right questions for the development of the company and then to have to get into a sustainability dialogue with them all the time.* • *And for the company managers, they all want to do something, and we work in clean techs. They all want to have a positive impact, but they just don't know where to start. So, you really need to understand and to have a systematic approach of these issues.*
10	8	• *We are not just doing the ESG due diligence, but we see where are the gaps and then we are trying to move the companies to a certain ESG level because we monitor their ESG factors every year and then detecting the gaps and we see which gaps has been filled during the last year and then which gaps are still there and where improvements is still possible and then hoping over the holding period to improve the ESG score of the companies over time*
12	8	• *We have in place on the personal side to measure our own electricity consumption and whatever, reduce travel and put some regulations in place. But this is not the big lever that we have. Big lever is around the portfolio companies, and they must perform well. Having a really good investment is much more important. So, we try to focus on the big levers that we have, and this is about our on the portfolio, not our energy, although we offset everything.*

Source: Own research

Interviewees explain that they monitor ESG factors annually, identify gaps, and work with portfolio companies to improve their ESG scores over the holding period. They acknowledge resource constraints, with often a single person handling ESG efforts in a fund. Participants aim to prioritise efforts on big levers related to portfolio companies rather than personal energy consumption, recognising the significant impact of portfolio performance, which could be interpreted as a materiality assessment, albeit an unstructured one.

5.4.2.3. Generating Value for Portfolio Companies

Some participants stress the importance of focusing on value creation post-investment, highlighting the ongoing process of turning investments into better businesses (see Table 5.29).

Table 5.29 Findings for Theme 3.2: Post-Investment Value Creation (Articles 8 and 9)

Int.	SFDR	Sample Quotes
2	9	• *The day-to-day business is ensuring that you're helping portfolio companies to grow into successful companies. And very often they have different things on their agenda then necessarily thinking of all the ESG's, or the SDG's all the time.*
3	8	• *Also if you have a founder, our job is to understand if there is a positive sum game here when we join and partner and us being able to deploy capital is one aspect we bring to the table. But then we also want to have alignment and the common strategy, and somebody who's completely opposed to it would not make the cut like 2000 or 3000 other businesses every single year don't make the cut.*
5	8	• *You really have them on your side when it comes to the topic of ESG, not just telling them, end of the year I want those eight KPIs from you but onboarding them on this ESG journey and say now you are here looking at the follow up round, you also want to prepare yourself even when you're not motivated by the topic of climate change and social issues. Then at least you could look at the follow up round and the multiples you get on the valuation there. And then at least you should be motivated by that.*
6	8	• *[We are] trying to understand what is the right narrative to give to the founders to make sure that they take these topics seriously. Because when you talk to them when they are five years in, they say it's too late and the ones at the beginning they say it's too soon.*
8	8	• *Also, for start-ups it's going to be an additional challenge, even if you talk about milestones [on ESG] and they are going to achieve them. But they also have to achieve milestones in terms of tech, in terms of finance, etc, and it's additional milestones, it's additional admin.*
22	8	• *People often think about buying and selling companies. I think what would be a lot more interesting to think about is the value creation part. Which then becomes on the one hand more interesting for the people doing the ESG. But people often think it's a gate, it's a process, it's a checklist. But to me it's more once you've done the investment. I mean, yes, the investment needs to be good, but once you've done it, what you do with it. You know, and that I believe is the point people should be focusing a lot more on rather than this investment stage gate.* • *How can we turn it into a better business?*

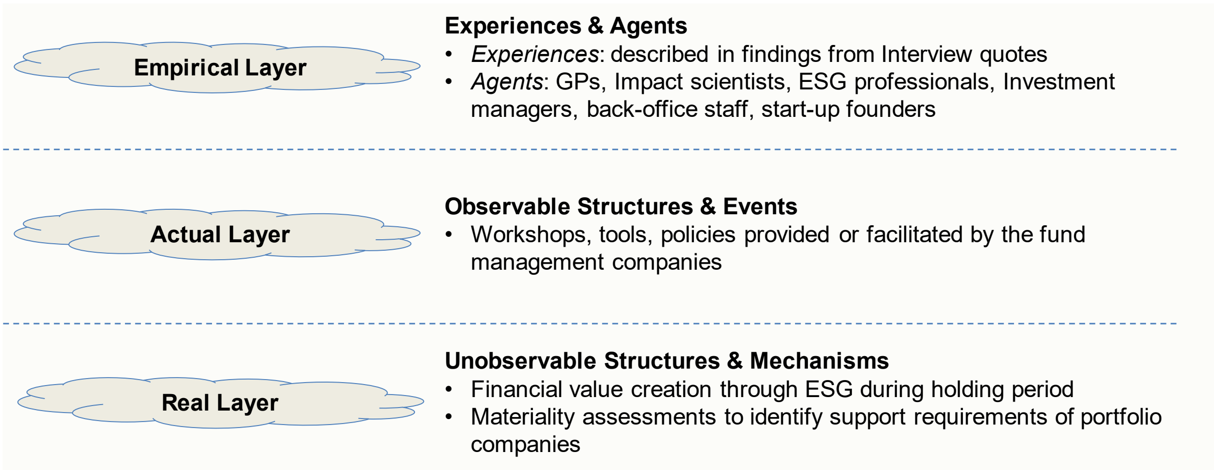
Source: Own research

Most participants describe ESG as a gate, a process, or a compliance requirement during the investment stage. They provide support through policies, tools, and workshops without directly linking ESG performance to financial valuation, as described by Chouaibi et al. (2022).

5.4.2.4. Discussion for Theme 3.2

The post-investment stage reveals a commitment among Article 8 and Article 9 funds to actively contribute to the growth of portfolio companies in line with Bocken (2015) (See Figure 5.11).

Figure 5.11 Identification of CR Layers for Systems Theme 3.2



Source: Own research

Observable structures in the holding period of the investment lifecycle are the tools, policies, and educational workshops provided by the fund management companies to their portfolio. Each fund management company provides differing levels of support in terms of impact and ESG; however, during the deal sourcing phase, this support is likely already communicated to the start-ups.

Article 9 and 8 representatives describe the value creation potential by focusing on impact and ESG subjects during the holding period, in line with Bocken (2015). This remains an unobservable structure, as the exact extent of this value creation cannot be measured on a start-up-by-start-up basis, as all relevant factors, including market developments or internal aspects of the companies, would have to be isolated. Nevertheless, there appears to be an active mechanism that drives fund management agents to drive these educational aspects of portfolio management to generate financial value.

Materiality assessments, both on the fund level and on the level of the start-ups (Fiandrino et al., 2022), do not appear to be comprehensively conducted. Participants describe some efforts in identifying the most material subjects for their portfolio companies but then appear to focus on GHG emissions and diversity subjects. The details of how the materiality assessment is conducted are unobservable and appear to differ from fund to fund.

As Article 9 funds are investing in impact start-ups and have already conducted an in-depth DD, including the team commitment, there appears to be a reduced requirement to convince the portfolio companies of the requirements for ESG / impact. Conversely, Article 8 fund managers can invest in start-ups with no focus on impact and potentially little knowledge about ESG. In this case, the education of the start-up portfolio on the benefits of considering material ESG subjects in their business model becomes more relevant in terms of financial value creation. There appears to be a mechanism preventing the start-up founders from proactively understanding the linkage between ESG and financial success for their specific business, especially when fund managers focus on such generic subjects as GHG emissions only. Creating observable structures on materiality assessments at the portfolio level, followed by support on the most material subjects, might help these start-up founders understand the relevance of ESG to their business.

5.4.2.5. Recommendation for Management Practice 8

Fund managers could facilitate initial materiality assessments for their portfolio companies. This would allow the start-up founders to focus initially on their business's most relevant ESG subjects and educate them on the most relevant aspects of their company's ESG journey. As the start-up grows during the holding period, the company can progress on additional ESG aspects.

5.4.3. Theme 3.3: SFDR and Impact Reporting Challenges in VC

Notably, management companies of Article 8 and 9 funds are obligated to report on their investments throughout the entire fund lifecycle, including the investment stage (Fernandes et al., 2023). This section investigates the influence additional ESG / impact reporting requirements have on fund managers and how far these are encouraging more or less application of environmental or social aspects in a VC fund.

To track the progress of their portfolio companies on both the impact value generation and the ESG aspects of their operation, SFDR obligates Article 8 and 9 funds to provide an annual sustainability report (Regulation (EU) 2019/2088, Article 8, Article 9). This obligation came into force in 2023 when funds had to report their sustainability performance for the first time for those investments made in 2022. Not all interview participants had to go through this process yet, as some were still in the set-up phase of their latest financial products.

5.4.3.1. SFDR Reporting Challenges

Interview participants from Article 9 funds focus on the ESG part of their reporting requirements rather than the impact one (see Table 5.30). They challenge the complexities related to SFDR reporting requirements, with variations in reporting requirements from different entities such as pension funds and SWFs. The participants emphasise the importance of PAI reporting for Article 9 compliance and quarterly reporting to ensure ongoing alignment with sustainability goals with the start-ups.

Table 5.30 Findings for Theme 3.3: SFDR Reporting Challenges (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *Which was always difficult because all these reporting standards are not invented for VC businesses and we were never really happy with this backward looking ESG reporting because for start-ups, who cares what a 20 people software start-up had as power consumption in the previous year?*
2	9	• *At the end it depends on who is validating from the auditor's point of view. So in in general it is good that you have clear directives what to do, what not to do [with SFDR reporting requirements]. On the other hand, you also rely on the data from the portfolio companies.*
13	9	• *Nothing is clear. Nothing is easy. Nothing is clear because the market itself has not yet 100% defined what needs to be in the reporting.*
18	9	• *I don't think there is a standard methodology on how to do that, especially because you cannot have one for the entire fund. You need one for water, biodiversity for CO2 and then for social impact, right? So it can get messy very soon, but that's something that we calculated for them.* • *We are doing PAI reporting. We are article 9, right? So fully compliant, we collect impact KPIs, we collect PAIs, we collect more than PAIs as well. On the ESG side we published our first impact report, which is to be honest a small version of what could have been.*
25	9	• *Under the mandatory KPIs you have just six or five of them not directly applicable. Because you have basically 4 aspects on environmental, which are CO2, biodiversity, water and waste. So, it's quick one. Then you have to comply with the ILO standards and UNGD, which is tricky in the supply chain, but not tricky for yourself. And then you have diversity and gender pay gap. And actually, that's it.* • *On the PAI's first there is a communication by the European Commission out of which some or most of the lawyers, advising funds, have said you can be Article 8 fund or even an Article 9 fund without having PAI reporting. I think it makes just no sense. I mean the PAIs is a framework to say the minimum of what you have to do on an ESG due diligence is this. And of course, you have to do this, so it makes no sense to say I am an Article 8 or Article 9 fund and I don't do any PAI reporting. For me it's really bad because there is no discussion that ESG compliance is a must and it's a must for any fund. And every fund manager [saying] I don't care, shouldn't get any money.*

Source: Own research

Interview participants from Article 8 funds acknowledge that convincing founders about the importance of detailed SFDR ESG reporting, especially regarding specific numbers, can be challenging (see Table 5.31). In the reporting from their portfolio companies, participants focus on measures easily collected by these start-ups, such as scope 1, 2, and 3 GHG emissions and water consumption for the environmental aspect. Diversity and inclusion metrics, including the number of female founders, female employees, team mix, and gender pay gap, cover the social part. Governance-related requirements include having an ESG policy in place. This matches some of the SFDR requirements of PAI reporting (Regulation (EU) 2019/2088, Annex I).

Table 5.31 Findings for Theme 3.3: SFDR Reporting Challenges (Article 8)

Int.	SFDR	Sample Quotes
5	8	• *We put in our PPM that we report the PAIs anyway. So we also have to report the PAIs for our two people venture. Makes it a bit more difficult, a challenging job, but that's how it is. The people who wrote that PPM they had no idea on how the PAIs in an early phase make sense or don't make any sense.* • *In our PPM it says PAIs are important. We're going to report on them of course, as the document was created some time back it's it left some room for interpretation. Also, for some modification from our side as the legal requirements were not just carved in stone at that time, but nevertheless that led to some expectation management when it comes to regulation.*
6	8	• *The reason for it is because the institutional investors are aligning with PAIs. They are also using the SFDR PAIs. They're a bit ill for purpose obviously to be honest. But for reporting, making it easily comparable, it does the job.* • *The KPIs we are setting are not necessarily based on the PAIs. Sometimes they overlap obviously, but they're not necessarily based on the PAIs. We are just working way more on ensuring that if you take an ESG framework, the right bases are covered. We are just looking more into the materiality aspect of it.* • *And the reason why we decided to be non-PAI compliant is one, because we could and two because we have so many active companies. It would be very difficult to act upon the 70 companies, especially because either you are fully compliant or you're not.* • *We are going to start collecting this year this information and it's very much aligned with the PAIs.*
8	8	• *What we report is, for instance, how many female founders we have in our portfolio, because we were also one of the first movers with the start-up diversity initiative by Bundesverband Deutscher start-ups. So we report how many female founders we have. We also report how many female employees our portfolio companies have.* • *There is no specific reporting at the moment towards SFDR.*
10	8	• *We have that in place [PAI reporting through LP side letters], we have that in place. So, we are monitoring also the gender split, we are monitoring equal pay. We are monitoring scope 1,2,3. Also, water consumption, energy mix and all these topics. Yes, we are monitoring it and we are also trying to help the companies to improve that.*
12	8	• *Some of them [institutional investors] are really over the top because there are too many KPIs, too frequent for too small companies, but at the end we will do it. Will this help? No, because the founders most often don't understand why they have to fill out these boxes and check the numbers and we cannot explain them why this is good for the business.* • *Some parts are. If you explain this to them and say we need these kind of numbers and you have to say monitor it because these are good principle or principles of doing good business, then they understand it and then they will follow it.* • *The convincing is necessary for the nitty gritty number details the LPs want to know in all this is the hard one.*
17	8	• *We are trying to get these numbers, but it's pretty hard and sometimes it's just guessing. There are some more KPI's that do not make sense, but for the PAI reporting to be honest, it's OK. I cannot say something about the accuracy. For example, if one of our portfolio companies calculated the scope 3 emissions for the first time I will not dig deeper into the number, it's just a plausibility check that we can do at the moment. But, I think it's a it's a good start.*

Source: Own research

Contrary to this, some participants recognise the challenges of implementing PAI reporting, especially for early-stage companies, where this data is viewed as less relevant. They explain that founders may perceive limited value in filling out ESG or impact KPI reporting in these early stages, where the companies will not have a significant GHG footprint and will not produce significant waste. To overcome this resistance from start-ups, participants, on the one hand, customise ESG questionnaires for portfolio companies but, on the other hand, express the desire for standardisation and collaboration among funds to streamline the ESG reporting process and avoid duplicative efforts in developing sets of questions.

5.4.3.2. Investor Reporting Challenges

The interviewees describe increasing demand from LPs for specific impact numbers per unit of investment, necessitating a customised calculation approach for different impact categories (See Table 5.32). They explain that this also requires balancing the disclosure of impact measures, which might reveal operational performance, especially in areas like climate, where there is a high correlation between impact and operational metrics.

Table 5.32 Findings for Theme 3.3: LP Reporting Challenges (Article 9)

Int.	SFDR	Sample Quotes
13	9	• *We also received this [reporting requirements], for example, from a pension fund but that is a very, very light. It's more or less tick some boxes, give some answers, but very light. Very easy. KFW is the other way around.*
18	9	• *A lot of the LP's are asking for a specific impact number per dollar invested or euro invested. So they want to know exactly what their own contribution to the fund and therefore to the impact goal is. For example, if I'm a high net worth individual and I invest 1,000,000 in the fund if I know that for every euro that the fund invests, you get one ton of CO2 emissions removed or reduced. Then you can multiply that by whatever you've invested in the fund, and you have your own impact number so that that's something that we were asked for.*
25	9	• *I know all these questionnaires of EIF of KFW capital of Invest Europe and you know the exercise is not who has the longest list, it just makes no sense in our business.*

Source: Own research

Article 8 respondents concur that LP requirements are multifaceted, with many LPs developing their own reporting questionnaires for the VCs (see Table 5.33). These questionnaires overlap in their composition of KPIs, also with the PAI reports, but they are not fully aligned, which is challenged by the interviewees.

Table 5.33 Findings for Theme 3.3: LP Reporting Challenges (Article 8)

Int.	SFDR	Sample Quotes
6	8	• *The reason for it is because the institutional investors are aligning with PAIs. They are also using the SFDR PAIs. They're a bit ill for purpose obviously to be honest. But for reporting, making it easily comparable, it does the job.*
9	8	• *Of course, the financial reporting requirements are rather high for them [Institutional investor]. But, there's nothing which is on the ESG perspective. They need to report it in their reports as well, but that is something which is normal. What we do it's called impact reporting and it's a report that we published once a year and which includes, ESG sustainability topics, but it also shows the kind of impact that our partners have on our start-ups and the start-ups have on our partners.* • *It's not purely sustainability / ESG driven. But it's rather what have they done for the community. Where have they helped them optimise processes which is in the end then also having an indirect impact, but this is something that we publish and show to our partners / investors.* • *When we show our investments, new investment and also performance wise at our LP meetings of course we show [ESG / Impact achievements], but it's not part of our official reporting.*
10	8	• *We have that in place [PAI reporting through LP side letters], we have that in place. So, we are monitoring also the gender split, we are monitoring equal pay. We are monitoring scope 1,2,3. Also, water consumption, energy mix and all these topics. Yes, we are monitoring it and we are also trying to help the companies to improve that.*
12	8	• *Some of them [institutional investors] are really over the top because there are too many KPIs, too frequent for too small companies, but at the end we will do it. Will this help? No, because the founders most often don't understand why they have to fill out these boxes and check the numbers and we cannot explain them why this is good for the business.* • *The convincing is necessary for the nitty gritty number details the LPs want to know in all this is the hard one.*
17	8	• *Some of the general partners were involved in the process of some ESG questionnaires from large institutional investors. We gave some feedback to one of our large institutional investors, to their ESG questionnaire and the feedback was not that good. There are many KPIs which do not make sense at all. And there are some KPIs in these ESG questionnaires which do not make sense for the early stage of our companies or which you are not able to ask in specific jurisdictions.*
20	8	• *We get from [Sovereign Wealth Fund] a questionnaire tailored for real estate PE funds that construct Hotels on Cayman Islands or something and they are asking us about our construction carbon emissions and stuff like that.*
21	8	• *We have monthly regular calls [with LPs] where we share deals, we discuss stuff, etc. There we get questions, but it's not specifically on impact or ESG related things, it's more in general on developments In the portfolio our investment thesis.* • *No [we don't get any reporting requests from our LPS], because it's mostly high net worths. Lots of people from our immediate or extended networks. Don't get a lot of questions, no on the reporting, not at all. I think the last reporting that the Q1 report we sent out we didn't get any questions it was like throwing it into a black hole.*

Source: Own Research

Interview participants from Article 6 funds challenge the reporting of ESG data by their start-ups (see Table 5.34).

Table 5.34 Findings for Theme 3.3: Reporting Challenges in VC (Article 6)

Int.	SFDR	Sample Quotes
11	6	• *We're a very small investor, so it wouldn't also be appropriate for us to say by the way, because of us you have to do this, this, this, this [on ESG]. We are kind of tagging along in those big investments and happy to be part of the ride so.* • *I haven't seen ESG criteria pop up in the reporting yet.* • *Well, it would be much easier if they sent the same reporting to everybody, so maybe I've even overlooked it. But it's definitely not in many of our start-ups, I mean most of them, there's no separate kind of section like this.*
19	6	• *I'm honestly yet not a big fan of measuring any ESG criteria. I'm also serving as Board member at 2 impact funds. In the end you have to assess, and you have to have some kind of reporting but I'm not a believer of any of these figures. They are not true at the moment, and that's why I'm also hesitant to have this reporting in our fund now.*

Source: Own research

These participants both show concern about the workload for the start-ups in collecting the data and the validity of the data reported.

5.4.3.3. Integrating Financial and ESG Reporting

Some Article 8 representatives describe the aim to combine financial and ESG / Impact reporting to drive value creation and improve buy-in by the start-up founders (see Table 5.35).

Table 5.35 Findings for Theme 3.3: Financial and ESG Reporting Integration (Article 8)

Int.	SFDR	Sample Quotes
5	8	• *We want to use [ESG reporting tool] where all the information for the topic of ESG comes together. And we get reports as outputs which we can give to our LPs. All of that, which is fine from topic of ESG, but of course we have to integrate all the information from [ESG reporting tool] then into our power BI system. Then it all comes together at one point, but it's probably not going to happen in [ESG reporting tool] because we are just 400 ventures at the moment, are just all on Power BI.* • *We don't do that [integrating Financial KPI with the ESG KPI reporting tool] at the moment, but we are thinking about it because at the moment we still get the monthly reporting of our ventures per excel, so it would be actually easy to just get that access to that and they can drop that intel.*
9	8	• *It's rather a look at the limited blind pool risk that you have because they now know in what kind of start-ups we invest. Reporting wise, it's more what kind of multiple have they achieved and is this a sustainable business that they are following.*
12	8	• *Some parts are. If you explain this to them and say we need these kind of numbers and you have to say monitor it because these are good principle or principles of doing good business, then they understand it and then they will follow it.*
23	8	• *[Start-ups] don't even like to deliver financial reporting then [ESG reporting] is a real challenge. At the moment we can only lay the framework, support it and how stringently and how genuinely it will be lived afterwards, we will then see from the younger generations, but I think we are a long way away from how we started, where you basically had 5 questions.*

Source: Own research

This is also seen as an opportunity to streamline the fund's overall reporting process. Participants recognise the need to integrate financial and impact reporting, avoiding a separation that reinforces the dichotomy between philanthropy and financial return. However, none of the participants claims to have done so already.

5.4.3.4. ESG / Impact Reporting Tools

Article 9 and 8 interviewees describe their efforts to implement ESG reporting tools and integrate them into existing business intelligence (BI) systems for seamless data consolidation (see Table 3.36).

Table 5.36 Findings for Theme 3.3: Reporting Tools (Articles 9 and 8)

Int.	SFDR	Sample Quotes
1	9	• *We were looking for a tool which is more forward-looking, addressing the potential of the start-up.*
25	9	• *One was to discuss with our portfolio management software provider how we could digitalize the ESG and impact reporting because it was a nightmare to do it by hand. The overall reporting [financial and impact] so that this person has both in a hand. That's crucial. If you separate this all the time, then you are still on this story of philanthropy here and financial return there.*
5	8	• *We want to use [ESG reporting tool] where all the information for the topic of ESG comes together. And we get reports as outputs which we can give to our LPs. All of that, which is fine from topic of ESG, but of course we have to integrate all the information from [ESG reporting tool] then into our power BI system. Then it all comes together at one point, but it's probably not going to happen in [ESG reporting tool] because we are just 400 ventures at the moment, are just all on Power BI.*
24	8	• *Fortunately, some of our portfolio companies already have to answer these questions for other co-investors, so they know their way around. It's kind of stupid that every fund develops the set of questions basically on their own, so we still hoping that there will be some kind of collaboration. But still, we don't want to stay on the sidelines anymore and start reporting now. And I'm having a meeting after this with our head of finance to discuss now which tool we want to use because we talked to them all.*

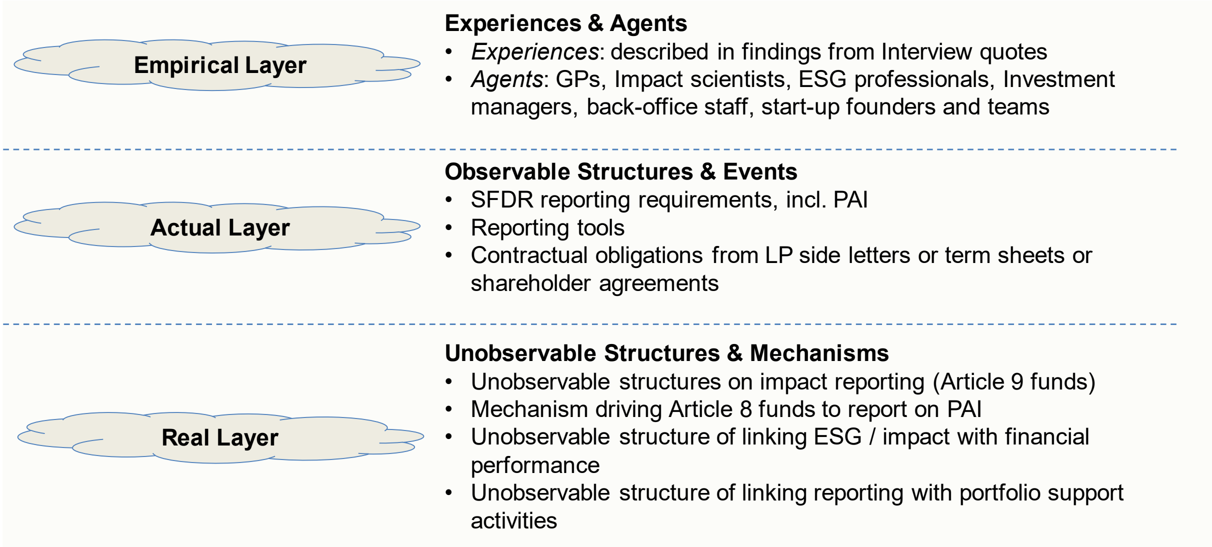
Source: Own research

They also contemplate integrating financial data with ESG reporting tools for more comprehensive reporting. They describe difficulties in finding a suitable tool for ESG reporting, especially given that reporting standards appear unsuited for VC businesses, with a particular challenge in backwards-looking ESG reporting for start-ups.

5.4.3.5. Discussion for Theme 3.3

Sustainability reporting obligations under SFDR compel funds to track and communicate their portfolio companies' progress on both impact and ESG acting within observable and unobservable structures (see Figure 5.12).

Figure 5.12 Identification of CR Layers for Systems Theme 3.3



Source: Own research

The SFDR provides an observable structure for fund reporting relating to the ESG measures that has been recognised in the literature (Gebhardt et al., 2023a). The regulation specifies the minimum reporting requirements, including the definition of the PAI (Regulation (EU) 2019/2088, Annex I). In addition, Article 9 funds must explain their approach to measure the impact of their portfolio companies and add these to the reporting. Whilst the PAI reporting is standardised for all financial actors, these definitions of how the impact is calculated and reported is an unobservable structure, as it may differ from fund to fund. Equally, the approach to calculating the impact might change from start-up to start-up for funds with multiple targets covering both environmental and social impacts.

There appears to be a mechanism in place driving Article 8 fund agents to adopt the PAI reporting requirements, even though that is not a firm commitment required by SFDR.

This could indicate that some fund management companies are exploring the workload requirements in preparation for potentially launching future Article 9 financial products.

Additional observable structures are the reporting tools and commercially offered software applications, allowing start-ups to directly enter their sustainability-related performance data. This structure appears to be in morphogenesis, as participants describe an increased use of these tools and an accelerated desire for integration between existing business intelligence software and ESG applications. This desire to integrate is also reflected in the unobservable structure of linking financial performance data with ESG / Impact data. The agents see this integration as a future goal to avoid reinforcing the dichotomy between philanthropy and financial return, as confirmed in the literature (Chouaibi et al., 2022; Cremasco & Boni, 2022; Reimsbach et al., 2018).

Another unobservable structure is the linkage of the ESG / impact reporting to the portfolio support provided throughout the holding period. Participants of Article 8 funds largely described the portfolio support activities as separate from the reporting and that regular reporting rarely contained ESG subjects. This exacerbates the impression of reporting as a compliance requirement rather than a data input for value creation.

5.4.3.6. Recommendation for Management Practice 9

To facilitate the reporting process from the portfolio companies, fund managers could use available software applications to collect data from the portfolio companies and potentially report to LPs. They could exert pressure on the software providers to ensure integration between the available applications to avoid duplication of reporting efforts by the start-ups.

5.4.3.7. Recommendation for Management Practice 10

Fund managers could support their start-ups in prioritising PM linked to the material subjects of their sectors, industries, or business models. They could also establish more frequent reporting on this short list of critical ESG / impact items. This would allow the fund managers to develop more targeted portfolio support while monitoring ESG / impact progress.

5.4.4. Theme 3.4: Exploring the Role of Carried Interest in VC's Sustainability Journey

The interview findings shed light on the evolving landscape of financial incentives within VC, particularly regarding the allocation of carried interests (carry) and management fees. Carried interest is an incentive model where, upon reaching certain predefined goals, VC management companies receive 20-25% of the profits realised by the fund (Samios & Arnold, 2018). For example, if a Euro 100 million fund were raised and realised the 3X returns that interview participant 8 referred to, generating Euro 200 million in profit, the management company would receive a bonus of Euro 40-50 million.

5.4.4.1. Carried Interest as an Incentive

Participants from Article 9 funds explain that parts of the agreed carry are often linked to achieving specific impact goals (See Table 5.37). They emphasise the importance of being measured on proposed impact goals, aligning with standard financial performance metrics.

Table 5.37 Findings for Theme 3.4 Carry as an Incentive (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *I like to be measured on what I propose and if I propose to do impact with my investments, I should be measured on that like everybody else is in his own bonus scheme. The good thing is, if we have the financial performance but don't have the impact, then the money is not going back to the investors, it will be donated right? So, I fail to do the good stuff but still the money goes into the right things then I'm totally happy with that.* • *They [an LP] are now very precise in what they want to have, including this allocation of a part of the carry to the impact goals. There is a threshold of 70 or 80% to get your impact carry and then it's more of a gate filter than a linear stuff. And in our case, it will be 30% of the carry.* • *I don't get up every morning working for the carry because I have never seen a, no, I know one cleantech fund which is in the carry. One, I mean one and that is after 10 years, so no way to keep up my motivation for 10 years.*
2	9	• *Maybe there is some sort of an incentive given to the GP to take on this extra work activity, overhead, let's call it overhead. It's a cost at the end and so far, the private markets don't appreciate it in the way they say, oh, that's why we like to pay you point more management fee or a little bit more carry.* • *Then that's an upside because if we would meet our impact criteria plus the financial criteria. We had it in there before to be very honest. We said we get a 5% kicker on top, if we achieve our, 3X and the impact criteria. But that was negotiated away by all the institutionals.*
13	9	• *We really like to show that we are really committed to what we do. That's the reason why we said OK, we want to do impact carry.* • *We thought about shall we link it to impact at all and given the fact that we are really committed to what we do, and we wanted to also give a signal to LP's, we decided that we would also like to have a certain part of the carry bound to impact.*
18	9	• *What is the point of having an impact carry? The point is to align the impact incentives of managers and LPs. no one ever said or EIF is not saying I want you to make a lot of CO2 removal, right? Otherwise, I don't invest in you, right? If the point is to align the impact incentives, then there might be other mechanisms and not by like models that you know are based on assumptions* • *If you are making people accountable so early on in the nascency of an industry, it might actually do more harm than good.*

Source: Own research

The participants explain that carry is not useful as an incentive, given the lengthy gestation period. It is noteworthy that Interviewee 1 referred in this context to 10 years until a carry was due. However, as illustrated in Figure 2.6, a successful fund management company would have to wait 10 -13 years for their first financial product but then realise a carry every 3-4 years. Participants highlight the private market's perceived limited appreciation for the additional overhead involved in incorporating impact measures (see Sub-section 5.3.2). They suggest the need for incentives, possibly in the form of tax benefits, to encourage managers to undertake this extra workload.

Interview participants from Article 8 funds equally express a favourable view toward linking carry to impact, emphasising the importance of incentivising genuine commitment to environmental goals rather than engaging in greenwashing practices (see Table 5.38).

Table 5.38 Findings for Theme 3.2 Financial Incentives to Create Change (Article 8)

Int.	SFDR	Sample Quotes
7	8	• *I like [linking carry to impact]. I think it sends the right incentives because otherwise it's just greenwashing all over again. And now you have a real incentivization to understand what the companies are doing in that area to monitor it and to analyse it and to work on it, that they achieve their goals, not only the financial ones but also the climate KPIs and if you are serious about this on a climate tech front, I think that's the only way to do it.*
8	8	• *Super carry is common, just for [financial] performance, it's if you achieve 3X or 3.5 X then for this additional X you get an additional carry, on top of it. Normally it's something you start negotiating with your anchor investor and then you get rid of it. But yeah, most of GP's starting to negotiate around the super carry.* • *You can write it in your LPA and see what happens. You could also link this to ESG criteria. At the moment it's just on your [financial] performance, but you could think about this. I haven't seen this at the moment from other managers. I've seen this exclusively on [financial] performance and then you get your bonus and it's going up from 20 to 25%.*
9	8	• *It also makes sense that it comes from the EIF, for example, because most of the big funds in Europe have them as an investor. Meaning that they will also need to comply and therefore it's a good way of incentivizing. But currently we are not there yet. Therefore, it would currently prevent us.*
12	8	• *To put the money where our mouth is, we will link 20% of our carry to the achievement of these impact targets.* • *This is the ultimate financial incentive, we could just discuss about other motivations that you can have a life, but for the LP's and for how VC works and how VC is incentivised. We could obviously increase the share, up to 100%, I think Norrsken is doing that. But we said, we want to learn, we have never put in place such a system. So, give us some room to learn and this could increase. But 20% is a significant amount now because if the fund turns out quite well, it really is a lot of money. This is the ultimate goal we want to achieve and if this is linked then it trickles down to all the decisions we will take.*
22	8	• *[If there was a higher carry then people would shift to] SFDR 9? No, I don't. When we deliver very successful funds, and to me we're quite adverse to restrictions on our processes, investment activities and so on. Because if I have 20% more carry on a mediocre fund versus… it's not a clear answer to me. You know what would come out better.*
23	8	• *Yes, I totally believe that it will happen [link of carry to impact]. Yes, and I personally think it's good too. I also think it's right that it is measured and simply becomes part of a request.*

Source: Own research

Some participants note that the common practice of super carry, primarily tied to financial performance, could be expanded to include ESG criteria, although this has not been widely observed. A notable approach is highlighted by an Article 8 fund, which dedicates 20% of its carry to achieving impact targets. This commitment is seen as a serious demonstration of intent, indicating that impact is integral to the fund's goals, not just a side consideration. The financial incentive associated with this arrangement is viewed as a powerful motivator for performance on both financial and impact fronts.

5.4.4.2. Ambiguity of Impact Carry Calculations

The interviewees point to challenges in carry calculations requiring early-stage companies to provide reliable impact reporting, especially when the anticipated impact has not been realised yet (see Table 5.39).

Table 5.39 Findings for Theme 3.4 Ambiguity in Impact Calculations (Article 9)

Int.	SFDR	Sample Quotes
2	9	• *We are more on the risk side because we're putting it on some impact measures that is still vague and still to some scrutiny of our LPAC, the investor group. I would say maybe there's some tax benefit or some benefit that you would say if you're in article 9, then you get certain benefits. You have reduced taxation on the management fee, or you have reduced taxation on the carry. I think you need to set some sort of a carrot there that people are pushed into taking on this extra overhead.*
18	9	• *I don't believe in impact carry as it is designed at the moment because I don't think it's really truly aligned; you know there are different methodologies. But in general, the bottom line is that most GPs are able to set their own KPIs and there might be some back and forth with LP's, or not. But they're going to be rather on the conservative side and they're going to try to make sure that they are able to meet those KPI's. For me, that doesn't fulfil the purpose of having an impact carry and for me personally, I think it's more important to have an impact strategy that is very comprehensive, that takes all the impact philosophy and processes you want to see in the VC fund that would mean a certain level of impact, right? Rather than having that final number that you know you might tick the box to get your carry or not. And I think for LP's if they put some more time in really digging deep into the impact strategies, how people make decisions, how decisions are embedded in the processes, are they doing impact modelling? Show me the model. How do you calculate things that goes a long way in comparison to the impact carry formulas that I heard are in the market.*

Source: Own research

Interviewee 18 underscores the value of a comprehensive impact strategy, contrasting with concerns about the alignment achieved by current impact carry models. The interviewee explains that impact carry, as currently designed, might not be a fully aligned incentive mechanism, emphasising the importance of LPs delving into impact strategies, decision-making processes, and impact modelling. The other Article 9 participants are committed to linking carry to impact achievement.

Like their Article 9 colleagues, Article 8 respondents raise concerns about the current lack of clarity and standardised metrics for impact measurement, leading to scepticism about the effectiveness of such incentives in the current landscape (See Table 5.40).

Table 5.40 Findings for Theme 3.4 Ambiguity in Impact Calculations (Article 8)

Int.	SFDR	Sample Quotes
9	8	• *So as this is not really clear, in the end you are giving the impression that it has an impact, and it is also possible to calculate, to measure and so on. But currently you can't. So therefore, it's a wrong kind of signal.*
21	8	• *We've already discussed [impact carry] in depth with EIF. Their carry programme adaptations they would require. We have some freedom in defining the KPIs we think should be tracked and be quite OK with it. So, we'll make it work. We'll be tracking stuff that probably we wouldn't track otherwise, but if that's the price [to get the EIF money] then we'll take it.*
22	8	• *Depends how clear cut the impact is and how Influenceable it is for you; you have to remember where minority stakeholders etc.*

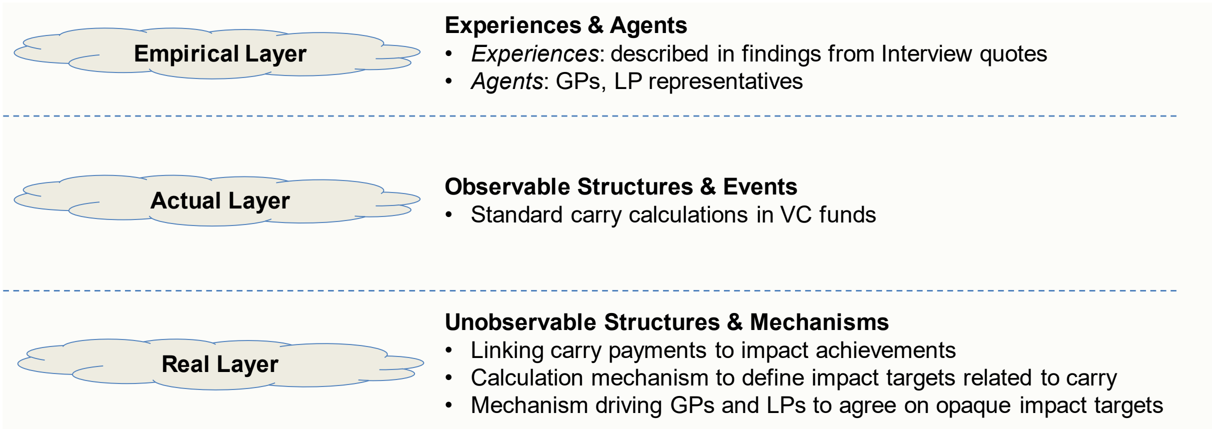
Source: Own research

The idea of linking carry to impact receives support from participants who acknowledge its potential to drive meaningful change in the VC industry. However, the level of commitment varies, with some participants recognising the need for flexibility in defining impact KPIs. In contrast, others are willing to learn and adapt to new tracking requirements, even if it means monitoring metrics they would not traditionally track. Overall, there is a sense that aligning financial incentives with impact goals is a positive step, although the challenge lies in refining and standardising the metrics for meaningful impact measurement. While Article 9 representatives acknowledge the ambiguity of the impact calculations, Article 8 participants perceive this as a hindrance to adopting ESG / impact in funds.

5.4.4.3. Discussion for Theme 3.4

In summary, the interview findings demonstrate that representatives from Article 9 and Article 8 funds expect an increased emphasis on linking carry to sustainability, creating additional incentives to focus on ESG and impact performance, representing an unobservable structure (see Figure 5.13).

Figure 5.13 Identification of CR Layers for Systems Theme 3.4



Source: Own research

The agents refer to linking carry to impact or even ESG achievement or to an increase in the management fee. The allocation of management fees and the regular calculation of carry payments for management companies for financial performance are observable structures, as they are known in the industry. The same applies to the super carry that Participant 8 is referring to, in which case additional carry is paid to the management company if, for example, extraordinary financial returns have been achieved.

On the other hand, the calculation mechanism to identify suitable impact targets for funds represents an unobservable structure, as these appear to differ from fund to fund, depending on the fund strategy. One element in common, though, appears to be that the fund must demonstrate the anticipated financial performance, without which no carry would be paid, irrespective of the impact achievements. For VC funds with a single impact target, e.g., GHG reduction potentials, this appears to be comparatively easier than those with multiple impact targets tackling various environmental and social aspects. It is noteworthy that even with singular impact targets, the methodology to calculate impact potentials, i.e. when the impact has not been achieved yet, poses additional challenges.

Some interviewed agents represent Article 9 funds with impact carry agreements with their LP base. Therefore, a mechanism can be deduced driving both the GPs and the agents representing the LPs to agree on such comparatively intangible impact targets. Equally, a mechanism relating to the carry distribution at the end of the fund lifecycle could be in place. Participant 12 explains that if the impact targets were not reached, the LP would donate the carry to an NGO. From the financial perspective of the LP agents, these profits would, therefore, be paid out anyhow. It could, therefore, be argued that a mechanism incentivises the LP agents to distribute the carry to the management companies. This would incentivise the management companies to establish future financial products for the LP agents to invest in.

Some Article 8 agents described how providing additional financial incentives, like a super carry, could motivate them to increase their fund's focus on environmental or social aspects. Notably, this mechanism does not appear to apply to all participating agents. Interviewee 22, for example, explains that such an increased financial reward would have to be substantial enough to outweigh the perceived downsides of reduced deal flow.

5.4.4.4. Recommendation for Management Practice 11

SWFs and institutional investor LPs are incentivised to encourage the establishment of additional VC funds with a focus on environmental or social aspects. These agents could consider providing different fund structures, including potentially longer investment periods, higher management fees, higher carried interest payments for impact, etc. to incentivise management companies to establish financial products with a higher sustainability rating, such as Article 9.

5.4.5. Theme 3.5: SFDR's Impact on VC in Germany

The most noteworthy change in the regulatory environment for VC funds in Germany was the introduction of SFDR and the associated classification of funds to Articles 6, 8, or 9 (Regulation (EU) 2019/2088). This additional regulation creates an observable structure that VC management companies must adapt to, which, due to its requirements, might prevent funds from embracing a more environmental or social stance. The literature has recognised that the SFDR significantly influences the reporting practices of financial actors, including institutional investors and reporting companies (Gebhardt et al., 2023-a).

5.4.5.1. SFDR as a Bureaucratic Burden

Interview participants from Article 9 funds reflect on the impact of regulatory developments, such as SFDR, on their investment strategies and fund administration (see Table 5.41). Some participants highlight the challenges of adapting to SFDR's classification. The SFDR reporting process is described as challenging and bureaucratic, lacking clear expert guidance.

Table 5.41 Findings for Theme 3.5 Navigating Regulatory Change (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *I know one climatech fund, who was applying for Article 9, is close to the final closing and one of the partners told me they are reconsidering because they did not [want to go] through the full BAFIN approval on Article 9.*
2	9	• *Why then Article 9? What's the benefit of Article 9? It's still unlit grey playing field where the advisors, it's a painful process no because nobody really knows what are the requirements exactly for Article 9. You have to put your the best foot forward and the best standard and what could happen then is that some people just overdo the reporting, which will happen. So, you will have a huge administrative burden on some funds and probably your study sees that some of the Article 9 funds or funds that want to do Article 9, they're saying screw it we're going to 8.* • *Is bureaucratic. It will be bureaucratic for sure. Otherwise, people will just jump on it, and you will have more article 9 funds and we see people moving to 8 or downgrade.*
18	9	• *We have an impact associate that does that and updates as necessary, but it's [SFDR annexes] more of a ticking the box, just making sure that you are compliant, basically that you don't miss anything, but I think that all the impact strategy frameworks documentation we have goes beyond what they ask to be honest. I'm not sure if we distilled anything new from, the annex 5 or any of the annexes that we need to report on.*

Source: Own research

In this context, participants also raise the effects of the additional bureaucratic burden on the organisation, requiring additional resources.

The interview participants from Article 8 funds provide a nuanced view of the SFDR's impact on VC funds, particularly in the context of Article 9 classification (see Table 5.42).

Table 5.42 Findings for Theme 3.5 Navigating Regulatory Change (Article 8)

Int.	SFDR	Sample Quotes
3	8	• *If they really want to do it, I don't see a hindrance [becoming an Article 9 fund]. Of course, it's a few more data points and that kind of things. But I don't see it as a negative I'm an engineer, so I believe in measuring stuff.* • *You need to name stuff, then you can measure stuff and then you can improve and act on these things. So, for me gathering data is not a negative thing. I just need to know what type of data do I want to have to infuse which decision-making process. I think as a fund, if you have a set strategy, either as an Article 8 or as an Article 9 you have a certain obligation to also have accountability versus third parties. I'm also very pragmatic, if I would look at those regulations, I would be probably like, oh my God, so much paper it's so complicated, just in the way that it's worded. But I mean this is like if I would review a piece of programming code or something.*
5	8	• *We're going to report on them [PAIs] of course, as the document was created some time back it's it left some room for interpretation. Also, for some modification from our side as the legal requirements were not carved in stone at that time, but nevertheless that led to some expectation management when it comes to regulation* • *We personalised it already with quite some effort. I mean the industry of consultants and legal advisors, they're just happy at the moment with how messy it is, of course it has to be simplified.* • *The effort, which is required for all funds, and I mean we are large fund, and we have the capacities, but for the smaller funds it's just not going to happen or it's going to make it things very difficult,* • *I think that the EU has some work to do on that, and actually I'm also surprised on how little they care about it actually.*
6	8	• *Especially because the EU taxonomy is only environmental it's not even social, so that just puts you in, OK, how many investments can you do, aligned with the EU taxonomy as a generalist fund? I do not think that this is the direction that we're taking, at least not with our main funds.*
7	8	• *[The SFDR as a framework] just gave a little bit of orientation. So, what is considered dark green from EU perspective or from their regulator perspective. Looking at the taxonomy, I think we would have gone beyond that coming back to the food and agriculture example, because we would have been forced to define ourselves what is dark green in that area. I don't know if it was limiting it to some point because we were dedicated. Anyways, so we if this wasn't around, we would have gone in a similar route, but I think it helped a little bit defining the boundaries of where we can go.*
8	8	• *We shouldn't make a mistake just with the German or European perspective to over-regulate everything and we should be happy that everyone is trying to give their best. And if there are specific funds for this fine but to over-regulate the entire VC market or start-up market, this can be also tremendous mistake.*
9	8	• *[SFDR] helps to structure and it's actually interesting to see what others do. It's a kind of prerequisite. And if you look just on the websites, on the kind of SFDR reporting or guideline. They all look the same. Why? First of all, because it's a kind of standard they are following. But on the other hand, it's also something where you can look where someone is differentiating and so on. But to be honest, I don't see loads of funds who have really taken too much effort in individualising it, not excepting us. We see SFDR as something which is a requirement which is good. But to be honest, it's more about the checklists.*
12	8	• *We decided, let's go for Article 8. We will make our reporting at least how we understand it, according to principles of Article 9, because for us SFDR is more about reporting than about investment strategy.*
17	8	• *The first driver [why not setting up as an Article 9 fund] is definitely regulatory pressure that's obvious because SFDR is a regulation, but there are many other regulations in place. Or coming into place in the future.*

Source: Own research

They reveal contrasting attitudes toward data collection and transparency. While some participants embrace the idea of gathering data as a means to improve decision-making and enhance accountability, others express reservations about the administrative burden and the lack of expert guidance. The administrative burden associated with SFDR is perceived as potentially hindering the growth and success of these funds, which may lack the resources to navigate the intricate regulatory landscape. This underscores a potential discrepancy in the impact of SFDR on funds of varying sizes, with larger funds having more capacity to adapt and comply compared to their smaller counterparts. In this context, interviewees also mention the perceived SFDR reporting requirements as an incentive to remain Article 8 and not aim for a higher classification. Despite the challenges, efforts are made to ensure compliance, often involving additional personnel and updating documentation. They emphasise the need for flexibility and understanding the unique constraints faced by venture businesses that invest in emerging technologies not covered by traditional positive lists. While the taxonomy is not applied by any fund in the database, it is still considered a factor preventing Article 9 classification.

5.4.5.2. Ambiguity of SFDR Classifications

Participants raise concerns about the complexity and ambiguity surrounding Article 9 classification under SFDR (See Table 5.42). The interviews bring to light a need for more than just compliance; there is a demand for practical tools and resources that can help funds navigate the complexities of SFDR reporting effectively.

Table 5.43 Findings for Theme 3.5 Ambiguity of Requirements (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *It did not change our way of working and investing in the start-ups. Of course, we needed to adapt our reporting and I'm not in the mix and always up [to date on] taxonomy and SFDR and all the various rules. But of course, we had to provide different reporting and also to fight against this idea that we have a kind of positive list. Which is obviously designed for big corporations again and big investment funds. But if you are in a venture business you by definition invest in new technologies and new technologies mean they are not in this positive list. So how can you then invest in new stuff? So again, that's an issue we have as a venture business because we're just too small to be visible on this large scale where people do regulatory frameworks, so we needed to adapt there a little bit of reporting the investment strategy.* • *We are not committing to 100% of the taxonomy, because we can't.*
13	9	• *That's a totally ugly process [SFDR related reporting], because, you don't have experts out there. You don't have anyone who tells you, OK, no problem, you are 9 we have to do that that, that, full stop. Nothing is clear. Nothing is easy. Nothing is clear because I think the market itself has not yet 100% defined what needs to be in the reporting. At least not in every part. It's not yet sorted out.*

Source: Own research

Participants express the need for more defined standards in the reporting framework.

Table 5.44 Reporting Standards (Article 8)

Int.	SFDR	Sample Quotes
6	8	• *I was actually today speaking with my lawyers about ESMA [European Securities and Market Authority] and the proposals that they have made for the revision of the SFDR, and it seems that even under these revision, we could still fit in. Its only that you will have to be better at measurement and demonstrating your way of promoting E&S characteristics. I think the fear comes a bit from not understanding what the SFDR is.*
9	8	• *I think there needs to be some clarification and also with the current backdrops and greenwashing and so on. And I think we need to have clearer guidance on that side.*
24	8	• *But we don't want to become an Article 9 fund at the same time, right? We don't want to, not yet at least and because then you have all the effort, and nobody really knows what to do. It feels like it at least.* • *Nobody knows what to do in Article 9, it feels to me like that at least.*

Source: Own research

The interviewees underscore the ongoing complexity and evolving nature of SFDR-related regulations and their impact on VC practices.

5.4.5.3. SFDR as a Disincentive

The lack of LP interest in Article 9 funds is highlighted, indicating that the market has not yet fully recognised or rewarded funds solely based on this classification (See Table 5.45). Notably, this solely reflects the SFDR classification, not the impact these funds generate.

Table 5.45 Findings for Theme 3.5 SFDR as a Disincentive (Article 8)

Int.	SFDR	Sample Quotes
6	8	• *My interpretation was that the objective of the SFDR is very much transparency is not putting a certain benchmark on it.* • *The legislation that the EU is passing we'll see more and more focus on greenwashing, both on the consumer side, the investment side, due diligence on human rights supply chains.* • *It is PAI reporting through the back door, but I think that because it's so CSRD aligned, that is great. You need to give your VCs something to fear. You need to give them the bear that is running after them. If what you're doing is going to help them to run faster from the bear, or to be prepared when the bear comes, that is where you have a story. I know that the relationship with the SFDR is love - hate for many people. But I'm more inclined for the love because despite its short comings it is making our jobs easier, so much more difficult for reporting, but from a storytelling perspective, so much easier.* • *I would say [SFDR might prevent funds from going towards] Article 9 more. Although right now, if I'm not mistaken EU taxonomy is not mandatory even though you are in Article 9. And for Article 8, you also have the way of saying that you're doing E&S promotion, but you don't have to be doing sustainable investments. As far as that remains the case, VC would still be attracted to being in Article 8. The issue is if there's a revision of the SFDR that becomes more as a classification exercise rather than a transparency exercise.*
7	8	• *The BaFin, don't want anyone to be an Article 9 fund, they want it to be the gold standard and they want to have very harsh and strict requirements.*
8	8	• *We're talking about 10 years of a new fund, and you don't know what's going to happen in these 10 years and which requirements you have to stay ahead of when you want to solve your article 9 status. Because everything is new at the moment, this was a potential risk we didn't want to force.*
9	8	• *So why not article 9? From our perspective, it's too limiting and it's to a certain extent you can always do more, but you shouldn't over promise and under deliver. It's rather we are currently article 8, and it gives us certain freedom, but of course this doesn't exclude us from doing rather article 9 style investments, but it also doesn't limit us and also doesn't put too much pressure on the start-ups we're investing in.*
12	8	• *It's a bit more difficult if you look at semiconductor companies. There, it's not so obvious, we have to find a way how to position it. And this was also the biggest or one of the big hurdles we had with Article 9 fund because then we had this 100% sustainability focus and we were not sure at the time will we meet this and then said no, we will not do it and we are bit conservative so let's take Article 8.*
20	8	• *I think more rules would lead us to do more ESG not impact. We would probably then report more, you know have more due diligence especially in the pre deal phase.*

Source: Own research

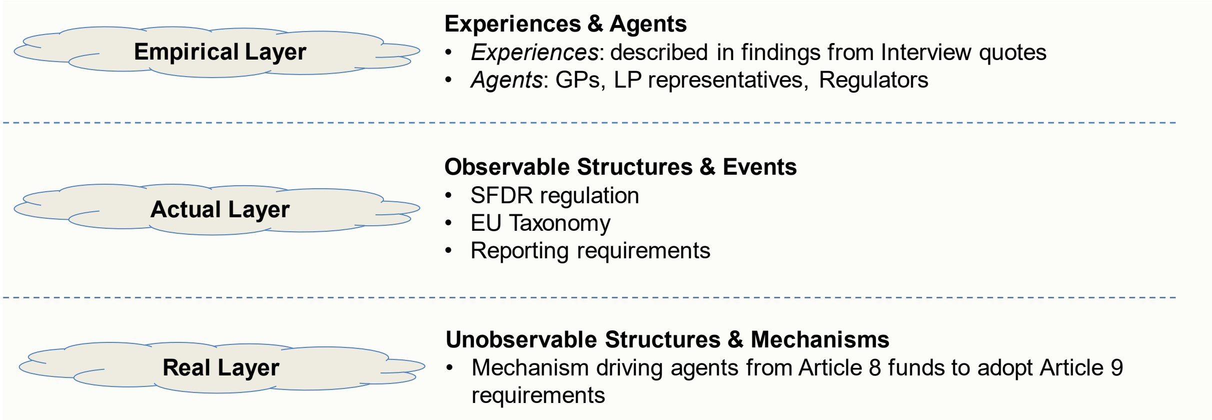
Another point of contention for Article 8 interviewees revolves around the classification itself, especially in the context of Article 9. Participants question the practical benefits of opting for Article 9 status, expressing uncertainty about whether it aligns with investor preferences or adds value to the fund's operations. The interviews reveal that the regulatory landscape, including SFDR, is still evolving and that further clarity is needed to establish the practical implications of various classifications. The uncertainty of regulatory developments during the 10-year holding period of funds is described as a disincentive against Article 9 classification.

Moreover, the interviews touch upon the impact of SFDR on the broader investment landscape. Some participants highlight the potential influence of SFDR on investor decision-making, with an emphasis on sustainability considerations becoming an increasingly important criterion. This suggests that SFDR is not merely a compliance exercise but has the potential to reshape the priorities and strategies of VC funds in response to shifting market expectations and regulatory pressures.

5.4.5.4. Discussion for Theme 3.5

The regulatory landscape for VC funds in Germany has undergone a significant transformation with the introduction of SFDR and the associated categorisation into Articles 6, 8, or 9.

Figure 5.14 Identification of CR Layers for Systems Theme 3.5



Source: Own research

This regulatory addition introduces an observable structure that VC management companies must navigate, potentially posing challenges to adopting a more environmental or social stance due to additional requirements. This observable structure is in morphogenesis (European Securities and Markets Authority, 2023; European Commission, 2023), a fact recognised by interview participants expecting additional changes from SFDR in the future. Given the 10–13-year time horizon of VC funds, this appears to create two contrarian mechanisms affecting the fund management agents. Some agents appear to be driven to embrace the structure, and some Article 8 fund agents even implement Article 9 fund requirements in preparation for future changes. Other agents are critical of this morphogenetic state and aim to minimise exposure by applying only minimal requirements.

The EU taxonomy (Regulation (EU) 2020/852) is an EU regulation that defines sustainable investment sectors, referred to by participants occasionally as positive lists. As part of the SFDR pre-contractual disclosures, a fund must define the level of commitment to the sectors defined in the EU taxonomy (Regulation (EU) 2019/2088, Annex II and III). Whilst this observable structure affects the entities and agents of the VC industry, there is consensus from both Article 9 and Article 9 funds representatives that this structure is not applied.

The observable structure of reporting requirements resulting from the SFDR is discussed in sub-section 5.4.3. These reporting requirements appear to create a mechanism for some agents to reject increased commitments to environmental or social aspects in the investment process.

5.4.5.5. Recommendation for Management Practice 12

Whilst the VC agents have identified the morphogenetic state of the regulatory observable structures, the timeframe for this change can be expected to be relatively long, given that the European Commission started soliciting feedback in 2023 (European Commission, 2023). Alternative approaches to upcoming changes to the SFDR have been communicated in this consultation; VC management companies could, therefore, evaluate their current approaches, having implemented the current regime of SFDR, against these expected changes to gain insight into the effort that is to be expected, once updates are implemented by the regulators.

5.4.5.6. Recommendation for Management Practice 13

VC management companies could ensure active participation in consultations by the European Securities and Markets Authority, the European Commission, or BaFIN to ensure their feedback is received. Depending on the fund size and available resources, a direct approach to providing constructive feedback on the regulation to representatives could also be considered.

5.5. Shared Values

Shared Values are one of the elements of the McKinsey 7-S model with less observable structures and more mechanisms and unobservable structures in place (Peters & Waterman, 2004).

In this research, the interviewees elucidate the mechanisms that have changed their perception of implementing more environmental or social aspects into the fund set-up and their investment decisions. There are two themes related to Shared Values (see Figure 5.15). Interviewees mentioned post-success responsibilities and increased ethical considerations in investment decisions.

Figure 5.15 Overview of Themes (Shared Values)

Source: Own research

5.5.1. Theme 4.1: Exploration of Values Driving Article 9 and 8 funds

Interviewees from Article 9 and their counterparts from Article 8 funds have a differentiated view on past success as a driver for more responsible investments.

Interviewees from Article 9 funds illuminate a realisation that success in life, coupled with the perspective gained from various experiences, prompts a consideration beyond mere financial returns (see Table 5.46). This reflection often coincides with reaching a point in life where personal values and a desire to make a positive impact become paramount. The interviewees express a shared sentiment of wanting to leverage their capabilities and experiences to contribute meaningfully to societal and environmental challenges. This confirms an already identified trend in the industry (Botsari & Lang, 2020).

Table 5.46 Findings for Theme 4.1 Post-Success Responsibility (Article 9)

Int.	SFDR	Sample Quotes
2	9	• *I would say an underlying driver is also a point where after you've been probably successful in life and achieved a few things and seen a few things, with three younger children, you're also at the point where it's OK, is there anything you want to do, that you know is beyond, let's say, just financial returns?* • *Yeah, and by chance, this problem has a big financial opportunity.* • *At some point, personally, I decided that I will not do another, let's say, normal digital type of investment. But I will allocate my remaining wealth and the wealth I create from the portfolio I have, in that climatic field.*
13	9	• *We all wanted to use our capabilities, capacities in order to do something good. In a way, after we've all worked in banking, venture capital, entrepreneurship. But now we are also old white men and always families, always at least two kids. And we wanted to do something good, and we saw that they're our future.*
18	9	• *Every other GP that I talked to, when you ask them, why are you interested in impact? And she is like, oh, my kids, you know. And when I had kids, all of a sudden, I had to think about them and their future, right? Which is a totally valid thing to say absolutely.*

Source: Own research

The decision to focus on impact investments is seen as an opportunity to do good and is recognised as having significant financial potential. This dual perspective highlights a convergence of personal values and strategic investment choices. The interviewees emphasise a shift from traditional digital investments, signalling a deliberate move towards aligning their wealth allocation with climate-related endeavours.

Furthermore, the interviews reveal a sense of responsibility toward the future, particularly in the context of family and the younger generation. The desire to create a positive impact is often motivated by considerations for their children's well-being and future prospects. The recognition that the challenges faced by the world, especially those related to climate change, will significantly impact the lives of the next generation adds a personal dimension to their commitment to making a difference.

In contrast to the Article 9 fund representatives, Article 8 interviewees describe a nuanced approach when navigating the landscape of ESG considerations and impact investing (see Table 5.47). There is a spectrum of attitudes and strategies within the GP community of these funds, and decisions are often influenced by a delicate balance between meeting stakeholder expectations, addressing societal challenges, and maintaining financial performance.

One GP reflects on the internal discussions regarding a potential shift in fund strategy towards more sustainable investments, specifically in the context of a circular economy case. While acknowledging the desire to move beyond mere compliance and recognising the urgency of professionalising ESG practices, the interviewee emphasises the importance of finding a middle path. This decision, it is suggested, is driven by a commitment to serving all stakeholder interests and avoiding extreme shifts that may have unintended ripple effects.

Table 5.47 Findings for Theme 4.1 Post-Success Responsibility (Article 8)

Int.	SFDR	Sample Quotes
3	8	• *I would not go as far as, if I see the next Spotify, that I would systematically not invest, but rather invest in, like a circular economy case which has less of a performance impact. This is not the mandate that we have from our LP's and so this would be a bigger shift in fund strategy. It's something that we discussed. But it would then, if we put that goal, it would have just more ripple effects and everything. So, we decided against that. It didn't seem the best way to serve all stakeholder interests but doing nothing and ignoring it and not professionalising is equally wrong. And so that's why we decided for the middle path.* • *Moved or are in the process of moving, but I can't recall a single GP discussion that I've had where some person was kind of like. Nope, not doing it. Never done it. We'll never do it.*
5	8	• *So nowadays also in discussions with within the GPs and also the other kind of team it's mainly said about we now have to do it [incorporate more environmental and social aspects].*
6	8	• *When we start looking from compliance to best practise, I [ESG representative] think that is where there is a difference also for GPs. Our GP's are middle-aged, well-seasoned, but not towards the end. Not with the foot out. And obviously they have been trained in a very different environment. And this takes time and have I received a very closed door or lots of resistance? The reality is no. They've been really willing to listen, but one thing is that and the other thing is being a champion and really pushing it internally. Even there, maybe coincidentally the person that is pushing it the most from the GPs is the youngest GP so. Coincidence? Who knows? But you can see the generational divide of how to do things.* • *They understand the market pressure, they understand the risks created by climate change.* • *There's a buy in to do this, but how much are we going to push a bit more beyond compliance? That is where the buy in starts to become a bit more difficult when you just start thinking. Let's not stop here. Let's just be a bit faster because the market is fast growing.*
10	8	• *Not to, let's say save 1kg of plastic waste, that makes no sense. That is such a tiny positive impact on the whole scale of the world. That makes no sense. Or if they are consuming a little bit more solar energy or something like this. That's not the impact, the impact is on the health side, it's really clear focus on social aspects and this is what we can do because our companies have helped more than 17 million people around the world in more than 80 countries to improve or to regain their health, and that is the impact we are looking for.*
20	8	• *I think people are starting to understand also because so many people talk to them about ESG, especially on the LP side. I would say what a senior level that I have also have on my side is the senior investment relation manager. She's doing the fundraising process she finds the money and she is bombarded by ESG and she's very much with me into just pushing things, because obviously she knows that it has big impact.*
21	8	• *We could talk about the backgrounds of all the partners, because each of us has their own motivation to do that. I come from the venture side; I've been doing venture capital for more than 15 years. The other guys, not that much, they all come from the energy industry, and they'll have much more knowledge about specific challenges but also opportunities in the market and could much more eloquently tell you about electrification and what will change and how the world has to change in terms of the energy system.*
22	8	• *I [GP] signed this founders pledge. One of the things they do is, they consult you on impact of charitable giving. You know where there is also all these metrics like quality, years of life, etc.*

Source: Own research

The generational dynamics within GP teams are also highlighted. The observation that the youngest GP is often the most proactive in championing ESG initiatives suggests a notable generational divide in approaches to sustainability. This generational shift is recognised as both an opportunity and a challenge, with the younger generation pushing for a faster pace of change and a more comprehensive embrace of ESG principles.

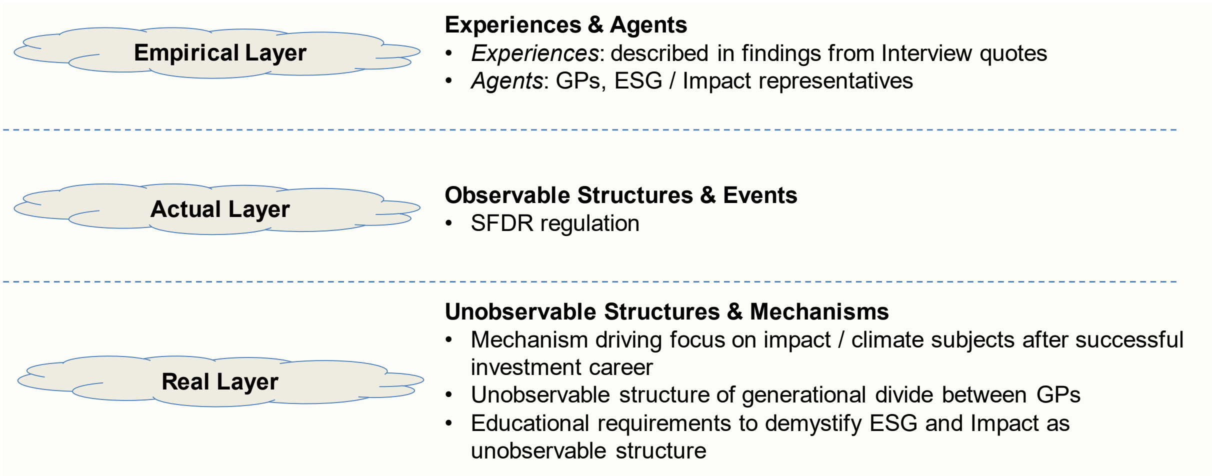
The role of market pressure and the understanding of, for example, climate change risks are acknowledged by the GPs. Recognising these external factors indicates a broader awareness within the industry of the need to align investment strategies with global challenges, particularly those related to environmental sustainability. However, there is a noted challenge in pushing beyond mere compliance. The hesitation to move faster and deeper into ESG practices is attributed to the need for a fundamental change in mindset. In this context, it is noteworthy to review the timeframe of SFDR implementation; VC funds in Germany had to comply with the new regulation from 2022 (Regulation (EU) 2019/2088, 2019). This expressed hesitation could, therefore, also still stem from a relatively recent change in this observable structure, affecting the GPs.

The focus on impactful investments is emphasised, with one interviewee highlighting the importance of directing efforts toward initiatives that result in tangible and significant positive outcomes, particularly on social aspects. This perspective aligns with a growing trend in impact investing where the emphasis is not just on checking ESG boxes but on creating measurable, positive change. On the other hand, Interviewee 6, an ESG professional in a fund, explains that "*it's shocking how much people don't understand the difference between ESG and impact. And when you're just like telling people we're doing ESG, they think that all of a sudden, you're just going to do impact investments. So, I think demystifying ESG and removing that fear of putting yourself in handcuffs as a fund Is very, very important to be heard and to create change.*"

5.5.1.1. Discussion for Theme 4.1

In summary, interviewees from Article 9 funds showcase a distinctive perspective where past success appears to prompt a broader consideration beyond financial returns (see Figure 5.16).

Figure 5.16 Identification of CR Layers for Shared Values Theme 4.1



Source: Own research

This mechanism appears to coincide with a life stage where personal values and a desire to impact society positively and the environment become paramount. The focus on climate-related investments, in particular, is seen as an opportunity to align wealth allocation with personal values and strategic financial choices.

A driving force of this mechanism is the sense of responsibility toward the future, particularly concerning family and the younger generation. Recognition that global challenges will significantly affect the next generation's lives adds a personal dimension to their commitment to making a positive difference. This mechanism can also be assumed to affect the HNWI, next-generation FO principals and selected personnel from INIs investing in VC funds, as described in Sections 5.2.1 – 5.2.3).

Conversely, interviewees from Article 8 funds describe a nuanced approach within the GP community, influenced by a delicate balance between meeting stakeholder expectations, addressing societal challenges, and maintaining financial performance. This indicates that the above-described mechanism works primarily on agents from Article 9 funds and affects those from Article 8 funds less. While there is an acknowledgement of the need to move beyond compliance and professionalise ESG practices in Article 8 funds, decisions are cautious and strive for a middle path.

Generational dynamics within GP teams, with younger GPs being more proactive in championing ESG initiatives, indicate an additional unobservable structure in approaches to sustainability, presenting both opportunities and challenges. This provides a nuanced aspect to the previous literature that identified more consistent ESG adoption across all ages of fund managers (Botsari & Lang, 2020). The same or similar mechanisms arguably drive these younger agents as the Article 9 agents described above, an intrinsic drive towards more sustainable investments. This mechanism requires another unobservable structure of change management within the funds, executed by the championing agents in these funds. Evidently, this requirement is not present in Article 9 funds as they are set up to generate impact and hire an already convinced team.

Another unobservable structure is the described need to demystify ESG. Some participants express concerns about misconceptions and the importance of clarifying the distinction between ESG and impact investments to foster a better understanding and drive positive change. This represents an unobservable structure, as these educational requirements will differ from one fund management company to another. In addition, linked to the above-described change management requirement, not all agents might agree to these educational requirements, depending on where they are on their adoption profile of sustainability. It is noteworthy that such comments were made by ESG representatives, agents specifically hired to progress the ESG agenda in their respective funds. The observable structure of their being hired demonstrates that some commitment to ESG is available and could be built on.

5.5.1.2. Recommendation for Management Practice 14

Funds with a diverse range of buy-in to sustainability could apply standard change management practices to ensure internal education about and adoption of ESG. Sharing success stories related to ESG internally and between funds could help late adopters understand the value generated by a focus on ESG and the difference between ESG and impact.

5.5.2. Theme 4.2: Social Impact in VC

The impact of their investments on society is an additional driver to an increased focus on ESG, both for Article 9 and Article 8 representatives. The interviewees underscore the interconnectedness of social, environmental, and economic factors, emphasising the importance of ethical and responsible practices in the investment landscape. The industry practitioners from Article 9 funds highlight two main aspects of social factors: the humans involved in the start-ups they invest in (internal perspective) and those affected by the solutions developed by these companies (global perspective).

5.5.2.1. Internal Perspective

Participant 1 describes an example of the Berlin ecosystem, where the work relationships and employment contracts at start-ups are criticised as unacceptably bad for employees (See Table 5.48). This highlights the social dimension of ESG, focusing on fair and just working conditions. The participant expresses concern for the well-being of individuals in the workforce, shedding light on the often-overlooked human element within start-ups in investment decisions.

Table 5.48 Findings for Theme 4.2 Internal Perspective (Article 9 fund respondents)

Int.	SFDR	Sample Quotes
1	9	• *And especially [in the] Berlin ecosystem, the work relationship, like the employment contracts are unacceptable bad for employees [of start-ups].* • *Just too bad to mention and this is again the social part of it, people neglect.*
18	9	• *Obviously when we are investing our capital to align it with impact, one of the things that we have to question is who is benefiting from those investments. And obviously the owners of capital, the ones that are investing in these funds are benefiting hopefully. If everything goes well, as much as the companies that we invest in, so how can we make the venture capital system more accessible to other type of people - retail investors?* • *A lot of the GP's in the big German funds, I think most of them don't really care about ESG or impact and they feel pressure from LPs. And this is more of a reporting obligation for them than a company priority. And I heard this from heads of impact and ESG in some of the big funds and unless you see what is the impact to the bottom line, and it's very difficult to show that, unless you invest in an impact start-up, right? You won't see that just by measuring ESG and doing nice reports.*

Source: Own research

Internally, within Article 8 funds, the perspective on social equality is emphasised, particularly in the context of working across diverse cultures and legal systems (see Table 5.49).

Table 5.49 Findings for theme 4.2 Internal Perspective (Article 8 fund respondents)

Int.	SFDR	Sample Quotes
3	8	• *It was one of the partners who put it on our internal agenda and then we discussed it that we want to do something and then this partner and another person from the team basically took charge and worked on our setup and what we want to do, and we look at the decision.* • *Everyone in in the team has extensive experience working across the globe, for example probably the most extreme example is in the United States. If you don't have equality statements and equal hiring policies, you're just not going to be successful and at the end of the day maybe it's even not legal.*
4	8	• *Doing what is within your kind of personal guidelines, then putting a lot of buzzwords in the ESG report so I have a mixed view on these kind of things because I can tell you 5 funds which are the ESG leader but are completely devils around the neighbourhoods. And so, I'm pretty much mixed in terms of the interpretation of this topic.*
5	8	• *I [ESG representative] think [the GPs] didn't know what they actually were doing, and they said, OK, this is going to happen, and we might have to do some reporting. Because I got to know the decision makers now and know about their know-how or not know-how of the regulation, I think they just said OK, that's the kind of the new set-up of the regulations side and we're gonna do it. But they had no clue about the decision at all.*
6	8	• *It is still a convincing part to be done [to GPs], of course. All this is understood, I [ESG representative] think some of the issue we have as humans is how much we think that we are owners of impact. How much do we think that us changing things is going to make a difference? And I think that's where they might understand that there is this part of their portfolio at risk. But then what is the trade off? How much am I going to authorise of a budget and for what purpose?*
12	8	• *The first response was, let's do it. After we presented internally what we have to do, it was literally, oh shit, this is a lot of work. But my mantra was always if you do it, you have to do it right, because what you absolutely want to avoid is to be seen as a fund that is doing green washing, because this is the worst thing that could happen. And there are a lot of funds out there who are who are doing this. And we always said if we want to do it, we'll do it right. So, we'll make a commitment, we will link 20% of our carry to it. We will go to the quantitative way to show all of the investors that we really mean it and not having only some avoidance lists or have some qualitative things. We want to go this way to show everybody, yes, we do mean it.*
21	8	• *We are very much on the same page there. We're all happy with 8, we were considering 9, but only because it would help us in fundraising otherwise, we probably wouldn't touch that for now.*
22	8	• *I [GP] signed this founders pledge. I don't know if you know it and the one of the things they do is, you know, they consult you on impact of charitable giving. You know where there is also all these metrics on like whatever it was called like quality, years of life, etc. But you know kind of gauging schools versus mosquito nets versus diarrhea versus funding the opera in Berlin.*

Source: Own research

The comparison with the United States by interview participant 3 suggests that social equality practices in business, such as equal hiring policies, are considered integral to success and even legal compliance. This reinforces the idea that certain social responsibility standards are expected, regardless of geographical location or local regulatory frameworks. A notable observation about GPs in large German Article 8 funds suggests that many may not genuinely care about ESG or impact. Instead, it is stated that they feel pressure from LPs and view ESG as more of a reporting obligation than a core company priority. Article 8 fund representatives also articulate the difficulty of showcasing bottom-line impact solely through ESG measurements without investing in dedicated impact start-ups. One interviewee expresses scepticism about funds that label themselves ESG leaders while potentially engaging in practices that contradict ethical standards. There is a suggestion that some GPs might not fully understand the regulatory landscape related to ESG. The decision-making process is portrayed as reactive, with GPs adapting to new regulatory setups without a deep understanding of the implications. This raises questions about the industry's depth of awareness and education regarding ESG practices and regulations. Indeed, Participant 22 indicates that "*what is always important in venture capital is given the in the size of our shareholding, the influence we have is limited.*"

Article 8 fund representatives also highlight the internal dynamics within VC firms regarding ESG. The decision to focus on ESG is often triggered by individuals within the firm who take charge and drive discussions. This internal motivation contrasts with external pressures, suggesting diverse approaches among VC firms. Participants highlight that the challenge is not just about understanding the risks but also determining the trade-offs and authorising budgets for ESG initiatives.

5.5.2.2. Global Perspective

When investigating the solutions the targeted start-ups produce, the concept of responsible production is introduced, emphasising that a material like aluminium should not be seen merely as a physical object but as a service provided by people to their customers (See Table 5.50).

Table 5.50 Findings for Theme 4.2 Global Perspective (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *When the SDGs were released, maybe 2016 /2017 I don't remember, but I was super happy because it was the first time that there was this forward-looking target.* • *That a piece of aluminium should not be a piece of aluminium, it should be a service, that people producing the aluminium offered to their customer.*
2	9	• *We won't do it on the back of slavery in Vietnam, because then other people do something awfully bad. This is part of the assessment; this is more the hygienic factors on the people side. On the other hand, the people side is also correlated with planet and profit. Because if that falls apart, the people have a big issue, right? The climate problem will lead to people suffering. Economic downturns will lead to people suffering, so I think this triangle.* • *It's not about doing good per se that you could look in the mirror and say you've done something good. But it's definitely about contributing to fixing a problem.*

Source: Own research

This viewpoint aligns with the idea that investments should not contribute to unethical practices, such as exploitation or slavery in other parts of the world. The social responsibility extends beyond immediate employment conditions to include a broader global perspective, showcasing a holistic approach to evaluating investments. The exclusion list mentioned in the social part implies that there are specific criteria or practices that the GPs actively avoid when making investment decisions. This negative screening indicates a commitment to ethical and socially responsible investing, where certain industries or practices with adverse social impacts are excluded from consideration.

Participants highlight the interconnectedness of the social aspect (people) with both environmental (planet) and economic (profit) considerations, recognising the TBL. This underscores the understanding that social issues, such as climate problems or economic downturns, profoundly impact people. This holistic perspective suggests that investments should be evaluated based on their contributions to all three aspects of the TBL.

The release of the SDGs in 2016/2017 is seen to emphasise a positive influence in the investment landscape. The SDGs are perceived as a forward-looking target, signalling a turning point for those seeking to contribute to addressing global challenges. The focus on the SDGs and ESG is not just about doing good for its own sake but is seen as a means of contributing to solving real-world problems. Some Article 8 interviewees highlight that their funds have a long history of investing in green technologies. They also highlight the internal discussions and commitments made to integrate ESG into their investment processes (see Table 5.51).

Table 5.51 Findings for Theme 4.2 VC's Social Impact (Article 8)

Int.	SFDR	Sample Quotes
3	8	• *What we do is we invest in companies who can become global category leaders. They have to adhere to a standard which is not the upper Bavarian standard, but it is something that needs to work in the context of multiple different cultures and multiple different legal systems. So, you tend to always drive for the system that is the most developed.*
8	8	• *Then we dealt with ESG in particular because for us it was really obvious since we're doing this, since 20 years, we almost at any time invested in green technologies, hydrogen, battery etc. So, for us it was not something new. But because it was brought to us, we started having internal discussions about ESG and one of our three partners has to deal with these ESG topics. So, we wrote down everything that was important for us from the due diligence or engagement. How we measure after investing and also how we report or will report towards LPs. We defined how to invest and then we have a layer how to deal with ESG in every phase.*
24	8	• *Yes, that changed. I mean especially that we opened up to B2B and climate tech. Because we see way more interesting deals in B2B in climate tech currently. And we specifically decided that and also doing the areas that we found out that we like and we're doing deep dives into that. So, our two-man teams are working on different verticals, be it energy, be it carbon capture, be it battery storage, these kind of things and so yes, that's deliberate action that we took basically.*

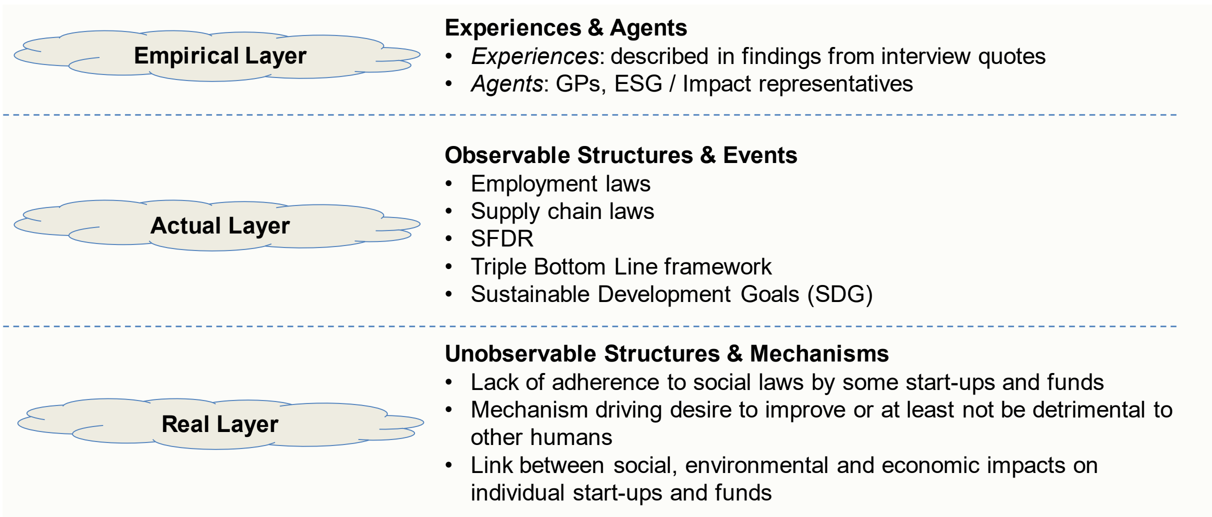
Source: Own research

The emphasis on doing it right and avoiding greenwashing underscores a commitment to genuine impact rather than superficial compliance.

5.5.2.3. Discussion for Theme 4.2

Article 9 and Article 8 representatives underscore an increased focus on ESG, particularly social aspects, driven by recognising the interconnectedness of social, environmental, and economic factors in the investment landscape (see Figure 5.17).

Figure 5.17 Identification of CR Layers for Shared Values Theme 4.2



Source: Own research

It is noteworthy that in the social context of Germany, dedicated laws cover a multitude of aspects, such as the German basic law (Deutscher Bundestag, n.d.), labour code (Bundesministerium für Arbeit und Soziales, n.d.-a), employment protection laws (Bundesministerium für Arbeit und Soziales, n.d.-c) that also apply to start-ups and investment funds, providing observable structures. Some participants describe unobservable structures, where individual start-ups appear not to have adhered to these laws, at least in the early stages of their lifecycle. Recognising these apparent deficiencies in the start-up ecosystem indicates a desire by these agents from VC management companies to encourage improvements to these unobservable structures. This is counteracted by some agents' belief that the investor's influence is limited due to the relatively low shareholding in each individual start-up.

This is in line with the mechanism driving the desire of some agents from the VC ecosystem to improve the lives of other humans outside of Germany or at least not be detrimental to it. The examples mentioned were related to the working conditions of companies in the supply chain of the start-ups the VCs invested in, which are governed by the German supply chain laws (Bundesministerium für Arbeit und Soziales, n.d.-b). Similar to the previous point, these agents from Article 9 funds describe a desire to ensure that their investments are not causing harm in this regard.

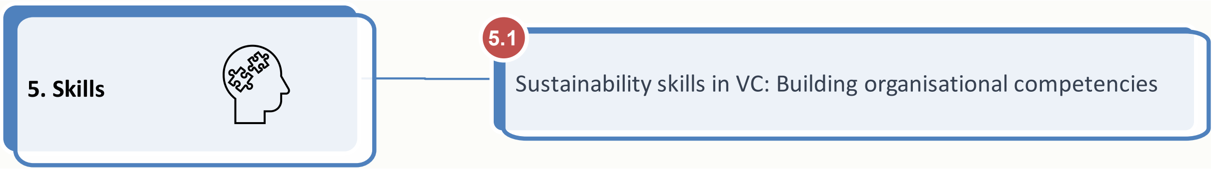
These mechanisms appear to be more prominently driving the behaviours and attitudes of Article 9 agents. Article 8 representatives, conversely, allude to a mechanism related to the buy-in of all participants of these funds. ESG representatives, for example, describe that, whilst there are champions in the leadership for the subject, other parts of the organisation still require convincing. Nevertheless, agents from Article 8 funds elucidate the mechanism driving social improvements, for example, signing a founder's pledge. The founder's pledge (Founders Pledge, n.d.) allows participants to donate parts of their income, for example, by promising a certain percentage of their carry payments to charitable organisations.

The interconnectedness of social aspects with environmental and economic considerations is recognised, aligning with the TBL concept, which is an observable structure. Applying the TBL to individual start-up investments represents a mechanism that drives the integration of environmental and social measures into the strategy and processes of Article 9 and 8 funds.

5.6. Skills

Viewing sustainability transformation as a dynamic process necessitating strategic shifts, this sub-section aligns with Kaplan’s conceptualisation of the organisation's skills, particularly in sustainability (see Figure 5.18).

Figure 5.18 Overview of Themes (Skills)



Source: Own research

Adopting environmental and social aspects into a fund’s strategy and processes necessitates building additional sustainability-related organisational skills. The impact of organisational competencies on VC decision-makers toward environmentally and socially conscious behaviour is discussed.

5.6.1. Theme 5.1: Sustainability skills in VC

When reviewing the skills requirements resulting from an increased focus on environmental or social aspects, both through ESG or impact, findings can be differentiated to the initial starting phase and ongoing skill developments in the funds.

5.6.1.1. Initial Starting Phase

Notably, many funds started evaluating ESG and impact when SFDR was established in 2022. Therefore, they are at the beginning stage of building organisational competencies. At the initiation of such an alteration of organisational skills, the fund's leadership has to be convinced about the necessity of such a change, as this potentially affects the entire fund operation (see Table 5.52).

Table 5.52 Findings for Theme 5.1 Initial Starting Phase (Article 9 & 8 fund respondents)

Int.	SFDR	Quote
3	8	• *It was one of the partners who put it on our internal agenda and then we discussed it that we want to do something and then this partner and another person from the team basically took charge and worked on our set-up and what we want to do, and we look at the decision.*
5	8	• *[The GPs] didn't know what they actually were doing, and they said, OK, this is actually going to happen, and we might have to do some reporting. Looking now, because I got to know the decision makers now and know about their know-how or not-know-how of the regulation, I think they just said OK, that's the kind of the new set up of the regulations side and that's we're gonna do it. But they had no clue about the decision at all. The actual reasoning what's happening.*
6	8	• *And I think this is something that the GP's have to understand because it's shocking how much people don't understand the difference between ESG and impact. When you're telling people we're doing ESG, they think that all of a sudden, you're just going to do impact investments. I think demystifying ESG and removing that fear of putting yourself in handcuffs as a fund is very, very important to be heard and to create change.*
17	8	• *It's harder and harder to just convince the general partners [in an ESG fund rather than an impact fund] to really understand that we need this topic. It was definitely harder. But I think we're in a good way to be honest. We are not an Article 9 fund with our mindset at the moment.*
20	8	• *I've always been very interested in in pioneering work, so that's why I'm happy to be doing this work and this was not a subject before I came. Or if it was one, it was more about this is bullshit and this is costly and this is the consulting thing. We're not going to hire PWC or the usual suspects to draft us an ESG policy. Then the LP came in and said, look if you don't do at least this, you're losing €30 million and then you know awareness was created, but then more in a way of compliance, like we have to be compliant.* • *Then if you go a bit more senior, we have a couple of principles there's especially one that is very aware and is also part of the team, others it's more complicated. And on the partner level? I would say that nobody is completely concerned.* • *This is hard. I won't lie, still today we are struggling. I am struggling and we are struggling with people that help me to get to create awareness around ESG and to really get the facts, the financial facts as well to go through and we are armed, we have a lot of arguments and especially thanks to [training provider] that have been pretty active and trying to convince everybody that it's important and I admire their devotion. It's been hard. It's not easy, every junior team member of the investment team has awareness, but this is also a generational thing. We hired 2 people last year, they are 25/ 27, something like this, they both are very aware. We also have [investment manager] that is around 30, but still a new employee. Three of them are very much concerned and also even prospect impact investing. Climate tech and stuff like that.* • *Nobody's very proactive. So, nobody's very involved.*
22	8	• *We have no negative pushback. I think there were questions on will this limit the scope of our investments. That was one question which came up. The other one was how do we balance impact and performance. But that being said, there was no negative pushback. I think people were actually quite appreciative of it.*
23	8	• *But that's just the hard part for the [ESG professionals] of the world. It's a process, and if you set small steps and small goals, you'll achieve them. And if you say, from today on we will only do positive impact, Scope 3, Life Cycle Analysis, then you can forget all about it because the support won't be there, if the step is too big. Unfortunately, it takes time for this to maneuver its way into society and into people's minds. But it's better to take small steps and start than to try to make big ones and then not be successful.* • *The moment we lose deals to a competitor because the founder says I don't like your diversity. Yes, especially leadership and in the equity cap table at [Fund]. And when someone loses deals at the bottom, the principal is actually unable to develop his track record for the deals he is passionate about. Then, I think, we have made a significant step forward.*

Source: Own research

This augmentation of skills primarily affects fund management companies with Article 8 financial products. Article 9 funds are established with sustainability at their core purpose, ensuring the presence of the relevant organisational skills. The interviewees describe scenarios where not all partners were initially convinced, emphasising the intrinsic motivation of some and the generational divide in enthusiasm, even within the group of partners.

They perceive a challenge in bridging the gap between ESG and impact investing and identified a requirement to clarify the distinction. They highlight the importance of convincing GPs and partners and note the necessity of time for understanding and acceptance.

They elaborate on the internal dynamics and challenges GPs face, who, while willing to listen, may encounter difficulties in becoming champions for ESG within the organisation. The tension between compliance and going beyond to adopt best practices is highlighted, along with the need for GPs to adapt to a changing market. However, the ESG representatives of the interviewees generally receive positive feedback from GPs on ESG, especially regarding reporting requirements and transparency. The participants reflect on the historical perception of ESG, initially seen as a costly consulting exercise until external pressure, particularly from LPs, highlighted the financial risks associated with non-compliance. While progress appears to be made, interviewees still mention challenges in convincing some GPs about the importance of ESG compared to impact funds.

5.6.1.2. Ongoing Skill Development

The interviewees explore the transformative nature of this shift, which they characterise as an evolution rather than a revolution. Interviewee 1 coined the phrase "doing the right things right," which emerged as the guiding principle of this Article 9 fund that was introduced internally in their fund following this evolution (See Table 5.53).

Table 5.53 Findings for Theme 5.1 Ongoing Skill Development (Articles 9 & 8)

Int.	SFDR	Quote
1	9	• *It was really an evolution, not a revolution. And of course, not every partner at the beginning was super convinced that this is the new thing, and some people said it is great. Some people really had intrinsic motivation. The younger people, the principles we hired, were totally into it.* • *And then we made the phrase doing the right things right.*
6	8	• *It is still a convincing part to be done [to GPs and partners].* • *Our GPs are middle-aged, well-seasoned, but not towards the end, not with the foot out. And obviously they have been trained in a very different environment. And this takes time, and have I received a very closed door or lots of resistance? The reality is no. They've been really willing to listen, but one thing is that, and the other thing is being a champion and really pushing it internally. Maybe coincidentally, the person that is pushing it the most from the GPs is the youngest GP so, coincidence? Who knows? But you can see the generational divide of how to do things.* • *So, when we start looking from compliance to best practise, I think that that is where there is a difference also for GPs.* • *There's a buy-in to do this, but how much are we going to push a bit more beyond compliance? That is where the buy-in starts to become a bit more difficult when you just start thinking, let's not stop here, let's just be a bit faster because the market is fast growing. And for them to start, then going to the IC and asking those questions, it requires changing the mind.*
17	8	• *But this was the company view and then on the other hand you have this personal view, and we have a lot of discussions about eating meat. There are some people in the team who still eat meat, others don't. And you have different discussions about the topic, which are also important, right? But there are also some colleagues who, from a personal angle are not the ESG enthusiasts. But for me, to be honest, that's totally fine.* • *For the operational team, there are topics relevant for example, when we have our team dinner, do we use plastic packaging, when we order Thai food. I think this is also important to have the awareness that this topic is relevant or that we have eco-friendly water bottles and packaging in the in the office. Or a refrigerator with not so much energy consumption, which is pretty hard to find. But we did that. And we took many hours and researched refrigerators, for example. But you can see, I'm laughing because the effect or the impact is not that high. But I think it's important that everybody in the team understands that we want to push this topic forward.* • *The feedback [from GPs on ESG] is super positive because on the one hand they know we have to report for example on different KPIs. A good example is our sustainability related disclosures. So, this year it's the first time that we will send the principal adverse impacts that we collected from our portfolio companies. This year we will send it with our EuVECA [EU regulation on VC funds, 2013] annual report to the BaFin. So, it's just the transparency that we will give to the BaFin. But it's the first time that we did this. And in the year that I started, I tried to do a pilot project with our portfolio companies to just raise the awareness for the topic and now this year it's the first time that we will do something with these points of information.*

Int.	SFDR	Quote (continued)
23	8	• *And then it was actually clear that this wouldn't happen overnight, because the support from the young people here and from the portfolio companies was surprisingly low. And then it's actually quite difficult for someone who has been in the industry for 20 years has also been very successful commercially, to now say unfortunately now you have to consider other criteria in addition to the economic ones.*
24	8	• *[The team] is fully on it [ESG and Impact]. Totally. I mean, especially the below 30 ones, they're digging deep in that in that space.*

Source: Own research

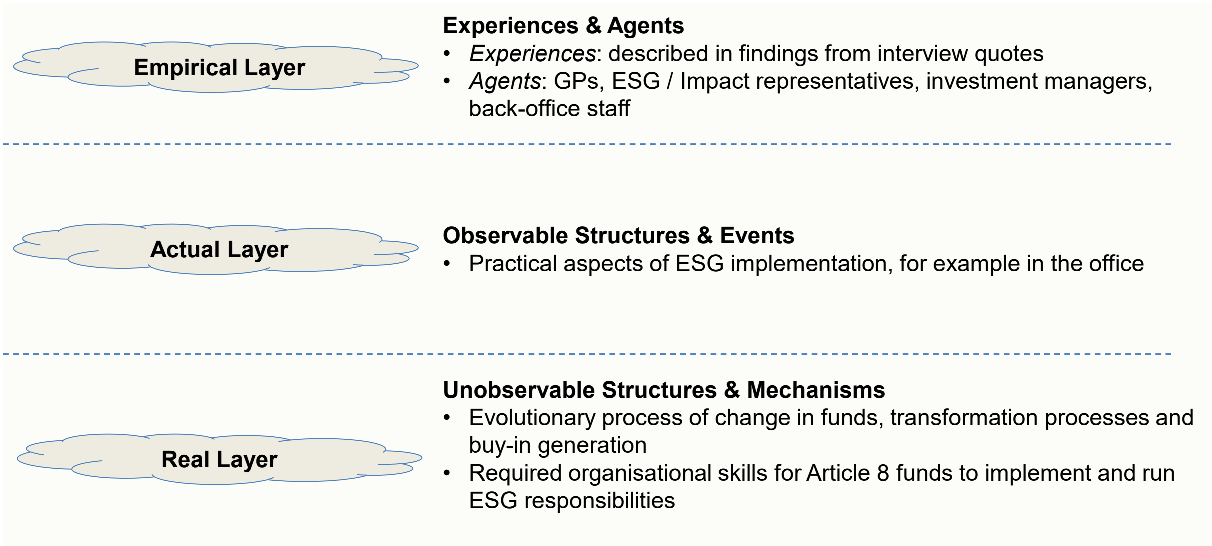
The decision-making process around ESG implementation is discussed, highlighting that some decision-makers lacked a clear understanding of the nuances and reasoning behind the shift, emphasising the need for demystifying ESG.

The interviewees explore the gradual awareness-building process within the organisation, reflecting again on generational differences in understanding and commitment. The role of younger team members in championing ESG and impact initiatives and the requirement for their active involvement and interest are highlighted. The participants are conscious that such a transformation takes time, especially in well-established funds, advocating for small, achievable steps and highlighting the importance of sustained effort in integrating ESG into the organisation's culture. Internal variations in enthusiasm for ESG subjects are acknowledged by the participants, both at the company and personal levels. They discuss how the awareness of ESG extends to practical aspects, such as eco-friendly practices within the office, illustrating the organisational commitment to the cause.

5.6.1.3. Discussion for Theme 5.1

Reviewing the requirements to build up organisational skills, the focus of the interview participants was firmly on Article 8 funds. Article 9 funds are from inception building an organisational structure containing the required competencies for impact investments across the entire team. Article 8 funds, on the other hand, often have to transform their companies from a purely financially driven strategy to one encompassing ESG or potentially impact, requiring the build-up of these skills in the organisation. This can happen through the creation of new organisational positions or the up-skilling of existing employees. The initial stage in altering organisational skills is gaining enough buy-in from relevant parts of the organisation, an unobservable structure (see Figure 5.19).

Figure 5.19 Identification of CR Layers for Skills Theme 5.1



Source: Own research

Notably, some of the larger funds have already created additional positions for ESG professionals to support the build-up of these organisational competencies, indicating buy-in by the leadership. Smaller funds, on the other hand, manage this transition with internal resources. In either case, the rest of the staff at these funds have to be engaged to ensure comprehensive implementation of ESG in all aspects of the VC value chain. Given the varying buy-in levels described by the interview participants, this is part of a transformation or change management process. This contradicts Article 9 funds, where human resources have the shared purpose of generating impact through their investments and financial returns. This shift toward ESG is described as evolutionary, where it is stated that decision-makers sometimes lack a clear understanding, necessitating demystification of ESG. This aligns with the broader interview findings, where participants of Article 8 funds sometimes reduced ESG to GHG emission reductions and failed to see the broader application of ESG, particularly governance aspects. For early-stage investments into software development start-ups, governance subjects such as data protection or customer privacy, also part of ESG, might be more material than GHG emission reductions.

The implementation of SFDR requirements in the day-to-day operations of the VC firms, whilst an observable structure, is in morphogenesis and at varying stages for different funds. Therefore, the exact skill requirements throughout a specific fund's organisational structure represent an unobservable structure. ESG representative agents describe the levels of buy-in and knowledge in their funds of the leadership team, indicating that they have undergone some efforts to turn this into an observable structure. However, none of the participants referred to a dedicated transformation programme to generate buy-in or build competencies.

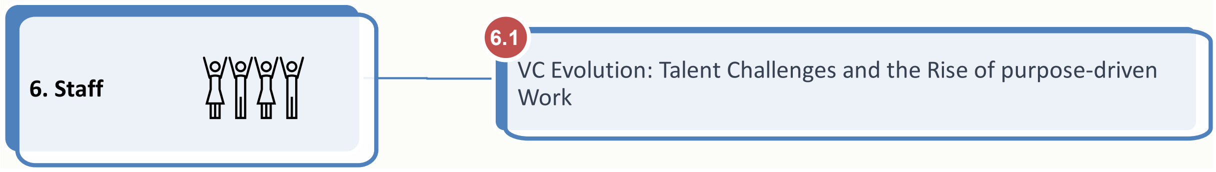
5.6.1.4. Recommendation for Management Practice 15

Fund managers could consider conducting a survey to evaluate organisational buy-in and available skills. This would allow the responsible staff for ESG, whether specifically hired or internally assigned, to develop a transformation programme dedicated to the fund's specifications. Such an evaluation could be conducted at the beginning of this evolutionary journey and repeated annually or biennially to monitor progress.

5.7. Staff

This subsection uncovers how the people within German VC firms contribute to or impede the integration of environmental and social considerations in their investment strategies (see Figure 5.20).

Figure 5.20 Overview of Themes (Staff)



Source: Own research

5.7.1. Theme 6.1: Talent Challenges and the Rise of purpose-driven Work

The interview participants shed light on the intrinsic motivation of staff and the challenges associated with talent acquisition.

5.7.1.1. Intrinsic Motivation

One notable aspect is the intrinsic motivation observed within some team members, particularly the younger generation up to the principal level hired for their interest in contributing to the impact space (see Table 5.54). This underlines a shift in the workforce's preferences toward purposeful work, with individuals actively seeking opportunities to make a positive difference through their careers.

Table 5.54 Findings for Theme 6.1 Intrinsic Motivation (Article 9)

Int.	SFDR	Sample Quotes
1	9	• *There was a part of the team who said basically [we] like it. Some people really had intrinsic motivation. The younger people, the principles we hired were totally into it. They basically applied for the job because they wanted to do something in that space.* • *Our evolution took place before article 8 & 9 were introduced as rules. In 2013 we started with ESG reports, in 2020 especially when we introduced the SDG's, it was clear that this totally makes sense. And we had the buy-in from everybody and then SFDR was introduced 4 years later.*
18	9	• *So, talents, right? New young generations, they want to work with impact aligned companies, right? Both on the start-up level, but also VC level and you know with social media everyone is a little bit more accountable.*

Source: Own research

Participants reference the new generation's preferences for working with impact-aligned companies, both at the start-up and VC levels, reflecting a broader trend in the workforce. Despite the difficulties in sourcing suitable candidates, once these employees are hired, they are described as fully committed to ESG and impact in the VC space.

This is contrasted by the feedback from Article 8 interview participants (see Table 5.55), who illuminate the dynamics within their teams, showcasing their efforts to integrate ESG considerations. This involves addressing inclusivity, buy-in challenges, and generational differences among team members. Inclusivity is emphasised, highlighting the need for open communication and feedback loops to foster a collaborative environment. The struggle for buy-in becomes apparent, with varying levels of enthusiasm and scepticism among team members, necessitating effective communication and education. The interview participants note that flat hierarchies within VC teams enable flexibility and focus on specific areas such as sustainability. Interviewee 9 explains that buy-in was generated by letting all team members, including investment managers, partners, and associates, actively participate in setting up criteria and checklists related to ESG.

Table 5.55 Findings for Theme 6.1 Intrinsic Motivation (Article 8)

Int.	SFDR	Sample Quotes
3	8	• *There's one of the benefits we're a small team, so we work in a way that we are very inclusive with any step that we take. This is also how we work with our companies and how we work in due diligence. Basically, that you know we talk about these things and if a person is not comfortable or has feedback on it, then we take that feedback and we see how we can address the point where he's uncomfortable to come up with a solution where we believe at the end of the day it's a stronger solution because it's universally embraced, accepted and you know like it's a thing that you can live and not just a piece of paper* • *You have to get people to believe into things and to strive towards goals and trajectories. And so that's what we do as a team and that's how then also a team reacts to something where you then have a consolidated opinion on.*
5	8	• *I would say of course that not all are convinced and also many are afraid of the additional work that comes along with ESG and are a bit curious whether that works out or not to do a lean process that in the end can also benefit the fund. But overall, I think we don't have any climate deniers that's a good start, because of course many of the backgrounds within our fund have been within the natural science space. Therefore, I think there's some good alignment on that, but for some there the discussion stops. Then you have to first of all tell them a little bit about what is really the economic benefit of using ESG*
6	8	• *I [ESG responsible] still have to work a lot on the buy-in because it is a departure from how things have been done before. I think from a professional point of view, they [investment managers] don't fully get it. The business case, they might not fully get it, because it's not been the reality of their day-to-day. From a personal point of view, they care about it. I think that they find it really cool that this is done. And bridging those two can be difficult because even though they find the interest, they are not going to spend their time unless they see a really big reason for it* • *When you just look at the generational divide and you just take associates versus principals versus GP's, which tend to have a generation apart, you see that the motivations about ESG vary from nice-to-have to confusion of ESG with corporate social responsibility, to very ingrained in purpose what they want to do in their day-to-day. The younger generation is really looking for purpose in work.*
9	8	• *Everyone was involved in setting this up and also our checklist that we have actually developed within the team. We have a full buy in from the team.*
17	8	• *It was more the pushing from my end to the GP saying, we can be either an article 6 fund with our current fund and start being an article 8 or article 9 fund with the future funds. But to be honest, for me it was pretty clear to to start this reclassification.*
23	8	• *I hope the younger generation, the founder generation, the employees want to know more about what is happening.*

Source: Own research

The participants explore the generational divide, revealing different perspectives on ESG's significance between seasoned GPs and younger team members. They emphasise the significance of fostering belief in and commitment to common goals and trajectories within VC teams. The consolidated opinion of the team is portrayed as a robust foundation for decision-making, underscoring the importance of cohesion in their strategic approaches. Tailoring messages is seen as crucial, emphasising the need to align with stakeholders' expectations and convey the economic benefits of ESG practices. Participants explain that the broader industry faces challenges in grappling with ESG reporting obligations, with some perceiving them as compliance rather than value-driven strategic priorities.

Impact-driven motivations, particularly among younger team members, underscore a broader industry shift towards aligning investments with positive societal and environmental outcomes. Concerns about the additional workload associated with ESG prompt discussions that extend to the economic benefits of incorporating ESG practices. Acknowledging challenges in securing buy-in, particularly from a professional standpoint where the business case may not be fully understood, interview participants of Article 8 funds again recognise the influence of generational differences. Economic incentives, such as linking ESG performance to bonus structures, are seen as instrumental in motivating team members.

5.7.1.2. Talent Acquisition Challenges

Participants discuss the challenge of finding experienced individuals in the impact space, emphasising the need for a unique skill set that combines an understanding of scientific concepts with expertise in deal-making and investments (See Table 5.56). The scarcity of talent in this niche is acknowledged, indicating the nascent nature of the impact investing field and the demand for individuals with a multidisciplinary background.

Table 5.56 Findings for Theme 6.1 Talent Acquisition Challenges (Articles 9 and 8)

Int.	SFDR	Sample Quotes
2	9	• *People like to come into [the] VC world and going into investing and do something purposeful.* • *It was and it is a challenge to find experienced people when it comes to the impact side for two reasons. One is, you need people that have a bit of an understanding of science. At the end it's a molecule and not another software or blockchain or something. So, you have that understanding and then you need to have the understanding of how to do deals and investing. So that's a bit of a challenge, but we found one or two very exceptional great people. And then on the ESG side, I think it was also a tough one to find the right candidate, somebody who fully understands ESG, understands the investment cycle and how to bring these things together and then measure, this is a tough one. I think there are not many people out there that are fully experienced with it. It's a new field. It's a new playing field. But that's not easy to find.*
6	8	• *So being able to tailor the message to all stakeholders, it's very important. Obviously, economic incentives are key. That is, that is where it is. And some internal discussions about whether making also ESG performance out of part of the of the bonus structure.*
9	8	• *We get top talents first of all also from our hierarchy, very flat hierarchy. You can focus on certain areas if you want. You're very flexible, so if you would be interested more on the sustainability side, that's very easy to actually build on. [Impact / ESG] is something that is very important for [the team] so that we have those criteria, and we have, as a team actually built this.*
12	8	• *Maybe this is due to the investment focus [on sustainability subjects] we have. I'm covering mainly our sustainability topics, so I'm investing in energy transition for the last 12 years, so basically all my life and for me, coming up with the impact my companies have, it's not an extra burden. Because this is the value, they provide to the customers most often. And on the other side, all the ESG practises I think that many of them are very helpful in terms of having good corporate governance. There's also something which I can underline, and I've seen some companies unfortunately with a really bad governance, going really, really wrong.*

Source: Own research

The importance of talent in driving impact initiatives is highlighted, and the difficulty in finding individuals who fully understand ESG considerations and the intricacies of the investment cycle is acknowledged. The scarcity of such experienced professionals underscores the evolving nature of the field and the demand for individuals who can navigate the intersection of impact and finance.

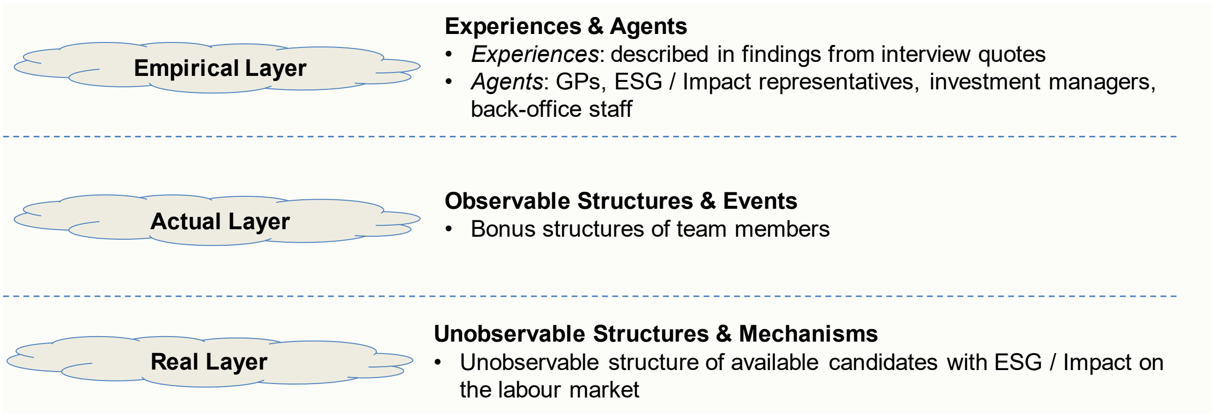
Recognising diverse interests among existing and prospective team members, ranging from sustainability investments to data-driven/AI topics, interview participants view balancing these interests as a natural part of team dynamics. Interview participants collectively recognise that ESG practices contribute to good corporate governance.

Experiences with companies lacking proper governance underscore the commitment of interview participants to integrating these practices.

5.7.1.3. Discussion for Theme 6.1

Article 9 funds emphasise intrinsic motivation, especially among younger team members, to contribute to the impact space (see Figure 5.21). Challenges in talent acquisition for Article 9 funds include finding individuals with a unique skill set, highlighting the nascent nature of impact investing given the unobservable structure of the labour market for such professionals.

Figure 5.21 Identification of CR Layers for Staff Theme 6.1



Source: Own research

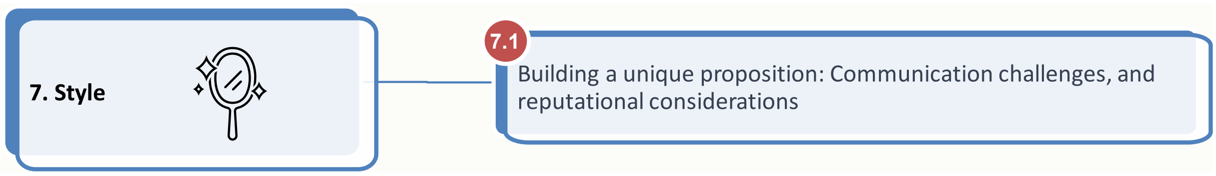
Article 8 fund interview participants were either the ESG representatives of funds that created this position or GPs of funds who do not intend to create a dedicated ESG position. Therefore, the discussed concerns focused more on the previously explored integration issues of ESG considerations, addressing inclusivity, buy-in challenges, and generational differences. Generational divides were also observed between different organisational layers and the varying buy-in levels.

The bonus scheme for staff members within funds was identified as an observable structure. It recognises that linking the financial rewards of team members to ESG / impact achievements is similar to the incentives provided to GPs by linking carry to these subjects.

5.8. Style

By analysing how managers spend their time, what they focus on, the questions they ask, their decision-making processes, and the broader organisational culture, insights can be gained into the fund's leadership style and the impact on its reputation (Peters & Waterman, 2004). The alignment of actions with perceived positive values and contributing to a healthy organisational culture ultimately enhances the organisation's reputation. About the research objective, this expected positive outcome could be a driver for VC funds to implement environmental or social aspects into their operations (see Figure 5.22).

Figure 5.22 Overview of Themes (Style)



Source: Own research

5.8.1. Theme 7.1: Communication challenges and reputational considerations

The interviews from Article 9 and 8 funds consistently highlight the importance of reputational considerations in their approach to ESG and impact investing (see Table 5.57). Reputational aspects are critical for strategic decisions and communication practices within these funds. Across the interviews, there is a shared recognition that a positive reputation is closely linked to responsible and potentially impactful investing. The interviewees emphasise that being perceived as a responsible investor is not merely a regulatory requirement but a strategic imperative for long-term success.

Table 5.57 Findings for Theme 7.1 Communication and Reputation (Articles 9 and 8)

Int.	SFDR	Sample Quotes
2	9	• *I would say with our first fund and the deals we have done; we have a pretty strong track record and this this gives you let's say a USP that you're an Article 9 fund.* • *In the past impact was very close to maybe also doing just doing good and not so much look at profits. People were even shying a little bit away when you say we're doing impact. It's a category we didn't want to be in, because we still believe in, OK, we invest our own money, we invest money off of our investors, they expect a certain return and that's also an objective from these guys to make money or not to lose money, while having impact on the environmental side.* • *We always say climate technology or impact investing in that field needs to be relabelled.*
13	9	• *We are a good team, we work together, we understand each other. Everybody has this position. We have a great network which is getting bigger, bigger, bigger, bigger by day by day. People like the topic. People like us, people like the way we do it. And so it's also very good. It is word of mouth propaganda.*
12	8	• *We're also a bit struggling still to put this more on our website because on our website you will not find or only find in a very limited way that we are promoting ourselves as an impact fund because we see this as a 2-sided model. If we look to our LP base, we promote the impact side quite heavily nowadays. But towards our start-ups where we promote as a tech fund because we are still a bit afraid that if we say we're an impact fund that the young tech entrepreneurs, they're not coming to us as they say, oh, this impact fund, they're doing social stuff and that's why we have a bit of, some people say breaking communication. I would say we serve the relevant groups with the relevant message because we still want to invest in sustainability, cyber, advanced materials, whatever. And for them, it shouldn't be relevant what we are promising to our LP base, and this is a bit where we see different messages in the market and we, we focus with our website heavily on the communication to the star-tup scene and therefore the impact site is not really relevant.*
17	8	• *The third driver is the is the reputational aspect. As an investor, when I source companies, I want to work for a company who is taking responsibility for what we as a team are doing and not just saying OK, we are in Article 6 fund and it's fine, we have some information about SFDR on our homepage and that's it. I think now it's OK, but let's say one year from now it will not be. You will not get the best reputation out of it, right?*
20	8	• *You have a reputational risk that is linked to ESG. That never existed before, really, and now it's bigger. So I think this can also coerce us to do more ESG and report more on ESG incidents.*
23	8	• *Yes, I think we have achieved a lot as a team. [The responsible for ESG] also enjoys very strong recognition and accordingly we as a company also benefit greatly from the efforts made for our brand*

Source: Own research

A notable concern expressed in the interviews is the potential reputational risk associated with inadequate communication or reporting on ESG incidents. There is a shared understanding that as regulatory standards, such as SFDR, evolve, a proactive and transparent approach to reporting on ESG factors is essential to maintaining and enhancing reputation within the industry. The reputational risk linked to ESG is emphasised as a relatively new but increasingly significant consideration. The interviewees express a collective awareness that stakeholders, including investors and the broader public, are scrutinising VC funds' ethical and sustainable practices. This heightened scrutiny creates a need for funds to not only meet regulatory requirements but also actively engage in initiatives that contribute positively to their reputation.

The strategic decision to align with regulatory frameworks, such as Article 9, is framed as a proactive measure to bolster reputation. Funds recognise that adherence to industry standards enhances credibility and fosters a positive perception among stakeholders.

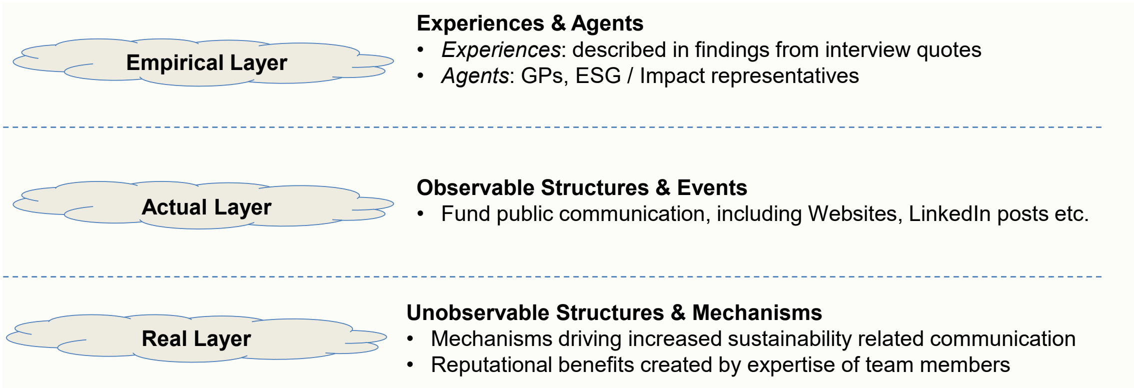
Interview participants highlight the importance of communication on their funds' websites. This is seen as a key channel to communicate impact and ESG approaches, efforts, and results to stakeholders. They describe the differences in communication requirements of LPs and start-up founders. Participants highlight that SFDR disclosures on a website are insufficient to communicate a real commitment to ESG or Impact.

The positive recognition enjoyed by ESG teams within the funds is repeatedly highlighted as a factor contributing to the respective organisation's overall brand reputation. The acknowledgement of these efforts suggests that the positive perception of ESG initiatives resonates both within the organisation and externally, influencing how the broader industry views the fund.

5.8.1.1. Discussion for Theme 7.1

The interviews from Article 9 and 8 funds stress the pivotal role of reputational considerations in their ESG and impact investing strategies (See Figure 5.23).

Figure 5.23 Identification of CR Layers for Style Theme 7.1



Source: Own research

A positive reputation is seen as crucial for long-term success, extending beyond regulatory compliance to a strategic imperative. Participants describe unobservable structures creating concerns about reputational risks tied to inadequate communication or reporting on ESG incidents. This links to the observable structures of the individual fund websites and content distributed through this channel. Contrastingly, there is positive recognition of ESG teams within funds, which contribute significantly to the overall brand reputation, influence how the fund is perceived externally, and represent another unobservable structure. While the public appearances of individual team members could be observed through events, their impact on the funds' reputation remains unobservable. The public display of operations, investments, and achievements aimed at proactively improving the funds' reputation are investigated further in Chapter 7, including the identification of recommendations for management practice.

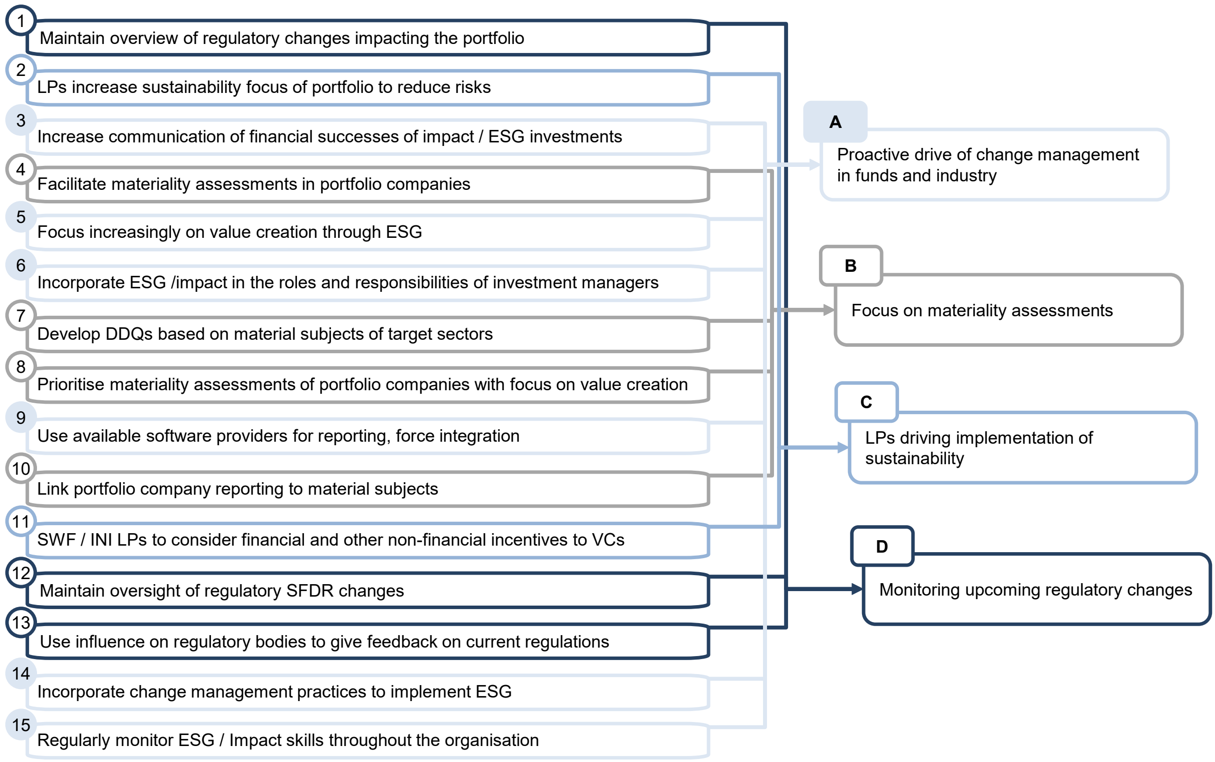
5.9. Overall Conclusion from Research Objective 1

For each of the 7-S dimensions, the interviews identified observable structures and events from the actual layer and deduced mechanisms and unobservable structures from the real layer. This deep dive into the various layers closes a research gap identified in the literature review.

5.9.1. Summary of Recommendations for Management Practice (Objective 1)

CR's focus on identifying unobservable structures and mechanisms affecting VC industry agents helped identify 15 recommendations for management practice related to Objective 1. These recommendations can be summarised into four categories, driving an increased focus on ESG or impact in the VC industry (see Figure 5.24). Each category is discussed in more detail below.

Figure 5.24 - Summary Recommendations for Management Practice (Objective 1)



Source: Own research

5.9.1.1. Proactive drive of change management in funds and industry

Fund managers from Article 8 and Article 9 funds can foster a virtuous cycle by actively communicating the financial successes of impact start-ups and ESG success stories within their portfolios. Highlighting significant financing rounds or successful exits can inspire the establishment of more ESG-compliant start-ups, thereby expanding the pool of potential investments in the future. Article 8 funds, in particular, should emphasise the value creation potential of ESG initiatives for their portfolio companies rather than merely treating ESG as a compliance issue. To streamline the reporting process from portfolio companies, fund managers can utilise available software applications designed for ESG data collection and reporting. These tools can facilitate the efficient gathering of data from portfolio companies and help in reporting to LPs. Fund managers should exert influence on software providers to ensure that different applications are integrated, thereby minimising the duplication of reporting efforts by start-ups and for the funds internally. For funds newly establishing a sustainability focus applying standard change management practices can ensure internal education and adoption of ESG principles. Sharing internal and inter-fund success stories related to ESG can help late adopters from start-ups, internal staff, and LPs comprehend the value generated by focusing on ESG and distinguishing between ESG and Impact investing. Fund managers could consider evaluating organisational buy-in and the availability of relevant skills in a structured manner. This assessment allows the responsible ESG staff, whether specifically hired or internally assigned, to develop a tailored transformation program for the fund.

5.9.1.2. Focus on Materiality Assessments

Agents managing Article 9 funds should emphasise materiality assessments to enhance impact measures and the ESG performance of their portfolio companies, recognising the potential for value creation. Given that ESG and impact DDs provide essential data for evaluating potential impact opportunities and ESG risks, VC management companies should develop specific DDQs tailored to the material subjects relevant to their target sectors, industries, or business models. This ensures that risks and opportunities are accurately identified. Fund managers can facilitate initial materiality assessments for their portfolio companies, allowing start-up founders to focus on the most relevant ESG issues and educating them on critical aspects of their company's ESG journey. As the start-up matures, it can progressively address additional ESG aspects. Furthermore, fund managers could support start-ups in prioritising performance metrics linked to the material subjects of their sectors, industries, or business models and establish more frequent reporting on a concise list of critical ESG and impact items. This approach enables fund managers to offer targeted portfolio support and effectively monitor progress, thereby integrating materiality assessments into their change management strategies to drive value creation and ensure that ESG considerations are deeply embedded in their investment processes.

5.9.1.3. LPs Driving Implementation of Sustainability

HNWIs and FOs could consider prioritising sustainability in their investments, even if their primary goal is financial returns. As SWFs and INIs increasingly emphasise sustainability, more later-stage funds are expected to transition towards Article 8 and 9 classifications. This shift will reduce the availability of non-sustainable follow-up rounds and industry exits, potentially diminishing financial benefits for LPs invested solely in Article 6 funds. Although the timeframe for this transition is uncertain, the trend is clear. To support this shift, SWFs and INIs are incentivised to encourage the creation of additional VC funds with a focus on environmental or social aspects. These LPs could consider offering fund structures that incentivise management companies to establish financial products with higher sustainability ratings. These fund structures could be based on longer investment periods to accommodate the generally longer gestation timeframe for impact start-ups. Financial incentives could include increased management fees or the provision of a super carry for the achievement of impact goals.

5.9.1.4. Monitoring Upcoming Regulatory Changes

For VC fund managers, a thorough understanding of the structures associated with the SFDR and other related regulations is essential and strategically advantageous. Fund managers can proactively align their strategies with the evolving investment landscape by closely monitoring regulatory changes. This proactive approach will help maintain their attractiveness to various LP types and position them as industry leaders. Although the regulatory landscape is in a morphogenetic state, with changes expected to take a relatively long time, VC management companies should evaluate their current approaches against anticipated changes to gain insights into the efforts required once regulators implement updates. Active participation in consultations by regulatory bodies such as the European Securities and Markets Authority (ESMA), the European Commission, or BaFIN is crucial to ensure their feedback is considered. Depending on the fund size and available resources, VC management companies might also consider providing direct feedback to regulatory representatives to influence the development of these regulations.

Objective 1 investigated a VC fund's strategic decisions regarding the environmental and social aspects of the TBL and their implications throughout the fund lifecycle. This investigation provides insights into a field that has not been researched so far and identified recommendations for management practice for VC funds and their LPs.

5.9.2. Summary of Contribution to Academic Theory (Objective 1)

5.9.2.1. Strategy

The research has identified the most relevant observable structures relating to VC firm strategies, including the EU Green Deal, SFDR and CSRD regulations and generational shifts (See Table 5.58). The mechanisms and unobservable structures of the real layer were deduced driving change in the strategy development of VC fund management companies, including anticipated LP requirement changes and mechanisms influencing agents to shift to more impact investments.

Table 5.58 - Summary of Structure and Mechanism Findings (Strategy)

Themes	1.1 – 1.3	1.4	1.5
Actual Layer (Observable Structures & Events)	• EU Green deal • SWF reporting requirements and due diligence questionnaires • SFDR / CSRD • Generational shift in FOs	• Climate crisis and other observable environmental and social issues • ESG as risk management framework	• Art. 9: 2 observable structures in morphogenesis: ➢ Single PM for sustainability (e.g. greenhouse gasses) ➢ Multiple PM for sustainability • SFDR reporting requirements, incl. PAI • Materiality assessment approach
Real Layer (Unobservable Structures & Mechanisms)	• Anticipated changes from SWF requirements • Drive towards increased E/S focus by INI agents • Generational shift related increased focus on E/S	• Mechanism driving industry participants to shift to conduct impact investments	• Mechanism that prevents application of observable structures of materiality assessments and value creation potential of ESG

Source: Own research

The findings highlight the pivotal role of SWFs, particularly entities like the EIF and KFW Capital, in driving change within the VC industry toward greater ESG and impact integration. The stringent and developing requirements set by these SWFs influence the investment decisions of VC funds and shape industry standards. Although acknowledged for its additional workload, the SWF's DD process is recognised by VC fund managers as an essential gateway to accessing funds and gaining a competitive edge. Similarly, INIs, including banks, insurance companies, pension funds, and corporate investors, contribute to the shift towards ESG considerations. The distinction in the drivers behind their ESG requirements, whether driven by regulatory compliance or internal strategies, underscores the diverse landscape within the INI category. The changing dynamics with HNWI and FO are explored, emphasising a generational shift towards greater interest in impact investing. The intricate balance between financial focus and ESG considerations within FOs adds another layer to the complexity of VC strategies. The role of LPs in steering VC funds towards specific SFDR classifications, such as Article 8 or Article 9, is highlighted, indicating a potential industry-wide shift if more LPs allocate funds to ESG-focused strategies.

Furthermore, the strategic inclusion of environmental and social considerations in VC funds is explored beyond the influence of LPs. Financial opportunities in environmental and social start-ups emerge as a significant driver, with the potential for positive financial returns seen in tandem with positive environmental and social impacts. The interconnectedness of impact and profitability suggests that high-impact companies can also be highly profitable. While Article 9 funds explicitly aim for positive environmental or social impact, Article 8 funds focus on ESG risk mitigation within their portfolio companies. These varied approaches to defining impact targets and performance measures underscore the adaptability of VC funds to the evolving ESG landscape.

5.9.2.2. Structure (Organisational)

Examining the organisational structure within VC funds has identified crucial insights about the challenges and adjustments associated with integrating environmental and social aspects into the fund's operations (see Table 5.59). Relevant observable structures include the Impact or ESG positions in the funds; mechanisms drive the implementation of these positions.

Table 5.59 Summary of Structure and Mechanism Findings (Structure)

Themes	**2.1**
Actual Layer (Observable Structures & Events)	• Article 9: Organization structure comprising of both impact scientists and ESG personnel. • Article 8: large funds additional ESG representatives, smaller funds integration into investment management team responsibilities
Real Layer (Unobservable Structures & Mechanisms)	• Mechanism driving funds to more value adding ESG / Impact activities

Source: Own research

The focus on required organisational changes brings to light the multifaceted nature of these adjustments, including allocating additional responsibilities, the need for specialised expertise, and the evolution of roles within the fund. Integrating sustainability factors into investment management structures is portrayed as a complex endeavour. Notably, participants highlight the role of investors as educators and advisors to portfolio companies, emphasising the necessity to impart sustainability-related knowledge. Moreover, establishing specialised roles, such as a head of science or a head of carbon math, signifies the importance of scientific expertise in navigating the intricacies of impact calculations. The need for administrative personnel to manage the reporting requirements has been identified, proposing the integration of financial and ESG reporting under a single individual.

An interesting proposition from interviewees is the distribution of responsibilities among investment managers in Article 9 funds. Each manager is accountable for ESG and impact considerations within their portfolio companies. This approach aims to make

ESG an inherent part of the business model, emphasising collaboration and information exchange at the organisational level. Moreover, the acknowledgement that employees in Article 9 funds have been hired with a shared commitment to both financial results and sustainability goals provides context to these organisational dynamics. The additional workload associated with sustainability goals is seen as a fundamental aspect that could be incorporated into management fees.

In the case of Article 8 funds, a recognition of additional workload due to the implementation of ESG and SFDR requirements is revealed. The division of responsibilities within the team, with one colleague focusing on ESG DDs and the consideration of exclusion lists, reflects a cautious approach. Notably, some participants view the ESG role as attractive due to its focus on creating meaningful change rather than mere compliance. The evolving nature of the ESG role is illustrated, transitioning from a compliance-focused position to one that involves various team members. Recognising the trade-off in expectations for ESG professionals, who are expected to drive change in the short term while facing potential resource constraints, adds a layer of complexity to the organisational challenges. The analogy between the finance function and ESG underscores the need for a balanced allocation of resources. Acknowledging that a fund's size may impact its ability to employ a full-time person dedicated to ESG highlights the adaptability required in smaller funds, where resources from the investment team and back-office functions may need to fulfil dual roles.

5.9.2.3. Systems

In fund operations, the focus is on impact throughout the investment lifecycle, from deal sourcing to DD and portfolio support (see Table 5.60).

Table 5.60 Summary of Structure and Mechanism Findings (Systems)

Themes	3.1	3.2	3.3	3.4	3.5
Actual Layer (Observable Structures & Events)	• Inbound deal sourcing process • Exclusion lists • ESG / Impact due Diligence process and questionnaires • ESG / Impact clauses in term sheets	• Workshops, tools, policies provided or facilitated by the fund management companies	• SFDR reporting requirements, incl. PAI • Reporting tools • Contractual obligations from LP side letters or term sheets or shareholder agreements	• Standard carry calculations in VC funds	• SFDR regulation • EU Taxonomy • Reporting requirements
Real Layer (Unobservable Structures & Mechanisms)	• Informal networks between agents of different fund entities • Mechanism driving Article 6 / 8 agents to consider impact start-ups • Mechanism to drive Article 6 fund agents to apply exclusion lists • Decision making process of investment committee members	• Financial value creation through ESG during holding period • Materiality assessments to identify support requirements of portfolio companies	• Unobservable structures on impact reporting (Article 9 funds) • Mechanism driving Article 8 funds to report on PAI • Unobservable structure of linking ESG / impact with financial performance • Unobservable structure of linking reporting with portfolio support activities	• Linking carry payments to impact achievements • Calculation mechanism to define impact targets related to carry • Mechanism driving GPs and LPs to agree on opaque impact targets	• Mechanism driving agents from Article 8 funds to adopt Article 9 requirements

Source: Own research

Observable structures include VC fund sourcing and DD processes, standard carry calculations, and regulations. Unobservable structures and mechanisms include the informal networks of VC agents, a drive towards impact investments, and more stringent reporting requirements for Article 8 funds.

SFDR compliance necessitates ESG DD, but challenges arise in balancing ESG with other investment criteria, especially in early-stage ventures. In Chapter 6, the VC DD process is explored in more detail.

Financial incentives are evolving, with carried interest increasingly linked to specific impact goals. However, challenges exist in measuring impact in early-stage companies and maintaining motivation over extended periods. Regulatory changes, particularly SFDR, have classified funds into Articles 6, 8, or 9, influencing reporting requirements and fund strategies. Challenges include complexity, lack of standardisation, and potential disparities in impact on funds of different sizes.

5.9.2.4. Shared Values

Shared Values among VC practitioners manifest in post-success responsibilities, a transition to social impact investments, and increased ethical considerations (see Table 5.61). Observable structures include the SFDR regulations and applicable laws in Germany. Mechanisms affecting the agents include the personal drive towards more impact, climate-related investments, and the generational shift in GPs.

Success in life prompts a broader consideration beyond financial returns, often coinciding with a desire to positively impact societal and environmental challenges. The transition to social considerations underscores the interconnectedness of social, environmental, and economic factors.

Table 5.61 Summary of Structure and Mechanism Findings (Shared Values)

Themes	4.1	4.2
Actual Layer (Observable Structures & Events)	• SFDR regulation	• Employment laws • Supply chain laws • SFDR • Triple Bottom Line framework • Sustainable Development Goals (SDG)
Real Layer (Unobservable Structures & Mechanisms)	• Mechanism driving focus on impact / climate subjects after successful investment career • Unobservable structure of generational divide between GPs • Educational requirements to demystify ESG and Impact as unobservable structure	• Lack of adherence to social laws by some start-ups and funds • Mechanism driving desire to improve or at least not be detrimental to other humans • Link between social, environmental and economic impacts on individual start-ups and funds

Source: Own research

There is a focus on responsible production, fair working conditions, and a holistic evaluation of investments based on their contributions to the TBL. Ethical motivations and challenges are evident, with some GPs genuinely caring about ESG and impact, aligning investments with the Sustainable Development Goals. Challenges include the perception of ESG as a reporting obligation, potential greenwashing, and varying levels of understanding of the regulatory landscape within the industry.

5.9.2.5. Skills

In the realm of skills, integrating environmental and social considerations necessitates upgrading organisational skills (see Table 5.62). Observable structures include the practical implementation of ESG-related changes in the VC offices. Unobservable structures include the change management requirements in funds required to build up required ESG skills, particularly in Article 8 funds.

Table 5.62 Summary of Structure and Mechanism Findings (Skills)

Themes	5.1
Actual Layer (Observable Structures & Events)	• Practical aspects of ESG implementation, for example in the office
Real Layer (Unobservable Structures & Mechanisms)	• Evolutionary process of change in funds, transformation processes and buy-in generation • Required organisational skills for Article 8 funds to implement and run ESG responsibilities

Source: Own research

The journey toward sustainability, as illuminated by change management principles, showcases varying perspectives, intrinsic motivations, and generational divides within VC decision-making bodies. Internally, bridging the gap between ESG and impact investing emerges as a challenge, requiring time for understanding and acceptance. The tension between compliance and best practices, the gradual nature of the shift, and the need to demystify ESG underscore the transformative process. Younger team members play a pivotal role in championing ESG, emphasising the importance of sustained efforts for cultural integration.

5.9.2.6. Staff

Examining the staff element delves into the evolving workforce preferences, where purpose-driven work attracts individuals committed to making a positive impact (see Table 5.63). Bonus regimes in individual funds are observable structures supporting talent acquisition. The availability of prospective staff in the market, on the other hand, remains an unobservable structure.

Table 5.63 Summary of Structure and Mechanism Findings (Staff)

Themes	6.1
Actual Layer (Observable Structures & Events)	• Bonus structures of team members
Real Layer (Unobservable Structures & Mechanisms)	• Unobservable structure of available candidates with ESG / Impact on the labour market

Source: Own research

Talent challenges surface, emphasising the scarcity of experienced professionals adept at ESG and the investment cycle's intricacies. The rise of purpose-driven work aligns with the broader trend in the workforce, reflecting a shift toward impact-aligned careers.

5.9.2.7. Style

Reputational considerations take centre stage in leadership styles and organisational culture (see Table 5.64). The observable structures of fund websites and other communication channels are highlighted. Mechanisms have been identified that drive increased sustainability communication on these platforms.

Table 5.64 Summary of Structure and Mechanism Findings (Style)

Themes	7.1
Actual Layer (Observable Structures & Events)	• Fund public communication, including Websites, LinkedIn posts etc.
Real Layer (Unobservable Structures & Mechanisms)	• Mechanisms driving increased sustainability related communication • Reputational benefits created by expertise of team members

Source: Own research

Reputational risk is tied to ESG incidents, and the importance of proactive, transparent reporting aligns with regulatory frameworks like SFDR. Strategic decisions to adhere to industry standards, particularly in the context of Article 9 funds, are framed as measures to enhance credibility and foster positive perceptions. The positive recognition of ESG teams within funds contributes to the overall brand reputation, reinforcing the strategic imperative of responsible and impactful investing. Communication channels such as fund websites are key to transmitting sustainability efforts to relevant stakeholders, including LPs and start-up founders. Chapter 7 explores the observable structures of Fund websites in more detail, identifying additional unobservable structures and mechanisms.

6. FINDINGS OBJECTIVE 2:

6.1. Introduction to Findings Objective 2

This chapter explores the evaluation or DD process a fund undertakes before investing in a particular start-up. While a fund will go through a wide array of DDs, including but not limited to legal issues, technical feasibility, financial viability, and market considerations (Guide on Private Equity and Venture Capital, 2007), this objective is concerned with the environmental and social aspects of the TBL (see Sub-section 3.5.3).

The DD phase is pivotal in investment decision-making (Guide on Private Equity and Venture Capital, 2007). The process involves a comprehensive analysis, covering aspects such as management information systems, financial projections, legal considerations, and environmental risk forecasting (Guide on Private Equity and Venture Capital, 2007). Over five decades, studies have converged on four main categories: (a) entrepreneur and their team's capabilities, (b) product or service attractiveness, (c) market conditions, and (d) potential returns (Hennessy, 2023). Traditionally, the focus of investment teams was to identify and sign those start-ups with the biggest growth potential, resulting in ever-increasing valuations and the biggest profits in an exit scenario (Zacharakis & Meyer, 2000).

Two types of DD are apparent when adding sustainability to the DD process. ESG DDs involve integrating environmental, social, and governance aspects into investment and risk management strategies to achieve sustainable, long-term financial outcomes (Buffo & Patalano, 2020). Impact investing is investments made to create positive and measurable social and environmental outcomes in addition to financial returns (UNDP:

Impact Investing, n.d.). Therefore, a DD process incorporating sustainability has two focuses: investigating the ESG footprint of the operations of a start-up first and exploring the potential for positive environmental or social benefits second. An additional focus on environmental and social aspects creates two additional benefits for these investment teams. On the one hand, evaluating such aspects provides additional data related to the risk of the start-ups from a reputational, regulatory and market perspective. Williams and Huber (2020) confirm that DD becomes essential for managing risks related to negative reputational impacts when considering VC-backed companies. Start-ups, often in their early stages, may lack a significant track record, making it imperative for investors to thoroughly assess the potential impact of environmental and social factors on the company's performance (Williams & Huber, 2020). DD in VC is also linked to considerations of a company's scalability and disruptive potential, reflecting the high-risk profile of VC investments and indicating the validity of risk-reducing efforts (Vismara, 2019). On the other hand, additional value-creation opportunities derived from environmental or social aspects can be identified early in the process, potentially increasing the valuations mentioned above (Zacharakis & Meyer, 2000). The review of these DD processes is based on the interview findings (see Sub-section 5.4.1) as well as findings from the academic and professional literature, declared approaches on fund and industry association websites (see Section 4.4).

Interview participants confirm their focus on value generation with their start-ups, starting with the DD process (see Table 6.1). The DD questions form the basis for future collaboration with the founders, leveraging sustainability aspects to create additional value. Indeed, identifying and building on the ESG strengths has been shown to increase the start-up's value (Chouaibi et al., 2022).

Table 6.1 DD Focus on Value Generation

Int.	SFDR	Sample Quotes
25	9	• *We don't have an ESG rating, we work with the red-light system. Anywhere we have a red light, we wouldn't invest, if the light is yellow and you can mitigate it then we would put this on the agenda and we would do this. And of course, if everything is green it's OK. And then we separate this from the impact story, and we work only on what is value creating and pushing you to the top. So that's why it makes it for us as an investor easier because we don't have to take care of the other issues and you don't mix them with the impact. So, you really focus completely on what is value creating in the business model.*
8	8	• *This starts in due diligence where we look at each start-up and define a certain criteria, action plans and targets for all the start-ups and then we want to position ourselves as a knowledge base.*
17	8	• *I use this ESG questionnaire to get a feeling about where the company is standing right now, so it's not that the company has to have an answer for everything. It's important for me to understand where can I start when I work together with these portfolio companies, if there's no red flag in the confirmatory due diligence.*

Source: Own research

While the academic literature and interviews with participants in the field confirm the value of ESG and impact DDs, the next question is how such DDs could be conducted. Several interviewees described varying lengths of their generic ESG DD questionnaires used in the process, ranging from 50 to 150 questions; another interviewee referred to 30-minute interviews with the founders to go through the same documents (See Table 6.2).

Table 6.2 - Use of Generic DDQs

Int.	SFDR	Sample Quotes
3	8	• *We have a questionnaire that we developed and run through. I think it has roughly 150 questions and points. And goes through all the typical categories. We call it the ESG questionnaire, it might be that goes a bit further than that, but that's how we do it.*
4	8	• *We have a due diligence list of 50 to 100 questions which they need to answer. And based on these questions, we are of course doing follow-ups.* • *These are 58 question no 50 it's 50 questions. And these are about corporate, environment, sustainability, social, HR, labour practise and governance.*
5	8	• *At the moment I run ESG due diligences with all ventures. It's a half an hour call I go through three documents, which I can also share with you afterwards.*

Source: Own research

Given the wide range of potential business models and industries that such funds invest in, it is questionable if generic DDQs allow the VCs to identify value-generation opportunities in the DD process. Indeed, contrasting to the application of generic DDQs, some participants describe the use of questionnaires dedicated to the business model or the industry of each individual start-up or for the fund overall for an industry-specific VC (See Table 6.3).

Table 6.3 Application of Customised DDQs

Int.	SFDR	Sample Quotes
6	8	• *The process before the term sheet is laid down it's [checking] founders' intentions and basic knowledge. So, if they are aware of what is their biggest environmental impact, for example. So where in their whole value proposition they would have more environmental impact, it can be across any type of commodity, water, forest, biodiversity. I just want to see if they thought about it. Then we have some questions around key areas like team building, diversity, data privacy, quite big obviously in tech. And this is integrated into the Investment Committee memo.*
10	8	• *Before we are investing in the company, we are doing ESG due diligence and using a questionnaire which was developed by the venture capital / private equity association Invest Europe. They made it industry agnostic this kind of questionnaire we adapted that to the [our] sector. Some of the questions they have make no sense for the [our] sector. So we skipped them and we adapt [the due diligence questions] with regard to special topics of the European Investment Fund and KFW, because they sometimes have special views on ESG topics, so we included them.*
17	8	• *Then in the confirmatory due diligence, I do an ESG questionnaire with every company. This depends on the business model that each company has and there are specific questions in different dimensions from the environmental part, from the governance part from pretty much everything.*

Source: Own research

Winterberg et al. (2020) shed light on the challenges associated with DDs in the context of emerging technologies. This part of the DD process involves evaluating the potential risks associated with technologies like artificial intelligence, quantum computing, autonomous vehicles, brain-computer interfaces, gene editing, and longevity treatments. They acknowledge the transformative potential and risks posed by innovative technologies. The provided technology examples highlight the social risks (Winterberg et al., 2020); other technologies might pose less observable environmental or social risks. The transformative nature of start-ups and their aim to disrupt industries potentially requires fund management companies to modify or adapt their established frameworks for individual DDs.

The connection between the DD process and subsequent portfolio reporting is noteworthy. In the DD process, the investment team evaluates start-ups against a set of measures that have the potential to drive the success of the business. Arguably, the same measures remain important during the fund's holding period. Gebhardt et al. (2023a) highlight the significance of various sustainability reporting frameworks and guidelines. In their study, participants recognised the relevance of the Task Force on Climate-Related Financial Disclosures (TCFD), Sustainability Accounting Standards Board (SASB) guidelines and the Global Reporting Initiative (GRI) standards. These frameworks allow the investment managers to review observable structures that might be available in the targeted start-ups, such as the above-mentioned product or service evaluations, team structures or market dynamics. The approaches might also assist in evaluating the founding team's commitment to relevant environmental or social subjects. By doing so, the investment managers deduce unobservable structures and mechanisms affecting the founders' future decisions on such subjects. Existing research has already evaluated sustainability impact assessment frameworks (Trautwein, 2021). However, these studies focus on the generation of data relating to the observable structures of start-ups, not the unobservable structures and mechanisms affecting the founders of a start-up. The interview participants confirm the importance of exploring the founders' awareness and commitment to sustainability subjects (see Table 6.4).

Table 6.4 Identification of Mechanisms through DDQs

Int.	SFDR	Sample Quotes
6	8	• *Obviously, they have almost nothing, because we do very early stage. But the idea Is that they start thinking about what could be asked of them?*
9	8	• *This not only includes team and financial performance but also what is their view on ESG criteria, is that something that they live? Is that something that they just pretend? This is a very important part. If you work together with the start-ups three to six months. You actually get a good feeling if they are really convinced of what they're doing or not.*
17	8	• *On the ESG DD end we have a pre-DD where normally I meet the team, and this is one of the most important parts. The team of the founders, right, and to get the first feeling if they are aware of the importance of sustainability, of ESG and also if they're aware of their impacts they have on the world and on the planet. I think you can have the best ESG questionnaire in place, but if you do not have a feeling about who you are talking to, then…*

Source: Own research

Therefore, the most prominent frameworks identified by the interview participants, academia, or industry associations are critically evaluated. This identifies the observable structures explored by the framework, linked to the 7-S model, and the unobservable structures that might come to light in the DD process.

6.2. Approaches for ESG Due Diligences

ESG DD processes contain several elements that funds apply to their operations. While all SFDR Article 8 funds apply a negative screening list, funds select the most appropriate subsequent ESG DD frameworks.

6.2.1. Negative Screening Lists

A minimum requirement for classification as an SFDR Article 8 fund is to apply a negative screening or exclusion list documented in the SFDR pre-contractual disclosures (Regulation (EU) 2019/2088). For large LPs like KFW Capital, an explicit requirement for an investment is to have an exclusion list in place (KfW Capital., n.d.-b), making this an observable structure. These exclusion lists provide an initial, observable structure and define industry sectors or business models where the fund will not invest. Interview participants described that they base the individual exclusion lists for their funds on those of their larger LPs (see Table 6.5).

Table 6.5 Findings objective 2: Exclusion lists

Int.	SFDR	Sample Quotes
5	8	• *The exclusion list is based on the exclusion list of the EIF, KFW capital and the KFW.*
11	6	• *We haven't formalised that, but we would not invest in gambling or pornography.*
17	8	• *We have an exclusion list in place also coming from our large institutional investors [in the context Sovereign Wealth Funds].*

Source: Own research

Interview participant 11 representing an Article 6 fund however, neither received funding from KFW Capital nor does the observable structure of SFDR apply to this type of financial product. A mechanism can be assumed to be in place driving such agents to nevertheless apply this observable structure, focusing, in this example, primarily on social aspects, prohibiting investments in pornography or gambling.

The exclusion list of KFW Capital, highlighted by Participant 5, is available online (KfW Capital., n.d.-c) and highlights the following restricted sectors:

- Phase-out or prohibition regulations
- Protection areas
- Weapons
- Controversial products
- Chemicals
- Fisheries

- Energy, Oil and Gas
- Coal & Mining
- Forestry and agri-commodities
- Genetic Engineering
- Controversial behaviour
- Animal welfare
- Cryptocurrency.

It is noteworthy that some LPs, such as insurance companies, banks, but also KFW Capital, are equally subject to SFDR and would not invest in a VC fund that does not submit to at least these negative screening sectors (KfW Capital., n.d.-c).

Figure 6.1 illustrates the exclusion list an interview participant shared. The KFW Capital version also covers the items on this fund`s exclusion list; only coal, mining, and fisheries are not mentioned on the VC fund list. While these areas are not specifically excluded, it is questionable whether there will be many start-ups in these sectors.

Figure 6.1 - Sample VC Fund Exclusion List

	ESG Exclusion List	**The company:**		
		Date:	27/03/2024	
	Mandatory criteria	**Complied**		**Comments**
		Yes	No	
1.	**Phase-out or prohibition regulations** The company does not engage in activities covered by national or international phase-out or ban regulations or subject to an international ban (e.g. toxic or ozone-depleting substances, protected animals or plants, prohibited trade of waste). This does not apply to national regulations in countries where the company is not active.			
2.	**Controversial behavior** The company does not engage in activities related to gambling (offline or online), pornography, cybercrime (except for combating it, e.g. cybersecurity), or land owned or claimed by indigenous peoples.			
3.	**Controversial products** The company does not research, produce or trade radioactive material, tobacco, alcoholic beverages or unbound asbestos.			
4.	**Weapons** The company is not active in the production or trade of weapons, ammunition, controversial weapons or critical components thereof (nuclear weapons and radioactive ammunition, biological and chemical weapons of mass destruction, cluster bombs, anti-personnel mines, enriched uranium).			
5.	**Nuclear power** The company does not pursue nuclear power activities (other than mitigation activities).			
6.	**Oil & Coal** The company does not pursue coal or non-renewable oil production activities.			
7.	**Chemicals** The company has no activities in the production or trade of significant volumes of hazardous chemicals			
8.	**Genetic Engineering** The company does not pursue activities around genetically modified organisms that do not have the appropriate legal, regulatory and ethical approvals/documents (incl. human cloning and CRISPR).			
9.	**Animal welfare** The company does not research, produce, or trade products that require animal testing (except for medical purposes), engage in any destructive fishing practices, or pursue activities related to shark finning and commercial whaling.			
10.	**Protection areas** The company is not active in areas which could be associated with the destruction and significant impairment of areas particularly worthy of protection (e.g. rainforest).			
11.	**Cryptocurrency** The company does not pursue activities related to cryptocurrencies to be used for online gambling or other illegal online transactions, for example in "dark nets".			

Source: Interview participant

The evaluation of the targeted start-up's business model and whether it falls into an excluded industry or sector constitutes an investigation of an observable structure of their strategy (see Table 6.6).

Table 6.6 Identification of CR Structures (Exclusion Lists)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Evaluation of the start-ups strategic focus against prohibited industries and sectors	• In borderline cases, a discussion with founders could identify intentions and commitments to ESG (mechanisms affecting the founders)

Source: Own research

This provides an initial check of the strategic fit of the start-up into the fund's investment thesis. While the evaluation is based on yes/no answers (see Figure 6.2), there could be borderline cases, for example, relating to dual-use solutions, that could be used in military contexts. In such borderline cases, the negative screening list provides the potential for the VC fund to explore these aspects in more detail during a discussion with the founders. The exact use of their products and services and the founders' commitment to ESG can then be explored in more detail.

Regarding further investigations as part of the ESG DD process, the approaches vary between generic ones, covering the SDGs (Sustainable Development Goals) and PAIs (Principal Adverse Impacts) or industry-specific approaches such as SASB or GRI. Other approaches focus on climate-related issues with TCFD or approaches such as PRI. In the following sub-sections, these approaches are elucidated further in the context of the findings from the interviews and the available literature and publications from funds.

6.2.2. PAI and SDG: High-level evaluation of environmental and social aspects

Some funds use the PAI and SDGs as a foundation for their ESG DD. Interviewee 05, for example, holds a brief call to review the two items in addition to the above-mentioned exclusion list (see Table 6.7).

Table 6.7 - Findings to Objective 2: ESG DD using SDGs and PAIs

Int.	SFDR	Sample Quotes
5	8	• *I run the ESG due diligence with all ventures we have a look at. It's a half an hour call [where] I go through three documents.* • *The exclusion list, that's also the only document that I want to have signed.* • *The second one is a PAI list, but it's adjusted because we don't take those 14 + 2 from the SFDR, but we just get rid of a few. Just as an example number 14 is weapons and we did the exclusion list before. We don't want to have weapons anyway. We cut a few and at the moment we have 8 PAIs, 5 Environmental on S [Social] 3. We don't have to do any due diligence on G [Governance] because we have a colleague who's doing a KYC [Know Your Customer] and everything with money laundering, etcetera.* • *The third list is a straightforward SDG list where you just tick some boxes and say which SDG do we actually fall under? I'm not a big fan of the SDGs, as KPIs, they're just not good.*

Source: Own research

The list of PAI measures is adjusted to exclude certain items, like weapons, already covered in the exclusion list. Notably, the ESG DD is already integrated with other DDs conducted by the fund, as governance is reviewed by another colleague, reviewing know-your-customer (KYC) and other investigations. Figure 6.2 provides a sample DD checklist based on PAIs, focusing on four environmental and three social measures.

Figure 6.2 - Sample DD Checklist on PAI

	Emissions to the environment	Answer	Description
1	CO_2 footprint		*The company measures its carbon footprint*
2	No negative impact on biodiversity		*The company measures its negative impact on biodiversity sensitive areas*
3	No harmful emissions to water		*The company measures its generated emissions of nitrates, phosphates or peticides to water*
4	No hazardous waste		*The company measures its generated hazardous waste (e.g. explosive, flammable, irritant, harmful, toxic, carcinogenic, corrosive, infectious, mutagenic, ecotoxic or nuclear)*

	Social standards	Answer	Description
5	Guiding principles of the United Nations and the ILO		*The company takes into account the key principles of the United Nations UNGC and the ILO (International Labor Organization), i.e. no forced labor, no child labor, no discrimination, anti-corruption, equal treatment and freedom of association*
6	Guidelines for monitoring compliance		*The company has policies in place to monitor compliance with the key guiding principles of the United Nations UNGC and the ILO (International Labor Organization) or mechanisms to address complaints of violations*
7	Gender diversity		*The company measures its gender diversity at C-level*

	Explanation
fulfilled	If fulfilled please specify the quantity currently tracked under impact
not fulfilled	If not fulfilled state the healing measures planed with further explanations on the side
not relevant	If not relevant, please leave the fields impact and healing measures empty

Source: Interview participant

Both the interview participant and the sample DD checklist on PAI demonstrate the intention to simplify the ESG DD process using such a framework. Regarding the 7-S model, the investigation of PAI covers the start-up's systems or processes (see Table 6.8).

Table 6.8 Identification of CR Structures (PAI Measures)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Systems	• Identification of the start-up's environmental footprint, including GHG emissions and impact on biodiversity, water and hazardous waste • Availability of policies and declared commitments relating to labour practices and gender balance of leadership team	• Identification of the mechanism to utilise the collected data in ongoing fund operations as management information
Shared Vision		**In case data has not been collected:** • Discussion with founders evaluating their commitment to relevant environmental measures and social aspects, exploring drivers that might encourage or prevent adoption • Assessment potential for the founders' commitment to spend resources (human or financial) for the collection of data in these areas

Source: Own research

The focus is on observable structures that are easily identifiable or allow the start-up to declare subjects as non-relevant. The fund could explore if there are mechanism in place that encourage or prevent the founders to use the collected data for ongoing decision making. In case the start-up cannot provide the requested data, the VC can explore the founders' commitment to these environmental and social aspects in a discussion, exploring their shared vision regarding ESG. This can help unearth drivers allowing or preventing later adoption of such measures, including the willingness to spend resources on these subjects.

For example, an additional framework used by Interviewee 05 is an investigation of the applicable SDG for the targeted start-up. This aligns with the German government's sustainable finance strategy, which describes a specific objective to align investments with the SDGs (Federal Ministry of Finance, 2021).

Figure 6.3 depicts a sample DD checklist based on the SDG, allowing start-ups to declare whether an SGD is relevant to their business model and industry. The founders evaluate the relevance of their business model to support the fulfilment of each SDG.

Figure 6.3 - Sample DD Checklist on SDG

SDG	Title	Relevance	Description	More information
1	End poverty	**relevant**	*End poverty in all its forms and everywhere*	https://sdg-indikatoren.de/1/
2	Securing food	**not relevant**	*End hunger, achieve food security and improved nutrition, and promote sustainable agriculture*	https://sdg-indikatoren.de/2/
3	Healthy life for all	**open**	*Ensure healthy lives for all people of all ages and promote their well-being*	https://sdg-indikatoren.de/3/
4	Education for all	**open**	*Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all*	https://sdg-indikatoren.de/4/
5	Gender equality	**open**	*Achieve gender equality and empower all women and girls to empower themselves*	https://sdg-indikatoren.de/5/
6	Water and sanitation for all	**open**	*Ensure availability and sustainable management of water and sanitation for all*	https://sdg-indikatoren.de/6/
7	Sustainable and modern energy for all	**open**	*Ensure access to affordable, reliable, sustainable and timely energy for all*	https://sdg-indikatoren.de/7/
8	Good jobs and economic growth	**open**	*Promote sustained, broad-based and sustainable economic growth, full and productive employment and decent work for all*	https://sdg-indikatoren.de/8/
9	Innovation and infrastructure	**open**	*Build resilient infrastructure, promote inclusive and sustainable industrialization, and support innovation*	https://sdg-indikatoren.de/9/
10	Reducing inequality	**open**	*Reduce inequality within and between countries*	https://sdg-indikatoren.de/10/
11	Sustainable cities and communities	**open**	*Make cities and settlements inclusive, safe, resilient and sustainable*	https://sdg-indikatoren.de/11/
12	Sustainable consumption and production	**open**	*Ensure sustainable consumption and production patterns*	https://sdg-indikatoren.de/12/
13	Climate protection measures	**open**	*Take immediate action to combat climate change and its impacts*	https://sdg-indikatoren.de/13/
14	Protecting life under water	**open**	*Conserve and sustainably use oceans, seas, and marine resources*	https://sdg-indikatoren.de/14/
15	Protecting terrestrial ecosystems	**open**	*Protect, restore and promote sustainable use of terrestrial ecosystems, manage forests sustainably, combat desertification, end and reverse land degradation, and halt biodiversity loss*	https://sdg-indikatoren.de/15/
16	Peace, justice and strong institutions	**open**	*Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build powerful, accountable, and inclusive institutions at all levels*	https://sdg-indikatoren.de/16/
17	Global partnership	**open**	*Strengthen means of implementation and reinvigorate the global partnership for sustainable development.*	https://sdg-indikatoren.de/17/

Source: Interview participant

The investigation of the applicable SDGs constitutes an observable structure that links to the targeted start-up's strategy (see Table 6.9).

Table 6.9 Identification of CR Structures (SDG)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Identification of relevant SDG(s) linked to the start-up's business model and industry	• Exploring the start-up's contributions to SDG(s) might allow for a discussion with the founders on how they prioritise these contributions, especially vis-à-vis financial priorities

Source: Own research

The main benefit of using the PAI or SDG as a basis for an ESG DD was described by participants as its ease of use, focusing on observable structures. On the other hand, the participants also challenged its usefulness in identifying future value generation for start-ups. While the PAI might provide a baseline for future reporting (see Sub-section 5.3.3), no additional value was attributed to collecting the SDG information (See Table 6.7). It is evident that, in this case, the data collection did not expand to the potential for discussion of the details of the SDG and the prioritisation of these aspects by the start-up, which would unearth the mechanisms driving the founding team.

6.2.3. SASB and GRI: Tailored approaches for industry-specific precision

Some participants described a more nuanced approach to their ESG DDs, focusing on the specifics of their industry or the sector and business model of the targeted start-up (see Table 6.10).

Table 6.10 - Findings to Objective 2: ESG DD using Industry-specific Evaluations

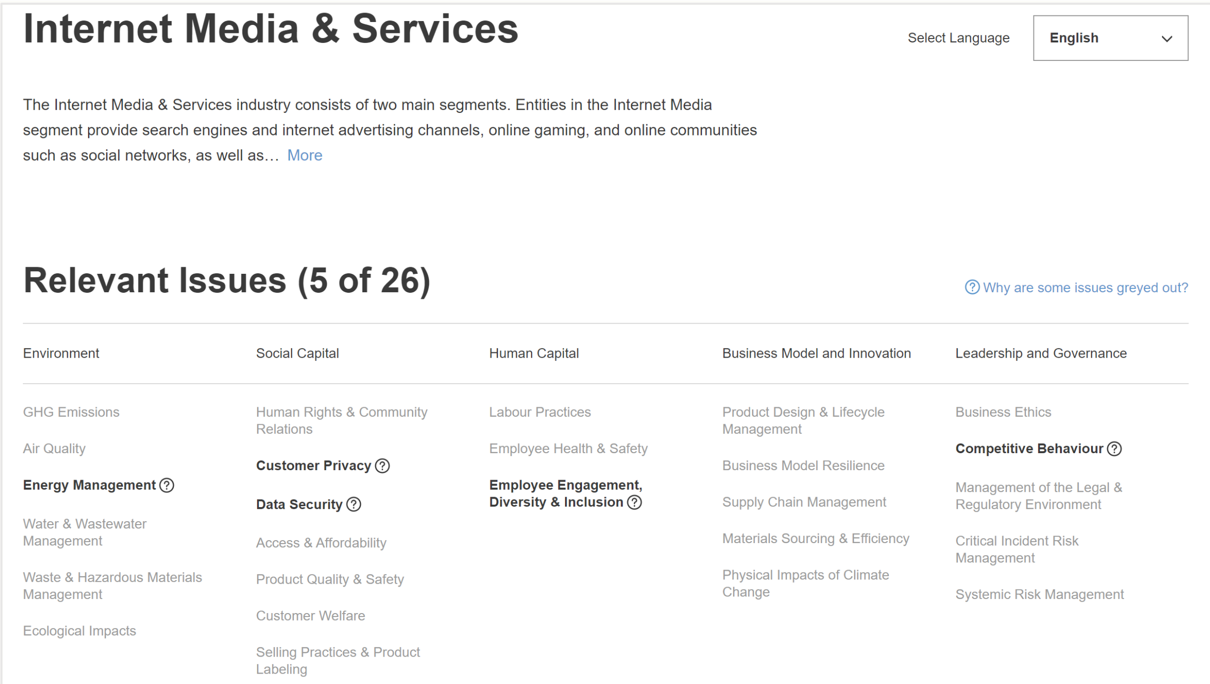
Int.	SFDR	Sample Quotes
6	8	• *We do a more extensive due diligence about understanding what processes they have in place. The idea is that they start thinking about what could be asked of them. And when they are seeing how much they have to do that is when we can tell them no worries, we're going to help you to get there in 3-5 years. So by the time that you have to do the CSRD, by the time that you have to do further raising, then you can demonstrate certain capabilities on ESG. And in some areas it makes sense to just know them from day one. Your first. 10 employees will hire your first 100 employees. If you build a product that is incredibly carbon intensive and you invest into loads of machinery to make it happen, how do you undo that? That is the key thing that we want from the beginning.*
10	8	• *The venture capital / private equity association Invest Europe they made an industry agnostic questionnaire; we adapted that to the [fund's focus] sector. Because some of these questions they have, make no sense for the [fund's focus] sector.*

Source: Own research

The interview participants from generic funds, describing such an industry-specific DD approach, stress the need to understand the processes of their start-ups early on. They aim to prompt ventures to anticipate future requirements and offer assistance in achieving ESG goals within 3-5 years. They highlight the significance of considering ESG factors from the outset, especially in sectors with long-term environmental impacts or those affecting hiring practices and product development. While such generic funds must adapt their questionnaires to the specific industry sector of the targeted start-up, thematic funds with an industry focus can adapt their ESG DD to that specific industry when the investment thesis is developed.

Gebhardt et al. (2023a) highlighted SASB and GRI as key frameworks for identifying industry-specific analyses by investors. SASB provides sector-specific standards that cater to the unique ESG factors prevalent in each industry. This enables VC funds to apply this standard to conduct a focused evaluation of start-ups, aligning assessments with sector-specific challenges and opportunities (Lin, 2022). Applicable across 77 industries, these standards identify sustainability-related risks and opportunities with the potential to impact a start-up's cash flows, access to finance, and cost of capital over varying timeframes (SASB, 2024). In the Internet Media & Services example in Figure 6.4, the identified material issues are energy management, customer privacy, data security, employee engagement, diversity and inclusion, and competitive behaviour. If the start-up's business model falls into this industry sector, an ESG DD would focus on these material subjects.

Figure 6.4 - Sample Material Subjects by SASB (Internet Media & Services Sector)

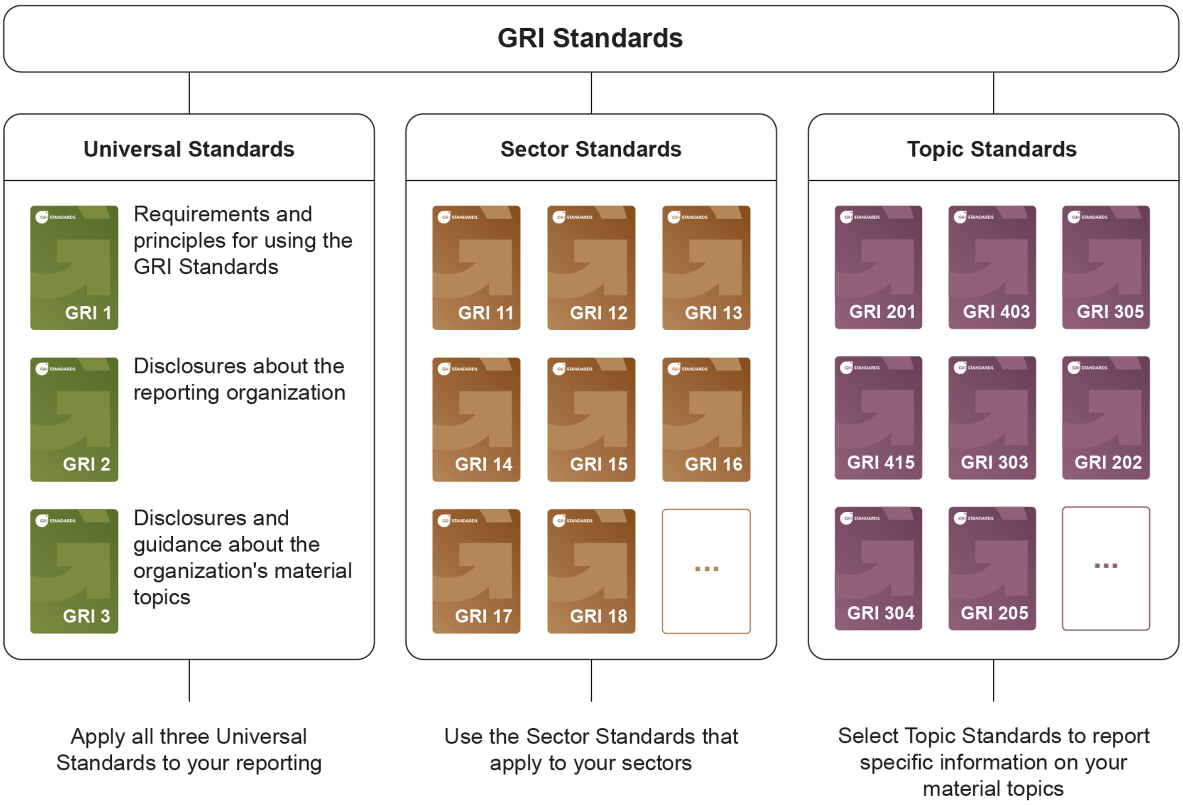


Source: (International Financial Reporting Standards Foundation, n.d.-b)

Notably, the 77 industries covered by the SASB standards have been established based on existing business models and industries. Since start-ups are disrupting such industries, a start-up may fall into more than one industry sector. The ESG DD identifies observable structures for how the start-up manages such subjects as part of its systems.

Conversely, GRI offers a comprehensive set of universal, sectoral, and topic-specific standards (see Figure 6.5).

Figure 6.5 Overview of GRI Standards



Source: Global Reporting Initiative, n.d.-a

The GRI standards, introduced in 2000, have become widely acknowledged as the international reference point for ESG reporting, especially among larger corporations; these standards are developed and maintained by the Global Sustainability Standards Board (Luo & Tang, 2023). GRI's framework facilitates the identification, collection, and transparent and comparable reporting of information by companies. While the GRI standards were initially established to allow for comprehensive ESG reporting, they can also be applied to ESG DD processes to identify the most relevant ESG issues in a targeted start-up (Gebhardt et al., 2023a). Like SASB, GRI focuses on identifying material subjects or observable structures for a start-up's business model or industry sector. It has been established as a reporting tool for various large and small organisations, ensuring comprehensiveness in ESG disclosures (Luo & Tang, 2023), which makes it a suitable framework for developing DDQs. When VC fund managers invest in later-stage start-ups to fund their growth, evaluating CSRD readiness based on GRI might be especially appropriate.

Both SASB and GRI focus on material subjects relevant to the industry or business model of the targeted start-ups. The identification of relevant ESG subjects allows the funds to discuss the value generation potential with the founders on the most material aspects of the start-up's business model (see Table 6.11).

Table 6.11 Identification of CR Structures (SASB & GRI)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Systems	• Identification of the most material ESG aspects of the start-up's business model, including potential evaluation measures	• In particular, when a start-up falls in more than one SASB industry sector / GRI standard, the focussed discussion with the founding team about these material subjects can help to unearth mechanisms relating to these subjects.

Source: Own research

These discussions allow for the identification of the founders' willingness to progress these subjects and the exploration of mechanisms affecting them. In addition to investigating ESG related to the targeted company's systems, such an evaluation allows the agents to reassess the value-generating potential of the funds.

In contrast to the PAI and SDG approaches to ESG DDs, the SASB/GRI approach does not generate a standard DD questionnaire for all target start-ups, as business models or industries vary. Generic funds covering a wide range of industries may have to adapt their DDQs based on the particularities of the targeted start-ups. More generically applicable DDQs could be developed for industry-specific VC funds.

6.2.4. PRI: Active Ownership of ESG Integration

Interview participants mentioned the Principles for Responsible Investment (PRI) as another framework applied in the context of ESG DDs (see Table 6.12).

Table 6.12 - Findings for Objective 2: Application of PRI in VC Funds

Int.	SFDR	Sample Quotes
6	8	• *I rely quite a lot in the UN PRI Perspective. One of the things I did last year was attending the UN PRI conference. When you see those big pension funds across the globe, the asset owners the ones that every VC would love to have as an LP, they were quite clear in the direction that they're going.*

Source: Own research

The PRI was established in 2005 under the leadership of then-UN Secretary-General Kofi Annan. Secretary-General Annan welcomed an international group of institutional investors to create initiatives demonstrating the growing relevance of ESG in investments (Principles for Responsible Investment, n.d.). In 2006, a team of 20 asset management professionals from over 10 countries, supported by 70 authorities from the investment industry and intergovernmental organisations, collaborated to launch the PRI. By 2020, PRI signatories had increased from the initial 100 to over 2,300 globally. The PRI categorises its signatories into three main types: asset managers, asset owners, and data providers. Its overarching mission is to advocate for a sustainable global financial system prioritising long-term value creation (Principles for Responsible

Investment, n.d.). The PRI aims to promote the voluntary adoption of six key principles (Principles for Responsible Investment, n.d.):

- *Incorporate ESG issues into investment decisions.*
- *Actively engage as responsible owners of assets.*
- *Encourage companies to provide appropriate disclosure on ESG issues.*
- *Advocate for the acceptance and implementation of the principles among stakeholders.*
- *Collaborate with other signatories to enhance effectiveness in implementing the principles.*
- *Report progress towards implementing the principles.*

Senior executives of VC firms formally commit to the PRI by signing a declaration form, paying an annual membership fee, and publicly disclosing their responsible investment activities through a reporting framework offered by the United Nations (Kim & Yoon, 2023).

The PRI is more concerned about the set-up of VC funds and how management companies incorporate sustainability considerations into their operations. Therefore, the PRI created a list of questions that LPs of VC funds can use in their DD process with these fund management companies. Some relevant questions can be inferred from the list of questions applied to the DDQ that a VC fund would undertake with a prospective start-up (see Table 6.13).

Table 6.13 - Sample DDQ based on PRI

Dimension	Sample Questions
Strategy	• Does the start-up have any exclusions or restrictions on the types of industries, geographies or business models it will not invest in based on ESG criteria? • Does the start-up have a formal ESG policy?
Structure	• Who is responsible for overseeing ESG integration within the start-up?
Systems	• What are the key ESG risks and opportunities have the start-up identified as material to its business model and strategy? • What ESG-related information does the start-up currently report to investors, and how frequently? • Does the start-up obtain any third-party assurance or verification for the ESG data it reports?
Shared Values	• How are ESG objectives incorporated into performance reviews and compensation for the start-up's leadership?
Skills	• What training, tools or resources does the startup provide to its staff to help them identify and assess material ESG factors?

Source: Source: Based on Principles for Responsible Investment, 2023

Regarding the start-up's strategy, DDQs based on PRI investigate whether the company would not service any industries, geographies or business models. Notably, the negative screening lists described above already cover the industry and business model of the start-up itself. In this part of the DD process, the VC fund explores whether the start-up has created an exclusion list of potential customers. Other questions of the DDQ include whether the targeted company has an ESG policy in place, who is responsible for overseeing ESG in the firm and how shared values relating to ESG are reflected in the compensation of the leadership team.

Through this process, the VC fund gets a comprehensive overview of the start-up's observable structures related to strategy, organisational structure, systems, shared values, and skills (see Table 6.14).

Table 6.14 Identification of CR Structures (PRI)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Identification of business model constraints (see Negative screening list) and relevant policies	• In borderline cases, a discussion with founders could identify intentions and commitments to ESG (mechanisms affecting the founders)
Structure	• Identification of organisational responsibilities for ESG	• Identification of mechanisms preventing the establishment of ESG related responsibilities
Systems	• Identification of ESG risks and reporting regimes	• Identification of mechanisms driving the prioritisation of activities, preventing the inclusion of ESG risk management practices
Shared Values	• Identification of leadership ESG incentives	**In case data is not available for other dimensions:** • Discussion with founders evaluating their commitment to relevant environmental measures and social aspects, exploring drivers that might encourage or prevent adoption • Assessment potential for the founders' commitment to spend resources (human or financial) for the collection of data in these areas
Skills	• Identification of ESG training and development resources	• Identification of mechanism prioritising non-ESG related trainings for all staff

Source: Own research

If a start-up does not have all the elements of these observable structures in place, the funds can investigate the founders' shared vision for ESG, exploring the mechanisms that might encourage or prevent prioritisation of this subject.

6.2.5. TCFD: Prioritising climate-related risks and opportunities

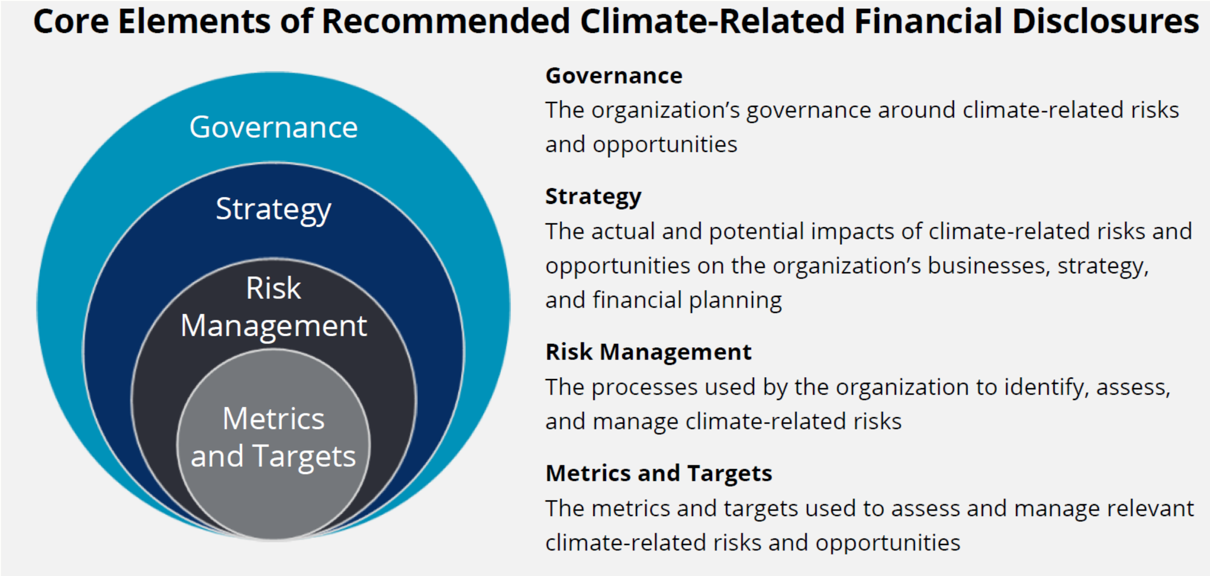
For VC funds that pronouncedly focus on climate-related considerations, frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD) can be instrumental (Gebhardt et al., 2023-a).

In 2015, the Finance Ministers and Central Bank Governors of the G20 member states tasked the Financial Stability Board (FSB) with setting up a collaborative effort involving public and private sector experts to examine how the financial sector could address climate-related concerns (Bloomberg et al., 2021). To address the need for enhanced information on risks related to climate issues, the FSB created TCFD as an industry-led task force charged with developing voluntary disclosures concerning climate-related financial matters, supporting investors and other stakeholders in recognising and understanding material risks. In 2017, the TCFD released its final recommendations, followed by six annual status reports, and was disbanded at the end of 2023 (Bloomberg et al., 2023).

TCFD, emphasising climate-related financial disclosures, guides VC funds in understanding the potential financial implications of climate risks. VC funds can utilise TCFD not only for any climate-focused investment but equally apply it in all ESG DD processes, particularly if any climate risks are apparent. The framework enables a comprehensive assessment of a start-up's climate-related risks and opportunities, contributing to informed investment decisions that align with broader sustainability goals.

The TCFD identified four core elements related to climate-related financial disclosures: governance, strategy, risk management, and metrics and targets (see Figure 6.6).

Figure 6.6 - Core Elements of TCFD Recommendations



Source: Bloomberg et al., 2017

The TCFD has identified sample questions that can be raised in an ESG DD process, covering these four elements (see Table 6.15). These questions are focused on the start-up's opportunities and risks related to climate change and cover the firm's strategy towards this subject, including how they measure these issues and whether targets have been identified.

Table 6.15 - Sample DD questions based on TCFD

Dimension	Sample Questions
Strategy	• Does the start-up have a long-term strategy for addressing climate-related risks and opportunities? • What key performance indicators (KPIs) does the company use to track its progress on climate-related issues? • Are specific targets set for reducing greenhouse gas emissions or improving energy efficiency? • How does the start-up plan to adapt to regulatory changes and market shifts related to climate change?
Structure	• How do the founders oversee climate-related risks and opportunities? • Have the founders established clear accountability for climate-related issues within the organization?
Systems	• How does the start-up assess and quantify its exposure to climate-related risks? • Are climate-related risks and opportunities integrated into the overall risk management framework? • What measures has the start-up identified to mitigate climate-related risks? • How does the company monitor and report on its climate-related risks? • How does the start-up report on its climate-related performance to other investors?
Shared Values	• How do the founders align between their climate-related strategies and their overall business strategy? • How do the founders identify and prioritise climate-related risks and opportunities?

Source: Based on Bloomberg et al., 2017

Like the PRI approach, the DDQ covers the responsibilities within the companies for climate change-related issues and how to incorporate these into the overall risk management framework. It is worth noting that early-stage start-ups, especially, might not have documented observable structures in place, such as detailed risk management frameworks. The inquiry about such frameworks allows the VC investor to explore unobservable structures relating to the intentions of the start-up founders related to climate change subjects. These DDQs focus not only on climate-related risks the start-up might be exposed to but also on opportunities that could be leveraged.

The provided set of questions investigates observable structures in the targeted start-ups' strategy, organisational structure, systems and shared values (see Table 6.16).

Table 6.16 Identification of CR Structures (TCFD)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Identification of climate-related strategy of the start-up, including KPI and targets	• Identification of mechanism preventing the inclusion of climate-related aspects in start-up strategy
Structure	• Identification of accountabilities related to climate-related subjects	• Identification of mechanism driving the prioritisation of climate-related roles and positions in the organisation structure
Systems	• Identification climate-related risk management practices of the start-up	• Identification of mechanism ensuring the inclusion of climate-related practices into the start-up processes
Shared Values	• Identification of processes to align between founders and ensure prioritisation of climate-related issues	**In case data is not available for other dimensions:** • Discussion with founders evaluating their commitment to relevant environmental measures and social aspects, exploring drivers that might encourage or prevent adoption • Assessment potential for the founders' commitment to spend resources (human or financial) for the collection of data in these areas

Source: Own research

If no observable structures can be identified in the DD process, the fund could evaluate the mechanisms driving or preventing the implementation of such structures in the start-up’s operations. If a start-up lacks some or all climate-related structures, VC funds can explore the founders' shared vision for sustainability and responsible business practices. Exploring the mechanism will provide an additional viewpoint in evaluating the start-up's viability.

6.3. Impact Fund Approaches to Due Diligences

The Impact DD (IDD) in VC is a process that evaluates the potential social and environmental outcomes of investments in start-ups. This process is distinct from traditional financial DD, as it specifically focuses on the non-financial impacts that a start-up may have on the environmental or social bottom line (Global Impact Investing Network, 2020). For impact VCs, this non-financial impact must be positive; they invest exclusively in impact start-ups aiming to solve environmental or social problems. Conducting the IDD allows the fund management company to ensure that the potential investment fits in the documented investment thesis as specified in the SFDR precontractual disclosures (Regulation (EU) 2019/2088, Annex III - Precontractual Disclosure Article 9, 2019) and to ascertain the viability of the impact claims made by the start-ups.

The early stage of such investments makes evaluating sustainability contributions difficult to be conclusive. Life-cycle assessments (LCA) evaluating the environmental impact or social return on investment (SROI) approaches relating to social impacts are not considered practical in these early stages due to the dynamic nature of start-ups, resource constraints in the evaluation process and the high levels of uncertainty related to the start-up value chain (Horne, 2019). There is a wide spectrum of potentially relevant impact aspects relating to the environmental and social dimensions. Not for all these aspects standardised measures for impact performance have been developed, increasing the complexity of conducting quantifiable IDDs (Bocken, 2015; Castellas et al., 2018).

Thematically focused funds, e.g., funds dedicated to investments in solutions to the climate crisis, develop dedicated metrics to evaluate the impact potential, often by establishing the skills in-house (see Table 6.17). In this case, the identification of observable structures through the DD process is linked to the specific theme of the fund.

Table 6.17 Findings objective 2: Development of Impact Metrics

Int.	SFDR	Sample Quotes
13	9	• *We hired scientists like our head of science. She has a doctor in chemistry and we have a head of carbon math, who created with us the impact calculation in order for us to make a reliable thesis how this company could develop over the next 20 years and is there really the scale that we need in order to reduce CO2.*

Source: Own research

Without such a thematic focus, generalist funds, on the other hand, invest in a wider array of environmental or social solutions that might cover the climate crisis, educational subjects, or healthcare. Two frameworks are widely used to identify observable structures to base investment decisions on: Impact Frontiers Five Dimensions of Impact (FDOI), and the theory of change (ToC) (Impact VC, n.d.). The Global Impact Investing Network (GIIN) developed IRIS+, providing a framework that incorporates the FDOI and stakeholder theory and defines measures for various environmental and social aspects (Global Impact Investing Network, 2020).

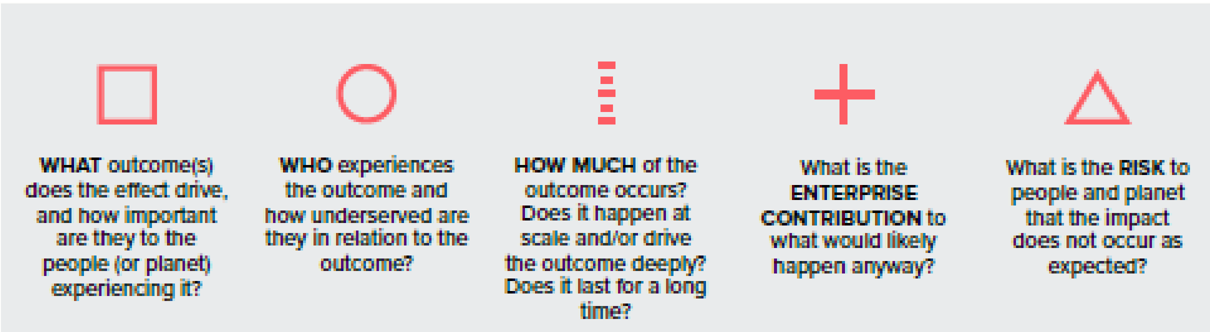
These frameworks are evaluated in the following sub-sections, focusing on how VC funds can apply them.

6.3.1. Five Dimensions of Impact

The Five Dimensions of Impact (FDOI) is a framework developed by Impact Frontiers that provides a structured approach to understanding and managing investments' impact. Impact Frontiers was established by Root Capital, a nonprofit social investment fund, and evolved through collaboration with a cohort of investors and the Impact Management Project, a time-bound forum of industry professionals (Impact Frontiers, n.d.-a).

The framework is based on the idea that impact can be broken down into five core dimensions that can be systematically assessed (see Figure 6.7).

Figure 6.7 - Impact Frontier's 5 Dimensions of Impact



Source: Impact Frontiers, n.d.-b

These dimensions Impact Frontiers, n.d.-b) define:

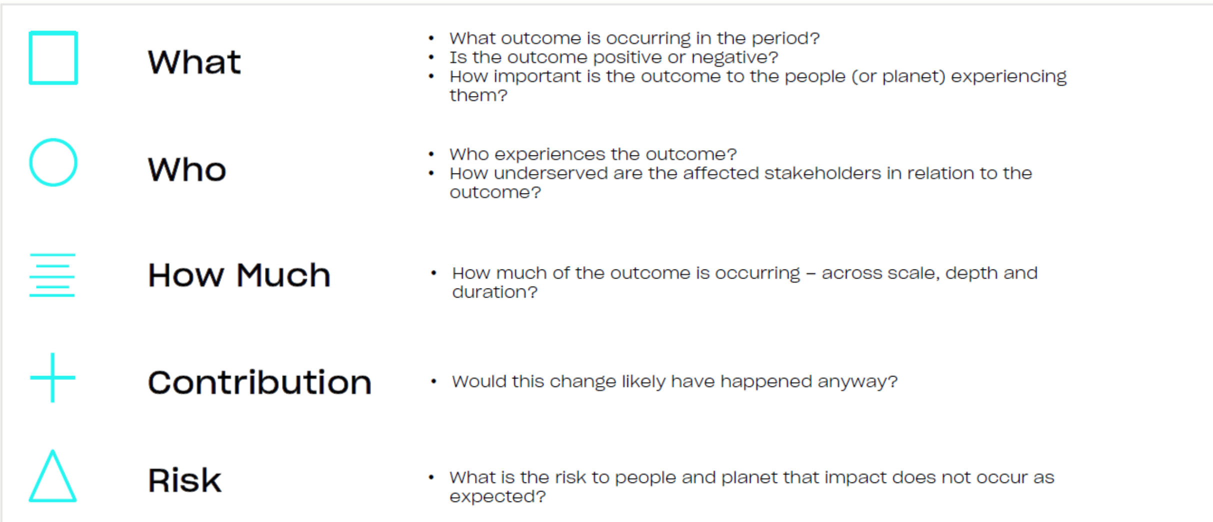
- *What specific outcomes is the start-up's product or service designed to achieve?*

- *Who are the stakeholders who will experience the outcomes, particularly focusing on underserved or vulnerable groups?*
- *How Much, i.e., what is the impact's scale, depth, and duration?*
- *Contribution, i.e. what is the extent to which the outcomes can be attributed to the start-up's activities?*
- *Risk, i.e. what is the likelihood that the impact will be different than expected?*

They are applied to the DD process of VC firms on start-ups; the *What* dimension assesses the specific outcomes that the start-up's product or service is designed to achieve. This allows the VC to evaluate the nature of the impact, such as whether it addresses social issues like education or health or environmental issues like climate change or biodiversity. The goal is to understand the positive changes the start-up aims to create and how these align with the VC's impact thesis. The *Who* dimension focuses on the stakeholders who will experience the outcomes, particularly underserved or vulnerable groups. VC investors in the DD process can look at the target population and consider factors such as socioeconomic status, geography, and access to resources. The DD process assesses whether the start-up's solution effectively reaches and benefits these target stakeholders. The *How Much* dimension evaluates the scale, depth, and duration of the impact. VC firms consider how many people are affected and to what extent, as well as the expected longevity of the impact. During the DD process, the firm can assess the potential magnitude of the impact and whether it is significant enough to align with their investment goals. The *Contribution* dimension examines in how far the start-up's activities produce the expected outcomes. VC firms can assess the additionality of the impact, determining whether the positive outcomes are likely to occur without the start-up's intervention. The DD process can also consider how the start-up's approach compares to existing solutions and whether it brings innovations or improvements. The *Risk* dimension looks at the likelihood that the impact will be different than expected. VC firms can evaluate potential risks that could affect achieving the desired impact, including execution, market, and external risks such as regulatory changes. The DD process can involve identifying and mitigating these risks to ensure the sustainability and reliability of the impact.

Some funds publish their approach to defining impact, including how the FDOI framework is applied in DDs (see Figure 6.8 for an example by AENU, a German Impact fund).

Figure 6.8 - Application of the FDOI Framework in DD by AENU



Source: AENU, n.d.-a

AENU applies the FDOI to their DD process and evaluates what impact start-ups produce, who benefits from it, the scale of the impact, the start-up’s contribution, and associated risks. By communicating this observable question structure already on their website and forcing each investment target through the questions in the DD process, the start-ups must develop or share their impact thesis.

By applying the observable structure of the FDOI framework, funds such as AENU overcome the lack of observable structures related to comparable impact metrics between different focus sectors (see Table 6.18).

Table 6.18 Identification of CR Structures (FDOI)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Identification of impact area, relevant stakeholder groups (beneficiaries), individual benefits and contribution of the start-up's solution to the generated benefits	• Identification of mechanisms influencing the founders to continuously revise the FDOI and balance impact aspects and financial aspects
Systems	• Identification of risks affecting the impact generation, including mitigation measures	• Identification of mechanisms driving the prioritisation of activities, preventing the inclusion of impact risk management practices

Source: Own research

The evaluation of the FDOI with the start-ups allows the funds to identify all the mechanisms that drive the founders in their decision-making across all five dimensions. This exploration of mechanisms ensures that the VC firms have a solid overview of the founders' commitments to impact, even in sectors they have no prior experience in.

6.3.2. Theory of Change

Within the DD process of VC funds, the Theory of Change (ToC) serves as another tool for evaluating the strategic framework of a start-up and its potential for positive social or environmental impact (Impact VC, n.d.). The origins of the ToC can be traced back to programme theory and programme evaluation in the mid-1990s. It was developed to analyse the effectiveness of programmes, extending beyond traditional goals and objectives to include detailed pathways of intended social change. (Reinholz & Andrews, 2020).

Interview partners confirmed that the ToC is widely used in the industry to define the impact of the funds and to evaluate the impact of the targeted start-ups (see Table 6.19).

Table 6.19 - Findings Objective 2: Application of the ToC

Int.	SFDR	Sample Quotes
1	9	• *We were also able to fold it [the fund's impact framework] into the theory of change without any you know gaps and that is always a good sign that you do the right things.*
18	9	• *We also have a theory of change.*
25	9	• *You are certainly aware that they [fund managers] will work with the theory of change which they have used at the beginning for social, for analysing social impact.*

Source: Own research

The ToC is applied in the DD processes of impact VCs to systematically assess the potential impact of their investments. This ensures that the start-ups align with the VC fund impact goals and objectives, often documented using the ToC (Martínez et al., 2021). To evaluate the start-ups, the VC fund managers require the founders to document their impact, often represented in four or five stages (see Figure 6.9). The ToC process is rarely linear and can be developed starting with inputs and activities to define the resulting outputs, outcomes, and anticipated impact. Alternatively, it can be developed starting with the anticipated impact and working backwards to identify outcomes, outputs, activities, and inputs (Allen et al., 2017).

Figure 6.9 - Overview of Theory of Change Stages

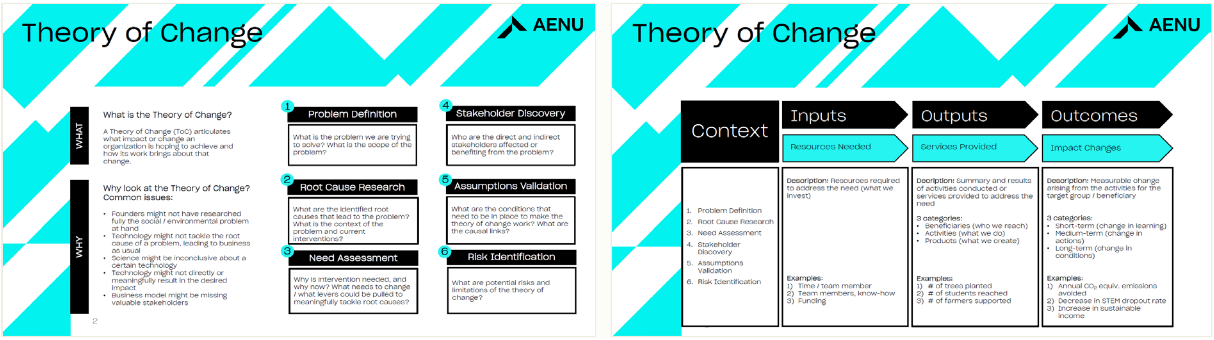
	Inputs	Activities	Outputs	Outcomes & Impact	
Description	Required resources to fulfil the activities	Actions executed by the company	Tangible numbers from company's activities	Changes resulting from the activities	The ultimate problem the company is solving
Examples	• Financial • People • Tools	• Production • Sales • Delivery • Relationship management	• Number of items sold • Number of patients served • Barrels of bio-fuel produced	• Effects on patients' welfare • CO2 reductions realized	• Reduced mortality rates for patients with xyz • GHG reduction potential of abc Gt

Source: adapted from Impact VC, n.d.; Mattos et al., 2022

Applying the ToC framework to DD processes, the VC management company assesses how well the start-up defines its mission and long-term goals. The clarity and alignment of the intended positive social or environmental changes the start-up aims to achieve are examined, including how they fit into the impact thesis of the VC fund. Subsequently, the fund checks how the start-up breaks down its overarching goal into intermediary outcomes and evaluates the significance of these outcomes and the specificity of activities or interventions the start-up identifies to contribute to each outcome. These aspects evaluate observable structures of the start-up's impact assumptions. Finally, the ToC framework is used to understand how the start-up establishes causal links between its activities, intermediary outcomes, and the intended impact. The VC fund assesses the start-up's ability to articulate the direct contribution of its actions to positive changes and identify documented assumptions about external factors influencing success. Unobservable structures may be unearthed regarding how the founders approach their impact assumptions.

The application of the TOC's stages might vary between 4 and 5, depending on whether impact is considered a separate stage from outcomes (see Figure 6.10 for an example from AENU).

Figure 6.10 - AENU's Application of the TOC



Source: AENU, n.d.-b; see a large version in the appendix.

AENU describes its application of the ToC on its website, including examples of content for each stage that start-ups should provide. AENU merges the activities and output and the outcomes and impact stages, respectively, resulting in an overall three-stage framework. However, the framework covers all the stages mentioned above.

Within the ToC framework, the VC fund can examine how the start-up engages various stakeholders, including beneficiaries, investors, partners, and communities. Similarly, the fund can assess the start-up's utilisation of the ToC by defining measurable performance metrics aligned with each outcome. These performance measures are relevant as they might also be applied in conversations with the VC fund’s investors about carried interest.

The level of depth in the analysis will depend on the start-up stage; earlier ventures likely reviewed their ToC framework less often and collected less evidence, making differentiation of questions appropriate (Impact VC, n.d.). DDQs based on the ToC initiate with a discussion of the intended impact generated by the start-up (see Table 6.20), including the financial impact of the solution provided. Outcome questions are related to the customer base and the scale of outcomes that are expected, while output questions focus on the benefits per transaction.

Table 6.20 - Sample DD Questions based on the ToC

Dimension	Sample Questions
Strategy	**Impact:** • Does the product have a clear use case that delivers impact? (A) • Is there a path to financial sustainability with this use case? (A) • How additional is this impact? This is linked to the uniqueness of the value proposition and defendability against incumbents/competitors, and so is a valuable commercial question. (A) • For which customer segments and their relative levels of need is this product designed? (B) **Outcomes:** • Which specific outcomes are being targeted? (B) • How many people (not just customers) will benefit from the product? (B) • What scale is expected to be reached? (B) • What is the total expected environmental potential? (B)
Systems	**Outputs:** • What is the 'per user' impact expected (in other words, how much will this product move the needle on the outcome being targeted)? (B) • What is the additional (i.e., net of alternatives) per use/transaction impact of the product? (B) • What other factors must be true for the impact use case (e.g. does it require specific customer behaviour)? (A)
Skills	**Inputs:** • Can the founders deliver on the use case (execution/scientific/technical risk)? (A)

A – Seed stage B – Series A stage

Source: adapted from Impact VC, n.d.

Early-stage start-ups would only be expected to answer the questions marked A in Table 6.20; later-stage firms all questions. It is noteworthy that the above questions were only developed up to the Series-A stage of start-up investments, as later-stage firms are expected to be able to provide more detailed impact metrics. Evaluating these DDQs from the viewpoint of the 7-S model, it transpires that the focus is on the strategy of the start-up, the systems and how they produce the outputs and the skills in the organisation demonstrated by the founders. This also reflects the early-stage nature of the businesses, as products and services might not be fully developed yet.

Applying the ToC creates observable structures of the business model and the expected impact of each targeted start-up (see Table 6.21).

Table 6.21 Identification of CR Structures (ToC)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Identification of impact area, financial sustainability, additionality of impact, relevant stakeholder groups (beneficiaries) • Identification of customer groups, number of beneficiaries, scale of benefit and total environmental potential	• Identification of mechanisms influencing the founders to continuously revise the ToC and balance impact aspects and financial aspects • Identification of mechanisms that drive founders to include certain impact areas and exclude others • Identification of mechanisms affecting the founders in their analysis of outcomes
Systems	• Identification of per-user impact and factors influencing the impact generation	• Identification of mechanisms influencing the prioritisation of inputs and ways to produce outputs
Skills	• Identification of organisational skills available / required to deliver the desired impact	• Identification of mechanisms driving the prioritisation of impact training

Source: Own research

By consistently applying the ToC, funds can build up internal organisational skills for evaluating the logical robustness of the impact anticipation of targeted start-ups without requiring in-depth knowledge of the specific impact area. This makes the ToC particularly relevant for generalist impact funds without a specific impact focus (e.g., to invest in start-ups focusing on GHG reductions). In addition to these benefits relating to the observable structures of the provided ToC analysis by the start-ups, the funds can use the approach to generate a deeper understanding of the mechanisms affecting the founders. The evaluation of what drives the founders to include certain impact areas and exclude others might allow the VC fund to predict future decision-making processes by the founders.

The ToC is applied in earlier-stage start-ups where detailed information has not been collected yet, and products or services are still being developed. In contrast, later-stage start-ups can be evaluated using LCA or SROI approaches (Impact VC, n.d.). These are explored further in the next sub-section.

6.3.3. Detailed Environmental and Social Evaluations

The integration of LCA and SROI into the DD processes allows VC firms to conduct a deep dive into targeted start-ups' environmental and social impacts. The approaches require substantial resource commitments on behalf of the start-ups and higher certainty of production or service processes, making the application more suitable for later-stage start-ups (Impact VC, n.d.).

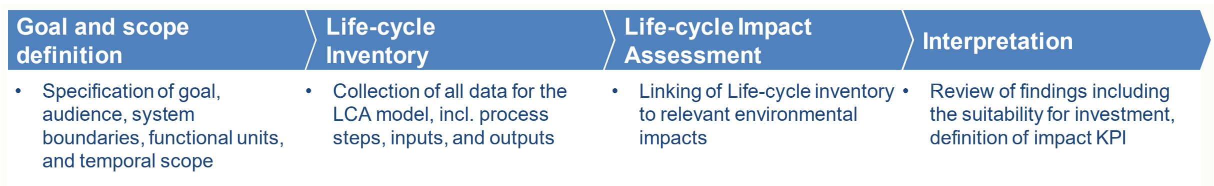
6.3.3.1. Life-Cycle Assessments

LCA is a methodological framework that examines the environmental impacts of all the stages of a product's, process', or service's life cycle, including the extraction of raw materials, production, distribution, use, and disposal or recycling. LCA as a performance evaluation approach has been extensively explored in academia (see Sassanelli et al., 2019, for a literature review).

The approach allows VC firms to identify environmental focus areas for improvement, thereby aligning their investments with broader sustainability goals. In the DD process, as highlighted by the practices of Planet A (a European VC fund classified as SFDR Article 9), LCAs are utilised to measure both the positive and negative environmental impacts of a given venture (Planet A, 2022). Before the LCA, a preliminary assessment of the target start-up's impact potential based on company data and scientific literature is conducted. The investment and available science teams evaluate propositions to ensure both are convinced of the solution's viability before proceeding with a detailed DD.

During the DD phase, Planet A conducts a full LCA to understand the environmental implications of a start-up solution throughout its entire life cycle. This involves assessing resource use, emissions, waste, and other factors like land use. This approach allows for a detailed understanding of the per-unit impact, which can then be applied to commercial projections (see Figure 6.11).

Figure 6.11 - LCA Approach by Planet A



Source: based on Planet A, 2022

The application of LCAs in the DD processes of VCs is a detailed and potentially resource-intensive approach to identifying the observable structures of the environmental impacts of targeted start-ups. It is worth noting that an LCA concerning a start-up will be based on assumptions. A balance has to be struck between the required accuracy (and validation of assumptions) and resource commitments.

6.3.3.2. Social Return on Investment

SROI was developed by the Roberts Enterprise Development Fund (REDF) as a methodological framework in the 1990s to measure and value the social impact of their investments, particularly in social enterprises (Arvidson et al., 2013). The primary motivation behind the development of SROI by REDF was to provide a systematic way to quantify the social benefits generated by their investments and demonstrate these investments' effectiveness in achieving social objectives (Hoyt, 2004).

In a 2020 survey, Impact Europe identified that 19% of impact funds use SROI as a tool for impact measurement and management (Impact Europe, n.d.-b). Impact Europe, also known as the Investing for Impact Network, is an organisation dedicated to fostering impact investing and the growth of the impact space in Europe (Impact Europe, n.d.-a). The organisation has a history spanning over two decades, having grown from eight members to a network of 350 members.

SROI quantifies the social value created by a start-up in monetary terms (Horne, 2019). This framework extends beyond traditional financial metrics to encompass the broader impacts of a start-up's activities on society. SROI involves engaging with stakeholders affected by the start-up's operations, ensuring that the investment aligns with the needs and expectations of those impacted. Quantifying social impact in monetary terms allows VC firms to compare the social benefits of an investment against its costs, providing a clear picture of the start-up's potential to generate positive social returns.

SROI analysis is conducted through a series of steps that involve stakeholder engagement, identifying and valuing social outcomes, and calculating the SROI ratio (Olsen & Lingane, 2003).

The methodology of SROI involves several key steps (Arvidson et al., 2013). The initial step involves identifying and involving various stakeholders affected by the start-up's solution. This engagement ensures that the analysis considers all relevant impacts from the perspective of those directly affected. After engaging stakeholders, the next step is to identify and map out the outcomes resulting from the solution. This provides an understanding of what changes for the stakeholders and the value of these changes. Subsequently, monetary values are assigned to the identified outcomes. Financial proxies are used to estimate the economic value of social and environmental outcomes. Finally, the SROI ratio is calculated by comparing the total present value of the outcomes (benefits) to the total investment (costs) required to achieve those outcomes (see Equation 6.1). This ratio provides a measure of the value created per unit of investment, facilitating a comparison between different investment options for VC companies.

Equation 6.1 Calculation of SROI

$$SROI = \frac{Net\ Present\ Value\ of\ Outcomes}{Total\ Investment\ Sum}$$

Source: Based on Arvidson et al., 2013

It provides a more holistic view of the start-up's potential impact, encompassing financial returns and social and environmental benefits.

Integrating LCA and SROI in VC firms' DD processes offers approaches to exploring observable structures related to environmental and social impact (see Table 6.22).

Table 6.22 Identification of CR Structures (LCA & SROI)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Systems	• Identification of environmental and social implications of a start-up's solution	• Identification of mechanisms driving the founders in their development of assumptions to be added to the LCA and SROI calculations

Source: Own research

While LCA focuses on structures related to the product lifecycle of a start-up, SROI provides insights into the social value created by the start-up's activities. In the case of early-stage start-ups, when products might not be developed yet, these explorations can primarily evaluate the founders' ambitions. In later-stage firms, these observable structures can substantiate environmental and social claims made by the founders based on data collected about their products. By analysing the founder's ambitions and their process to come up with assumptions, the VC fund can predict future prioritisation processes by the start-ups.

6.3.4. IRIS+: Impact Measurements for Due Diligence Processes

In the 2020 Impact Europe survey, 72% of impact funds confirmed the use of IRIS+ for the definition of impact indicators (Impact Europe, n.d.-b). IRIS+ is a framework for impact measurement and management that offers a set of core metrics sets for various focus sectors that can be applied to IDDs (Global Impact Investing Network, 2020). The framework combines the FDOI with specific measurements for environmental and social focus areas, aligned with over 50 standard bodies, including the above standards from SASB, GRI, SDG, and PRI (Global Impact Investing Network, n.d.-a).

The use of IRIS+ in IDD involves several steps (Global Impact Investing Network, 2020). VC companies with an impact focus begin by identifying their impact goals and developing strategies to achieve them as part of their impact thesis. IRIS+ facilitates this by providing a framework that aligns with generally accepted investment themes, such as financial inclusion or clean energy access, as well as the SDGs (see Figure 6.12).

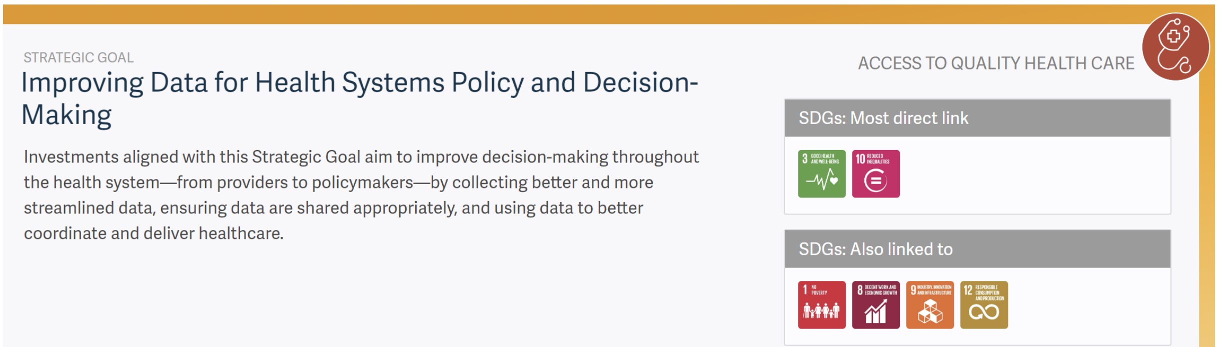
Figure 6.12 - IRIS+ Impact Themes and Lenses

Source: McCarthy et al., 2023

In addition to investment themes, VC companies can also choose to apply a racial equity lens, which increases the focus on the inclusion and equity of marginalised communities.

While thematically focused impact funds would already conduct this step at the fund set-up stage and apply it in the DD stage, generalist funds could utilise IRIS+ individually for each investment at the DDs. In this case, the VC investor would identify specific goals based on the IRIS+ framework for each investment (see Figure 6.13 for a sample healthcare-related strategic goal).

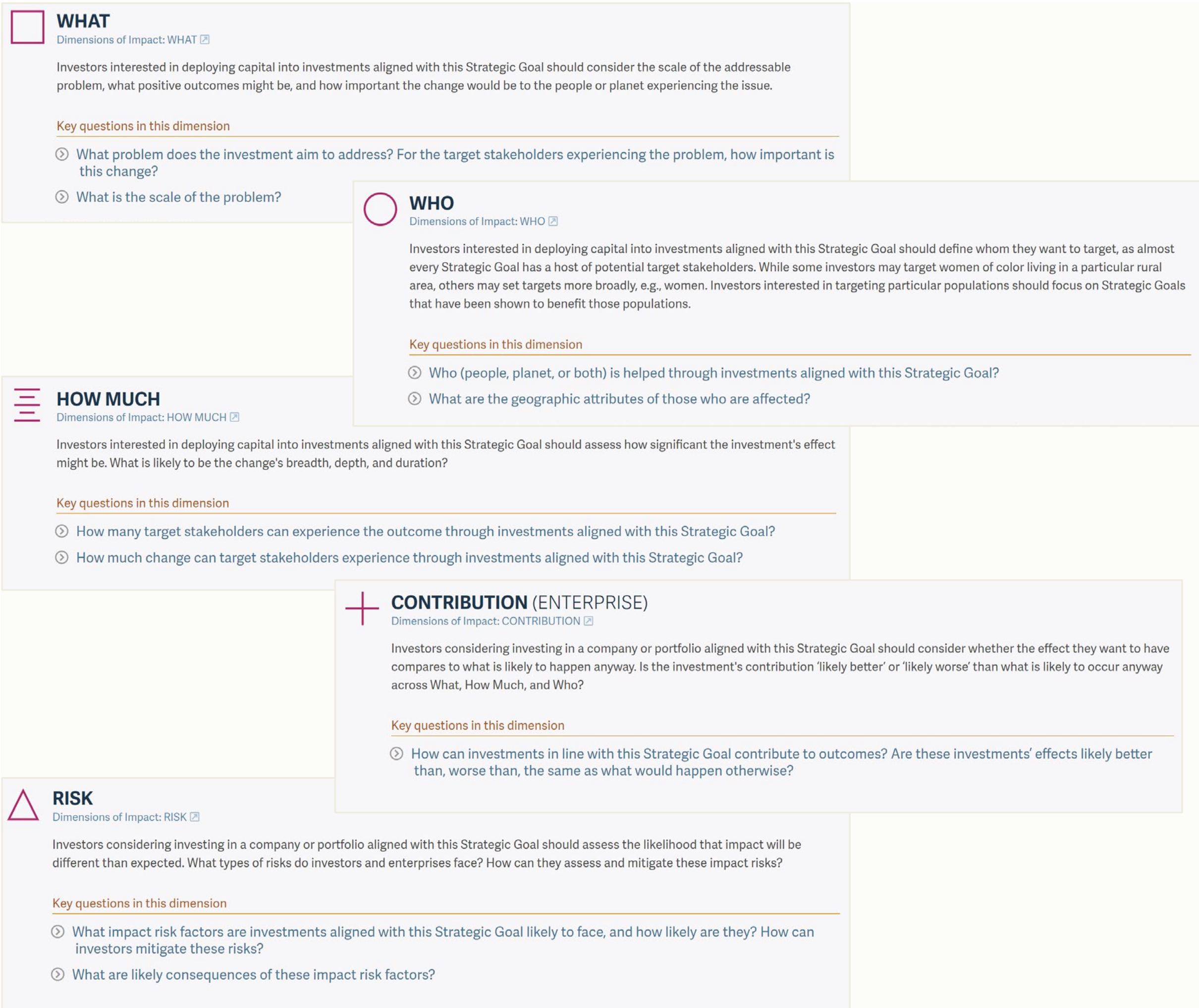
Figure 6.13 - Sample IRIS+ Strategic goal for VC fund (Access to quality healthcare)



Source: (Global Impact Investing Network, n.d.-c)

The VC company accesses the existing research and evidence base that connects common investment goals with outcomes and results as a next step. This step allows the investors to review and consider the evidence that links their investment strategies (declared in the investment thesis for thematic funds or for the specific investment for generalist funds) to the anticipated social and environmental outcomes. Incorporating the FDOI framework also ensures that the outcomes for the stakeholders affected by the start-up are considered. Metrics such as the Importance of Outcome to Stakeholder and Stakeholder Engagement help VC investors evaluate whether the firm's outcomes are significant to key stakeholders and whether these stakeholders are involved in the design, development, and delivery of the products or services (Global Impact Investing Network, 2020). IRIS+ provides an initial set of questions linked to the FDOI framework, such as who is helped by the targeted investment (see Figure 6.14). In addition, each question is detailed further, depending on the strategic goal chosen (e.g. patients, historically disadvantaged communities in developed markets, healthcare providers, healthcare facility administrators, network managers, governments and ministries, and Investors in the healthcare example).

Figure 6.14 - Sample IRIS+ Five dimensions framework (Access to quality healthcare)



Source: Global Impact Investing Network, n.d.-c.

Subsequently, more detailed indicators can be identified from the core metrics sets and the catalogue of metrics provided to incorporate into their DDQs, in addition to the questions identified by the FDOI framework (see Figure 6.15).

Figure 6.15 - Sample IRIS+ Additional Metrics (Access to Quality Healthcare)

HOW is change happening?

PATIENTS SERVED	KEY INDICATORS Number of patients served, by demographic Percent of patients in need receiving healthcare (crude coverage) by demographic
HEALTHCARE WORKERS EMPLOYED	KEY INDICATORS Healthcare workers employed Healthcare worker turnover rate
DATA SYSTEMS	KEY INDICATORS Health records system
PRODUCT OR SERVICE OFFERING	KEY INDICATORS Percent of health facilities provided new access to healthcare information products or services Number of healthcare information products and services provided
EQUITY AND PATIENT PROTECTION	KEY INDICATORS Racial equity audit completed Racial equity strategy Patient protection policy
PATIENT ENGAGEMENT	KEY INDICATORS Stakeholder engagement

Source: Global Impact Investing Network, n.d.-c

Applying the IRIS+ framework and set of indicators allows the VC funds to develop dedicated DDQs based on the start-up's targeted industry for those sectors available in the database. Depending on the start-up's stage, some of these measures can also be utilised as ongoing performance measures for annual reporting.

Applied in a DD, the metrics can be used to develop industry-specific questionnaires, combining the FDOI with industry specificity (see Table 6.23).

Table 6.23 - Sample DD Questions based on IRIS+ (Access to Quality Healthcare)

Dimension	Sample Questions
Strategy	**What:** • What problem does the investment aim to address? How important is this change for the target stakeholders experiencing the issue? • What is the number and per cent of patients (or other stakeholders) by the demographic group receiving the start-up's solution and benefiting from it (effective coverage)? **Who:** • What types of stakeholders are the target of the start-up (for example, patients and community members)? • What is the target stakeholder group regarding demographics, socioeconomics, setting, and geography? **How much:** • What is the number and per cent of patients by demographic group receiving needed treatment and benefiting from it (effective coverage) by demographic group • How much change can the target stakeholders experience through the solution by the start-up? **Contribution:** • How can the start-up contribute to the expected outcomes? Are these effects likely better than, worse than, the same as what would happen otherwise?
Systems	**Risks:** • What impact risk factors is the start-up likely going to face, and how likely are they? How can these risks be mitigated? • What are likely consequences of these impact risk factors?

Source: based on Global Impact Investing Network, n.d.-c

The additional information given by the IRIS+ application allows the VC funds to build up knowledge in potentially unfamiliar sectors while maintaining the same investigation framework. Notably, IRIS+ has a limited selection of developed industry sectors. The industries of some start-ups might not be covered yet, or the solutions provided by the company might fall into two or more sector descriptions. IRIS+ applies the FDOI framework and identifies the same observable structures, albeit providing more detailed descriptions of the covered industries (see Table 6.24). This level of detail also allows the VC funds to investigate mechanisms affecting the founders based on more in-depth discussions of the observable structures.

Table 6.24 Identification of CR Structures (LCA & SROI)

	Actual Layer (Observable Structures & Events)	**Real Layer** (Unobservable Structures & Mechanisms)
Strategy	• Identification of impact area, relevant stakeholder groups (beneficiaries), individual benefits and contribution of the start-up's solution to the generated benefits	• Identification of mechanisms influencing the founders to continuously revise the IRIS+ measures and balance impact aspects and financial aspects
Systems	• Identification of risks affecting the impact generation, including mitigation measures	• Identification of mechanisms driving the prioritisation of activities, preventing the inclusion of impact risk management practices

Source: Own research

6.4. Comprehensiveness Evaluation of ESG / Impact Evaluation Frameworks

VC selection criteria and DDQs have historically focused on entrepreneurs and their team's capabilities, product or service attractiveness, market conditions, and potential returns (European Private Equity and Venture Capital Association, 2007). However, these criteria often overlook the environmental and social dimensions integral to the TBL framework (Horne, 2019). Integrating environmental and social aspects into the DD process can be seen as an attempt to address the reputational, regulatory, and market risks associated with start-ups. This integration is about risk mitigation and uncovering the potential for value creation that aligns with sustainable and ethical practices. Integrating frameworks and methodologies such as SASB, PRI, ToC, FDOI, LCAs, SROI, and IRIS+ into the IDD processes enhances the assessment and management of potential investments' social and environmental impacts. Each tool brings a unique perspective that contributes to an understanding of start-ups' potential solutions they provide from an environmental or social impact point of view (see Table 6.25).

Table 6.25 Comprehensiveness of ESG / Impact Evaluation Frameworks

	ESG Frameworks						Impact Frameworks			
7-S Dimension	**Exclusion lists**	**PAI**	**SDG**	**SASB & GRI**	**PRI**	**TCFD**	**FDOI**	**TOC**	**LCA & SROI**	**IRIS+**
Strategy	X		X		X	X	X	X		X
Structure					X	X				
Systems		X		X	X	X	X	X	X	X
Shared Values					X	X				
Skills					X			X		
Staff										
Style										

Source: Own research

Exclusion lists and the evaluation of SDGs allow the funds to explore parts of the strategy dimension of start-ups. Exclusion lists reflect the strategic decisions on focus industries and which industries are not to be covered, even though they might be economically interesting for the start-up. Similarly, the exploration of SDGs reflects a consciousness of the sustainability issues the start-up might support solving. PAI and SASB/GRI focus on the system's dimension. PAIs generically evaluate potentially negative environmental and social impacts the company might have. SASB/GRI specifically focus on the start-up's business model or industry and identifies the most material ESG aspects. PRI and TCFD allow for a more comprehensive exploration, covering elements of the strategy, structure, systems, shared values dimensions, and skills in PRI's case. The TCFD specifically focuses on climate-related issues and how a company addresses them. The development of a DDQ based on PRI is more generic, covering industry focus (like exclusion lists), risks and organisational responsibilities, leadership incentives and training. Overall, the ESG frameworks evaluate these start-ups' ESG footprint or planned footprint. The staff and style dimensions are not covered by any of the frameworks.

The impact frameworks are set up to evaluate the potential of start-ups to generate positive environmental or social benefits. The FDOI and IRIS+, which is based on FDOI, focus on the strategy and the systems of the start-up exploring what impact will be generated and how. The approach ensures an understanding of the impact's scope and scale and the risks affecting the impact achievement. IRIS+ adds to FDOI by offering a system of measurement metrics that are standardised and aligned with global impact goals. The ToC helps VC firms articulate and map out the pathways through which a start-up aims to achieve its intended social or environmental outcomes. It explores the start-up's strategy, identifying the intended impact across all TBL and how these are generated and measured. The intended systems are explored, identifying the expected outputs and the required inputs to the company's operation. It also covers the skills element by evaluating the founder's skills in achieving the desired outputs, outcomes and impacts. LCAs provide a detailed analysis of the environmental impacts of all stages of a product's life cycle, covering the systems dimension of the 7-S model. The SROI equally covers the system's dimension, quantifying the social value created in monetary terms and offering a clear and measurable indication of the social return on investment. This framework is useful for VCs to demonstrate the tangible benefits of their investments beyond financial returns. The impact frameworks do not cover all aspects of a start-up's operation but focus primarily on the strategy and the systems dimensions of the 7-S model with their evaluation of observable structures. The evaluated impact frameworks do not cover the 7-S model's structure, shared values, staff and style dimensions. In particular, the lack of assessing observable structures relating to the impact roles and responsibilities and overall organisational structure dimension is surprising. In combination with no evaluation of available staff to execute the impact promises, this creates an evaluation gap impact funds might want to address when setting up their DDQs.

6.4.1.1. Recommendation to Management Practice 16

VC management companies could develop their specific ESG DDQ framework based on existing standards linked to the fund's targeted industries, such as SASB/GRI. Even generic funds that do not focus on specific industries or business models could create such framework-based DDQ outlines for reoccurring sectors in their investment profile. This allows the VC fund to focus the ESG DD conversations with prospective start-ups on the value addition potential rather than creating the impression of a compliance exercise. Combining more generic questions from PRI relating to strategy, structure, shared values, and skills could provide a comprehensive evaluation approach.

6.4.1.2. Recommendation to Management Practice 17

Impact funds must declare their approach to evaluating and calculating impact in their SFDR disclosures. The definition of the fund’s approach demonstrates the fund's impact competencies to regulatory bodies and LPs. Therefore, some adaptation of the impact assessment is to be expected. However, impact fund managers could use the described frameworks of ToC and FDOI (potentially in combination with IRIS+) as a foundation. This would simplify the development process of these impact DDs and prevent the start-ups from re-evaluating their company based on differing frameworks. At the same time, the proposed approaches allow for specifications based on the start-up’s business model or industry.

6.4.1.3. Recommendation to Management Practice 18

Impact funds could add generic questions to the proposed frameworks, covering the structure and staff dimensions of the 7-S model. Evaluating the observable structures of organisational roles and the available staff would allow the funds to identify potential gaps early and support the founders in closing these during the holding period.

6.5. Mechanisms in ESG and Impact Due Diligences

Interview participants highlighted the importance of investigating the mechanisms influencing founders, particularly early-stage start-ups (see Table 6.26).

Table 6.26 Relevance of Mechanisms in ESG and Impact DD Process

Int.	SFDR	Sample Quotes
6	8	• *The process before the term sheet is laid down it's [checking] founders' intentions and basic knowledge. So, if they are aware of what is their biggest environmental impact, for example.* • *Obviously, they have almost nothing, because we do very early stage. But the idea Is that they start thinking about what could be asked of them?*
9	8	• *This is a very important part. If you work together with the start-ups three to six months. You actually get a good feeling if they are really convinced of what they're doing or not.*
17	8	• *This is one of the most important parts, the team of the founders, right, and to get the first feeling if they are aware of the importance of sustainability, of ESG and also if they're aware of their impacts they have on the world and on the planet. I think you can have the best ESG questionnaire in place, but if you do not have a feeling about who you are talking to, then… And for me, that's the most important part. Get to know the people who you want to work with and it's a long term relationship that we have with our portfolio companies, right?*

Source: Own research

Using frameworks such as SASB, GRI, PRI, or TCFD in the ESG DD process could lead to a discussion between the VC fund and the start-up to uncover the unobservable structures and mechanisms that influence founders to make decisions relating to ESG. A CR viewpoint on such DDs would encourage investors to look beyond surface-level metrics and outcomes to understand the broader social and environmental systems in which start-ups operate. This perspective acknowledges that while the frameworks mentioned above provide valuable data, the founder's future behaviour is also shaped by economic, cultural, and institutional factors that may not be immediately visible or quantifiable. The above-mentioned lack of comprehensiveness constrains the identification of mechanisms through each framework. For those dimensions tackled by each framework, the VC funds can, however, steer the conversation to identify potential mechanisms for the founders (see Table 6.27).

Table 6.27 Identification of mechanisms through ESG DDs

	Exclusion lists	PAI	SDG	SASB & GRI	PRI	TCFD
Strategy	• In borderline cases, a discussion with founders could identify intentions and commitments to ESG (mechanisms affecting the founders)		• Exploring the start-up's contributions to SDG(s) might allow for a discussion with the founders on how they strategically align these contributions, especially vis-à-vis financial priorities		• In borderline cases, a discussion with founders could identify intentions and commitments to ESG (mechanisms affecting the founders)	• Identification of mechanism preventing the inclusion of climate-related aspects in start-up strategy
Structure					• Identification of mechanisms preventing the establishment of ESG related responsibilities	• Identification of mechanism driving the prioritisation of climate-related roles and positions in the organisation structure
Systems		• Identification of the mechanism to utilise the collected data in ongoing fund operations as management information		• In particular, when a start-up falls in more than one SASB industry sector / GRI standard, the focussed discussion with the founding team about these material subjects can help to unearth mechanisms relating to these subjects.	• Identification of mechanisms driving the prioritisation of activities, preventing the inclusion of ESG risk management practices	• Identification of mechanism ensuring the inclusion of climate-related practices into the start-up processes
Shared Values	**In case data is not available for other dimensions:** • Discussion with founders evaluating their commitment to relevant environmental measures and social aspects, exploring drivers that might encourage or prevent adoption • Assessment potential for the founders' commitment to spend resources (human or financial) for the collection of data in these areas					
Skills					• Identification of mechanism prioritising non-ESG related trainings for all staff	
Staff						
Style	• Discussion with founders on expected leadership style options					

Source: Own research

For each observable structure identified by the ESG framework, the VC fund managers could explore why the founders made certain decisions or how they intend to take these if they have not already taken them. In addition, for those dimensions where no observable structure information is collected, the funds could explore the shared vision of the founders relating to sustainability in general and ESG in particular. Questions about the preferred leadership style of the founders could also be explored, potentially through the discussion of scenarios requiring leadership decision-making.

Analogously, identifying mechanisms affecting the founders relating to the impact solutions are linked to the observable structures discussed above (see Table 6.28).

Table 6.28 Identification of Mechanisms through Impact DDs

	FDOI	TOC	LCA & SROI	IRIS+
Strategy	• Identification of mechanisms influencing the founders to continuously revise the FDOI and balance impact aspects and financial aspects	• Identification of mechanisms influencing the founders to continuously revise the ToC and balance impact aspects and financial aspects • Identification of mechanisms that drive founders to include certain impact areas and exclude others • Identification of mechanisms affecting the founders in their analysis of outcomes		• Identification of mechanisms influencing the founders to continuously revise the IRIS+ measures and balance impact aspects and financial aspects
Structure				
Systems	• Identification of mechanisms driving the prioritisation of activities, preventing the inclusion of impact risk management practices	• Identification of mechanisms influencing the prioritisation of inputs and ways to produce outputs	• Identification of mechanisms driving the founders in their development of assumptions to be added to the LCA and SROI calculations	• Identification of mechanisms driving the prioritisation of activities, preventing the inclusion of impact risk management practices
Shared Values				
Skills		• Identification of mechanisms driving the prioritisation of impact training		
Staff				
Style				

Source: Own research

Notably, impact funds will also undertake an ESG DD, adding to the picture of mechanisms affecting the founders. The FDOI framework (and IRIS+) not only provides static categories but dynamic constructs that interact with each other and are influenced by the broader context in which the start-up operates. This applies particularly to early-stage start-ups, when products and services, processes, and potentially even strategies have not yet been fully developed. Similarly, the ToC framework is not just a roadmap of intended outcomes but is influenced by the founders' beliefs and shared values and the firm's organisational culture. In addition to investigating why founders took certain decisions relating to their FDOI or ToC, the frameworks naturally lead to investigating how founders intend to make certain decisions. Using such frameworks allows VC companies to evaluate the mechanisms influencing the founders and core team members in their start-up journey and make projections on future decisions concerning environmental and social aspects.

CR also recognises the importance of stakeholder engagement in the DD process, as highlighted by IRIS+ metrics such as the importance of outcome to stakeholder and stakeholder engagement. This engagement is not just a procedural step but a means of uncovering the real values, needs, and priorities of those affected by the start-up's activities.

The available frameworks help the VC funds investigate available observable structures and mechanisms. These might affect the establishment of future observable structures, such as policies and procedures affecting the start-up’s environmental or social footprint. The more such frameworks are aligned with the start-up’s business model or industry, the higher the expected engagement of the founders in the process. In addition, the ESG and Impact evaluations can help identify future value creation potentials by the funds.

6.5.1.1. Recommendation to Management Practice 19

When developing the DDQs, VC funds could incorporate questions relating to the mechanisms affecting the founders linked to the evaluation of each observable structure. This helps evaluate a start-up, particularly when fewer observable structures are not established yet.

6.6. Overall Conclusion from Research Objective 2

6.6.1. Summary of Recommendations for Management Practice (Objective 2)

This research identified gaps in the comprehensiveness of commonly used ESG and Impact DD frameworks. 4 recommendations for management practice were developed to allow funds to close these gaps and achieve a more complete picture of the targeted start-up's ESG or impact performance. This enables the funds to reduce the exposure to potential risks and identify value creation potentials to be leveraged in the holding period. The interviewees have already recognised the requirement to add a review of mechanisms, albeit calling it intentions, awareness or conviction. This research provides practical recommendations on incorporating such an investigation into the standard DD process. Such an evaluation allows for in-depth discussions with founders, especially in early-stage start-ups with less observable structures in place. In addition, the founders will become aware of future requirements regarding ESG or Impact from the funds.

6.6.2. Summary of Contribution to Academic Theory (Objective 2)

This ESG and Impact DD framework investigation primarily adds two aspects to management theory. First, the frameworks are evaluated against their individual comprehensiveness to cover all aspects of an organisation, like start-ups. This investigation provides an overview of the focus areas of each of the frameworks and identifies gaps. The second aspect concerns the unobservable structures and mechanisms affecting the start-up founders. The frameworks are evaluated against the ability to unearth these mechanisms to allow VC funds to identify what drives the founders in their decisions. The application of a CR perspective is particularly useful in examining the DD process of VC firms, as it seeks to uncover not just the surface-level attributes of a start-up but also the deeper systemic factors that influence its potential for success and its impact on society and the environment. The literature review has identified a perceived lack of a standardised framework for ESG DDs and, by extension, Impact DDs (Lange & Banadaki, 2023). Therefore, this research contributes to the literature by providing some initial structure for reviewing existing frameworks.

7. FINDINGS OBJECTIVE 3:

7.1. Introduction to Findings Objective 3

The third objective of this overall research is to investigate the results of VC funds' strategic decisions explored in objectives 1 and 2. VC firms' websites are designed to appeal to LPs, potential start-ups, and the public. These sites provide basic information about the VC firm, showcase its strategic investment focus, and offer regularly updated examples of previous investments. Past investments can reveal how environmental and social considerations have influenced investment decisions. The reasons behind these investments are frequently outlined on the websites, indicating whether there was a specific environmental or social focus in evaluating startups.

The investigation first covers an overview of the data collected, followed by an analysis based on the created code book. This investigates the prominence given to environmental and social aspects of the various fund types. This forms a basis to identify underlying mechanisms and unobservable structures affecting the VC industry.

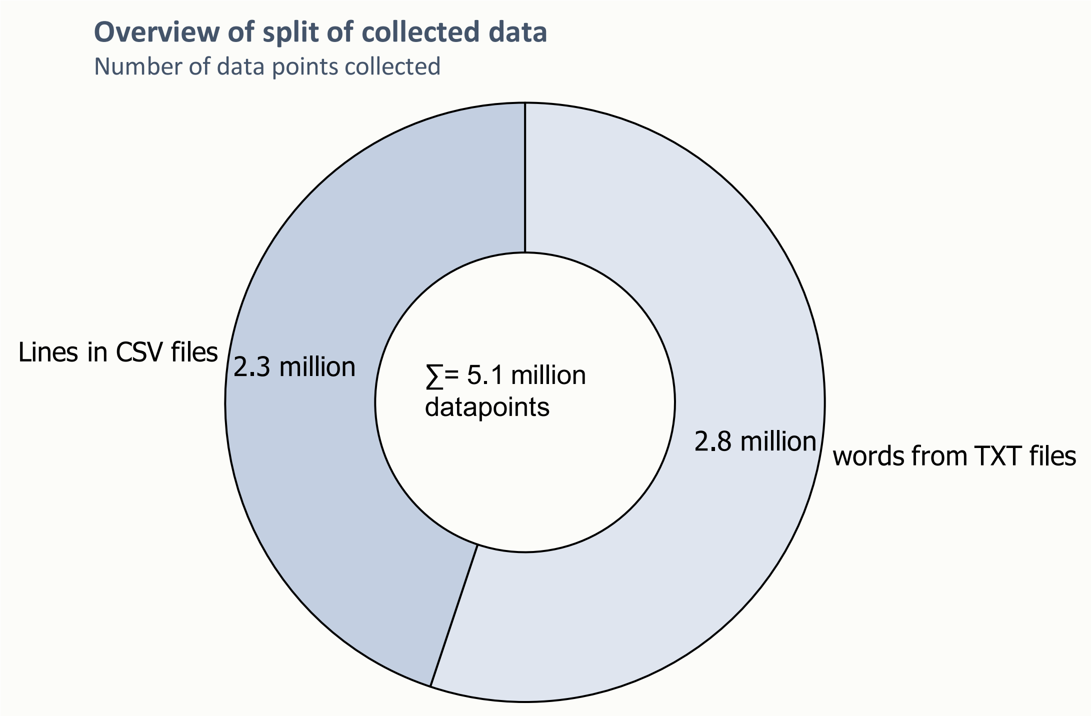
7.2. Background on the collected data

To investigate the prominence of economic, environmental, social, and general impact words on the VC management firms' websites, a codebook was developed, spanning over 80,000 words and 2- or 3-word combinations (see sub-section 4.5.2). The category of general impact was utilised in case a word could be attributed to environmental and social connotations, e.g. sustainable development goals, impact ventures, etc. The analysis is based on data collected in May 2024. It is noteworthy that with the introduction of SFDR disclosure requirements, active VC funds must declare their commitment to ESG or impact objectives on their websites (Regulation (EU) 2019/2088, article 4), in addition to other standardised legal text required by other regulations (e.g. data protection policies, imprint, etc.). This also applies to Article 6 funds, which have a purely financial focus. To avoid any misrepresentation, the following sub-pages on the websites were excluded from the word count and the subsequent analysis:

- *SFDR disclosures / basic information sheets (or similar sub-pages displaying standardised SFDR-related text)*
- *Imprint*
- *Data privacy/data protection / legal*
- *any duplicate pages*
- *any specific locations pages outside of Germany*

The analysis of the VC fund websites is based on the data collected through the self-developed tool described in sub-section 4.5.1. The tool provided two sets of data outputs: a CSV file with the counts of the 1-, 2-, and 3-word combinations from the websites and individual TXT files containing all words from each sub-domain page (e.g. https://www.shu.ac.uk/study-here or https://www.shu.ac.uk/research). In the CSV files, over 2.3 million rows with 1, 2, or 3-word combinations were generated, and the text files contained an additional 2.8 million words (see Figure 7.1).

Figure 7.1 - Overview of Data Points Collected



Source: Own research

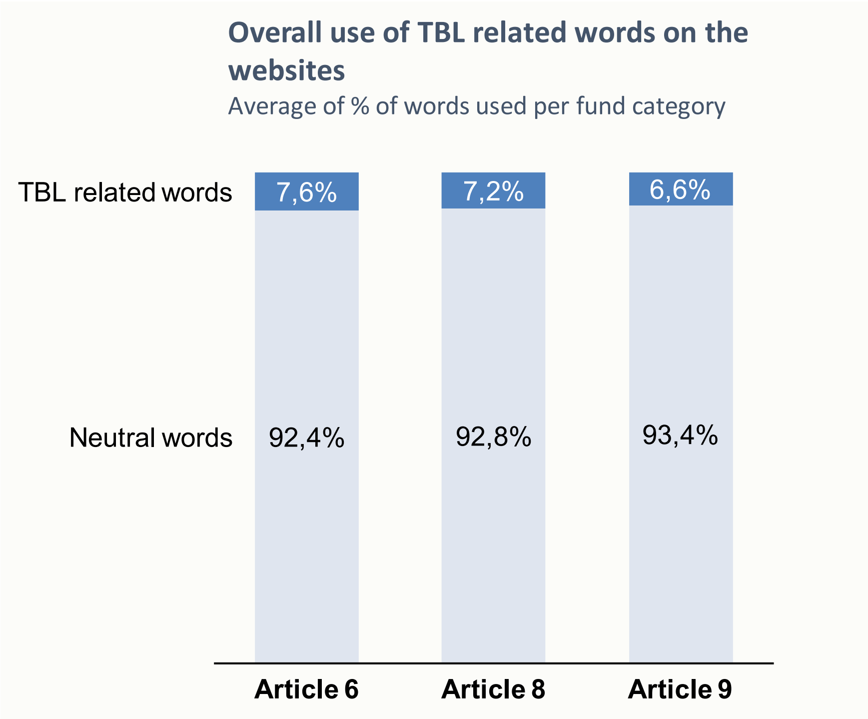
It is worth noting that whilst all data points are based on the individual words on the websites, represented by the 2.8 million words in the TXT files, the CSV files incorporated the count of these and the count of the 2- and 3-word combinations.

The following analysis against the TBL is conducted using the data from the CSV files. The developed TBL codebook contained not only individual words but also 2— and 3-word combinations, allowing for improved differentiation of the language used. The data from the available TXT files could be used for future research purposes.

7.3. Prominence of TBL wording on VC Fund Websites

The identified data shows that a large portion of the wording on the VC fund manager websites is consistently neutral for all fund types and not linked to any of the TBL aspects or impact in general (see Figure 7.2).

Figure 7.2 - Evaluation of TBL-related Wording on VC Fund Websites



Source: Own research

All three fund types have a similar proportion of TBL-related wording compared to neutral wording on their websites. Counterintuitively, the usage of TBL-related words is slightly lower for Article 9 funds than in Article 6 and Article 8 funds. This could indicate a communication strategy that focuses on broader narratives or avoids over-emphasising specific economic, sustainable, or impact terms to appeal to a wider audience. Interview participants emphasised the distinction to philanthropy, supporting this hypothesis (see Table 7.1).

Table 7.1 Distinction of Article 9 Funds from Philanthropy

Int.	SFDR	Sample Quotes
25	9	• *The positioning of impact investing was very near to philanthropy and not near to financial returns. And having in mind you want to be an investor and you want of course to have your returns* • *And I go around now and I say I'm a proud impact investor and I'm not a dreamer, so I know exactly how business goes and that's very important. So we have, we need a really strong mind shift on this one in order to to make it a very serious asset class to make impact investing as a serious asset class for investors, we want returns.*

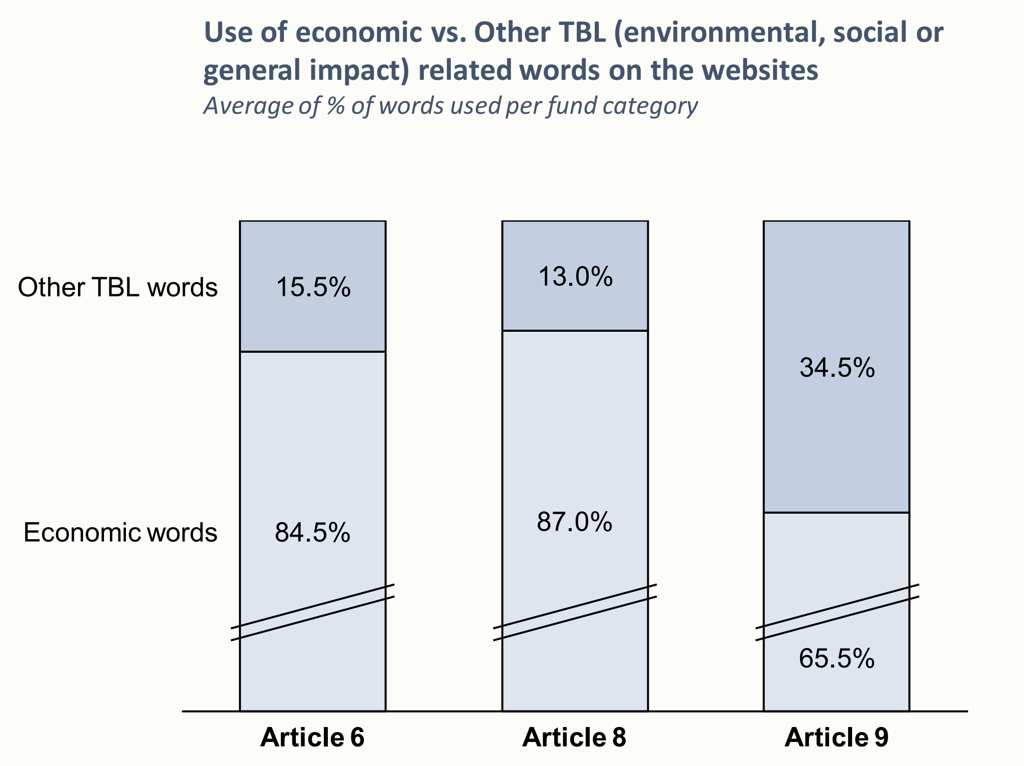
Source: Own research

Given that the target audience contains prospective start-ups, a mechanism that drives such impact funds towards more generic communication could be assumed to avoid missing out on potential deals. A narrower communication focus might prevent start-ups from contacting VC funds due to the assumption that they do not fall into the target group of these funds.

7.4. Evaluation of Economic vs. other TBL-related Wording

When investigating the TBL-related words and the prominence of environmental, social, and general impact themes, the high usage of economic wording by Article 6 funds (84.5 %) aligns with their primary financial focus (see Figure 7.3).

Figure 7.3 - Use of Economic vs. Other TBL-related Words



Source: Own research

From a CR perspective, this reflects the empirical manifestation of deeper economic structures and priorities within these funds. The focus on economic wording is surprisingly high for Article 8 funds, with 87% suggesting that economic outcomes remain crucial despite a declared ESG focus. This might reflect an underlying tension or a dual mechanism where financial performance and ESG outcomes are valued but perhaps not equally prioritised. It might also indicate that with the establishment of SFDR, management companies have raised investments from LPs based on an Article 8 classification but only subscribe to minimal environmental and social commitments. It is noteworthy that even with Article 9 funds, over 65% of the wording is related to economic aspects, demonstrating a strong focus on financial results even for impact funds.

The investigation of the data on a fund-by-fund basis reveals a relatively consistent picture for Article 9 funds, with between 53.5% and 73.7% of words related to economic words on their websites (See Figure 7.4). By contrast, the variation with Article 8 funds is more pronounced, ranging from 41.9% to 100%. Some Article 8 funds use more environmental, social, or general impact words on their website than Article 9 funds. This high quota of environmental and social wording on these fund websites could be indicative of funds that have declared themselves as Article 8 but follow an impact strategy similar to Article 9 funds without the expected administrative workload (e.g. reporting). Interview participant 24 alluded to the strategy of first remaining an Article 8 fund but with an investment focus on sustainability-related start-ups (see Table 7.2).

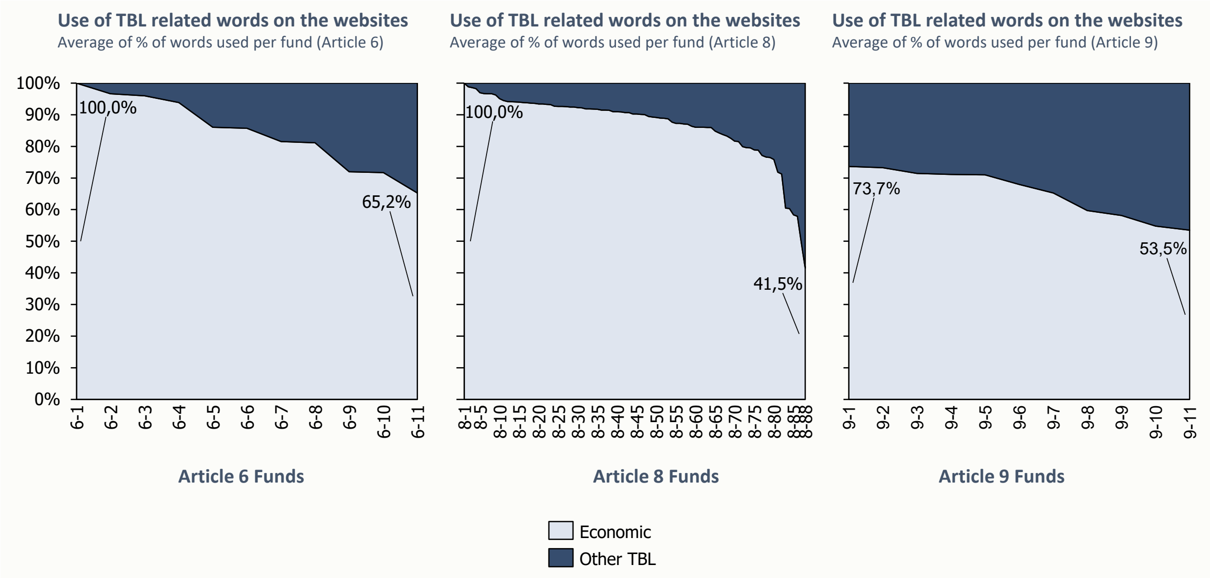
Table 7.2 Mechanism Preventing direct uptake of Article 9 Status

Int.	SFDR	Sample Quotes
24	8	• *Climate tech is definitely a topic now. So out of the first four investments two are climate tech.* • *We could go out there like the Article 9 funds and boast with it. But we don't because first we thought on the ESG part we do what's necessary and stay on the sidelines until there's a standard.*

Source: Own research

This would reflect a mechanism driving increased attention to environmental and social goals. Alternatively, this score could result from greenwashing efforts, the manifestation of a mechanism prioritising economic prosperity by pretending environmental or social focus vis-à-vis their LPs.

Figure 7.4 - Breakdown of Economic vs other TBL-related Words by Fund



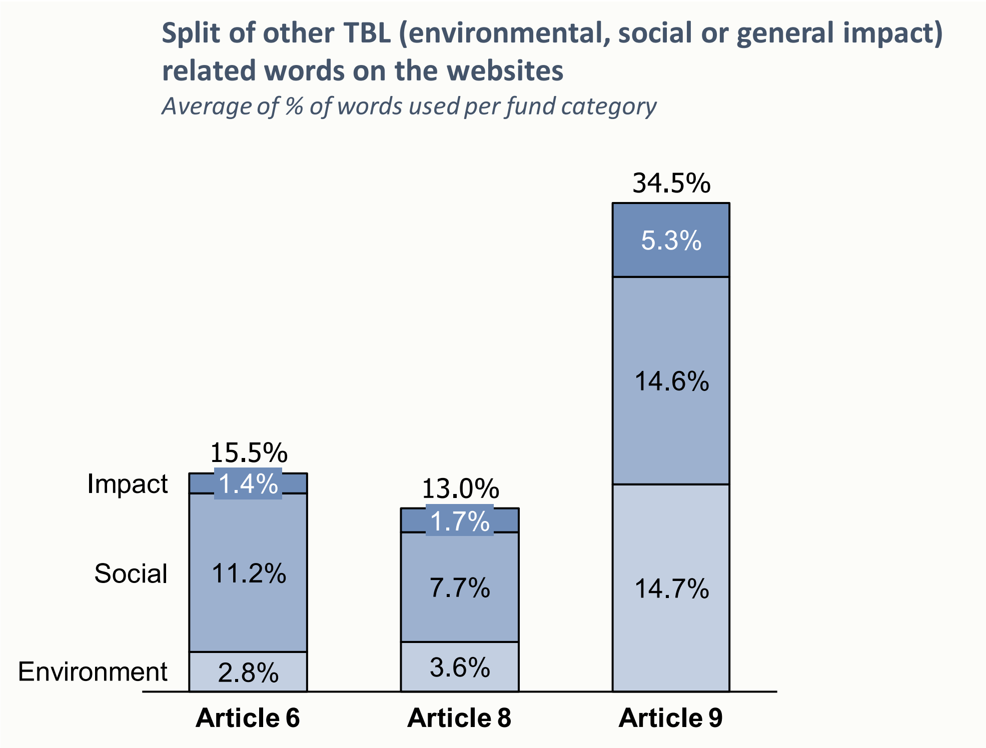
Source: Own research

Six Article 8 funds have between 41.9% and 60.5% of economic words on their websites, all other 82 Article 8 funds display similar characteristics as Article 6 funds. This similarity between Article 6 and the majority of Article 8 funds could indicate the recent changes in the SFDR regulation and that these existing VC funds have not updated their websites according to their new SFDR status. Notably, the SFDR disclosures on websites were excluded from this analysis. From a CR point of view, this could indicate that the structures created by SFDR have not been sufficiently strong enough to drive the funds to update their websites according to their new focus on ESG. Whilst the obligatory standardised SFDR disclosures have been added, the remaining website content was not updated to reflect any potential additional attention to ESG.

7.5. Review of other TBL-related wording on VC Fund websites

The prominence of other TBL words related to the environment, social aspects or general impact with Article 6 and 8 funds (15.5% and 13%, respectively) indicates that while these aspects are not the primary focus, they nevertheless are part of the fund's narrative (see Figure 7.5).

Figure 7.5 - Split of other TBL related Words



Source: Own research

This might indicate an underlying mechanism, potentially driven by market demands, that influences these funds to add some communication related to environmental and social aspects. Interview participant 11 corroborates this hypothesis as a representative from an Article 6 fund, with a de-facto exclusion list and an investment focus on sustainability (see Table 7.3).

Table 7.3 Relevance of Sustainability for Article 6 Funds

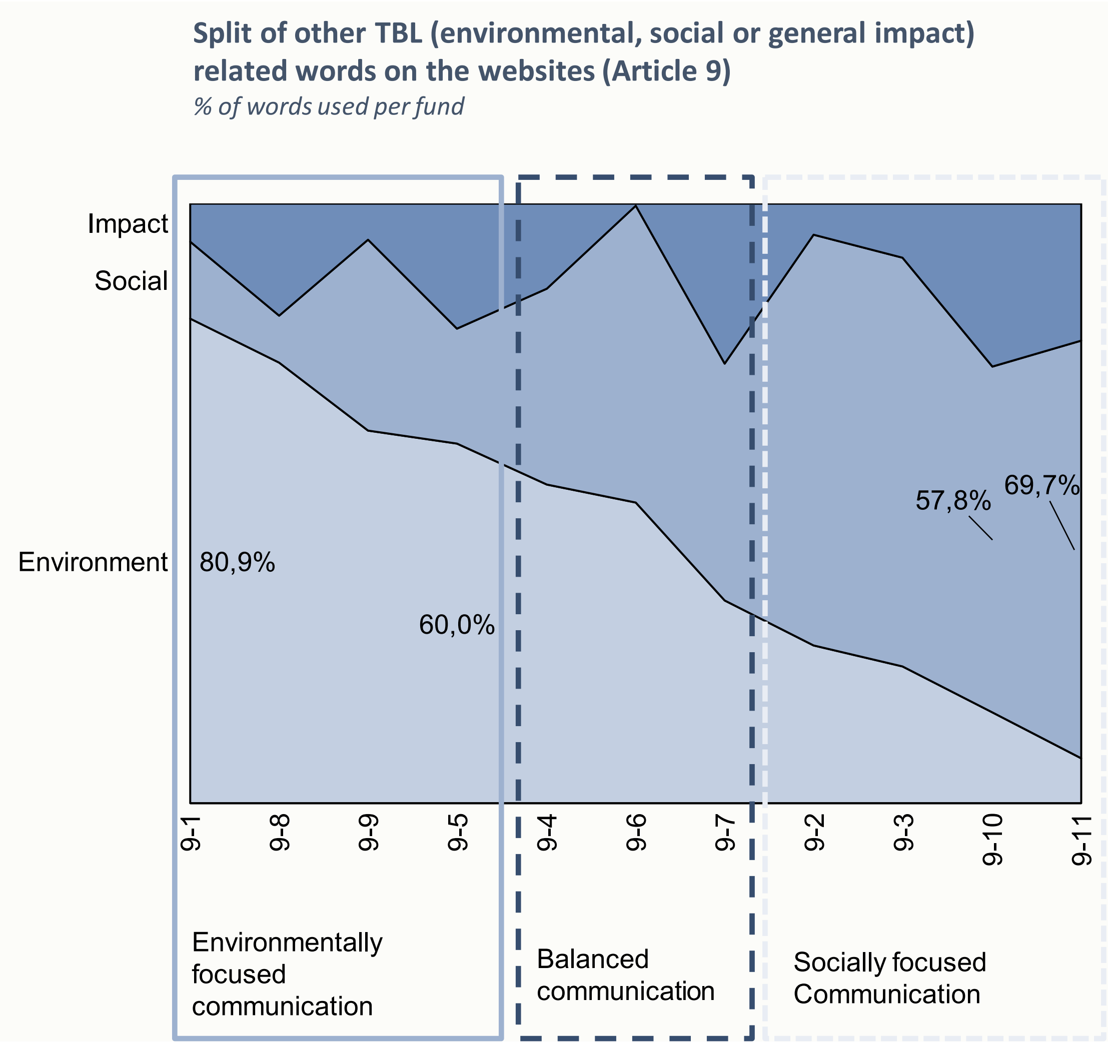
Int.	SFDR	Sample Quotes
11	6	• *But ESG does play a role.* • *We would not invest in gambling or pornography.* • *The fact that we have it as our investment thesis, that sustainability is one pillar of our investment thesis will definitely continue because I think it's rather going to get bigger than smaller. It's an important part of new brands and especially doing that in an authentic way and not greenwashing way.*

Source: Own research

Article 6 and Article 8 funds appear to prioritise messaging social aspects on their website with 11.2% and 7.7%, respectively, of TBL-related words. Environmental and social words on the websites of Article 9 funds (14.7% and 14.6%, respectively) appear balanced and represent the highest among the three fund types, reflecting the alignment with their impact-driven mission. From a CR viewpoint, this could be interpreted as empirical evidence of the funds' strategic commitment to generating social and environmental impact, influenced by underlying mechanisms like investor or societal expectations or organisational shared values as illustrated by the interview participants (see sub-sections 5.5.1 and 5.5.2). Contrary to Article 6 and 8 funds, where social words dominate (11.2% and 7.7% respectively), on average, the emphasis of Article 9 funds appears evenly balanced between social and environmental words.

However, a deeper dive into the use of words on the fund websites reveals that most Article 9 funds have either an environmental or a social focus according to the words on their websites (see Figure 7.6). The four funds on the left use between 60% and 80.9% of their other TBL-related wording on environmental aspects, indicating an environmental focus. On the other hand, the four funds on the right prioritise social aspects in their communication with between 57.8% and 69.7% of other TBL-related wording. Three Article 9 funds display balanced communication regarding environmental and social words. It is worth noting that two of these three funds with balanced communication are self-declared climate impact funds, specifically targeting investments that solve the climate crisis. The balanced communication on the website indicates a mechanism driving these funds to describe the climate crisis and the associated solutions of their start-ups not only as an environmental subject but also as a social one.

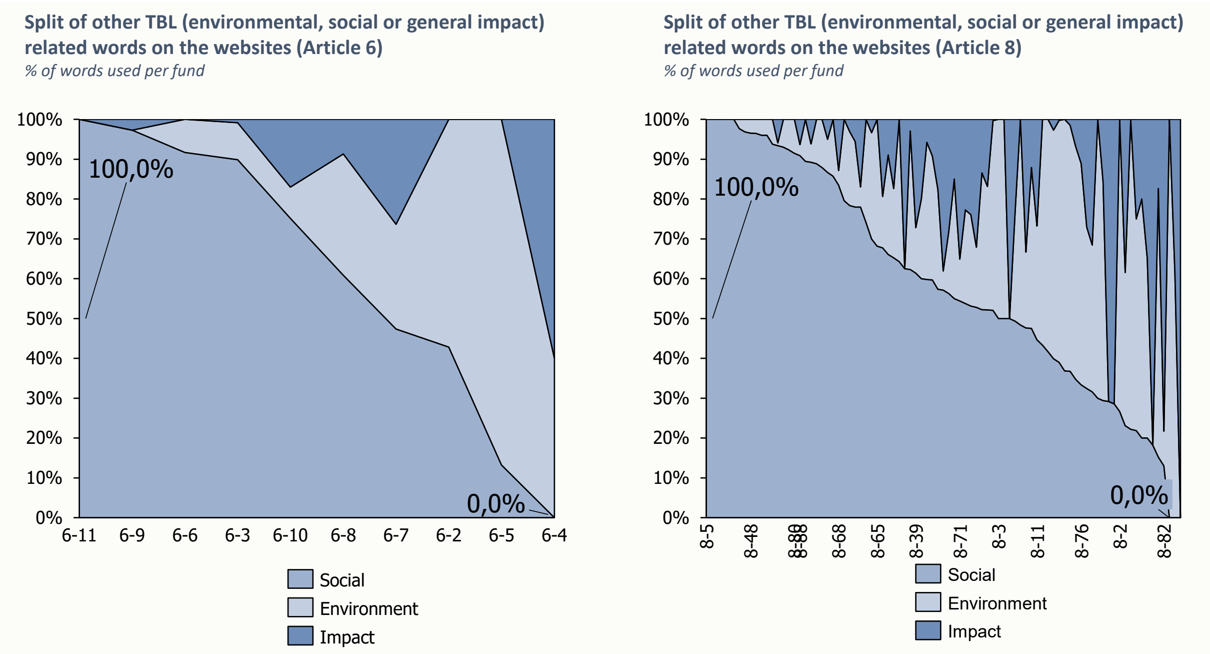
Figure 7.6 - Split of other TBL Wording by Fund (Article 9 Funds)



Source: Own research

The detailed evaluation of Article 6 and Article 8 funds confirms the similar focus on social words on their websites (see Figure 7.7). Article 8 funds have a spread from 0% to 100% of other TBL wording focused on social issues, and three funds have no socially connotated wording on their website. However, 56 funds, representing 63% of Article 8 funds, have more than 50% social wording on their internet appearance (of other TBL wording).

Figure 7.7 - Split of other TBL Wording in Articles 8 and 6 Funds



Source: Own research

Similarly, Article 6 funds also have a spread of 0% to 100% contribution of social wording on their website (of all other TBL wording); only one fund has 0% social wording. Fund 6-1 has been excluded from this analysis, as the wording on its website is 100% economically focused.

7.6. Discussion of TBL Evaluation of VC Websites

The analysis reveals that economic considerations remain the primary focus in the public communications of German VC firms, even for funds declaring an ESG or impact orientation. While environmental and social aspects are acknowledged, their prominence is relatively low, reflecting underlying economic structures and priorities within the industry. The findings indicate potential tensions or dual mechanisms where financial performance and ESG/impact goals are valued but not equally prioritised. Market demands, investor expectations, and organisational values may drive the inclusion of environmental and social messaging, but economic success appears to remain the overarching priority.

The observed variations suggest that while regulatory frameworks like SFDR aim to standardise sustainability declarations, the actual implementation and emphasis on TBL aspects can vary based on underlying mechanisms such as stakeholder demands, organisational shared vision, and resource allocation to update these websites. A large portion of Article 8 funds display a similar communication focus about environmental and social aspects as their Article 6 counterparts, which have a purely financial focus. In the light of the findings from Objective 1, where participants highlight the importance of reputational aspects (see Section 5.8), this limited focus on the communication of Article 8 funds on their websites is surprising.

7.6.1. Recommendation for Management Practice 20

The TBL-related communication on the websites of Article 6 and Article 8 funds demonstrates a high level of similarity. Article 8 VC management companies with a true commitment to ESG might consider reviewing their website content from a TBL point of view to demonstrate a more consistent picture with the organisational shared values.

7.7. Conclusion from Research Objective 3

7.7.1. Summary of Contribution to Management Practice (Objective 3)

Relating to the addition to management practice, it is recognised that websites are only one element of fund communication. However, as the virtual signpost of a company, fund managers might consider reviewing their website content following this analysis. In particular, Article 8 funds appear to be struggling to communicate their emphasis on ESG via this medium. Funds might have chosen to only add an SFDR disclosure page to their website, which has been excluded from the analysis. The lack of TBL-related wording on the rest of the web pages might reflect these funds' reduced commitment to ESG. A fund with a fully integrated ESG practice might expect relevant wording to be prevalent in all parts of its communication. This research provides practical insights to help fund managers better align their website content with their ESG practices, preparing them for effective communication with their stakeholders.

7.7.2. Summary of Contribution to Academic Theory (Objective 3)

The evaluation of fund communications on their websites was a comprehensive process. It began with developing a tool that counted words on websites, followed by creating a codebook with over 80,000 words and word combinations that classified these words into the TBL aspects. The analysis, which involved over 2.8 million data points, was initially intended to incentivise potential interview partners. However, it has yielded interesting findings on TBL and communication preferences. The custom-made data collection tool could be applied to further research areas, evaluating the communication of large numbers of websites in a similarly extensive way. With its unique approach and extensive data analysis, this research presents novel findings that will pique the interest of professionals in the VC industry and pave the way for future studies using this approach.

The communication on VC fund websites represents an aspect of their reputation-building efforts linked to the style dimension of the 7-S model, which is accessible to start-ups and prospective investors. Through a CR lens, the viewpoint allows for identifying underlying structures and mechanisms affecting these funds based on the empirical data collected. Therefore, the linkage of TBL, the 7-S model, and CR unearthed additional findings for the academic community.

The analysis of VC fund websites reveals a consistent focus on economic wording across all fund types (Articles 6, 8, and 9), even for funds declaring an ESG or impact orientation. While environmental and social aspects are acknowledged, they are given relatively low prominence compared to economic factors. This finding suggests underlying economic structures and priorities within the VC industry and potential tensions or dual mechanisms where financial performance and ESG/impact goals are valued but not equally prioritised, with economic success remaining the overarching priority.

8. CONCLUSION

8.1. Introduction to the Conclusion Chapter

This research explores the intersection of the TBL and VC within the specific context of Germany, employing CR as its philosophical foundation. The study addresses a significant gap in academic knowledge, offering a novel perspective on a rarely investigated area. A comprehensive literature review was conducted throughout the doctoral journey, utilising dedicated searches on research databases, Google Scholar alerts, and specific searches. This rigorous process ensured a thorough overview of existing knowledge in the field, forming the basis for the study's theoretical framework and contextualising its findings. While individual elements of this research have been explored previously, the unique combination of TBL and VC in Germany through a CR lens represents a significant contribution to the field. Notable scholars such as John Elkington have examined the TBL concept extensively, primarily focusing on larger corporations. However, this study extends the application to the VC industry and start-ups, addressing a gap identified by authors in the field. This research provides a comprehensive overview of the VC- and the connected start-up value chains as a foundation for the findings. While some studies have explored the financial aspects of VC in Germany, they have not considered the social or environmental bottom lines. Methodologically, this study innovates by applying CR to this field of study, not only exploring the observable structures affecting the industry but also identifying mechanisms affecting the agents. The 25 semi-structured interviews provided insights into the mechanisms affecting senior VC industry participants' strategic decisions related to the fund set-up and the implications to subsequent fund operations. These in-depth interviews allowed for a detailed examination of the unobservable structures these agents are exposed to. This can potentially drive the increased application of environmental and social aspects into daily fund operations. The thorough review of VC ESG and Impact DD frameworks, through the CR lens, exploring the ability of each to identify mechanisms affecting the start-up founders, also adds a novel viewpoint to the field. Previous studies focused on the evaluation of observable structures of start-ups and the frameworks applied. These studies neglected the unobservable structures and mechanisms affecting these founders. Employing a custom-developed tool to analyse VC fund communications on websites allowed for a more extensive and efficient website content review, attributing words and phrases to economic, environmental, and social contexts. This process generated over 5 million data points, 2.8 million of which were incorporated into the study. By exploring the underlying mechanisms that influence the integration of environmental and social aspects into decision-making processes, this research contributes to academic theory. It offers practical insights for the business community. It builds upon existing studies that have identified positive correlations between environmental responsibility, social aspects, and company financial performance, underscoring the potential value of implementing TBL in VC and SMEs. This research's contribution to management practice and academic theory is described in the following sections. Limitations and future research opportunities are explored, and a retrospective of the entire research journey concludes this research.

8.2. Contribution to Management Practice

This study provides VC fund management companies with a deeper understanding of how they can shift their decision-making process to encompass more factors linked to environmental protection and social equity. It covers the most strategic decisions involved in setting up a fund, including the implications of such decisions on fund operations, their DD processes, and communication preferences.

8.2.1. Objective 1: Changes to Fund Operations

This study identified 15 recommendations for management practice, grouped into four major categories, covering change management requirements, materiality assessments, the LPs' sustainability drive and observations of the regulatory environment.

8.2.1.1. Proactive Drive of Change Management in Funds and Industry

The research highlights the importance of proactive change management within the VC industry for funds classified as Article 8 and Article 9. This covers efforts within funds and the wider industry. In the absence of the SFDR classification, funds traditionally did not have to demonstrate commitment to ESG or impact. Therefore, this commitment and the resulting changes to fund operations are novel to the team members on all levels of funds, making it a requirement to address these changes in a structured manner. Equally, Fund managers are encouraged to actively communicate the financial successes of impact start-ups and ESG success stories within their portfolios. By showcasing significant financing rounds or successful exits, fund managers can inspire the creation of more ESG-compliant start-ups, thus expanding the pool of potential investments. Article 8 funds, in particular, should focus on the value-creation potential of ESG initiatives rather than treating ESG as a mere compliance issue. Fund managers can leverage software applications designed for ESG data collection and reporting to streamline the reporting process, reducing the workload on team members. These tools can facilitate efficient data gathering from portfolio companies and aid in reporting to

LPs. Fund managers should also influence software providers to ensure the integration of different applications, minimising the duplication of reporting efforts by start-ups and funds internally. For funds newly establishing a sustainability focus, applying standard change management practices can ensure internal education and adopting ESG principles. Sharing internal and inter-fund success stories related to ESG can help late adopters from start-ups, internal staff, and LPs understand the value generated by focusing on ESG and distinguish between ESG and Impact investing. Fund managers could consider evaluating organisational buy-in and the availability of relevant skills in a structured manner, allowing responsible ESG staff to develop a tailored transformation program for the fund.

8.2.1.2. Focus on Materiality Assessments

Agents managing Article 8 or 9 funds should emphasise materiality assessments to enhance their portfolio companies' impact measures and ESG performance, recognising the potential for value creation. Given that ESG and impact DDs provide essential data for evaluating potential impact opportunities and ESG risks, VC funds should develop specific DDQs tailored to the material subjects relevant to their target sectors, industries, or business models. This ensures that risks and opportunities are accurately identified. Fund managers can facilitate initial materiality assessments for their portfolio companies, allowing start-up founders to focus on the most relevant ESG issues and educating them on critical aspects of their company's ESG journey. As the start-up matures, it can progressively address additional ESG aspects. Furthermore, fund managers could support start-ups in prioritising performance metrics linked to the material subjects of their sectors, industries, or business models and establish more frequent reporting on a concise list of critical ESG and impact items. This approach enables fund managers to offer targeted portfolio support and effectively monitor progress, thereby integrating materiality assessments into their change management strategies to drive value creation and ensure that ESG considerations are deeply embedded in their investment processes.

8.2.1.3. LPs Driving Implementation of Sustainability

HNWIs and FOs could consider prioritising sustainability in their investments, even if their primary goal is financial returns. As SWFs and INIs increasingly emphasise sustainability, more later-stage funds are expected to transition towards Article 8 and 9 classifications. This shift will reduce the availability of non-sustainable follow-up rounds and industry exits, potentially diminishing financial benefits for LPs invested solely in Article 6 funds. Although the timeframe for this transition is uncertain, the trend is clear. To support this shift, SWFs and INIs are incentivised to encourage the creation of additional VC funds with a focus on environmental or social aspects. These LPs could consider offering adapted management fee structures, fund durations or additional impact carry incentives to encourage management companies to establish financial products with higher sustainability ratings.

8.2.1.4. Monitoring Upcoming Regulatory Changes

For VC fund managers, a thorough understanding of the structures associated with the SFDR and other related regulations is essential and strategically advantageous. Fund managers can proactively align their strategies with the evolving investment landscape by closely monitoring regulatory changes. This proactive approach will help maintain their attractiveness to various LP types and position them as industry leaders. Although the regulatory landscape is in a morphogenetic state, with changes expected to take a relatively long time, VC management companies should evaluate their current approaches against anticipated changes to gain insights into the efforts required once regulators implement updates. However, it is not just about adapting to changes but also about influencing them. Active participation in consultations by regulatory bodies such as the European Securities and Markets Authority (ESMA), the European Commission, or the German BaFIN is crucial to ensure that their feedback is considered. Depending on the fund size and available resources, VC management companies might also consider providing direct feedback to regulatory representatives to influence the development of these regulations. These lobbying requirements are irrespective of the parties elected in the EU Parliament. Depending on the parties elected to the EU Parliament, the message might have to be adapted to highlight sustainability achievements or financial benefits.

Overall, the objective to investigate how VC funds' strategic decisions in fund set-up are influenced by structures and mechanisms, with a focus on identifying incentives for incorporating sustainability-related aspects into fund theses has been achieved. The knowledge of these structures and mechanisms allows fund managers to prepare for the effective incorporation of additional sustainability measures.

8.2.2. Objective 2: Enhancing Due Diligence Frameworks

The research identified gaps in the comprehensiveness of commonly used ESG and Impact DD frameworks. Four recommendations for management practice were developed to allow funds to close these gaps and achieve a more complete picture of the targeted start-up's ESG or impact performance. This enables the funds to reduce exposure to potential risks and identify value-creation potentials to be leveraged during the holding period. Interviewees have recognised the requirement to add a review of drivers affecting the founders (i.e. mechanisms in the CR sense). This research provides practical recommendations on incorporating such an investigation into the standard DD process. Such an evaluation allows for in-depth discussions with founders, especially in early-stage start-ups with less observable structures in place. Additionally, founders will become aware of future requirements regarding ESG or Impact from the funds. To achieve this, VC firms could create ESG DDQ frameworks based on established standards, such as SASB or GRI, tailored to their target industries. Even funds without a specific industry focus could benefit from developing framework-based DDQ outlines for sectors frequently appearing in their investment portfolios. This approach allows VC funds to steer ESG DD conversations towards value addition potential rather than presenting it as a compliance exercise. To further enhance the comprehensiveness of their evaluation approach, VC firms could integrate more generic questions from the PRI framework covering the missing dimensions of the 7-S model. These questions could address strategy, structure, shared values, and skills, providing a well-rounded assessment of potential investments.

Demonstrating impact competencies is essential for impact funds for regulatory bodies and LPs. While some adaptation of impact assessment methods is expected, impact fund managers could utilise established frameworks such as ToC and FDOI, potentially in combination with IRIS+, as a foundation for their IDD processes. This approach would streamline the development of impact DDQs and prevent start-ups from having to re-evaluate their companies based on differing frameworks. To further enhance their DD process, impact funds could incorporate generic questions covering the structure and staff dimensions of the 7-S model. By evaluating observable organisational structures and available staff, funds can identify potential gaps early in the process and support founders in addressing these issues during the holding period.

When developing DDQs, VC funds should consider including questions exploring the mechanisms affecting founders. This approach is especially valuable when evaluating start-ups with less established observable structures (in the CR sense, covering all 7-S's), as it provides insight into the underlying factors influencing the company's development. By implementing these comprehensive ESG and impact DD frameworks, VC firms can gain a more nuanced understanding of potential investments, identify risks and opportunities more effectively, and provide targeted support to portfolio companies. This approach not only enhances the quality of investment decisions but also positions VC firms to better align with evolving regulatory requirements and stakeholder expectations in sustainable and responsible investing.

Overall, the objective to evaluate sustainability DD methodologies informing strategic decision-making by VC firms, identifying structures and mechanisms that may influence future start-up behaviour has been achieved. The research evaluated those ESG and impact DD frameworks highlighted by participants, academia and industry associations for comprehensiveness against the 7-S model and for their ability to identify mechanisms affecting the start-up founders. This allows VC managers to evaluate their own DD frameworks and close potential gaps based on the findings of this research.

8.2.3. Objective 3: Improving Fund Communication

Relating to the addition to management practice, it is recognised that websites are only one element of fund communication. However, as the virtual signpost of a company, fund managers might consider reviewing their website content following this analysis. In particular, Article 8 funds appear to be struggling to communicate their emphasis on ESG via this medium. Funds might have chosen to only add an SFDR disclosure page to their website, which has been excluded from the analysis. Approximately 50% of funds evaluated have added the SFDR discloses to their websites (see Section 2.5); however, whether this included a broader review of the content of the rest of the webpage cannot be ascertained. The lack of TBL-related wording on the rest of the web pages might reflect these funds' reduced commitment to ESG. A fund with a fully integrated ESG practice might be expected to have relevant wording prevalent in all parts of its communication. This research provides practical insights to help fund managers better align their website content with ESG practices, preparing them for effective stakeholder communication.

Overall, the objective to analyse the prominence of TBL elements on VC websites deducing mechanisms and structures that reflect these funds' strategic decisions regarding sustainability commitments has been achieved. The evaluation provides fund managers with means to review the messaging on their own fund websites to ensure alignment of their strategic intentions with the communication.

8.2.4. Overall Contribution to Management Practice

The research provides comprehensive recommendations for enhancing management practices within the VC industry, particularly concerning ESG and impact investing. By proactively driving change management, focusing on materiality assessments, encouraging LPs to prioritise sustainability, monitoring regulatory changes, enhancing DD frameworks, and improving fund communication, VC funds can better align their strategies with evolving industry standards and stakeholder expectations. Therefore, the overall aim to enable German VC firms to better integrate the TBL into their strategic decision-making, particularly in fund set-up, DD, and public sustainability commitments, by identifying the underlying structures and mechanisms shaping sustainable practices in the industry has been achieved. This research provides an overall guide for practitioners in the VC industry by evaluating the strategic decision of VC funds relating to fund set-up, DD practices and the communication thereof. The evaluation of the observable structures wholistically based on the 7-S model allows VC fund managers to understand the requirements for their fund when implementing ESG or impact into their investment thesis. In addition, the consciousness of the factors (CR mechanisms) identified in Objectives 1, 2 and 3, influencing industry participants (CR agents), provides the means to understand change management requirements when conducting such a transition. The findings of this research have already been used in advisory assignments with German VC funds and workshops with participants in the ecosystem. The initial feedback from customers and workshop participants was positive throughout, particularly related to the value generation aspect of ESG, the identification of material subjects to ensure specificity in DD processes and the focus on unobservable structures and mechanisms influencing the agents in the industry. These activities confirmed the validity of the recommendations for management practice identified in the research.

8.3. Contribution to Academic Theory

The research conducted across three key objectives provides significant insights into the evolving landscape of VC firms, their strategies, and the integration of TBL considerations. This comprehensive analysis synthesises the findings and their contributions to academic theory, incorporating insights from a structured literature review and a unique combination of the TBL and VC within the specific context of Germany, using CR as its underlying philosophy.

8.3.1. Objective 1: VC Firm Strategies and Sustainability Integration

The first objective of this research was to illuminate the strategic shifts within VC firms towards greater ESG and impact integration. This analysis identifies key observable structures and uncovers mechanisms driving change in the strategy development of VC fund management companies covering regulatory and market drivers, LP influence, the recognition of financial opportunities and organisational change requirements.

8.3.1.1. Regulatory and Market Drivers

The research highlights pivotal observable structures influencing VC firm strategies, including the EU Green Deal and SFDR. These regulatory frameworks reshape the investment landscape, compelling VC firms to adapt their strategies to comply with new standards and meet evolving market expectations. The findings align with the literature's emphasis on the importance of policy and regulatory environments in shaping green finance innovation, as highlighted by Mukherjee et al. (2024) and Criscuolo and Menon (2015). The research extends this understanding by providing an up-to-date overview of the regulatory landscape affecting VC funds in Germany, contributing to the academic knowledge of how these frameworks reshape the investment landscape. The literature review reveals a growing recognition of sustainability considerations among dealmakers, acknowledging that material concerns could be dealbreakers. This trend underscores the opportunity to approach ESG as a platform for VC and PE, leveraging shared learnings and best practices to maximise value creation potential. The research adds to academic theory by providing an up-to-date overview of the regulatory landscape affecting VC funds in Germany. In addition, the CR structures and mechanisms these regulatory conditions create on VC fund managers have been explored, contributing to the academic knowledge in the field (see Sub-section 5.4.3).

8.3.1.2. Investor Influence and Generational Shifts

The findings underscore the influential role of SWFs, particularly entities like the EIF and KFW Capital, in driving change within the VC industry. These institutions set stringent requirements that shape industry standards and influence investment decisions. Similarly, INIs, including banks, insurance companies, and pension funds, contribute to the shift towards sustainability considerations driven by regulatory compliance and internal strategies. A notable trend identified is the generational shift in HNWIs and FOs towards greater interest in impact investing. This change in investor preferences creates new dynamics in the VC ecosystem, balancing financial focus with sustainability considerations. Existing research, for example from Dahmann (2023) identifies investment sums by LP type in VC. However, the mechanisms driving the participants of all three LP types towards increased attention to sustainability in their investments have not been identified in the academic literature, thereby closing this gap (see Sub-sections 5.2.1, 5.2.2 and 5.2.3). The identified influence of SWFs and INIs on driving change within the VC industry complements the diverse funding landscape for SMEs engaged in green innovation described by Owen (2023). This research contributes by uncovering the mechanisms driving different LP types towards increased attention to sustainability in their investments, an aspect less explored in the academic literature.

8.3.1.3. Financial Opportunities and Impact

Previous research has already identified the interconnectedness between impact and profitability. Recent studies suggest that ESG and sustainability priorities can benefit valuations over the long term, particularly when integrated into the company's core strategy. This research contributes to academic theory by providing evidence that VC firm participants increasingly see financial opportunities in environmental and social start-ups, challenging the traditional view that impact investments come at the expense of returns. The addition to academic theory is therefore focused on identifying CR mechanisms and how the expectation of increased financial returns drives the implementation of sustainability focus (see Sub-section 5.2.4). The findings on financial opportunities and impact extend the existing literature's recognition of the interconnectedness between impact and profitability. By providing evidence that VC firm participants increasingly see financial opportunities in environmental and social start-ups, this research challenges the traditional view presented by Gaddy et al. (2017) that cleantech investments posed high risks and yielded lower returns.

8.3.1.4. Fund Operations

The study identifies crucial insights about the challenges and adjustments associated with integrating environmental and social aspects into VC fund operations. These include creating specialised roles such as heads of science or carbon math, distributing ESG responsibilities among investment managers, and evolving the ESG role from compliance-focused to a more integrated function within the investment team (see Sub-section 5.3.1). The research highlights the importance of integrating impact considerations throughout the investment lifecycle, from deal sourcing to portfolio support. Observable structures include VC fund sourcing and DD processes, standard carry calculations, and regulations, including more stringent reporting requirements for Article 8 and 9 funds (see Sub-sections 5.4.1, 5.4.2 and 5.4.3). Unobservable structures and mechanisms involve informal VC networks and a drive towards impact investments by senior agents in the industry. The study identifies the challenges of balancing ESG with other investment criteria, particularly in early-stage ventures, and the evolving nature of financial incentives, with carried interest increasingly linked to specific impact goals (see Sub-section 5.4.4). The insights into the challenges and adjustments associated with integrating environmental and social aspects into VC fund operations align with the literature's identification of information asymmetry and the need for specialised knowledge in the green technology sector, as noted by Harrer & Owen (2022) and Bento et al. (2019). This research adds to academic theory by identifying the observable structures that should be considered and adding the investigation of these mechanisms affecting participants throughout the fund operations, which has not been done in previous studies.

8.3.1.5. Collective Beliefs

The research reveals a shift in shared values among VC practitioners, manifesting in post-success responsibilities, a transition to social impact investments, and increased ethical considerations (see Sub-sections 5.5.1 and 5.5.2). Observable structures include SFDR regulations and German laws, while mechanisms driving this change include personal drives towards impactful investments, climate-related projects, and a generational shift in GPs. The shift in shared values among VC practitioners revealed in this research aligns with the cultural factors influencing cleantech VC investment discussed by Cumming et al. (2016). This study extends the understanding of these cultural shifts by highlighting the ethical motivations and challenges GPs face, contributing to management theory in this area. The study underscores the interconnectedness of social, environmental, and economic factors, contributing to management theory by highlighting the ethical motivations and challenges GPs face, such as the perception of ESG as a reporting obligation and the risk of greenwashing.

8.3.1.6. Organisational Competencies, Workforce Considerations and Reputation

Integrating environmental and social considerations into VC operations necessitates upgrading organisational skills (see Sub-section 5.6.1). Observable structures include the practical implementation of ESG-related changes in VC offices, while unobservable structures involve change management requirements in funds, particularly Article 8 funds, to build necessary ESG skills. The research highlights the varying perspectives and intrinsic motivations within VC decision-making bodies. It contributes to management theory by illustrating the challenges of bridging the gap between ESG and traditional investing practices, the tension between compliance and value generation, and the gradual nature of this shift. Younger team members play a crucial role in championing ESG initiatives, emphasising the importance of sustained efforts for cultural integration.

The study examines the evolving workforce preferences in the VC industry, focusing on attracting individuals committed to making a positive impact (see Sub-section 5.7.1). Observable structures, such as bonus regimes, support talent acquisition, while unobservable structures, like the availability of purpose-driven staff, remain challenging. This contributes to management theory by highlighting the talent challenges in finding professionals adept at both sustainability and the investment cycle's intricacies, reflecting a broader trend in the workforce towards impact-aligned careers. Reputational considerations take centre stage in leadership styles and organisational culture. Observable structures include fund websites and other communication channels, while mechanisms driving increased sustainability communication on these platforms are identified. The study emphasises the importance of proactive, transparent reporting aligned with regulatory frameworks like SFDR. Strategic decisions to adhere to industry standards, particularly in the context of Article 9 funds, are framed as measures to enhance credibility and foster positive perceptions. Communication channels such as fund websites are key in transmitting sustainability efforts to relevant stakeholders, including LPs and start-up founders. The findings on organisational competencies and workforce considerations resonate with the literature's emphasis on the need for specialised expertise in evaluating complex cleantech technologies, as highlighted by Gaddy et al. (2017). This research contributes to management theory by illustrating the challenges of bridging the gap between ESG and traditional investing practices, and the importance of reputation management, which aligns with Cumming et al.'s (2016) findings on the significance of cleantech media coverage. The findings align with Owen et al.'s (2020b) research on the challenges faced by early-stage cleantechs in attracting financing. Whilst Owen et al. (2020b) highlighted the need for longer-term, patient capital and the difficulties in assessing the complex value propositions of cleantech ventures, this study extends these insights by illustrating the specific organisational adaptations VC firms are making. The development of specialised roles and the integration of ESG considerations throughout the investment process, as revealed in this research, directly address the challenges of evaluating and supporting cleantech ventures with their hybrid nature and extended R&D phases. Furthermore, the emphasis on reputation management and proactive communication strategies observed in this study complements Owen et al.'s (2020b) findings on the importance of effectively communicating the unique value proposition of cleantech ventures to potential investors.

Overall, the objective has been achieved as it closes gaps in academic knowledge by providing a comprehensive overview of the observable structures of a VC fund set-up relating to sustainability, covering all 7-S dimensions. In addition, it uncovers the mechanisms and unobservable structures affecting participants in the industry. Neither of these aspects has been explored comprehensively in the academic literature.

8.3.2. Objective 2: ESG and Impact Due Diligence Frameworks

The second objective of this research contributes two primary aspects to management theory regarding ESG and Impact DD frameworks.

8.3.2.1. Comprehensive Evaluation of Frameworks

The study evaluates various ESG and Impact DD frameworks against their individual comprehensiveness in covering all aspects of start-ups. This investigation provides an overview of each framework's focus areas and identifies gaps, contributing to a more nuanced understanding of their strengths and limitations. Applying the 7-S model for the review provides unique insight into the prevalent gaps of these frameworks when comprehensively reviewing start-ups. The literature review has identified that previous studies have covered various aspects of ESG and impact DDs but never against such a comprehensive framework as the 7-S model. Incorporating interview findings and exploring industry literature ensured that the additions to management theory were linked to the practical application in the field (see Sections 6.2 and 6.3).

8.3.2.2. Uncovering Unobservable Structures and Mechanisms

A key contribution of this research is its evaluation of these frameworks' ability to unearth unobservable structures and mechanisms that may influence start-up founders' decisions. By applying a CR perspective, the study offers a novel approach to understanding the deeper systemic factors influencing a start-up's potential for success and its social and environmental impact.

The literature review identified a gap in current knowledge regarding applying the TBL in VC in Germany, especially using a CR lens to identify mechanisms driving the implementation of such aspects. Contrarily, interview participants have identified the need to explore such mechanisms to identify the motivations and drivers of the start-up founders in the potential absence of reliable, observable structures. This research contributes to filling this gap by exploring ways VC funds can identify the potential mechanisms that may influence start-up founders by applying the already identified standard ESG and Impact DD frameworks.

Overall, the research achieved its objective to close a gap in the academic knowledge about the comprehensiveness of commonly used ESG and Impact DD frameworks based on the 7-S model and the exploration of the potential to investigate mechanisms that may influence founders during the DD process. Neither of these aspects has been studied in previous research.

8.3.3. Objective 3: VC Fund Communications

The third objective focuses on VC fund communications, particularly through website analysis, offering unique insights into how these firms present themselves to stakeholders. This communication illustrates the strategic decisions the funds have taken before when setting up a fund vehicle (covered by Objective 1) or when making investment decisions (covered by Objective 2). It also reflects the funds' proactive drive to manage their reputation, a reflection of the style dimension of the 7-S model.

8.3.3.1. Innovative Methodology

The research developed a custom-made data collection tool that analysed over 2.8 million data points across VC fund websites. A codebook covering over 80,000 words and word combinations was created to classify these words into TBL aspects. This innovative approach provides a unique view of VC fund communications. The research not only closed a gap in academic knowledge about fund operations (see Sub-section 8.3.3.2) but also in the approach to extensive research of website data.

8.3.3.2. Communication Preferences and TBL

The literature review revealed a lack of research focusing specifically on the communication of VC management companies on their websites. This study contributes to filling this gap by providing a detailed analysis of how VC firms display their ESG and impact strategies to stakeholders. The analysis reveals a consistent focus on economic wording across all fund types (Articles 6, 8, and 9), even for funds declaring an ESG or impact orientation. While environmental and social aspects are acknowledged, they are given relatively low prominence compared to economic factors. This finding suggests underlying economic structures and priorities within the VC industry and potential tensions where financial performance and ESG/impact goals are valued but not equally prioritised. This study adds to management theory by providing a custom-made tool for rapid website communication evaluations and identifying apparent mechanisms affecting the VC funds. Understanding these mechanisms allows for future, more intensive evaluations of VC fund communication strategies.

8.3.4. Overall Contribution to Academic Theory

In conclusion, this research makes substantial contributions to academic theory in the fields of VC strategy, sustainability integration, and organisational communication. It provides a multifaceted understanding of the evolving VC landscape, offers novel approaches to evaluating DD frameworks, and presents innovative methodologies for analysing fund communications. This closes a gap in the academic knowledge as no research could be identified that holistically investigated these strategic fund decisions during set-up, DD and fund communication. Using the 7-S model enabled a comprehensive exploration of VC fund operations and served as a tool for evaluating start-ups. No previous research that applied the 7-S model in the VC space could be identified. The combination with the TBL, which had been widely applied to larger organisations, equally contributes to academic theory by focusing on the less investigated environmental and social bottom lines in the VC and start-up sectors. The application of CR to this field of study is equally a novelty. The philosophical foundation allows for investigating the entire fund operations on a deeper level, identifying mechanisms, whereas a positivist approach would have focused only on the observable structures. Applying the 5-stage model by Danermark et al. (2019) as an overall guide and the structure developed by Brönnimann (2022) for interviews to derive deeper findings is equally a novelty in this context. It allows the researcher to move effectively between layers in a research process effectively deriving deeper meaning from the interviews. The research provides a holistic overview of this rapidly evolving industry, with the 7-S model allowing all aspects of this change to be considered. Not all of the data collected, particularly for objective 3, was utilised in this research and might build the foundation of future academic papers or be disseminated through industry publications. In addition, the development of the website word counting tool provides opportunities for the academic community to conduct extensive research, as described in more detail in the following section.

8.4. Limitations and Proposed Future Research

The research conducted for this thesis has several limitations and presents multiple avenues for future research structured around the three primary objectives. Regarding Objective 1, the interviews were limited to partners and ESG professionals within the funds, which may have restricted the perspectives captured, potentially overlooking the views and experiences of other key team members. This limitation exists because the focus was primarily on senior-level insights, which may not fully represent the operational challenges and perceptions at other levels of the organisation. Future research could expand the scope of interviews to include additional team members, such as investment managers, to provide a more comprehensive understanding of how change management requirements are perceived and implemented across different levels of staff within the funds. Additionally, the extensive nature of the interview process, involving 25 participants across 21 funds, may have limited the depth of insights obtained from each individual fund. Future studies could adopt a more intensive approach by focusing on one or two case studies, allowing for a deeper exploration of the dynamics within specific funds and providing additional insights into the change management processes by comparing the perspectives of staff with different roles.

Regarding Objective 2, the research primarily focused on those frameworks that interviewees, fund websites, and industry publications most frequently mentioned. In the future, other researchers might develop additional frameworks for the evaluation of start-ups for ESG or impact DDs. The 7-S model could be used to evaluate these additional frameworks in a similar manner, identifying the gaps the frameworks close in comparison to the existing ones and the ability to identify mechanisms that may influence the founders. The prescriptive nature of the evaluation of the DD frameworks did not allow for an assessment of their success in practice. This limitation is due to the lack of validation of the frameworks' effectiveness. Future research could aim to evaluate the success levels of these DD frameworks, potentially involving longitudinal studies that track the performance and outcomes of funds that implement various DD frameworks.

For Objective 3, the evaluation focused exclusively on fund websites in an extensive manner. This limitation is due to the reliance on publicly available information, which may not capture the full spectrum of ESG communication strategies. Future research could include case studies that cover fund websites and examine LinkedIn profiles of funds and key personnel, providing a more holistic view of how funds communicate their ESG and impact strategies and commitments. Additionally, the custom tool developed for this research collected a further 2.2 million data points that were not utilised in the current analysis. This limitation is due to the sheer volume of data, which could not be processed within the scope of this study. These additional data points could be leveraged in future research to uncover further insights. The research focused the website evaluation on the TBL. Future studies could develop additional code books to evaluate fund communication against a range of variables, providing an understanding of how funds articulate their values and strategies.

Overall, a limitation of the research is its geographical focus on Germany. This focus was a conscious choice to dive deep into the German ecosystem to generate findings for this market. Generalisability refers to the extent to which findings can be applied to the broader population beyond the sample used. Having conducted 25 interviews with industry participants from different funds, representing the general set-up of the VC fund ecosystem in Germany and with various LP representatives allows for the generalisability of these findings. The website analysis is based on all the identified fund websites in Germany and covers the entire market. Transferability refers to the extent to which the findings can be applied to other contexts, particularly in other industries or geographies. Additional research could be conducted in other geographical contexts to compare the findings. Given the similarities between the VC and the PE markets, it can be assumed that the findings are transferable to the PE funds. Both types of funds (VC and PE) are exposed to the same SFDR regulations, LPs, and value chains. Geographically, the European focus of SFDR might limit some of the findings to countries of the EU. However, the aspects related to other mechanisms and structures could also apply to funds in other countries, such as the UK or the US.

8.5. Personal Reflection on the Research Journey

My DBA research journey has been a transformative experience, both logistically and intellectually. From the outset, I was drawn to explore the intersection of two areas close to my heart - the TBL approach to sustainability and the VC market's role in supporting innovative start-ups driving sustainable solutions. The combination with the 7-S model, a framework I have been using time and again in projects, adds to the red threads going through this research. The structured coursework in the first two years provided invaluable guidance as I developed my research proposal. However, the onset of the COVID-19 pandemic in 2020 presented unforeseen challenges. While our cohort had formed strong connections initially, the shift to remote sessions limited further relationship building. Simultaneously, I transitioned from full-time employment to launching an investment and consulting company with my wife. Although the subject matter aligned well with our company's focus, this career change initially reduced the time I could dedicate to my DBA studies.

My intellectual journey took me into uncharted territory, particularly in grappling with research philosophies at a depth I had never before encountered. The discovery of CR was especially enlightening. I realised that I had intuitively applied its concepts for years in my change management consulting work, where we would first examine observable structures before delving into the underlying mechanisms and incentives driving agents within companies. This alignment between CR and my practical experience reinforced the value of this philosophical approach. The regular meetings with my supervisors proved instrumental in helping me crystallise the aims and objectives of my research. Throughout this process, my wife's unwavering support was invaluable - not only did she encourage me during challenging times, but she also served as a knowledgeable sounding board when needed. The structure of the DBA program, combined with my supervisors' guidance and my wife's support, enabled me to make significant progress, even when it did not always feel that way. Once my wife returned to full-time employment, I was able to dedicate more time to my research, leading to more substantial advancements. Going forward, the findings from the DBA will build the foundation for additional advisory and consulting work. While some projects have already been executed in the German VC space, completing the DBA will provide additional business development opportunities. From an academic point of view, it is possible that some of the unutilised data collected in the research, for example, through the website analysis, is used for future academic papers on the subject.

In retrospect, this DBA journey has been an immense learning experience, fostering personal growth beyond my initial expectations. It has deepened my understanding of sustainability, venture capital, and research methodologies while honing my critical thinking and analytical skills. The challenges encountered, from the pandemic disruptions to balancing work, family and study, have ultimately contributed to a richer, more rewarding academic journey.

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APPENDIX 1: Data Collection Instrument: Interview Guide

[Note: the interview guide depends on the identification of gaps in the framework identified in stages 1 and 2; below is an overview based on the structure provided by Saunders & Thornhill (2016)]

It is anticipated that each interview will take 60-90 minutes, either in person or using video conferencing tools.

Documents to be shared:

- *Consent form*
- *Participant information sheet*
- *Outcome of website analysis (handed over in personal meetings and sent electronically after the interview)*

Appearance in the interview

- *The appearance will be aligned with the expected dress code of VC company representatives, which is smart but not formal, suit without tie. Special attention will be given to being on time and respecting the participant's schedule.*

Opening the interview

- *Formal requirements of the interviewing process are discussed, such as gaining permission to record, ensuring the participant information sheet are understood and the consent form signed.*
- *The structure of the interview is proposed and agreed with the participant, including the expected duration. The participant is offered to ask clarification questions at any time throughout the interview.*
- *The researcher introduces himself, covering his CV and the rationale for conducting the DBA studies and a brief introduction to the project is given,*

explaining the triple bottom line concept and the aims and objectives of the research. Purpose of this introduction is to establish a rapport with the participant. [note: it is possible that a participant might entirely challenge the validity of the triple bottom line concept for venture capital. It is unlikely that the interview would be accepted in the first place then but in case this happens, a strategy will be developed to tackle such a challenge.]

- *The participant is asked for an introduction of their career and background. Purpose of this part is to get the interviewee to start talking, identify past projects that could be further probed and to (re) verify the qualification of the participant for the interview.*
- *The outcomes of the website analysis are presented and handed over. Depending on the outcome of the analysis, this might lead directly to the specific questions, for example if the company has already some elements of the triple bottom line mentioned on the website, which competitors might not.*

Structure of the interview

- *The interview will follow the previously identified gaps in the investment decision making framework, asking the participants for examples from previous deals (successfully concluded or aborted) for the focus elements.*
- *The interview questions are semi-structured, broadly following the structure of the evaluation framework (triple bottom line and 7-S model) but the conversation can flow within these parameters to allow the participants to provide in depth insights. There is a list of original themes / questions to be discussed to ensure that all areas have been covered at the end of the interview.*

Asking questions and behaviour during the interview

- *The language used in the interviews will be influenced by the findings from the website analysis, ensuring alignment of questions with jargon used in the industry.*
- *Open questions will ask for case examples of both successful and aborted deals that demonstrate the use of certain elements of the framework.*
- *Whenever possible, documented deal examples from the website of the VC company will be used to demonstrate knowledge of the VC company and build rapport.*
- *The interviews will be recorded; however, notes will still be taken, demonstrating interest to the participant and to allow for follow-up questions. This will also provide a backup in case a recording should not work correctly.*

Recording data during the interview

- *The interviews will either be recorded using the Iphone recording apps (Evernote, Recordium, Dictaphone, etc.) if conducted in person, or through the recording option in Zoom Video conferencing.*
- *In both cases the participant is made aware at the beginning of the session that the recording can be stopped at any point throughout the interview.*
- *Albeit not for academic purposes, in my professional career I have managed numerous projects evaluating organisations using the 7-S model as a guiding framework. In each of these projects, semi-structured interviews were conducted with company representatives, giving me some experience in this field.*

Closing the interview

- *The available time for the conversation will be confirmed at the beginning of the interview and progress against the questions / themes against the time available will be monitored throughout.*
- *The interview will be closed by summing up key points, agreeing on potentially agreed documentation to be shared and by thanking the participant for their contribution.*

APPENDIX 2: Informed Consent: Participant Information Sheet

[Note: this reflects the anticipated state of the research at the time the interviews are conducted not its current state; it is based on the structure provided by Saunders & Thornhill (2016)]

About the nature of the research	
Research Title	Triple Bottom Line in Venture Capital in Germany
Purpose of the research	Develop a comprehensive framework for the investment decision making of venture capital companies in Germany based on the Triple Bottom Line, identifying the proliferation and success factors of its elements
Name of the Researcher	Harald Bos
Name of the University	Sheffield Hallam University, UK & Munich Business School, Germany
Research Funding	No external funding
Research Participants	Industry professionals in Venture Capital in Germany, responsible for investment decision making
Research progress	Through the literature review the researcher has developed a first cut triple bottom line investment decision making framework and has identified gaps where no process exists. German Venture Capital Company websites have been evaluated to identify in how far the choice of words reflects the three axis of the Triple Bottom Line.
About the requirements of taking part	

Type of data collected	Through the interviews the researcher aims to fill any gaps in the decision-making framework, identifying practically applied tools. Enabling factors that led to the implementation of new parts of the evaluation framework are explored, including factors that might prevent implementation of factors. The participants are encouraged to share case examples.
Data collection method	The data will be collected through semi-structured interviews, i.e., the interview will cover the identified gaps and enablers but will flow freely, ideally based on some case examples of the participants.
Time requirements	It is anticipated that each interview will take approximately 90 minutes
About the implications of taking part	
Assurances for anonymity and data confidentiality	With the permission of the participants, interviews will be recorded, if conducted through video conferencing system, potentially both video and audio. These recordings will be transcribed and, in that process, anonymised. Prior approval will be collected from participants in case external transcription services are used. Once transcribed, the original videos will be destroyed maintaining only the anonymised transcripts.

Consequences in taking part (risks and benefits)	The evaluation of the participant's website against Triple Bottom Line considerations, including an overview of competitors will be provided to the interviewees at the time of the interview. In addition, a summary of overall findings will be made available to participants after the study has been concluded. No risks in taking part have been identified.
About the rights of Participants	
Voluntary participation	Participation in the study is entirely voluntary, see informed consent form
Right to decline to answer	Participants have the right to decline to respond to any question at any point throughout the interview process
Recording of interviews	Depending on the nature of the interviews (in person or through video conferencing), the conversations are audio or video recorded, with the permission of the participants. The participant can request at any time to stop the recording.
Withdrawal from study	The participants may withdraw at any point from the interviews without giving of reasons for that withdrawal.
About the use of data collected and the way in which it will be reported	

Access to the data	The data collected (interview recordings and transcripts) is accessible upon request by the researcher's supervisors and representatives from Sheffield Hallam University and Munich Business School, responsible to audit procedural compliance with research guidelines. No other parties will gain access to the data without prior written consent of the participants.
Dissemination of results	The results of the study will be documented in a Doctoral Thesis that is made publicly available by Sheffield Hallam University. In addition, parts of the results might be published in academic and industry publications.
Anonymity and confidentiality of participant contributions in disseminating of results	The reporting of results will not contain any attributable information of the participants, unless prior written consent is given.
Data destruction after completion of the study	Audio and Video recordings of the interviews will be immediately destroyed after transcription (which is anonymised). The transcripts and any other data will be destroyed, following Sheffield Hallam University's guidelines.
Data storage	Data will be stored on Sheffield Hallam University's Cloud servers, following the University's data protection guidelines.

Researchers Contact details	Harald Bos [redacted]

APPENDIX 3: Informed Consent: Consent Form

TITLE OF RESEARCH STUDY: Triple Bottom Line in Venture Capital in Germany

Please answer the following questions by ticking the response that applies

	YES	NO
1. I have read the Information Sheet for this study and have had details of the study explained to me.	☐	☐
2. My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point.	☐	☐
3. I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher.	☐	☐
4. I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet.	☐	☐
5. I wish to participate in the study under the conditions set out in the Information Sheet.	☐	☐
6. I consent to the information collected for the purposes of this research study, once anonymised (so that I cannot be identified), to be used for any other research purposes.	☐	☐

Participant's Signature: ____ Date: ___________

Participant's Name (Printed): ___________________________________

Contact details: ____

____

Researcher's Name (Printed): Harald Bos

Researcher's Signature: ____

Researcher's contact details:

Harald Bos
[redacted]

Please keep your copy of the consent form and the information sheet together.

(source: Sheffield Hallam University: https://www.shu.ac.uk/study-here/options/health-and-social-care/short-courses-and-modules/information-giving-and-informed-consent)

APPENDIX 4: Search terms for Literature review database search

#	Search term	Web of science	Scopus	Business Src. Premier	Emerald	Proquest Central[4]
	TRIPLE BOTTOM LINE FOCUS					
	Triple Bottom Line and Venture Capital					
1	“triple bottom line”	860	2,337	1,580	3,000+	8,716
2	“triple bottom line” AND “Venture Capital*”	2	3	3	877	190
3	“triple bottom line” AND “Venture Capital*” AND German*	0	0	0	327	67
4	“triple bottom line” AND “Venture Capital*” AND German* AND Valuat*	0	0	0	47	17
	Review of suitability of articles based on title and abstract (articles already found from previous stages have been excluded)	1	1	0	3	4
	Triple Bottom Line and Start-up					
5	“triple bottom line” AND ("start-up*" OR "startup*" OR “new venture*" OR "venture capital*" OR "venture-backed" OR "venture backed") AND German*	0	54	9	0	23
6	“triple bottom line” AND ("start-up*" OR "startup*" OR “new venture*" OR "venture capital*" OR "venture-backed" OR "venture backed") AND (“valuation*”OR “valuing*”OR “market* value*”OR “firm* value*”OR “company* value*”OR “enterprise* value*”OR “business* value*”) AND German*	0	13	3,058[1]	0	10[5]
	Review of suitability of articles based on title and abstract (articles already found from previous stages have been excluded)	0	3	1	0	0
	Triple bottom line and Entrepreneurship					
8	"triple bottom line" AND entrepren* AND ("valuation*" OR "valuing*" OR "market* value*" OR "firm* value*" OR "company* value*" OR "enterprise* value*" OR "business* value*") AND German* AND (venture* AND capital*)	1	6[2]	1	58	7[5]
	Review of suitability of articles based on title and abstract (articles already found from previous stages have been excluded)	0	1	0	0	0
	VENTURE capital / Start-up Focus					
	("start-up*" OR "startup*" “new venture*" OR "venture capital*" OR "venture-backed" OR "venture backed") AND (“valuation*”OR “valuing*”OR “market* value*”OR “firm* value*”OR “company* value*”OR “enterprise* value*”OR “business* value*”)	439	3,227	354	0	945[5]
	("start-up*" OR "startup*" “new venture*" OR "venture capital*" OR "venture-backed" OR "venture backed") AND (“valuation*”OR “valuing*”OR “market* value*”OR “firm* value*”OR “company* value*”OR “enterprise* value*”OR “business* value*”) AND (German*)	11	1,064	22	0	583[5]
	("start-up*" OR "startup*" "new venture*" OR "venture capital*" OR "venture-backed" OR "venture backed") AND (valuation*" OR "valuing*" OR "market* value*" OR "firm* value*" OR "company* value*" OR "enterprise* value*" OR "business* value*") AND framework AND (German*)	n/a	98[3]	n/a	0	175[5,6]
	Review of suitability of articles based on title and abstract (articles already found from previous stages have been excluded)	2	5	2	0	2
	Total number of articles identified	3	10	3	3	6

1 – At Ebsco Business Source Premier, the addition of a Boolean constraint (added by AND) created additional search results, rather than narrowing the results further. The results of the search number 5 were therefore evaluated further.

2 – Affiliate country Germany was selected to narrow results further

3 – Language was limited to German or English

4 – Proquest central automatically expanded the search terms, e.g. “venture capital*” was turned into "venture capital" OR "venture capitalism" OR "venture capitalist" OR "venture capitalists"

5 – Location was limited to Europe, Germany and UK

6 – Only articles published 5 years before the search

APPENDIX 5: NVIVO codes

Name	Files	References
1. Introduction, Aims and Objectives	1	2
1.2. Rationale for the research project	1	1
2.The Venture Capital Environment in Germany	1	1
2.2.Background on the start-up value chain	11	22
2.3.Venture capital value chain	19	60
2.4.Introduction to pertinent legal and regulatory frameworks	9	17
4.Literature review	4	4
4.3 Venture capital overall	24	53
4.4 Philosophies	8	69
4.5 SFDR in academic literature	9	29
4.6 Geographical distribution	1	1
4.7 TBL	4	8
Data analysis and Findings	0	0
5.Findings objective 1	0	0
01 Strategy	20	30
02 Structure	2	2
03 Systems	21	34
04 Shared Values	4	8
05 Skills	4	4
06 Staff	1	4
07 Style	8	15
6.Findings objective 2	30	64
5.4.1 Impact DD	6	18
5.4.2 ESG DD	6	14
7. Findings objective 3	2	1

Note: the Files and references represent the coding from the additional literature search and do not reflect all of the literature analysed.

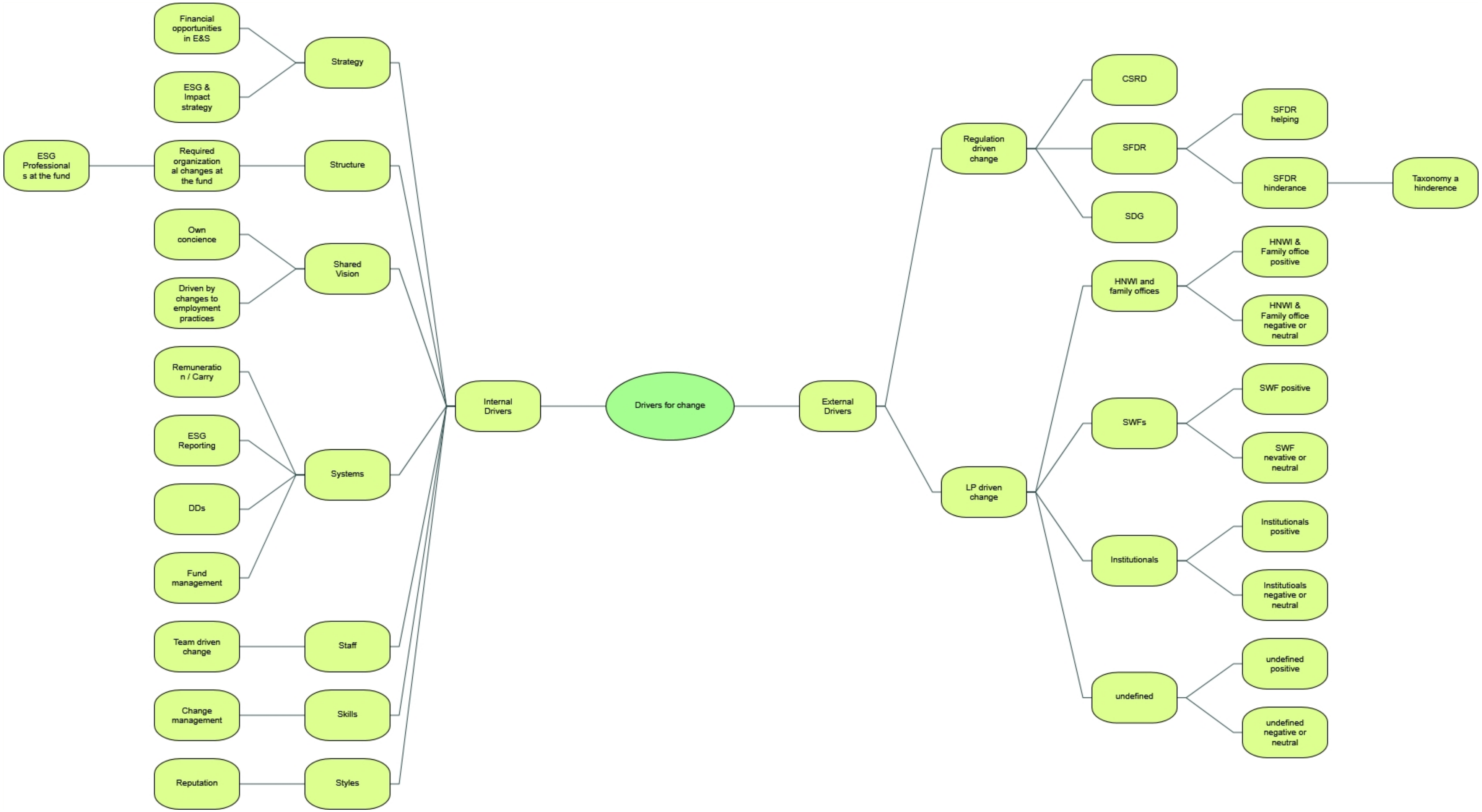
APPENDIX 6: Principal Adverse Impact Measures (PAI)

Indicators applicable to investments in investee companies		
Adverse sustainability indicator		Metric
CLIMATE AND OTHER ENVIRONMENT-RELATED INDICATORS		
Greenhouse gas emissions	1. GHG emissions	Scope 1 GHG emissions
		Scope 2 GHG emissions
		Scope 3 GHG emissions
		Total GHG emissions
	2. Carbon footprint	Carbon footprint
	3. GHG intensity of investee companies	GHG intensity of investee companies
	4. Exposure to companies active in the fossil fuel sector	Share of investments in companies active in the fossil fuel sector
	5. Share of non-renewable energy consumption and production	Share of non-renewable energy consumption and non-renewable energy production of investee companies from non-renewable energy sources compared to renewable energy sources, expressed as a percentage of total energy sources
	6. Energy consumption intensity per high impact climate sector	Energy consumption in GWh per million EUR of revenue of investee companies, per high impact climate sector
Biodiversity	7. Activities negatively affecting biodiversity-sensitive areas	Share of investments in investee companies with sites/operations located in or near to biodiversity-sensitive areas where activities of those investee companies negatively affect those areas
Water	8. Emissions to water	Tonnes of emissions to water generated by investee companies per million EUR invested, expressed as a weighted average
Waste	9. Hazardous waste and radioactive waste ratio	Tonnes of hazardous waste and radioactive waste generated by investee companies per million EUR invested, expressed as a weighted average

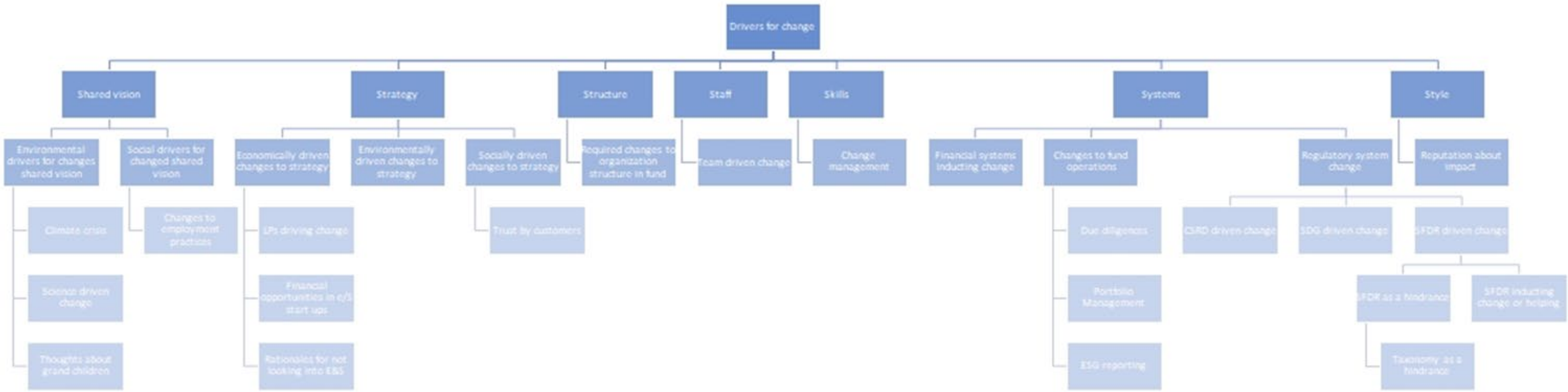
Indicators applicable to investments in investee companies		
Adverse sustainability indicator		**Metric**
INDICATORS FOR SOCIAL AND EMPLOYEE, RESPECT FOR HUMAN RIGHTS, ANTI-CORRUPTION AND ANTI-BRIBERY MATTERS		
Social and employee matters	10. Violations of UN Global Compact principles and Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises	Share of investments in investee companies that have been involved in violations of the UNGC principles or OECD Guidelines for Multinational Enterprises
	11. Lack of processes and compliance mechanisms to monitor compliance with UN Global Compact principles and OECD Guidelines for Multinational Enterprises	Share of investments in investee companies without policies to monitor compliance with the UNGC principles or OECD Guidelines for Multinational Enterprises or grievance /complaints handling mechanisms to address violations of the UNGC principles or OECD Guidelines for Multinational Enterprises
	12. Unadjusted gender pay gap	Average unadjusted gender pay gap of investee companies
	13. Board gender diversity	Average ratio of female to male board members in investee companies, expressed as a percentage of all board members
	14. Exposure to controversial weapons (anti-personnel mines, cluster munitions, chemical weapons and biological weapons)	Share of investments in investee companies involved in the manufacture or selling of controversial weapons
Other indicators for principal adverse impacts on sustainability factors		
[*Information on the principal adverse impacts on sustainability factors referred to in Article 6(1), point (a) in the format in Table 2*]		
[*Information on the principal adverse impacts on sustainability factors referred to in Article 6(1), point (b), in the format in Table 3*]		
[*Information on any other adverse impacts on sustainability factors used to identify and assess additional principal adverse impacts on a sustainability factor referred to in Article 6(1), point (c), in the format in Table 2 or Table 3*]		

Source: Regulation (EU) 2019/2088, Annex I, 2019

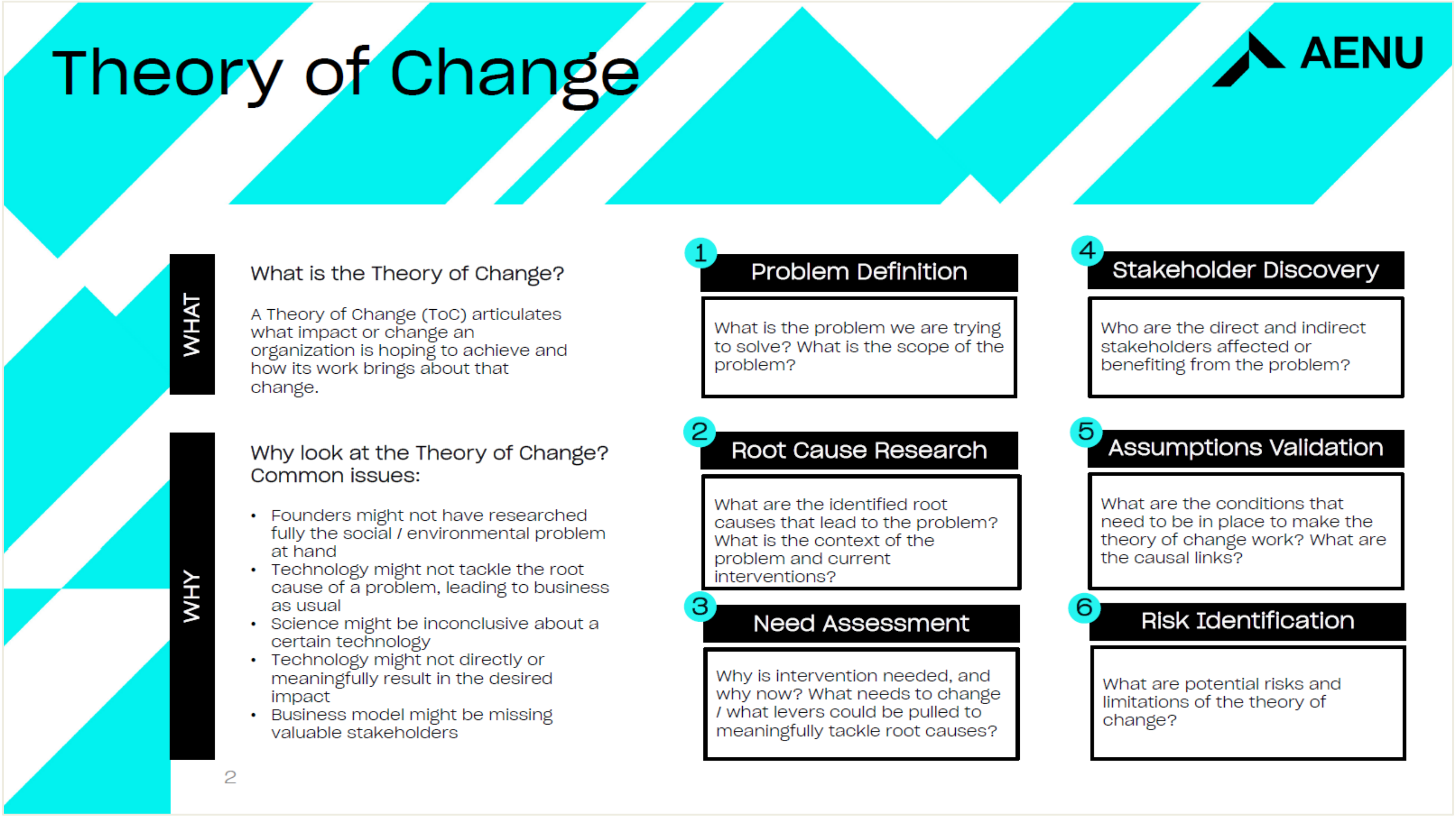
APPENDIX 7: Phase 2 B Internal – External categories in NVIVO

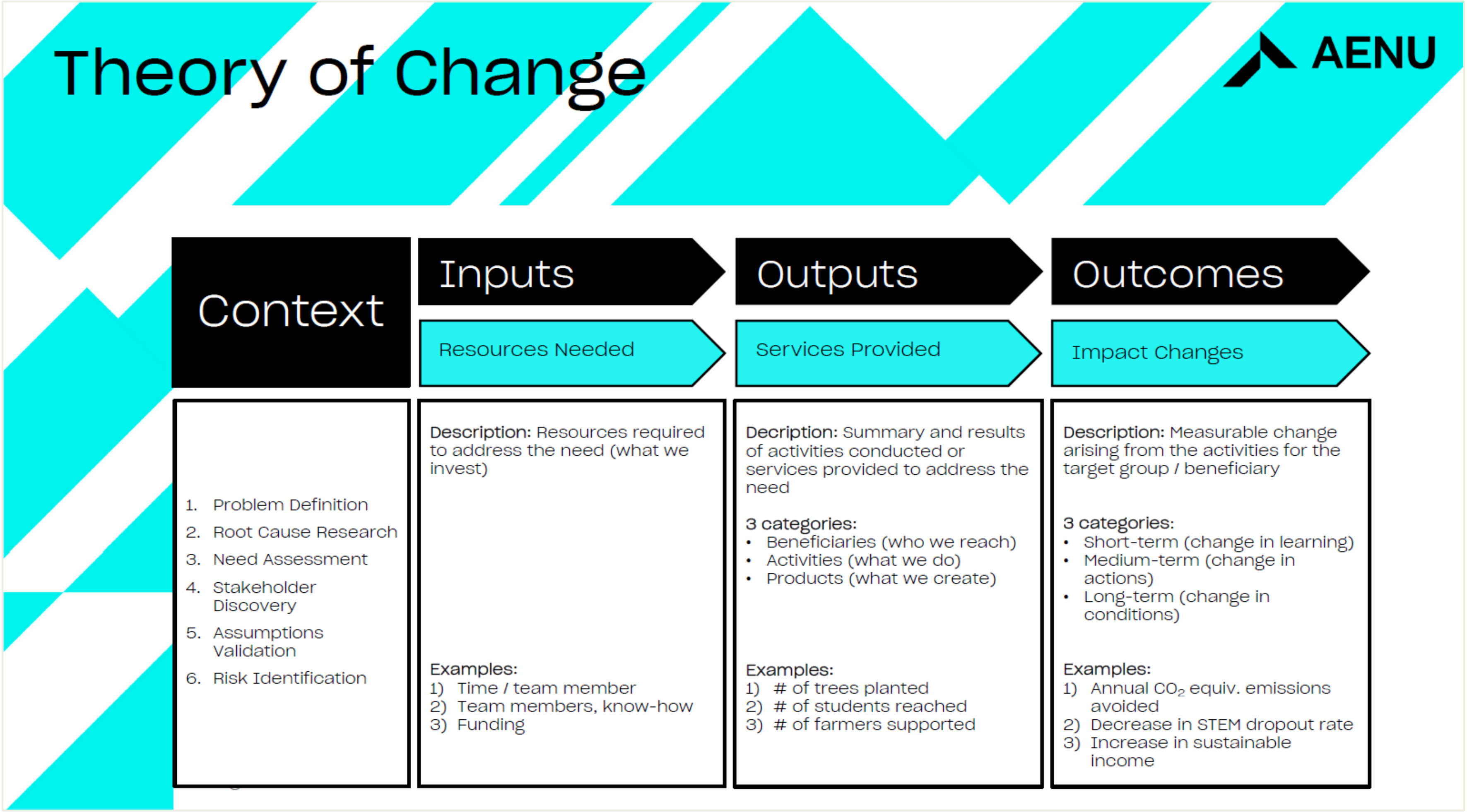


APPENDIX 8: Phase 2 C Internalisation of categories in NVIVO



APPENDIX 9: AENU's Application of the TOC





Source: AENU: Theory of Change, n.d.

APPENDIX 10: Sample Interview Transcript (redacted)

Harald

Thank you. Well, first of all, thank you very much for your time. Even though Internet problems persist, but still.

Interviewee 17

OK.

Harald

I propose I give you first, a little bit of background logistics of what is happening and then pick you up again on my research topic, what I'm doing, what are the objectives? I mean, we spoke about this before, but maybe it's not bad to pick you up on that and then we can go into the details. I've scheduled an hour for this, if that's OK. I'm recording this as you've seen, and then I'm transcribing it, and as soon as the recording is transcribed, it will be anonymised, so your name will disappear and I will not use the name of your fund anymore. Any quotes in the interview will be quoted as participant 123. In case there is a specific need to mention your name then I will check with you before.

Harald

Looks like you're connecting somewhere else. There you are again. Oh, that sounds better.

Interviewee 17

Sorry for that.

Harald

No worries. I'm curious what the recording is going to do in the transcript between the first part and the second part, but it's going to be an interesting. So like I just mentioned, anything that I quote you specifically, I will I will check with you beforehand at the moment, I don't foresee that to be happening.

Interviewee 17

OK.

Harald

And then a bit to the research project, it's a Doctor of Business Administration with Sheffield Hallam University and Munich Business School. To myself, I mean, you know, I have a consulting background and I'm still working a little bit on consulting but pausing this in the time when I'm trying to finish my doctorate. Now because it's a DBA I'm looking for academic knowledge and for something for the business community. And that led me to the kind of four work streams that I'm working on and the first one is to develop an evaluation framework or due diligence checklist for people on, that comprises the whole Triple bottom line. So triple bottom line is social equity, environmental protection and economic prosperity. I mean you quoted Elkington, I remember you mentioned that you know this. But what I'm trying to get to is to get a comprehensive due diligence checklist that funds whether they're Article 8 or Article 9 can use going forward. Kind of cutting off the legs of the consulting business a little bit, but fine. Then the second part I'm doing is I'm looking at websites, so I created an app to count words on websites. I've run this app over the 250 something websites of funds in Germany. A and I created a. A code book with about 80,000 words and terms linked to the triple bottom line so that I can identify from the communication on the website in how much this communication is focused on one of the three bottom line.

Interviewee 17

A question on that, is your is your app able to dig deeper into? For example, we have on our [website] I think there's a footnote saying sustainability related disclosures and when you click on that link you get a lot of more information on our sustainability related disclosures. So it's not on the front page, but we have something there.

Harald

That was that was the difficulty that that's why I had to develop my own app. I mean, I didn't develop it myself, I had a software developer who did that. Because any tool that I found beforehand was only looking at the front page and didn't click through. But I also don't want to go on to all of the links that are on the website. It needs to be on the domain. And if you have a link to one of your portfolio companies, then I'm not going into the portfolio company, but I'm staying on your domain. So that was the difficulty why I had to do that. It was like the systems that were available at the time. I'm pretty sure there there's other stuff available now, but at the time you either had them going through the entire website, but then you have to specifically search for words or for terms or it searches everything or it counts all of the words, but it only does it from the front page. So I kind of combined the two. I've been testing this now for over a year and every few months I'm kind of collecting data, so I'm curious to see as well because I mean, I've seen your disclosure was I think from end of 2022, I think the disclosure made it onto the website. Is that possible?

Interviewee 17

The sustainability related disclosures, we updated this one, yeah.

Harald

So I'm curious. I think with the with the shift end of 2022 beginning 2023, a lot of funds actually added stuff like this one. The website and what I will have to see is whether I exclude it in the future, future rounds when I do the the assessment because it might shift things too much towards E&S in the in my triple bottom line. Because even if it's an Article 6 funds, they will have environment, the world's environmental and social mentioned quite a few times in their their SFDR disclosures there and but I'm I'm curious to see what are the kind of developments there then from? And sorry, one step back, I mean the, the, the real reason why I'm so interested in is because every fund has pretty much every fund has the past investments on the website and the rationale of why they invested in it and that is where I think is the interesting part of what are the words that are they are using when they are describing past investments is this. Maybe this is a fantastic financial opportunity or is this a super technical technological solution or is this this will help our customers, our environmental footprint or patients or whatever. Then the third part of my research is the interviews that we're having right now. And there I'm really looking into what drives the funds to become Article 8 or Article 9. When I started this research, I should say there was no article 8 or Article 9. So I started in 2019 and was kind of not overtaken, but, it kind of goes in the in the right direction I think with SFDR, but I'm now using the kind of proxy of Article 8 and Article 9 to link it to the to the triple bottom line and the impact focus of our ESG focus of funds. But what I'm really interested in is what drives a fund and the decision makers to take the decision of we're going towards Article 8 or we're taking decision going towards Article 9 or we're staying Article 6 and have some environmental and social measures included anyhow or we are staying Article 6 or we're becoming Article 8 and we still have impact measures anyhow. So this this kind of what are the decision points that are coming around that? How does that come to fruition? That's what I'm looking for.

[redacted for confidentiality]

Interviewee 17

Right.

Harald

[redacted for confidentiality]

So that's the study, usually I give an introduction now on what is happening in terms of SFDR what is Article 6, Article 8 and Article 9. I'm assuming that you are familiar with those.

Interviewee 17

We can skip that part.

Harald

Then maybe if you don't mind we jump in. Could you give me a bit of a background to *[redacted for confidentiality]* on where you stand at the moment? And yeah, what kind of article you are, where you come from and so forth?

Interviewee 17

So in terms of SFTR, we are coming from an Article 6 fund. So yeah, maybe first of all, we are in an early stage investment company focusing on portfolio companies who are in a way, redefining every industry and we always or we have the approach that these company are in a way changing the socio economic landscape. So there I think you see the first touch point with the social and also the environmental aspect. And furthermore, we have a *[redacted for confidentiality]* investment focus. It's our, we call it *[redacted for confidentiality]*.

And with this thesis, we believe that the combination of these two trends, so *[redacted for confidentiality]*, will transform mindsets, behaviours and whole markets. So that's one of our main thesis and we already did a lot of investments, I think *[redacted for confidentiality]* is a good example. *[Redacted for confidentiality]* is definitely an or it would definitely be an impact investment. But with our current fund, we are not an Article 9 fund. We are an Article 8 fund. *[redacted for confidentiality]*

Harald

[redacted for confidentiality]

Interviewee 17

[redacted for confidentiality]

Harald

Yeah. No, that's makes you kind of the perfect candidate for these interviews *[redacted for confidentiality]*

Interviewee 17

[redacted for confidentiality]

There were different drivers, so the first driver, and that's my personal my personal opinion. The first driver is definitely regulatory pressure that's obvious because SFDR is a regulation, but there are many other regulations in place or will be in place in the future.

The other driver is definitely the pressure from limited partners. And especially large institutional investors.

[redacted for confidentiality]

So there was definitely pressure from the limited partners, not that many at the beginning, but now over time It's, I would say it's a topic on the standing agenda when we're talking to institutional investors.

Then the third driver. I would say is the is the reputational aspect. *[Redacted for confidentiality]*, when I source companies, I want to work for a company who is taking responsibility for what we as a team are doing right and not just saying OK, we are in Article 6 fund and it's fine We have some information about SFDR on our homepage and that's it. I think now it's OK, but let's say one year from now it will not be, you will not get the best reputation out of it, right?

And then lastly. And I think that's definitely the most important part, It's the positive financial impact. And I strongly believe and it's not just my belief, there are many studies, and I think I do not have to quote some of them. There are many, many in the market, but that prove statistically that there is a link between ESG or let's say ESG/ impact and financial performance.

Harald

In this case you don't need to convince me. I find that really interesting. *[redacted for confidentiality]* I found studies as well that from an investment point of view there is a positive financial return or can be, obviously like with any investments there are ups and downs, but there can be financial returns. But this kind of hyper growth model for VC it's. It's a bit more difficult to have a sustainable business as a startup to build that up than to have a dating platform that goes through the roof and goes from round to round.

Interviewee 17

Yeah, totally agree. And I think here we have to differentiate a bit between ESG and impact, right, because. So let's take a firm who's getting in trouble on the environmental end? It can be easily punished by the regulator leading to higher costs. So they definitely have to keep in mind what they're doing on the environmental side and the same for if they're doing something wrong. Also, the customer can say OK I will not buy this product again, leading to lower returns in the end. So this is from my side the important part, ESG and proper processes and standards in place are very important that the firm is not getting in trouble in these, let's say E, S and G spheres.

Harald

I mean that's something that that I that I see a lot because we want these companies to grow a lot. Therefore, they have to have big customers, many cases if they are B2B they have large customers. These large customers have the supply chain act.

Interviewee 17

Yeah, yeah.

Harald

They have CSRD requirements and therefore it falls under this bracket and it makes sense to start with the process relatively early. I mean, they don't have to have a full sustainability report from day one, but kind of if they start in the thinking process. Then it will be a lot easier than after year three, all of a sudden Big Bang they have to implement everything.

Interviewee 17

Yeah, totally agree. And I think this is a fifth point that you just mentioned or a driver. The customers from our or the suppliers from our portfolio companies because if they are large companies and I have exactly this case on the table right now when one of our portfolio companies is working for example with Amazon or another large Company like Nestle, they will definitely need these, let's say, ESG KPIs. They will need it and they do not care if the company has to report because we are in Article 8 fund or and they do not just care about transparency. Some of them, they're looking deeper into the into the numbers and want to understand what is the company, no matter how large the company is.

Harald

And so this is I'm going to come back to each of these, these five points for the time. *[redacted for confidentiality]*

Interviewee 17

[redacted for confidentiality]

Harald

Now I will come back to the drivers because that gives me a very nice structure there. The decision of GPs *[redacted for confidentiality]* they must have had this idea we want to be more environmentally, socially, governance. Or I don't know whether they had a kind of a perspective of difference between impact and ESG. But we want to go more in that direction. We don't want to focus specifically only on financials. Did they give you any background of where that came from? Is that from the same kind of points the, the same drivers that you just mentioned?

Interviewee 17

Yeah. So I would say to be very concrete It was in our case a large institutional investor *[redacted for confidentiality]* sending over a questionnaire, I think we can say it so. It was KFW. And they pushed the topic very hard. And I think that was the first time and also the European Investment Fund pushed the topic. And when the topic is pushed from these, let's say these large players. A small VC should understand the topic a little bit better and then this the decision was made. *[redacted for confidentiality]*

Harald

[redacted for confidentiality]

Interviewee 17

At this I think it was at this stage in time, nobody was talking about SFDR Article 6 or Article 8, so everything was in talking into action.

Harald

OK. Because I mean, I find at the moment, I mean talking about LP's and that's kind of your second driver which fits very nicely with what I have. I'm classifying LP's into 3 categories. The first is for lack of a better word, sovereign wealth funds. So the EIF and the KFW, then large industrial or institutional investors, insurances, pension funds, maybe corporate players who are investing and then family offices and high net worth individuals are kind of the third bucket.

Now you're mentioning that the well EIF /KFW they're the usual suspects at the moment. They're pushing very hard. What is your structure? Without naming names of course. But what is your structure? Do you have other kind of insurances and banks, pension funds and so forth on board and family offices and so forth?

Interviewee 17

Yeah. And I would say there the pressure is not that high, to be honest. I'd say the insurance businesses they are pushing the topic a little bit harder now starting in 2023 or maybe at the end of 2022 and I think that's only because they have to report on their own. Right.

The high-net-worth individuals, it depends. It totally depends. You have high net worth individuals who from the bottom of their heart care about this topic. Then you have completely different conversations and they are super interested in the topic and in our structure and in our way of working with the portfolio companies on that end. And you also have high net worth individuals who do not care at all and just say, OK, let's focus on the financial performance. It's nice that you do something, but. I don't care.

Harald

I find it interesting with the insurances I mean they're the ones and the reinsurances, they're the ones who have to live through the fact of houses are insured and all of a sudden they have a lot of studies. I'm sure they have a lot of studies on climate change and so forth.

Interviewee 17

Yeah. And if you think about and that's interesting because they're doing a lot in this in this field, yeah, for example, *[redacted for confidentiality]*. If I'm looking into a portfolio companies, oftentimes the *[redacted for confidentiality]* is already a shareholder of this company just with a large portion. So they I would say they are pushing the topic from another angle. They're not pushing it from the let's say transparency angle.

Harald

[redacted for confidentiality]

I think the next point that you mentioned was the was the kind of reputational aspect which I find extremely interesting that you mentioned this. I mean you combined it with the team, but maybe I'll start with the team. In how far? What is? What is the reaction from the team? What is the reaction from their side?

Interviewee 17

Yeah, definitely.

Harald

I mean, is this one of the things we have to take the box or is it something we're fully behind it? We see value in it or is it something, where do where do they stand?

Interviewee 17

I would say from a from a company perspective and not a personal perspective, everybody agrees that we have to go this way.

And then we can differentiate between our investment team and let's say the operational team. On the other hand, for the operational team, there are topics relevant for example what do we use when we have our team dinner, do we use plastic packaging when we order for example Thai food. This is also important, right, to have the awareness that this topic is relevant or that we have eco-friendly water bottles and packaging in the in the office. Or a refrigerator with not so much energy consumption, which is pretty hard to find to be honest. But we did that. And we, we took many hours and researched refrigerators, for example. But you can see it I'm laughing because the effect or the impact is not that high. But I think it's important that everybody in the team understands that we want to push this topic forward and then all accessories on the toilet are also, let's say, eco-friendly and stuff like that.

But this was the, let's say the company view and then on the other hand you have this personal view, and we have a lot of discussions about eating meat. There are some people in the team who still eat meat, others don't. And you have you have different discussions about the topic, which are also think are important, right? But there are also some colleagues who, from a from a personal angle I would say are not the, let's say, ESG enthusiasts. But for me, to be honest, that's totally fine. I [ESG responsible in a fund] knew when I started to work for *[redacted for confidentiality]*, I knew it's not an impact fund. And you can also choose an impact fund if you are completely different from your mindset or I don't know, but I think I can do more in a setup that I am in right now than in an in an impact fund.

Harald

OK. Because you can.

Interviewee 17

It's harder to just convince the general partners *[redacted for confidentiality]* to really understand that we need this topic. It was definitely harder. But yeah, I think we're in a good way to be honest.

Harald

[redacted for confidentiality] If you come to an impact fund and everybody is convinced already, there's not a lot of change management happening.

Interviewee 17

Right.

Harald

There's therefore not a lot of kind of improvements or happening, but if you're starting with the fund where not everybody's convinced yet, then there is a lot of opportunity to improve things. And I find that a lot more interesting. The I mean, apart from the I'm guessing your focus is less on getting people to eat less meat in the office, though I'm guessing it's more the business opportunities and the opportunities from an investment point of view, how do they take on those kind of changes that you have to implement or that you are implementing or have implemented in terms of ESG due diligence, all of a sudden there's more work to be done and maybe my super investments that I had there in oil based weapons, I can't do it anymore.

Interviewee 17

So on the on the last point we have an exclusion list in place also coming from our large institutional investors [in the context Sovereing Wealth Funds]. And I combined all the exclusion lists of our institutional investors. So we have our own exclusion list. And so this, it's clear that we do not invest in mining companies or I don't know, companies who focus on cloning or stuff like that. So that's pretty clear.

Harald

Can I ask on that? It is my perception at the moment and maybe I'm wrong, that these exclusion lists they're easy for people to digest in the team. So they're kind of things that they kind of identify with easier.

Interviewee 17

OK.

Harald

But then then, sorry, I interrupted. But then you have the exclusion list and then you have the due diligence part.

Interviewee 17

Yeah. And then we have a pre due diligence for, so let's just focusing on ESG. We have a legal DD, finance DD, ESG DD and on the on the ESG DD end we have a pre DD where normally I meet the team and this is one of the most important parts to be honest, the team of the of the founders, right, and to get the first feeling if they are aware of the importance of sustainability, of ESG and also if they're aware of their impacts they have on the world and on the planet. I think that you can have the best ESG questionnaire in place, but if you do not have a feeling about who you are talking to, then... And for me, that's the most important part. Get to know the people who you want to work with. And it's a long-term relationship that we have with our portfolio companies, right? So I truly want to understand who's sitting next to me on the table for the next years, right? So that's the most important part. So we have the exclusion list, then the onsite interviews, then I have a in the confirmatory due diligence I do an ESG questionnaire with every company. This is depends on the business model that each company has and there are specific questions in different dimensions from the environmental part, from the governance part from, so pretty much everything, but also here is important I use this ESG questionnaire to get a feeling about where the company is standing right now, so it's not that the company has to have an answer for everything. It's important for me to understand where can I start when I work together with these portfolio companies. If there's no red flag in the confirmatory due diligence. That's an important part as well.

Harald

OK.

Interviewee 17

But important to say. *[redacted for confidentiality]* And if you have the situation in the company that you are just working in the ESG department and the investors are just working on the investment end I think it's a completely different story and our goal, to be honest, is that every investment manager is able to do the ESG due diligence by her or by himself in the end. It's a long way to go now. Everybody is happy that I'm there asking the questions for everybody's like, OK, what does this mean? But that's to be honest, that's the goal that every investment manager is also able to focus on the ESG topics because it will not go away and it's not nice to have anymore.

Harald

[redacted for confidentiality]

Interviewee 17

And you are also so I am involved in the whole process. Normally after the pre due diligence part, we're talking about the term sheet, right and we have an ESG clause in every term sheet and then it depends on the company. If the company has a specific business focus then it can be the case that we have sustainability specific term sheet clauses for that company. *[redacted for confidentiality]*

Harald

[redacted for confidentiality] Because you're implementing new things. So, and I'm guessing this is more like you're not done yet. I'm guessing it's an ongoing journey. You're kind of adding things as you move along. That's kind of the traditional change management way. So how is that perceived from both ends of the spectrum. So from the GPs, when you have to implement new measures new ways, how is that received by them? And then on the other side by the investment team.

Interviewee 17

I'd say the feedback is super positive because on the one hand they know we have to report for example on different KPIs. A good example is our sustainability related disclosures. So this year it's the first time that we will send the principal adverse impacts that we collected from our portfolio companies. *[redacted for confidentiality]* And in the year that I started as at *[redacted for confidentiality]*, I tried to do a kind of a pilot project with our portfolio companies to just raise the awareness for the topic And now this year it's the first time that we will do something with these points of information.

Harald

You mentioned PAI reporting, but on the website you say you don't do PAI reporting. That you don't commit to PAI reporting, but you test it.

Interviewee 17

No, the problem is we have *[redacted for confidentiality].* And then you have to differentiate on the on the product and on the entity level and what you read the 1st The first sentence that you read on the website this is the entity level. So this includes our *[redacted for confidentiality]*. So we cannot say in this statement. Yes, we are doing the PAI reporting, but when you go down and read the information on the product level, then there are some more informations on that end.

Harald

I'll read through that again. I read through it today, and I thought, no PAI reporting. You know, taking the box, but I should have read it carefully.

Interviewee 17

So that's that. That was the advice of our lawyers. But I had, I thought exactly the same. So for me I would start with, we do it but *[redacted for confidentiality]*. That would be my kind of writing, but the lawyers said you have to write it in that way.

Harald

Fair enough. But they are the GPs are they are they happy with the reporting they see there is? I mean they must they also, if there was any groaning from the investment team, they must be getting that also behind your back so to say.

Interviewee 17

Yeah, but I think there was no groaning. So I didn't hear it, but I think they are not, so some of the general partners were pretty much involved in the process of some ESG questionnaires from large institutional investors. So we gave some feedback to our of our large Institutional investors, to their ESG reporting to their ESG questionnaire and the feedback was not that good. So there are many KPIs who if you ask me do not make sense at all. And there are still some KPIs in these ESG questionnaires who do not make sense for the early stage of our companies or who you are not able to ask in specific jurisdictions. So and this is something or a good example is the KPI that we have to report to one of our institutional LPs if in the deal sourcing of our companies or if the companies that we look into, if there is a binary or nonbinary founder.

Harald

OK.

Interviewee 17

OK, we, we can stop it here. So you can imagine the discussion that we have, right. So we are trying to get these numbers, but it's pretty hard and sometimes it's just guessing. And there are some more KPI's that do not make sense, but for the PAI reporting to be honest, it's OK. I cannot say something about the accuracy. For example, if one of our portfolio companies calculated the scope 3 emissions for the first time I will not dig deeper into the into the number, it's just a plausibility check that we can do at the moment. But, I think it's a good start to be honest.

Harald

[redacted for confidentiality]

I've seen you have 3 focus areas, one was in governance. Carbon footprint and the third one escapes me at the moment, but. Do you have additional questions that you add to these templates to drive this part forward?

Interviewee 17

So we have kind of our own, let's call it our own ESG questionnaire and this is super, super easy, super simple. Some of the KPIs are completely the same. So the CO2 emissions, for example, we asked this question, please calculate we asked this every portfolio company just because of the situation that many of them are working with larger companies as, as I mentioned beforehand, right. I totally get the argument that it does not make sense to calculate at this stage and time the CO2 emissions, but they will be asked for these numbers and I think it's also important because the CO2 emission number or the scopes they will be standard numbers in the future. Right. And then? This is the one number that we all always ask.

And then we have a second material topic, which is in the bucket of diversity and inclusion. So we always check the team mix. Because we believe, and there are also academic studies that mixed teams come up with better results and sometimes it is hard. We had a recent investment with a team of I think *[redacted for confidentiality]* male employees. Yeah, but they this this was a *[redacted for confidentiality]*. I do not I get the whole business model by now because it was so complex. It was tough to find women on that end, right? But we push it, we track this number, we stress it, we talk to the founding teams that we believe that it is good to have this kind of mixed environment. The mixed team environment and another part, we track the gender pay gap.

Harald

Which is going to be easy to calculate for that startup.

Interviewee 17

Right.

Harald

[redacted for confidentiality]

Interviewee 17

This maybe the last point the governance part. This is super easy. So there we just say OK, have an ESG policy in place. That's the first thing you have to do and this is also goes in the think about this topic sit there with your with your Co-founders, with your team and start trying to figure out what your material issues are at the moment and will be in the future. And we from our side, we help them with workshops and stuff like that.

Harald

OK, excellent. So you are kind of supporting them through the process, an ESG policy is like any other policy or strategy it's developed it kind of helps if you develop it yourself? If you don't just copy and paste it from somebody because the thinking process and the agreement process is.

Interviewee 17

Right. Totally agree with you. We just so internally I just wrote a new handbook of, so I call it Handbook of professional standards and policies for our own team. And I combined the ESG policy, the good governance policy, the Code of conduct, so everything in this handbook. *[redacted for confidentiality]*. And it's it is exactly as you said, you have to work on your own on this piece and it's the same for the sustainability related disclosures. I wrote this whole piece by myself and we just send it to the to the lawyers and then they have some advice. No, but I would say the important parts you have to do on your own.

Harald

Yeah. I mean they can add the legal language to it, but the content needs to be, like with every contract, I mean, the contract can be referring to articles in the law, but, whatever is in the contract needs to be agreed.

Interviewee 17

It's happening. Right.

Harald

I'm conscious of the time, maybe a couple of more questions. Why not Article 9?

Interviewee 17

And that's a good question. One of our partners who said, we can easily be an Article 9 because everything that we do right now could easily be an Article 9 fund. But to be honest, I think that the branding is completely different. If you rebrand yourself as an Article 9 fund and that's just my personal opinion everybody's thinking, OK Oh, they're an Article 9 and everything is fine. And when you then dig deeper into it and we, we saw it many Article 9 funds and not VC funds but also funds itself they reclassified from Article 9 so they downward reclassified themselves right and I did not want to go that fast, to be honest.

And the second answer would be the regulator, the regulation is so, it changes a lot the regulatory landscape and that's why I said, OK, let's start being an Article 8 fund.

And I think that will be the third argument I think you can see more companies to be honest. Because if you're an Article 9 fund, you have a specific focus. You know exactly. And that's totally fine. And it's good that there are many Article 9 funds in place, but I would refer to Konfutius who always advocates that the way is the goal. And my personal feeling is that if you are an Article 9 fund, you are you're not on the way so much as you are with portfolio companies who are more at the beginning of their journey right and focusing more on ESG and understanding what their impact is.

Harald

No, I mean that it matches, quite frankly, what I hear from similar funds like yours, I mean there are of course these impact funds that are fully dedicated when entire set up, the entire team, the GPs got together because they want to reduce carbon footprint *[redacted for confidentiality]*. Everybody is on board. Everybody who's hired is fully on board with this.

Interviewee 17

And that's a big part that the everybody is on board and has the mindset and we are not. Yeah, we are not an Article 9 fund with our mindset at the moment.

Harald

And that's what I and at the moment, I'm going to pick on now because that's also what I hear is that in the current fund generation, we're going towards Article 8 and we do some impact investments and then maybe in the next generation, we will see whether we can go towards Article 9 or not, whether it makes sense. But at least we're building, we're not closing the door for some deals. That might have happened. But we're building ourselves up towards more and more impact investment, which kind of fits your 4th driver, the positive financial returns that is on ESG, but it is also on the on the impact side, one of my interviewees was telling me that the climate crisis is the biggest financial opportunity that is around at the moment. I thought was an interesting spin on why somebody set up a fund like this. Sorry I'm already over the time. I have two more questions for you. One is you mentioned the DD checklist and these questionnaires, is there any way that you would be willing to share? If you if you can't, that's fine as well. I mean, I do understand that people that these are confidential.

Interviewee 17

No, I can share. So I have, I just have an individualised questionnaire, to be honest, for every company. I can share that.

Harald

After you create a new questionnaire for every company.

Interviewee 17

Yeah, because some questions do not make sense for everything, right? It's, I just go through it and skip some questions and add some other questions, but I can send over the general questionnaire.

Harald

That would be awesome. Thank you. And then I well actually I cheated, I still have two more questions. Is there anything else that I missed that I should have asked you.

Interviewee 17

No.

Harald

And then this is really my last question. If you have anybody else who you would think is relevant for this research. If you have anybody in mind, you don't need to answer right now, but I would appreciate if you can keep that in mind *[redacted for confidentiality]*

Interviewee 17

Yeah, we will definitely. , we can check the. UM Venture ESG member list? Maybe that is helpful for you as well.

Harald

[redacted for confidentiality]

Well, thank you very much for your time. I could talk for another five hours about. This it was really interesting.

Interviewee 17

Yeah, me too. But I have to work a little. For you, it's work now, so yeah. But if you have any questions afterwards, feel free to reach out always.

Harald

That's much appreciated. Thank you.