Lisbon School of Economics & Management
Universidade de Lisboa

# MASTER

## INNOVATION AND RESEARCH FOR SUSTAINABILITY

## MASTER´S FINAL WORK

DISSERTATION

# NAVIGATING SEED FUNDING CHALLENGES FOR SUSTAINABLE STARTUPS

BY ARNI SEMENOV

Lisbon School of Economics & Management
Universidade de Lisboa

January - 2025

Lisbon School of Economics & Management
Universidade de Lisboa

# MASTER
## INNOVATION AND RESEARCH FOR SUSTAINABILITY

## MASTER´S FINAL WORK
DISSERTATION

# NAVIGATING SEED FUNDING CHALLENGES FOR SUSTAINABLE STARTUPS

ARNI SEMENOV - L60838

**SUPERVISION:**

ANÍBAL LÓPEZ

January - 2025

## Table of Contents

## Abbreviations

| Abbreviation | Meaning |
|---|---|
| BA | Business Angel |
| CE | Conventional Entrepreneurship |
| DCF | Discounted Cash Flow |
| EE | Entrepreneurial Ecosystem |
| ESG | Environmental, Social, and Governance |
| EU | European Union |
| IEEE | Institute of Electrical and Electronics Engineers |
| IJEBR | International Journal of Entrepreneurship Behavior and Research |
| IPO | Initial Public Offering |
| IRR | Internal Rate of Return |
| JPIF | Journal of Property Investment & Finance |
| MAXQDA | Qualitative Analysis Software |
| MVP | Minimum Viable Product |
| PE | Private Equity |
| ROI | Return on Investment |
| SDG | Sustainable Development Goals |
| SE | Sustainable Entrepreneurship |
| SFDR | Sustainable Finance Disclosure Regulation |
| SFR | Sustainable Finance Reporting |
| SME | Small and Medium Enterprises |
| SRI | Socially Responsible Investment |
| SSRN | Social Science Research Network |

| Abbreviation | Meaning |
|---|---|
| TEM | Transactions on Engineering Management |
| UN | United Nations |
| USA | United States of America |
| US | United States |
| VC | Venture Capital |

## List of Tables



## List of Figures

**Abstract**

Sustainability-oriented startups address global sustainability challenges, yet they face significant difficulties in securing funding. Little is known about the influence of sustainability factors on funding decisions. This thesis examines how sustainability factors shape investment decision-making in the seed funding process for sustainable startups. Using a qualitative approach with a sample of 26 stakeholders (e.g., investors, founders, and other financial stakeholders), the results revealed the importance of balancing financial viability with sustainability considerations, focusing on hybrid metrics, early business traction, and storytelling strategies. Investor expectations vary based on risk perception, regulatory factors, and investment strategies, leading to different approaches for evaluating sustainability-driven startups. The funding landscape becomes even more complex due to challenges like greenwashing concerns, resource-intensive ESG reporting, and uncertainties around scalability. These insights contribute to the literature on sustainable finance and entrepreneurship, including valuable, practical recommendations for entrepreneurs and investors navigating the complex funding process for sustainable startups.

**Resumo**

As startups orientadas para a sustentabilidade abordam os desafios globais da sustentabilidade, mas enfrentam dificuldades significativas para garantir o financiamento. Pouco se sabe sobre a influência dos factores de sustentabilidade nas decisões de financiamento. Esta tese examina como os factores de sustentabilidade moldam a tomada de decisões de investimento no processo de financiamento inicial para startups sustentáveis. Utilizando uma abordagem qualitativa com uma amostra de 26 intervenientes (por exemplo, investidores, fundadores e outros intervenientes financeiros), os resultados revelaram a importância de equilibrar a viabilidade financeira com considerações de sustentabilidade, centrando-se em métricas híbridas, tração comercial inicial e

estratégias de storytelling. As expectativas dos investidores variam com base na perceção de risco, nos factores regulamentares e nas estratégias de investimento, conduzindo a diferentes abordagens para avaliar as empresas em fase de arranque orientadas para a sustentabilidade. O cenário de financiamento torna-se ainda mais complexo devido a desafios como preocupações com o greenwashing, relatórios ESG com recursos intensivos e incertezas em torno da escalabilidade. Estes conhecimentos contribuem para a literatura sobre finanças sustentáveis e empreendedorismo, incluindo recomendações práticas e valiosas para empresários e investidores que navegam no complexo processo de financiamento de start-ups sustentáveis.

**Keywords**

Seed funding; Sustainable startups; Sustainable entrepreneurship; ESG criteria; Venture capital; Entrepreneurial strategies; Investor

**JEL Codes**

G24; M13; O32; Q01; Q55; C93

## 1. Introduction

Societal grand challenges encompass environmental, social, and governance (ESG) dimensions (Loew and Cordovez, 2023). Entrepreneurial activity, as the process of creating new ventures (Shane and Venkataraman, 2001), is a possible pathway to achieving ESG performance (Clegg et al., 2024). Accordingly, a growing movement of sustainable-oriented new ventures has emerged recently. This movement, commonly called "sustainable entrepreneurship," regards new ventures (hereafter, SE ventures) that focus on realizing positive financial returns while equally achieving non-financial outcomes (Terán-Yépez et al., 2020). While promoting the realization of the United Nations' Sustainable Development Goals (SDGs), SE ventures are often associated with innovative approaches, finding solutions that usually disrupt established markets with innovative business models (Jeong et al., 2020).

An intriguing aspect of these particular types of ventures is that although they tend to have higher market valuations, they struggle to secure sufficient investment (Jeong et al., 2020). This paradox highlights a gap between investors' enthusiasm for sustainability and willingness to commit significant capital, particularly in the early stages of a business (Jeong et al., 2020). Existing research has uncovered some factors explaining this phenomenon, such as the significant initial financial commitments and delayed profit realization (Karani and Mshenga, 2021). Other challenges include the uncertainty around consumer demand, regulatory changes, and the absence of an established track record in specific sustainable sectors (Lin, 2022), and also factors related to the founding team quality (Gompers et al., 2016), market opportunity (Hall and Hofer, 1993), risk assessment (Tyebjee and Bruno, 1984), and strategic alignment (Dushnitsky and Lenox, 2006).

While some scholars have discovered the existence of tension between financial performance and sustainability aspects, the role of sustainability in the funding process remains unclear (Cumming et al., 2024; Hahn et al., 2010). However, most of the existing research is concentrated on the context of corporate

sustainability. For example, the literature has established that environmental risks like climate change are gaining increased recognition. However, their impact on the funding decision for SE ventures remains underexplored (Cohen, 2023). The lack of integration of sustainability factors in the funding decision led to inconsistent assessments and a challenging procedure to accurately measure the sustainable impact of early-stage investments (Berg et al., 2022; Mansouri and Momtaz, 2022).

To address this gap, this thesis's research question is, “How do sustainability factors shape decision-making in the seed funding process for sustainable startups?” The main objective is to investigate sustainable criteria within a seed funding process, mainly focusing on the duality between financial and sustainable aspects.

To answer this question, I conducted a qualitative research study through semi-structured interviews with founders, investors, and other stakeholders in the funding landscape. We decided to include the perspective of multiple stakeholders due to the lack of a comprehensive understanding of the funding process. Prior research focused on understanding investors' perceptions about this funding decision. Although investors are one of the focal players because the ultimate decision to fund (or not) remains theirs, the funding process is more complex than what is captured by investors’ perceptions. This recognition has made scholars argue that to properly understand this funding process, future research should adopt a holistic approach and triangulate the intersection of the perspectives of multiple stakeholders (Loew and Cordovez, 2023).

The study focuses on angel investors and venture capital as sustainable startup funding sources due to their ability to provide capital, strategic value, networks, and risk tolerance. Despite differing investment practices and priorities, both investor types increasingly incorporate sustainability into their investment strategies (Bonini and Capizzi, 2019; Mason and Harrison, 2008; Roundy et al., 2017). This methodology allows a deeper understanding of participants' subjective perspectives of how sustainability factors affect investors’ decision-making of SE

ventures, particularly in the seed stage. It offers the flexibility to discover participants' insights while maintaining a consistent framework for analysis.

This work uncovers investors' strategies and preferences and evaluates criteria that support their decisions to fund SE ventures, adding knowledge to an underexplored area of existing literature (Loew & Cordovez, 2023). In this case, sustainability factors encompass ESG criteria that measure a company's sustainability impact and commitment (Cohen, 2023).

The study will pay particular attention to the tension between financial performance and sustainability commitments. It unravels a necessary balanced approach to these often-conflicting goals containing potential trade-offs between both concepts (Cumming et al., 2024; Hahn et al., 2010). This tension is evident in the seed funding round, in which sustainable-oriented startups face unique funding challenges. Even though ventures in this stage contain growth potential, startups are being evaluated with significant uncertainty in this crucial development phase (Lin, 2022). Additionally, the study offers practical implications for founders and investors navigating the complex funding landscape.

The urgency of global challenges like climate change fosters the integration of sustainability factors in ventures (Terán-Yépez et al., 2020). Exploring how sustainability considerations influence seed funding decisions to drive sustainable innovation (Jeong et al., 2020)is crucial.

The thesis is organized into sections of a literature review that identifies the gap in the literature, a methodology explaining the qualitative approach, the research findings, a discussion offering interpretations, a section on limitations and future research, and finally, a conclusion summarizing the main insights.

## 2. Literature Review

This chapter examines existing research on seed funding for sustainable startups, focusing on sustainability integration, investor decision-making, and funding challenges. The next chapter presents the theoretical basis for answering the research question.

### 2.1. Sustainable Startups

Sustainable ventures can be identified as businesses incorporating environmental and societal objectives into their business practices (Menghwar and Daood, 2021). Unlike traditional startups focusing on achieving financial returns, scalability, and rapid market expansion, sustainable firms balance economic objectives with sustainability goals (Sreenivasan & Suresh, 2023). They also differ from social entrepreneurship ventures, which typically focus on addressing societal challenges, in which financial outcomes merely support their purpose-driven mission (Thompson et al., 2011). Environmental entrepreneurs focus specifically on ecological goals, such as reducing environmental harm through economic success (Santini, 2017). Sustainable entrepreneurial activity collectively leads to transformative solutions and drives innovation for sustainable development through economic success (Schaltegger et al., 2016).

Besides their differences in strategic positioning, SE ventures also differ from other type of ventures in their market valuation - i.e., the assessment of the worth of a company based on criteria like financial performance, market conditions, and sustainability considerations (Minzhen, 2024) - and their ability to attract funding. Specifically, SE ventures receive higher market valuations than traditional startups due to their ESG integration. However, in securing financing, SE ventures are less likely to be funded (Jeong et al., 2020). This contrast is significant because market valuation and funding are generally linked, but the relationship is less direct for SE ventures than commercial startups. Moreover, this phenomenon persists even when profit realization is embedded in the strategy of SE ventures (Jeong et al., 2020). To explore this process, it is essential first to understand the typical funding journey for startups.

### 2.2 Stages of the Funding Process: A Foundation for Startup Growth

A funding decision describes the process of investors or other financial institutions choosing to provide capital to companies' projects through market

valuation (Zairis et al., 2024). To examine different investment opportunities, it is vital to categorize a venture's growth and development stages into various steps.

As depicted in Figure *6*, startups usually go through a series of development stages, and each stage incorporates different objectives and necessitates different efforts and resources (e.g., Jeong et al., 2020; Lukkarinen et al., 2016; Wang & Wang, 2012; Zhang et al., 2017). First, the seed stage is where market research is conducted, and ideas are developed and validated through a Minimum Viable Product (MVP), while in the early stage, the focus is on product-market fit and initial operations. In the expansion stage, the focus lies on scaling and entering new markets, while in the later stage, startups find market consensus, receive sales, and continue to adapt. Finally, the exit stage is when founders and investors realize returns through acquisitions, mergers, or Initial Public Offerings (IPOs) (Jeong et al., 2020; Ruhnka and Young, 1987).

Corresponding to the individual phases of development, the funding process for startups can also be differentiated into distinctive stages (See Figure *7*). Pre-seed focuses on ideation and MVPs funded by founders, their friends, and family. It includes investment amounts up to $100,000 (Lange et al., 2024; Yagüe-Perales et al., 2024). Subsequently, the “seed” stage involves further product development, increased human resource efforts, and the formalization of market strategy. This stage can be considered the first significant investment round, ranging from $100,000 to $ 2 million. With the support of typically angel investors, crowdfunding platforms, and seed venture funds, startups can focus on customer acquisition (Ayoub et al., 2017; Yagüe-Perales et al., 2024). Series A and B concentrate on product development, market expansion, and scalability, ranging from $2 million to over $10 million (Honjo et al., 2014; Klingler-Vidra, 2016). Series C and beyond contain efforts for global growth and product diversification, which can lead to IPOs or acquisitions with investments over $30 million (Honjo et al., 2014).

In the early stages, sustainability is a differentiator for attracting impact-conscious investors (Miller & Del Carmen Triana, 2009). As startups mature through the different phases, sustainability becomes a strategic anchor point. It

becomes an integrative part of the business models and governance, ensuring long-term competitiveness and stakeholder trust (Kuckertz and Wagner, 2010; Mühle et al., 2024).

It is worth noting that the term 'seed stage' refers to both a startup's initial maturity level and a stage in the funding process. However, this research focuses on the seed stage of the funding process.

### 2.3 The Seed Funding Process for Sustainable Startups

As mentioned, SE ventures encounter numerous challenges in securing funding from investors, particularly in the seed funding stage (Derdabi and Dvouletý, 2025). Barriers such as intensive financial commitment beforehand can become challenging for early-stage firms (González et al., 2024). For instance, firms with low-carbon technology are evaluated using a unique risk classification, including its often emerging, disruptive, and innovative nature (Mukherjee et al., 2024). Another significant financial difficulty for early-stage innovation is the information asymmetries between entrepreneurs and financiers (Carpenter & Petersen, 2002). The identified hurdles in this process include substantial capital costs and financing requirements, unpredictable revenue streams, challenges accessing traditional financing sources, a shortage of expertise and specialized knowledge, policy and regulatory obstacles, low public awareness, restricted availability and accessibility of financing options, and a limited range of investment opportunities (Mukherjee et al., 2024). Investors require specialized knowledge to holistically understand the business model of sustainable startups with a technological solution. Evaluating risks and returns can become more challenging for investors without a deep technological understanding (Cowling & Liu, 2023).

Within the landscape of funding for sustainable startups, the “valley of death “describes a stage in which startups face significant challenges. The affected lifecycle of struggle is the transition stage from R&D to monetization, in

which the firm experiences a lack of funding. Its enormous financial risk and uncertainty characterize it, decreasing the attractivity level for investors (Gbadegeshin et al., 2022; O'Reilly et al., 2024). Furthermore, in this critical phase, founders need to gather other financial resources, often using personal savings, grants, or capital from family and friends to ensure the continuity of operations (O'Reilly et al., 2024). The distinctive moment occurs between the proof of concept and the market commencement. This aligns with transitioning from pre-seed or seed stage to later funding rounds such as series A. High technological uncertainty and the non-existent market fit usually result in difficulties (Gbadegeshin et al., 2022).

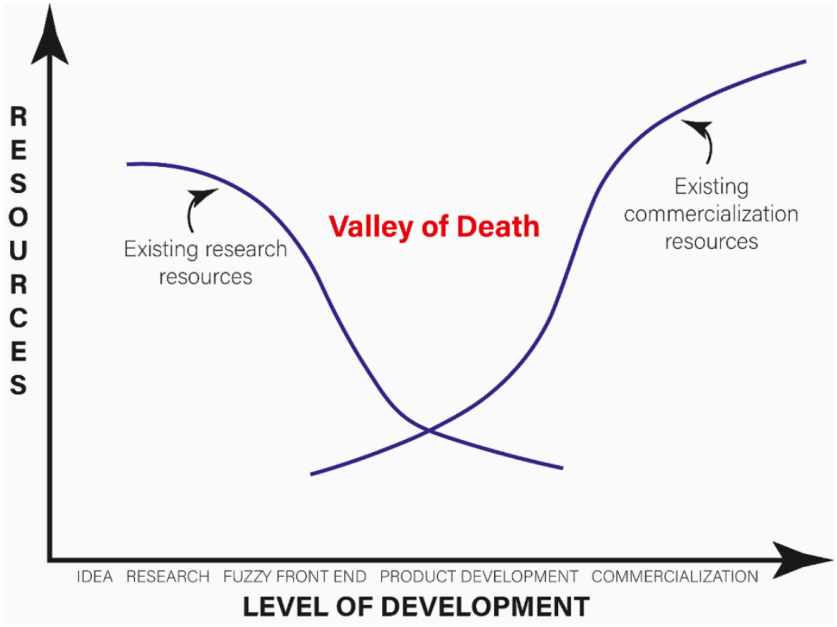


Figure 1: The Valley of Death (Gbadegeshin et al., 2022).

Capital-intensive industries like sustainability-orientated technology startups particularly struggle to transform innovative prototypes into successful market-fit products (Aaltonen & Kurvinen, 2025). They often operate in ascent or unestablished markets, which increases investors' uncertainty level. The necessity for high upfront budgets and a relatively long-term expected return on investment (ROI) adds complexity to the process. This gap describes the "scale-up challenge" faced by technologies tackling sustainability subjects (O'Reilly et al., 2024).

Entrepreneurs may utilize strategies to overcome the obstacles of the valley. For instance, collaborations with environmental stakeholders can enhance the situation, receiving further resource allocation and mentorship. Also, developing products and services directly linked to market demands and customer needs is vital. Collecting policy support from government grants and R&D subsidies specifically developed for sustainability-orientated technology companies can minimize financial burdens (Lee & Kim, 2019).

Despite these challenges, startups within the seed stage transform ideas into real-world solutions, addressing risks like unproven technologies and uncertain market demand (Eisenmann, 2020). Such ventures have the potential to drive systemic change, foster innovation, and enable long-term value creation while advancing sustainability goals (Bocken et al., 2014; Cohen and Winn, 2007).

### 2.4 Key Players in Early-Stage Financing: Investors and their Roles

The literature categorizes investors within an entrepreneurial ecosystem (EE). Early-stage financing includes a range of investors, each with their own goals and strategies. Investors choose different approaches for their investments, affecting the funding journey of founders in the early stages (Bellucci et al., 2023). Existing literature distinguishes between institutional investors who provide financial infrastructure to high-growth firms. Such entities are called venture capital (VC) firms, corporate venture arms, and government-backed funds, investing high amounts of capital in specific industries (Stam, 2015). Individual investors, such as angel investors and other high-net-worth individuals, typically use personal funds. They usually focus on early-stage startups and provide additional resources like mentorship and industry connections (Mason & Harrison, 2008). The development stage, the needed capacities, and other factors influence the suitability of a venture for an investor (Gompers & Lerner, 2001).

This thesis will predominantly focus on VCs and individual investors because they can provide capital and strategic value (Choi and Stack, 2005). Also, many founders prefer these due to investors' expertise, networks, and high-risk

tolerance (Garg & Shivam, 2017; Mason & Harrison, 2008). Both players are increasingly interested in incorporating sustainability into their investment strategies (Roundy et al., 2017). Furthermore, both investor types contribute differently to the relevant funding process for early-stage startups, offering different resources that incorporate different priorities but are almost indispensable for securing funding (Bonini & Capizzi, 2019).

While this work concentrates on other funding types, founders can collaborate with public institutions that provide grants and non-financial support. This enhances credibility and attractivity but requires detailed applications and strict monitoring (Musa et al., 2017; Zhou et al., 2022). In addition, online crowdfunding platforms can provide funding through non-professional investors, usually focusing on ESG criteria and financial returns (Cumming et al., 2024; Vismara, 2019). Traditional funding options like bank loans are often unsuitable for sustainability-oriented ventures due to a perception of high risk and lack of security (Polzin et al., 2019).

Venture capital firms are pivotal in funding sustainable startups, providing financial provisions and non-monetary benefits, such as knowledge, executive expertise, and strategic network prospects (Mukherjee et al., 2024). Traditionally, VCs focus on high-growth potential firms within the scope of a pre-seed to the expansion stage while assessing the extensive risks associated with early-stage investments (Block et al., 2024; Mukherjee et al., 2024). Startups can gain a competitive advantage with support from VCs. Research indicates that if ventures receive investments from VCs at a considerably early stage, they tend to showcase better performance metrics (González M et al., 2024). This also enhances company value, communicating the correct messages to potential additional investors. However, studies also show that receiving investment from a VC company with a high reputation does not increase ventures' correlated performance (Jeong et al., 2020).

In early-stage ventures, investment opportunities are usually identified through professional networks. Strategies, such as applying “deal funnels,” assess

the management team and business-related requirements, such as product, market, or industry. Recent developments indicate that VCs prioritize innovative solutions and growth potential over traditional financial techniques. Selecting a suitable investment deal can be identified as the most successful and vital factor, accompanied by value enhancement after investment and deal flow. It is crucial to mention that VC practices differ between industries (Gompers et al., 2016).

Business angels (BAs) are the leading source for sustainability-orientated funding activities, especially in developed countries (Mason & Harrison, 2015). BAs are experienced private individuals who allocate individual capital to early-stage startups. They also provide valuable mentorship, strategic guidance, and network access, equalizing the lack of institutional funding. Impact-driven BAs or Social Impact Business Angels (SBAs) prioritize social and environmental aspects alongside financial returns. They evaluate startups through structured processes, incorporating criteria like authenticity, impact, and the balance between profitability and sustainability (Viglialoro et al., 2024). Here, validating metrics and certifications (e.g., B Corp certification) is a vital part of the process, as is identifying potential greenwashing techniques during the screening procedure (Viglialoro et al., 2024). Authors have described BA's behavior as altruistic, resulting in investments with a financial “trade-off” return, supporting long-term investments in environmental efforts. Investment decisions can be influenced by regulatory permanency, environmental reporting obligations, public investors, and customer sentimentality (Harrer & Owen, 2022).

Understanding the key investors in early-stage financing and their roles establishes a strong foundation for analyzing how sustainability is integrated into investment decisions, shaping funding priorities, and influencing investor strategies.

### 2.5 Integration of Sustainability in Investment Decision-Making

Sustainability factors refer to the ESG criteria investors use to assess a startup's commitment to sustainable practices. For instance, ESG criteria can contain environmental factors like carbon footprint or social factors like labor rights (Mansouri and Momtaz, 2022). These factors influence investment decision-making and have evolved through Socially Responsible Investment (SRI) and Impact Investment. This is supported by incorporating frameworks like GRI and B-Corp certifications (Loew & Cordovez, 2023). Despite sustainability's rising importance, metrics inconsistencies, resource constraints, and greenwashing risks within the ESG integration are challenging for early-stage startups (Ioannou and Serafeim, 2017; Loew and Cordovez, 2023). The alignment between the founder and investors is significant, especially surrounding the priority of immediate financial returns or the emphasis on long-term sustainability objectives (Cohen, 2023; Mansouri and Momtaz, 2022).

The "paradox of sustainability" describes the trade-off between short-term profitability and long-term sustainability goals. Research indicates that integrating sustainability enhances resilience, partnerships, and investor attraction (Hahn et al., 2018; Loew and Cordovez, 2023). In the funding process, investors usually lean on tools like scoreboards and ESG frameworks to evaluate quantitative (e.g., carbon footprint) and qualitative metrics (e.g., community engagement). Hurdles within this decision-making are the inconsistencies among rating systems, complicating the assessment efforts of investors (Berg et al., 2022; Mansouri and Momtaz, 2022). For instance, the early-stage venture capital firm byFounders developed their individual ESG Perception Scorecard, a comparative tool during the assessment phase ( Figure 8 in the Appendix).

Applying governmental policies like the EU Taxonomy or SFDR supports transparency; however, its compliance contains hurdles for resource-constrained startups due to the tedious data collection and presentation (Buchanan et al., 2024).

This research investigated the funding decision-making process's initial screening and due diligence stages. Both critical stages represent the process in which potential deals are either advanced or declined. At such key decision points, managing scarce resources and minimizing risk in the earliest venture development phase is critical. Understanding the processes in those phases is significant in determining factors that drive successful funding outcomes (Haines et al., 2003).

This literature analysis reveals a gap in understanding how sustainability influences the decision-making process in the seed funding process of sustainable startups. It raises the need for a deeper exploration of integrating sustainability factors in seed funding (Hahn et al., 2018; Loew and Cordovez, 2023).

## 3. Methodology

This chapter describes the methodological approach and qualitative research design used to answer the research question “How sustainability factors shape decision-making in the seed funding process for sustainable startups.” It includes in-depth interviews, the Gioia methodology for data analysis, and a grounded theory analysis that identified key themes and theoretical insights. The ethical considerations, data collection processes, and analytical strategies are presented to ensure a robust and transparent research framework.

### 3.1. Sample and Procedures

The choice for a qualitative research approach was based on the rationale of the possibility of a deep dive into context-dependent phenomena. It facilitates unraveling processes, exploring meanings, and increases the comprehension of complex systems. Compared to quantitative research, it includes capturing rich data such as individual experiences and beliefs (Bryman, 2016). A qualitative research design allows for exploring data that direct measurements cannot retrieve; it can only be grasped through interaction and personal dialogue (Maxwell, 2012). Qualitative research offers the possibility to co-create knowledge,

meaning the personal conversation between a researcher and participants allows for a deeper investigation and extensive data collection. The flexibility of communication flows and the ability to adjust real-time interactions uncovered additional insights (Guba and Lincoln, 1994). Furthermore, participants' narratives and subjective interpretations created an inclusive sharing of thought processes and decision-making insights (Creswell, 2013). Observing participants' latent meaning is vital to the qualitative research approach (Charmaz, 2012).

We developed interview guides to ensure consistency in the data collection process. The guides included open-ended questions to allow for in-depth responses. We created several complementary interview guides; one targeted founders, one targeted investors, and the other targeted financial stakeholders in the funding environment, such as professionals working in incubators or sustainable finance companies. The interview protocol ensured the ability to share opinions, viewpoints, and perspectives more extensively (Patton, 1990). The protocol was tested with a pilot interview, revealing the potential for adjustments and content refinement. Such probing methods support gathering more comprehensive insights and uncovering underlying connotations (Rubin and Rubin, 2012). The questions were tailored to participants' professional positions, which ensured a data collection process that provided relevant comprehension regarding individual experiences and perspectives (Frey and Fontana, 2000).

We conducted semi-structured, in-depth interviews with 26 participants, including founders, investors, and other relevant stakeholders. We selected participants through purposive sampling, ensuring the collection of data from individuals with specific expertise or knowledge (Patton, 1990). This study takes a broader approach by considering multiple stakeholders to better reflect the funding process's complexity. Investment decisions depend on various stakeholders in the ecosystem who shape how sustainability factors are integrated into the funding process (Loew and Cordovez, 2023). Furthermore, purposive sampling is adequate for certifying data directly linked to the research question by exploring insights from key informants (Creswell, 2013). All interviewed founders

were involved in the funding process, either through a successful funding round, ongoing efforts, or past rejections. All selected investors invested in ventures in the seed funding stage. Other financial stakeholders were experienced individuals working in financial advisory firms, venture studios, incubators, or accelerators. Multiple data sources increased the validity and comprehensiveness of the findings. This ensured the representation of numerous stakeholder groups, resulting in a more decadent collection of various perspectives and cross-validation of themes (Cope et al., 2014).

The interviews were conducted via videoconferencing using MS Teams and lasted 30 -60 minutes. The questions explored the requirements for successful seed funding investments in sustainable startups.

The data collection was executed with digital recording tools from MS Teams (only with prior permission from participants). Distinct interview guides were developed and adapted for each stakeholder group, reflecting their specific roles and perspectives within the seed funding ecosystem (see Appendix). The consideration of the sample size was led by the theory of data saturation, in which the lack of new data emerges already with a considerably smaller, purposive sample size. The choice of a manageable number of interview participants was driven by gathering sufficient data, focusing on the depth rather than the breadth of the data range (Guest et al., 2006). This results in the key criteria for the sample size: a saturation of thematic insights (Charmaz, 2006). The participants were listed in a table, describing their professional background and indicating the relevance of their qualifications to be interviewed (See Table I ).

Ethical considerations were addressed by obtaining informed consent from all interview participants, ensuring confidentiality, and safeguarding the participants' privacy with the support of data protection initiatives. Due to the sensitive nature of the topics discussed and to preserve the participants’ privacy, interview participants were anonymized and assigned to unique identifiers (e.g., fake names like Jacob), meaning all participants were given pseudonyms to ensure anonymity.

| Pseudonym | Role | Profession/Background | Organization/Industry | Operating Location |
|---|---|---|---|---|
| Catelyn | Incubator/Investo | Project manager | Incubator/Accelerator | Portugal |
| David | Founder | Founder and CEO | Green Tech, Renewable Energy | Germany |
| Jacob | Investor | Angel Investor | Impact-focused startups adn public markets | Germany |
| Larissa | Investor | Ex-Analyst of Venture Capital firm | Diversified investments across multiple sectors | Portugal |
| Michael | Investor | Leading sustainability initiatives, early-stage financing | Sustainability-focused finance innovator and facilitator | Europe |
| Matthew | Founder | Founder and CEO | Green Tech, Renewable Energy | Germany |
| Simon | Founder | Founder and CEO | Energy sector | Germany |
| Tobias | Founder/Investor | Serial Entrepreneur and Investor | Diversified investments across multiple sectors | Europe |
| Joseph | Investor | Owner of a VC firm, Managing Director of Business Development | Computing, artificial intelligence, blockchain, and cybersecuri | Europe |
| Paul | Founder | Co-Founder and CEO | ESG Advising | Portugal |
| Alina | Finance Advisor | Director, leading corporate finance transactions | Sustainable finance and corporate advisory firm | Netherlands, Europe |
| Lisa & Martin | Investor | Bank professionals, Equity Investments | Climate and environmental technologies and convertible loans | Germany |
| Nathan | Founder/Investor | CEO, Serial Entrepreneur, and Investor | HR tech and med-tech industry | Skandinavia, Europe |
| Peterson | Investor | Investment Director adn Serial Entrepreneur | Sustainable investment firm | Porugal |
| Ruben | Investor | Angel investor, President and Co-Founder of BA Fund, Serial Entrepreneur | Consumer Internet and Enterprise Solutions | Portugal, Europe |
| Marcelo | Founder | Co-Founder and CEO | Green Tech, Circular Economy | Germany |
| Julian | Investor | VP of Governmental Economic Developments | Foreign Investments | USA |
| Tristan | Founder | Co-Founder, Marketing & Finance | Green Tech, Renewable Energy | Germany |
| Paulsen | Investor | CEO, Coporate Investments | Mining and Trading | Germany, Global |
| Irene | Investor | Busines Angel Investor, President of a Business Angel Club | Diversified investments across multiple sectors | Portugal |
| Maxwell | Founder/Investor | Founder, Busines Angel, Fund Leader and Investment Management | Diversified investments across multiple sectors | Portugal, Europe |
| Lucia | Investor | Founding Partner and Managing Director | Venture Firm focusing on sustainable investments | Germany, Europe |
| Fabiano | Founder | Co-Founder and CEO | Green Tech, Renewable Energy | German, USA |
| Jason | Investment seeker | CFO in a startup | Green Tech, Renewable Energy | Germany |
| Preston | Founder/Investor | Serial Entrepreneur and Business Angel | Digital Finance Solutions | Europe |
| Claudia | Investor | Investment Analyst in a VC/Incubator | VC/Incubator, Sector: Agriculture | Europe |

*Table I: Interview Participants with Pseudonyms and Descriptions (own creation)*

Specific, identifiable details have been withheld to protect confidentiality. This line of action aligns with ethical research practices and was relayed to all participants before the interviews.

### 3.2 Analytical Strategy

The data for this research were analyzed using the Gioia methodology (Gioia et al., 2013a), a systematic framework for interpreting participant insights and subsequent development of grounded theoretical models. This method is well-suited for examining the sustainability integration in seed funding investments, as it highlights emergent and context-specific phenomena (Magnani & Gioia, 2023). This qualitative research approach systematically transforms raw data into theory by coding participants' quotes into first-order concepts, grouping them into second-order themes, and synthesizing them into overarching dimensions to link empirical evidence with theoretical insight. Linking first-order concepts to second-order themes and aggregate dimensions combines practical insights with theoretical frameworks, offering a clearer understanding of the complex factors affecting the funding process of sustainable startups. The content analysis methodology combined a participant-centric approach, linking empirical

observations to theoretical abstractions, and provided insights about the decision-making process of seed funding for sustainable startups (Gioia et al., 2013b).

The methodology was implemented in several phases. First, the researcher reviewed and coded interview transcripts to capture participants' perspectives. This iterative process of reading and categorizing the content resulted in first-order codes. The researcher kept close to the original participants' words. Second, the first-order codes were transformed into 23 second-order themes by linking existing knowledge from the literature to the collected data. With the data of theoretical insights, additional analytical insights were retrieved. An amount of 12 second-order themes were identified, some of which were unique, others more overlapping and similar to other content. Third, the second-order themes were developed into aggregate dimensions. The four dimensions resulted from a process in which the data obtained was assigned to the research question. Finally, the subtracted data structure created a process presentation (Langley et al., 2013) that included themes and aggregate dimensions. The findings were translated into theory development and indicated the influence of sustainability factors on early-stage funding decisions (Maxwell, 2012).

The analysis was supported by the software tool MAXQDA, which was adopted for the systematic organization and coding of the qualitative data. The thematic analysis revealed themes displayed in flowcharts (see Figure 2,Figure 3,Figure 4, and Figure 5).

# 4. Findings

The content analysis revealed several recurring themes. This chapter presents these themes, codes, and dimensions, links to other thematic points, and explains their significance in more detail.

## 4.1 Aggregated Dimension 1: "Structural and Institutional Challenges"

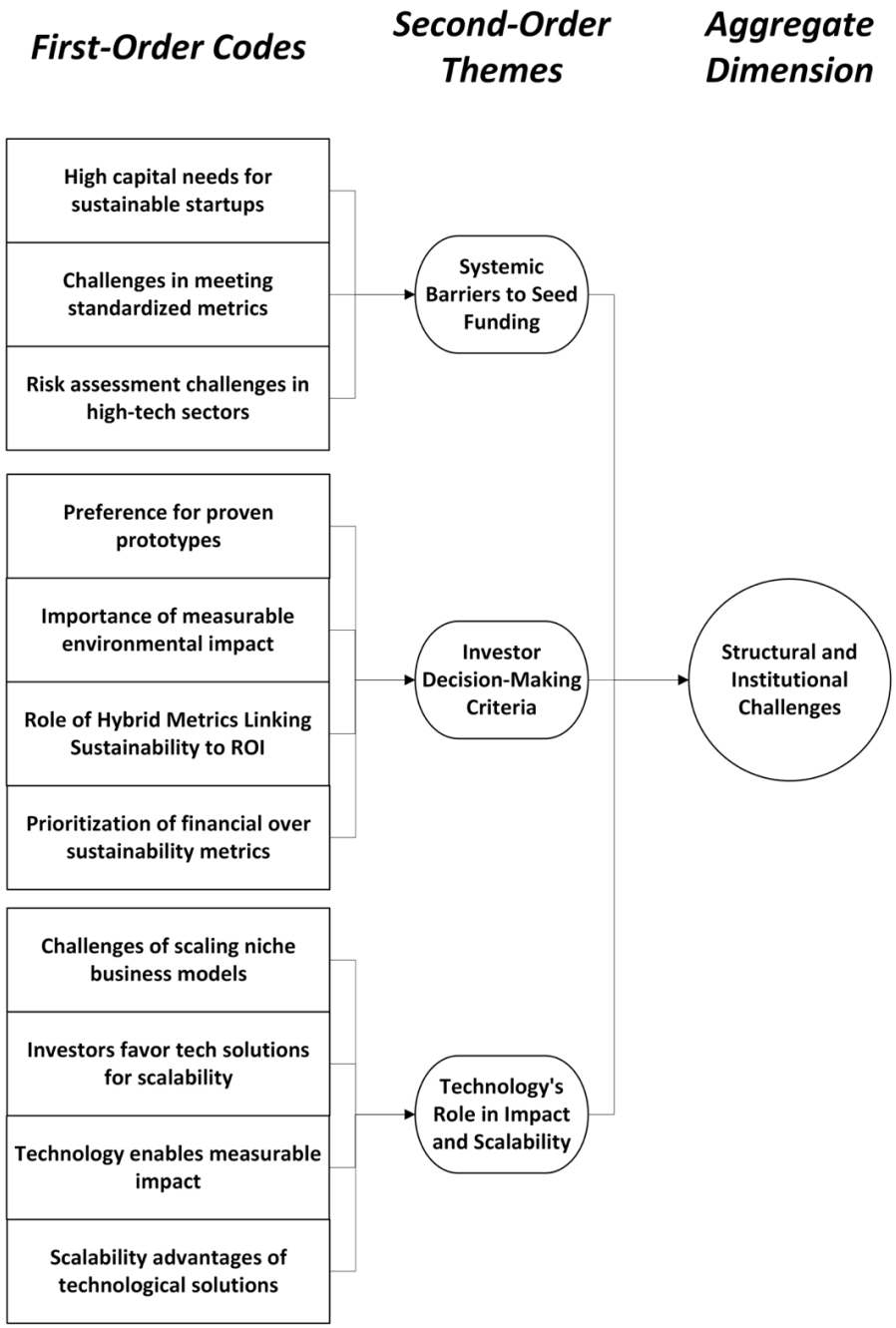


*Figure 2: Aggregate Dimension 1: Structural and Institutional Challenges (own visual creation)*

Sustainability plays a significant role as an investment criterion, incorporating quantitative and qualitative metrics that influence decision-making. The high initial capital needed for sustainable startups is perceived as a high investment risk. While quantitative criteria like $CO_2$ offsets and SDG alignment provide clarity and reliability, qualitative metrics, including community impact and biodiversity preservation, require a more challenging approach (See Table II). Qualitative factors are more difficult to evaluate. However, they are significant for certain investors, especially those prioritizing impact activities. Unlike traditional venture capitalists, who value financial performance more, sustainability is a differentiator for impact-orientated investors. This creates a distinct divergence between different investor types and their viewpoints on sustainability as an investment criterion.

Investors demand clear, measurable, and standardized metrics to evaluate sustainable startups. As Paul revealed: *"Vague sustainability claims don't work. You need lifecycle analyses or hard data to prove it."* Jacob explained, "*Everyone's using different metrics for sustainability—it's like comparing apples to oranges.*" The lack of standardized sustainability metrics increases the difficulty of evaluating impact measures.

*"Explaining intelligent energy management algorithms is challenging for investors,"* Simon stressed in the interview. *Communicating specific technological aspects is also challenging*". He stated, "*We face technical challenges explaining energy contracting.*" Matthew addressed the complexity of some green tech solutions, which can scare off generalist investors.

One strategy to overcome the funding hurdle is to develop valid prototypes with early customer adoption, which displays a viable business model. Matthew noted, "*No investor backs just ideas*." Another strategy is developing dual KPIs or hybrid metrics, linking sustainability efforts to financial metrics (See Table III). It is essential to display an impact that can be measured. While expecting trade-offs, founders must address investors' skepticism about combining profit with impact. Paul noted: "*You need to show how sustainability efforts directly contribute to your*

*financial outcomes*." This indicates the necessity for the use of verified sustainability metrics. However, the prioritization of financial metrics remains, especially by traditional VCs. *"Startups must prove profitability first; sustainability is secondary," Tobias* distinctly displayed the investment priorities. This result confirmed Jacob: "*Investors need a business case that works financially; sustainability is a bonus, not the foundation*."

The influence of technology in the funding process is enormous, influencing factors of scalability and impact for sustainable startups. Typically, niche ventures operate with the burden of not reaching the state of scalability; technology-driven solutions - particularly software – in comparison, gain investors' attention, specifically for their increased chances of scalability, efficiency, and ability to provide transparent metrics. The critical role of technology is recurring, and it is evident that it enables companies to prove their progress. Michael highlighted: "*Technology provides clarity and transparency in proving impact*." With the support of technology, it is possible to access data for precise, evidence-backed sustainability claims. Lisa & Martin explained: "*Technology can validate sustainability metrics and provide transparency.*" Technology can build a bridge between complex sustainability endeavors, translating them into understandable and reliable metrics. Simon added software solutions for creating additional investment opportunities: "*Investors want models that scale quickly. Scalability in software solutions de-risks the investment process and provides predictable growth pathways*." A recurring theme was the potential for software-driven solutions to scale more efficiently than hardware or service-based models. Proofing scalability shows successful market adoption and expansion, which investors consider high-growth opportunities.

### 4.2 Aggregated Dimension 2: "Navigating Sustainability and Profitability"

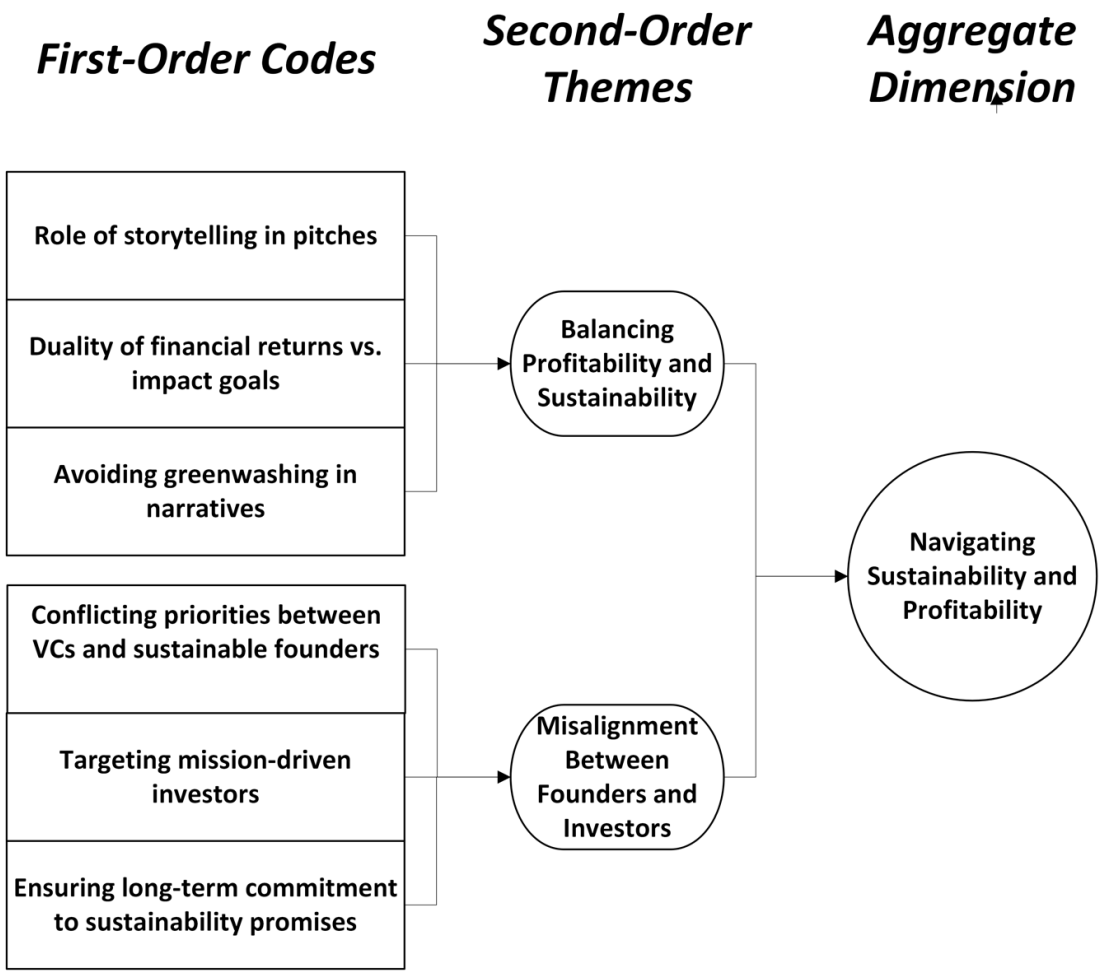


*Figure 3: Aggregate Dimension 2: Navigating Sustainability and Profitability (own visual creation)*

This dimension shows that the tension between sustainability and profitability is a significant challenge. Sustainability does not get prioritized over financial aspects, as indicated by Tobias: *"Startups must show they're a viable business first. Sustainability comes second."* Michael adds: *"Profitability and sustainability must align. Without profit, impact doesn't happen."* However, accelerators and financial advisors demand a more balanced approach, showing that sustainability and profitability can coexist if well-planned. Catelyn indicated:" *We help founders align their impact KPIs with investor expectations—it's about balancing both."*

This hurdle can be overcome by effectively using storytelling. Through data-backed narratives, founders communicate clear concepts of the duality of economic and sustainability drivers. "*Storytelling works, but it needs data to support the claims—financial and sustainability metrics combined*," Michael mentioned in the interview. It is vital to acknowledge the risk of greenwashing in funding narratives. The concept of greenwashing, a misrepresentation of reality, influences investors' decision-making, raising the necessity for transparent and verifiable data. This was apparent in Paul's words: *"You can't just say you're green—you need to back it up with metrics like carbon offsets or lifecycle analyses."*

Another challenge can be found in the alignment between founders and investors, complicating the funding process with conflicting priorities. The initial right choice of investors is essential to align objectives and avoid conflicts. Joseph mentioned: "*Startups must find investors who share their mission, or compromises will be unavoidable*." This raises the importance of sustainable founders targeting specific mission-driven investors to increase their chances of getting funding and guaranteeing successful cooperation. Catelyn noted, "*The investor-founder relationship thrives when both sides see the same end goal.*" The necessity for founders to create compelling, data-driven narratives and the importance of committing to long-term sustainability ensures long-lasting impact. Jacob stressed establishing commitments to deliver results: "*We need startups to follow through on their promises.*"

### 4.3 Aggregated Dimension 3: "Ecosystem Strategies for Startups"

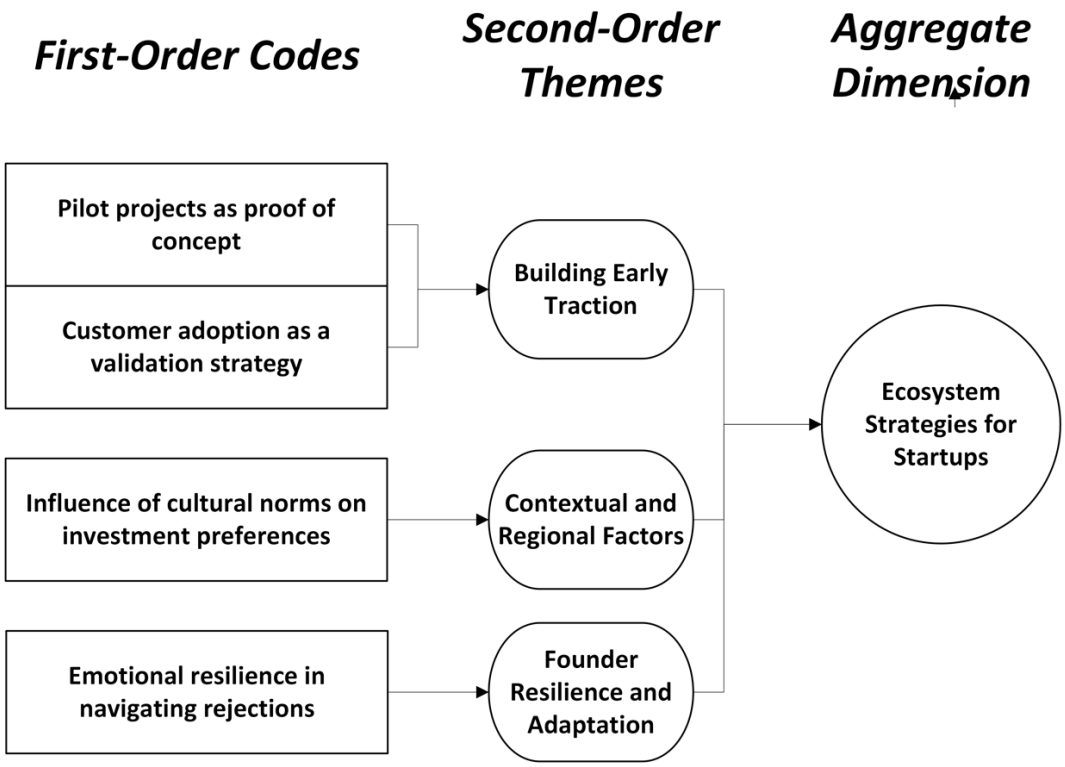


*Figure 4: Aggregate Dimension 3: Ecosystem Strategies for Startups (own visual creation)*

The significant role of early traction and customer validation is evident. It can enhance the opportunity to secure funding by increasing trusting relationships between the funding seeker and provider. Pilot projects and proof of concepts testify to convincing effort and increase credibility by showcasing tangible results. Joseph noted, "*Pilot projects are valuable because they show results. Investors need to see you've done something real*." In addition, early customer adoption functions as a key strategic procedure for validating growth and progress. Tobias reconfirms this: "*Early adoption shows that people are willing to pay for your offering. That's what builds confidence.*" Showcasing measurable and evidential early traction is another key indicator that elevates chances for scalability and future funding rounds. Simon expressed: "*Proving our model works on a small scale helps us secure funding to take it further.*"

The decision-making in the seed funding process is influenced by regional and cultural factors, as well as the emotional resilience and adaptability of

founders. The differences in cultural norms, regulatory environments, and market conditions lead to different assessments of sustainability understanding. Alina observed, "*Cultural differences influence the perception of sustainability as either a competitive advantage or an added risk*." Attitudes and priorities differ between investors; for instance, sustainability plays a less critical role in the United States (US) than in the European Union (EU). SDGs are related to a higher risk perception in the US (Alina).

Meanwhile, founders are exposed to emotional and strategic barriers, demanding certain personality traits. Resilience and adoption towards investors' rejections and bureaucratic hurdles are needed. Simon emphasized, "Founders must remain optimistic and adaptive despite setbacks." David described: "*The investor trusted me as a person, not just the business*." The quality of the founders and their team is a significant factor influencing the decision-making in the seed funding process.

### 4.4 Aggregated Dimension 4: "External Challenges in Sustainability Investment"

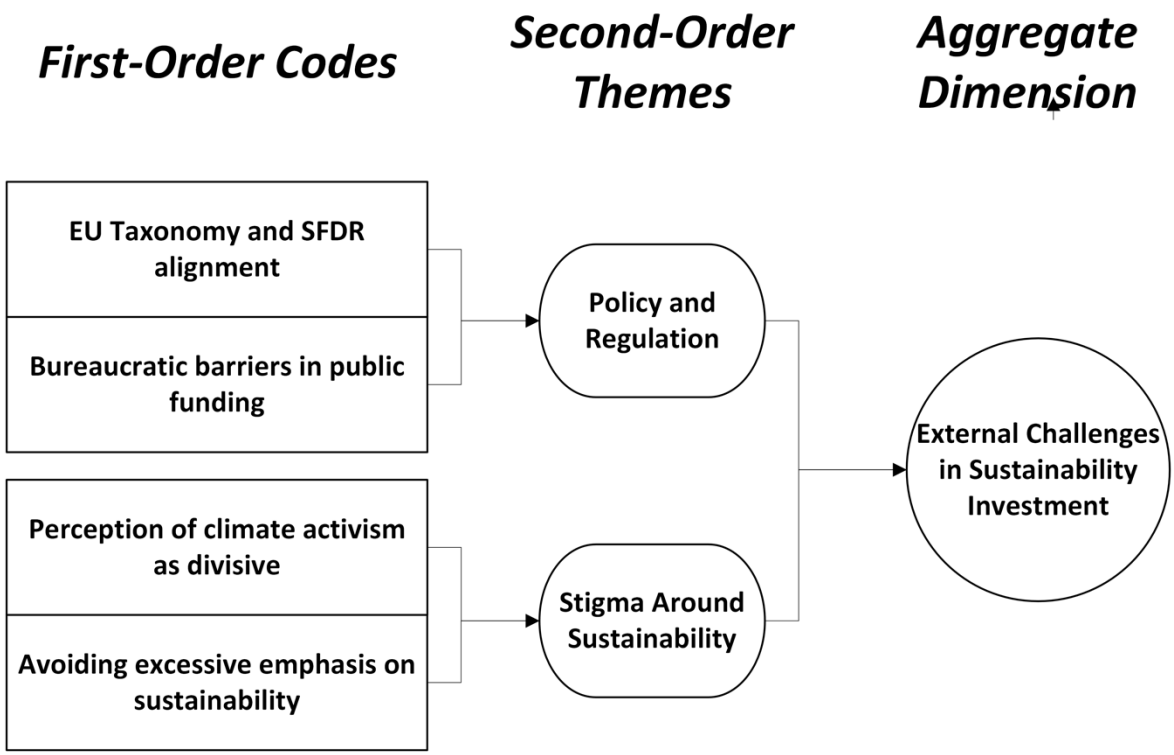


*Figure 5: Aggregate Dimension 4: External Challenges in Sustainability Investment (own visual creation)*

External challenges in the landscape of sustainable investments stem from regulatory frameworks and societal perceptions. Policies and regulations display government initiatives to determine the environment where various stakeholders operate. On the one hand, the EU Taxonomy and SFDR provide a transparent and standardized approach. However, they also add barriers due to rising complexity (Lisa & Martin). In addition, varied interpretations of such regulatory requirements lead to inconsistencies in reporting and compliance. Alina added: *"EU policies provide clarity but require resource-heavy compliance."*

On the other hand, government bureaucratic barriers slow down and hinder securing public funding for founders. The process was described as complex and lengthy. This is evident by a participant's statement, Catelyn: "*The administrative burden can consume months, and there's no guarantee of success. It's a gamble for founders*." Those tedious burdens may last long, resulting in a shift from many startups toward private funding options, in which decision-making processes are faster and less tiresome. Tobias explained his perspective: "*The red tape is overwhelming. Startups lose valuable time securing a fraction of what private investors offer*."

While sustainability becomes increasingly essential, overemphasizing sustainability can hamper investments. The stigma of sustainability and the connection to climate activism can be divisive. Therefore, founders must demonstrate compliance with legal regulations and a harmonized approach to utilize suitable narratives for diversified investors. Simon shared that "*climate activism scares people*." Jacob explained this more clearly: "*If you only talk about sustainability and don't have a solid business model, investors will think you're idealistic, not realistic*." Sustainability claims must be backed by measurable financial returns to resonate with investors. Jacob shared: "*Sustainability must complement the business story, not overshadow it.*" The excessive emphasis on sustainability can also harm the valuation. Tobias expressed: "*When sustainability feels like activism, it becomes harder to see the business case. Investors don't want a cause; they want a company*." If sustainability is used for efforts as activism

rather than as a strategic value proposition, it is perceived as a potential risk. In addition, Jacob explained: "*If sustainability feels like an ideology rather than a strategy, you'll lose the room. It has to fit into the business framework.*" Catelyn described it in the following way: "*If sustainability feels too radical, it scares traditional investors. You have to frame it as innovation, not activism*."

## 5. Discussion

This study examined how sustainability factors shape investment decision-making in the seed funding process for sustainable startups. The highlighted results revealed four main aggregated dimensions depicting this process. Subsequently, I will discuss the findings and their implications for the literature and provide practical recommendations.

### 5.1 Discussion of the Findings

The seed funding process contains systemic barriers, specific criteria for investor decision-making, and technology's influence on impact and scalability. The initial substantial capital need for sustainable-orientated startups is a systemic barrier to seed funding. Moreover, the lack of standardized metrics complicates the funding process. While the evaluation of financial metrics does not fundamentally differ between traditional and sustainable-orientated startups, sustainability metrics are unclear and inconsistent, creating reporting challenges and affecting compliance. Due to the long development cycles and, for instance, the uncertainties in the high-tech sector, assessing risks accurately can be challenging for investors. The investor's decision-making is based on several criteria. If a company can provide proof of concept, it increases the chance of funding. In addition, the created impact of startups should be measurable, validating sustainability claims with metrics such as carbon offsets or carbon emissions. Sustainability efforts should be linked to financial metrics through hybrid metrics. However, investors prioritize financial performance over sustainability outcomes. The role of technology became emergent, playing an essential role in the funding process. Companies with a technological solution

receive a better evaluation, while startups operating in niche markets face hurdles in scaling due to limited market conditions. Furthermore, technological business models facilitate the process of validating sustainability metrics. Such tech-orientated ventures are perceived as attractive due to the possibility of scaling.

Navigating through different demands regarding sustainability and profitability needs a balanced approach. Strategies like storytelling and providing measurable impact metrics that align with investor expectations are key activities. In addition, building trusting relationships with mission-aligned investors is crucial while acknowledging the risk of greenwashing. The duality of financial returns and impact goals is a vital topic, including, on the one hand, a need for evidence for short-term scalability and profitability, on the other hand, long-term societal and environmental impact. The difference in priorities results in misalignments between founders and investors. Investors need security and evidence for growth, which, in some cases, sustainable-driven founders cannot provide, creating a cap in the funding landscape. Storytelling emerges as a strategy for mitigating such risks, effectively connecting sustainability efforts to positive financial performance. While creating narratives, exaggerating claims must be avoided since the risk of greenwashing is omnipresent and can influence trust and credibility. Founders need to anticipate the conflicting interests of diverse priorities from investors, tailoring their approaches proactively aligning expectations and objectives. A non-negotiable is the clear commitment to delivering long-term sustainability impact, increasing trust, and a common base for collaboration.

Building early traction, contextual and regional factors, and founders' qualities collectively can be associated with ecosystem mechanisms for startups. Early traction can be evidenced through prototypes, proof of concept, and pilot projects. They display a business idea's functionality, feasibility, and scalability. Another attractive indicator is early customer adoption, demonstrating growth potential and fostering trust in founders' promises. Early traction and customer validations can be identified as trust-building mechanisms, providing a more transparent comprehension of investor expectations and founder promises. By

achieving tangible results, they are addressing the concerns of risk assessments and confirming market relevance, indicating true potential for profitability. While displaying proof of a viable business model, such milestones can be evidential for environmental or social impact creation. Due to the combination of financial and sustainability validation, a venture will be classified as a lower-risk investment, enhancing its attractiveness to conventional and impact-driven investors. Regional and cultural factors influence not only the investor perspective but also the strategies used by founders to secure funding. Different expectations regarding aligning sustainability and profitability awaited tailored approaches to emphasize financial metrics and scalability or sustainability claims. To meet those criteria, a founder must adopt a flexible strategy to meet the different expectations. Emotional resilience is a valuable skill that founders should adopt in their strenuous search for financing options. This will help them face inevitable rejections and challenging administrative procedures. Building a trusting relationship based on credibility is vital since investors often make decisions based on the credibility of the business model and the founder's and team’s quality.

Policies and regulations determine the environment in which the various stakeholders operate. Public efforts can enhance but also hinder funding activities. The concept of sustainability and the related perspective shape the investment landscape. Initiatives from the government through policies like the EU Taxonomy and SFDR are vital for creating a standard framework evaluating sustainability efforts and supporting founders and investors through a more transparent and explicit process. However, governmental interventions are diverse. While its supportive nature, it also creates substantial obstacles. Bureaucratic barriers of complicated application procedures and extensive periods of approval lead to the discouragement of public funding. Such application efforts are specifically challenging if founders face a lack of resources. In addition, the rising complexity of societal perception of sustainability plays a crucial role. With the growing awareness of greenwashing risks, the potential adverse effect of focusing

on sustainability factors in the investment process increases. For profit-oriented investors, overstating sustainability reflects a rejecting image of the stigma surrounding the topic of climate activism, hindering investment chances.

**5.2 Implications for Literature**

The findings align closely with the theoretical knowledge in the literature review, especially regarding the context of sustainability integration, SDG alignment, and the differences in the evaluation approaches between investors. The authors also mirrored the content from the data collection that sustainable startups often struggle to secure funding due to their initial financial commitments and delayed profit realization (Jeong et al., 2020).

The findings display the importance of integrating sustainability and quantifiable sustainability metrics, such as carbon offsets and lifecycle analyses, in the funding process. The literature mentions that the lack of standardized ESG metrics complicates evaluating early-stage startups. The findings align closely with the theoretical knowledge in the literature review, as Loew & Cordovez (2023) mentioned the difficulty of applying consistent ESG measures. Cohen (2023) highlights the importance of sustainability integration in valuations. Mukherjee et al. (2024) underscore the technical complexity and resource intensity of evaluating sustainable innovation and the preference for quantitative metrics over qualitative indicators.

A recurring literature theme is the quality between financial performance and sustainability goals. Kraus et al. (2018) and Mansouri & Momtaz (2022) explore the trade-offs investors face when balancing these priorities in their work. The introduction of hybrid KPIs linking financial and sustainability metrics is also evidential. The authors stressed the existence of a crucial tool for reducing ambiguity and improving transparency in funding processes. Cumming et al. (2024) introduced the investor's preference for value metrics, showing the overlapping connection between impact and financial returns.

The difficulties sustainable startups face in the stages of R&D to market scalability are described by the "valley of death" by Gbadegeshin et al. (2022).

Concepts of scalability and early traction as critical investment criteria are noted by Cumming et al. (2024). While most of those findings are consistent with the academic discussion, linking scalability matters with specific sustainability-related challenges adds depth of new knowledge. The authors mentioned that tech-driven models offer greater efficiency and measurable impact. Jeong et al. (2020) argued that there is a need for early-stage startups to provide tangible proof of concept to overcome investor skepticism. Prototypes have been mentioned by Musa et al. (2017), emphasizing the importance of early traction. Kraus et al. (2018) noted the importance of customer validation in developing investor confidence. This mirrors the scientific knowledge, displaying the dual role of pilot projects and early customer adoption in validating financial viability and sustainability impact. Additionally, with the effort of linking the concepts to sustainability, new knowledge was acquired, extending the literature with the approach of using traction to validate non-financial goals.

The author's Cohen (2023) and Mansouri & Momtaz (2022) mirrored the content of providing credible narratives in the funding process, including compelling storytelling. Integrating measurable data in narratives builds investor confidence while minimizing the risks of greenwashing.

The literature documents regional and cultural differences in the funding landscape. Different regulatory frameworks and market conditions shape investor preferences. There are differences among European investors, who prioritize sustainability integration more than their US counterparts (Kraus et al., 2018).

The literature consistently discovered findings regarding the role of trust and relationships. Jeong et al. (2020) recognized the importance of entrepreneurial resilience, which enhances founders' chances of navigating the challenges of the seed funding process.

The literature reflected similar insights into the role of government policies. Loew and Cordovez (2023) and Mukherjee et al. (2024) mention that such initiatives promote sustainability integration through enhanced transparency and standardization in ESG evaluations. On the other hand, bureaucratic challenges,

such as lengthy approval processes and complex compliance requirements, hinder funding endeavors. This is mirrored in participants' statements, which acknowledge government initiatives' supportive but obstructive perspective.

The literature indicated the importance of credible sustainability narratives that balance ideological expectations with measurable outcomes. Cumming et al. (2024) noted that the risk of greenwashing increases if sustainability claims lack verifiability, weakening the trust relationship with the investor.

The stigma surrounding sustainability has not been extensively discussed in the literature. This work offers a fresh perspective by identifying climate activism as divisive, revealing that excessive focus on sustainability-driven factors unintentionally limits investment opportunities, especially for profit-driven investors.

**5.3 Practical Implications**

The following section highlights the practical implications of the research results and proposes actionable strategies for founders and investors. The seed funding process contains many challenges and opportunities, which can be considered with the support of key recommendations to enhance decision-making, build trust, and align sustainability with financial objectives.

Sustainable-orientated entrepreneurs should display measurable sustainability metrics, such as carbon offsets or SDG alignment. This fosters credibility and avoids greenwashing. It is essential to tailor funding strategies to the different investor types and find mission-driven investors that value long-term impact. Demonstrating early traction through pilot projects or customer adoption can validate sustainability claims and scalability and is a strong argument for investments. Furthermore, aligning with policy frameworks and using transparent storytelling to connect sustainability with financial results is essential. Characteristics like adaptability and resilience facilitate the meeting of diverse investor expectations.

Investors should adopt standardized frameworks that value next to financial performance and sustainability outcomes. Combining metrics like ROI with

impact-focused KPIs is one way of paving the path toward sustainable finance. In addition, investors can provide mentorship, resources, and advocacy to validate claims and navigate regulations. The funding process should include a diverse approach, promoting sustainability frameworks and clarifying regulatory expectations. Besides scouting ventures with indicators of early traction and scalability, long-term growth potential should also be included.

### 5.4 Future Research and Limitations

The findings underscore several promising directions for future research. First, the correlation between sustainability and traditional financial metrics could be examined in more detail, specifically the coexisting or competing nature of these metrics and their influence on funding decision-making. Secondly, contextual findings in funding dynamics, combined with a comparative analysis across regions with differing sustainability regulations, such as the EU and the USA, are valuable for uncovering how regulations, markets, and investors influence diverse investment landscapes. Thirdly, the emerging shift of investment opportunities towards impact funding is insightful, precisely when including financing mechanisms like crowdfunding, incubation programs from universities, and public programs. Such alternative funding options offer a novel perspective on the approach to sustainability priorities, particularly in comparison to traditional investors, fostering the landscape of sustainable-orientated startups. Moreover, the relationship between founders and investors in the context of sustainability funding offers a potential area of exploration. Personal interactions, founders' profile of qualities, values, and network effects influence decision-making, leaving many possible pathways for investigation. There is a strong focus on assessing the founder's team for many investors. Finally, a fascinating field of potential future research could be behavioral and psychological frameworks for studying funding decisions, including the individual perception of stakeholder motivations and biases. Shedding light on how personal values, risk perceptions, and cultural norms shape decisions regarding funding sustainable ventures would add vital knowledge in sustainable finance.

While this study provides comprehensive insights into how sustainability factors influence decision-making in the seed funding process for sustainable startups, certain limitations must be acknowledged. The first limitation underlines the qualitative data collection via interviews. The research focused on interviews with a purposive sample scope of a limited number of founders, investors, and other vital stakeholders in the funding landscape. The findings revealed rich and detailed perspectives but did not fully display the diversity of experiences across various industries, geographic regions, or stages of startup development. Expanding future studies, including a broader sample or even narrowing the sample to one specific industry for a better comparison, could offer a more holistic investigation of variations in these areas. Secondly, the focus on the seed-funding stage excludes other dynamics of different funding stages. Research about how sustainability considerations evolve with time offers valuable insights into the long-term impacts of initial funding decisions on startup trajectories. Longitude data would provide extensive insights into how sustainability influences decision-making. In addition, using thematic analysis and the Gioia methodology ensures a methodologically accurate approach; the influence of bias in the interpretation section during the coding and theme identification process cannot be entirely ruled out. Interview outcomes from individuals might not always be accurate since people tend to evaluate themselves more positively than others, a phenomenon known as “self-evaluation” (Leary & Kowalski, 1990).

Addressing limitations and potential future research avenues is vital to building a strong foundation for future exploration, contributing to a more comprehensive understanding of the evolving landscape of seed funding for sustainable startups.

## 6. Conclusion

This study revealed the importance of sustainability as a key criterion in the early-stage funding process. Through interviews with founders, investors, and other stakeholders, the study showed significant internal challenges sustainable

startups face, including extended development timelines, high capital requirements, and the potential risk of greenwashing. Externally, the absence of standardized ESG evaluation frameworks, regulatory challenges, and misaligned priorities between sustainability-driven founders and profit-oriented investors further hinder funding efforts. These challenges result in the emphasis on the importance of adopting strategic solutions to address these challenges. Founders can craft compelling narratives that integrate sustainability with business potential, launch pilot projects to demonstrate feasibility, build resilience to adapt to investor feedback, and overcome rejections. Collaborating with mission-aligned investors, impact funds, and government initiatives also emerged as effective ways to navigate the funding journey for sustainability-oriented startups.

In summary, the findings underline the necessity of harmonizing sustainability goals with financial metrics to attract investment. Achieving this balance requires transparency in communicating environmental and social impacts and business success. Hybrid metrics that link sustainability outcomes—such as $CO_2$ reduction, lifecycle assessments, and SDG alignment—with traditional financial measures like profitability, scalability, and market viability are essential in fostering investor confidence.

# Appendix

## Appendix A: Startup Development Stages

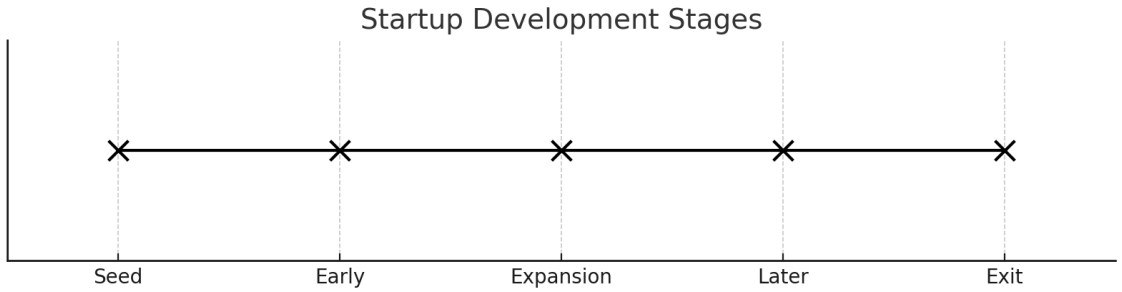


Figure 6: Development Stages of Startups (own visual creation)

## Appendix B: Fundings Stages of Startups

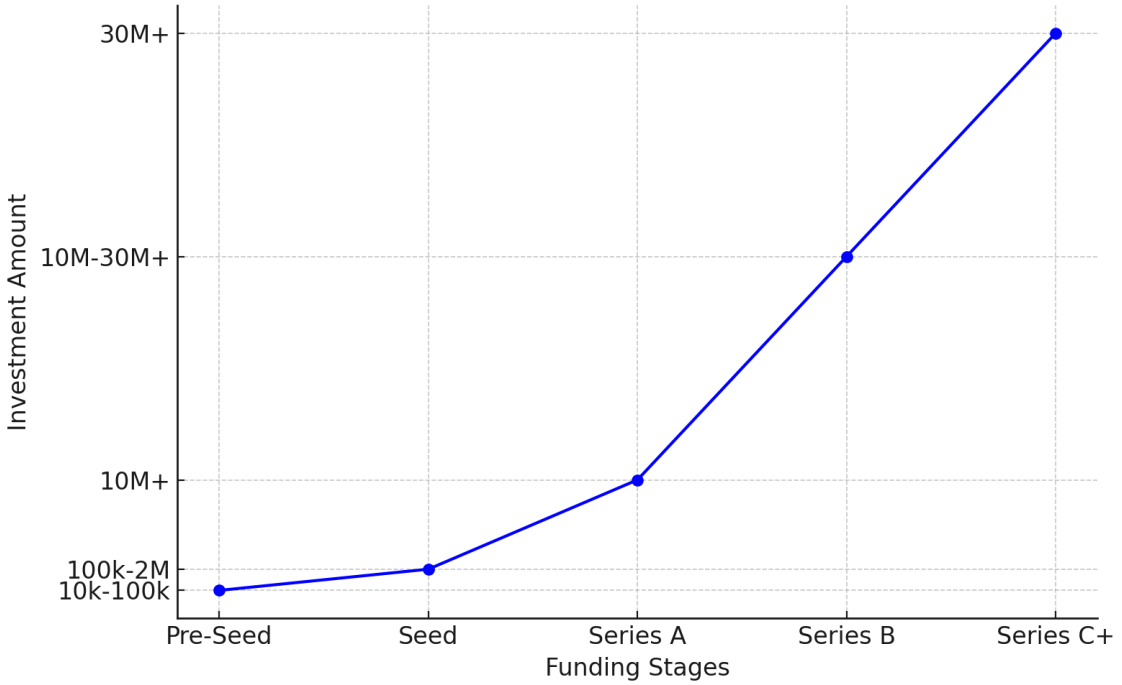


Figure 7: Funding Stages of Startups (own visual creation)

**Appendix C: General KPIs and Metrics**

| KPI/Metric | Purpose | Participant Context |
|---|---|---|
| **Customer Adoption Rate** | Demonstrates market demand and product viability. | "Early adoption proves demand and builds investor confidence." – Tobias |
| **Pilot Project Success** | Validates concept feasibility through small-scale testing. | "Pilot projects are valuable because they show results." – Joseph |
| **Revenue Growth** | Indicates business scalability and profitability. | "You need a business case that works financially; sustainability is a bonus." – Jacob |
| **Financial ROI (Return on Investment)** | Evaluates financial returns of an investment. | "Startups must prove profitability first; sustainability is secondary." – Tobias |
| **Profit Margins** | Measures financial efficiency and business sustainability. | "Financial performance is key for traditional VC investment decisions." – Michael |
| **Market Expansion Potential** | Highlights the ability to scale and replicate success in new markets. | "Traction in one market shows you can replicate impact elsewhere." – Catelyn |

*Table II: General KPIs and Metrics (own creation)*

**Appendix D: Sustainability in Hybrid Metrics**

| KPI/Metric | Purpose | Participant Context |
|---|---|---|
| **Cost Efficiency of Impact** | Balances cost with sustainability impact. | "Metrics like CO2 reduction cost per unit produced show value." – Michael |
| **Lifecycle Analysis** | Verifies impact across a product's lifecycle. | "Back it up with metrics like lifecycle analyses." – Paul |
| **Operational Cost Reductions** | Demonstrates financial benefits of impact. | "Sustainability lowers costs like energy bills." – Paul |
| **Alignment with Financial ROI** | Links sustainability directly to ROI. | "Show how sustainability contributes to financial outcomes." – Paul |
| **CO2 Offset Metrics** | Quantifies greenhouse gas reductions achieved. | "Metrics like carbon offsets give investors a way to measure the impact." – Paul |
| **SDG Alignment** | Measures alignment with Sustainable Development Goals (SDGs). | "Our acceleration programs evaluate how well a project aligns with SDGs." – Catelyn |

*Table III: Sustainability included in Hybrid Metrics (own creation)*

## Appendix E: ESG Integration from byFounders

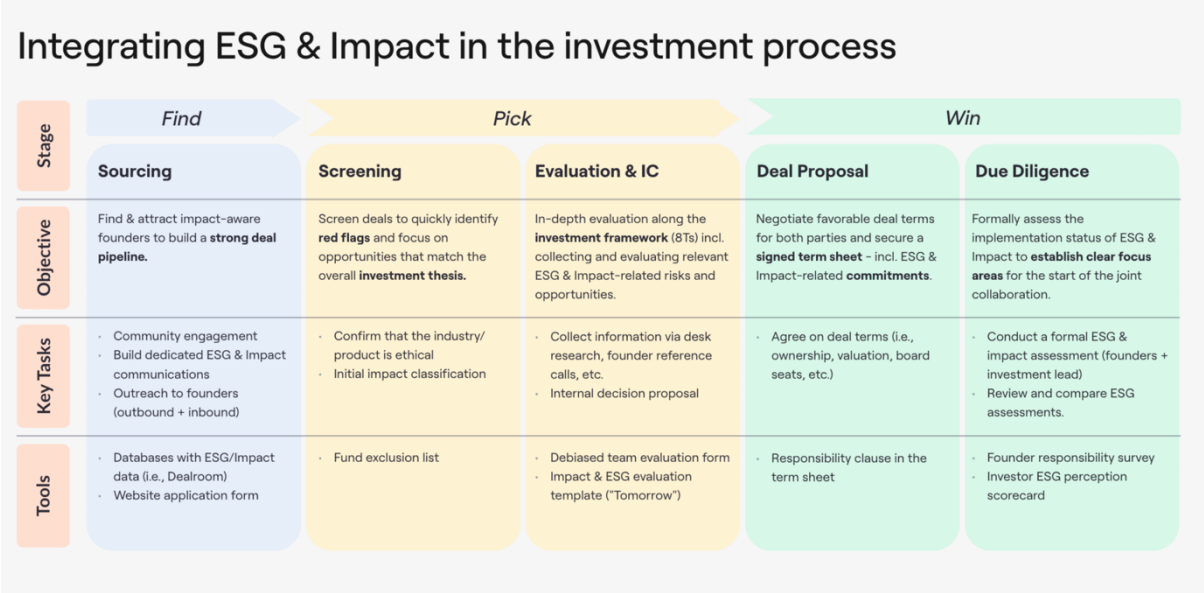


*Figure 8: ESG Integration Tool byFounders (byFounders, 2024)*

## Appendix F: Interview Guide – Founder Perspective

Research Topic:

"How do sustainability factors shape decision-making in the seed funding process for sustainable startups?"

Purpose:

"Thank you for taking the time to speak with me. This interview is part of my master thesis research on how sustainability factors influence the seed funding process for startups like yours. I'm particularly interested in your experiences navigating funding as a sustainability-driven founder."

Section 1: Funding Journey & the Role of Sustainability (5–10 minutes)

Can you briefly walk me through your funding journey? At what stage did you raise seed funding, and how did the process unfold?

In your experience, what role did your startup's sustainability focus play in the funding process?

Did you feel that your sustainability mission helped or complicated investor engagement?

Section 2: Investor Engagement & Communication (10–15 minutes)

How did you identify and approach investors who align with your sustainability values?

What communication strategies did you use to present your sustainability vision during pitches?

How important were storytelling, metrics, or certifications (e.g. ESG frameworks, impact measurement) in convincing investors?

Have you encountered skepticism from investors regarding your sustainability focus? If so, how did you respond?

Section 3: Balancing Impact and Profitability (10–15 minutes)

How do you balance your sustainability goals with demonstrating business viability and potential returns?

Have investors ever questioned the scalability or profitability of your model due to its sustainability focus?

What metrics or proof points were most effective in conveying both impact and commercial viability?

Section 4: Insights & Recommendations (10–15 minutes)

Looking back, what do you think worked best in securing funding — and what would you do differently?

What advice would you give to other founders of sustainable startups who are preparing for their first funding round?

What role should incubators, accelerators, or public initiatives play in helping startups like yours succeed in the funding landscape?

Conclusion (2–3 minutes)

Is there anything else you'd like to share that might be relevant for my research?

Would it be okay if I contacted you again with follow-up questions or to share the final thesis?

Thank you so much for your time and insights!

**Appendix G: Interview Guide – Investor Perspective**

Research Topic:
"How do sustainability factors shape decision-making in the seed funding process for sustainable startups?"
Purpose:
"Thank you for participating in this interview. I'm researching how sustainability factors shape decision-making in seed funding processes for sustainable startups."

Section 1: Sustainability in Seed Investment (5–10 minutes)

How do you define the role of sustainability (environmental, social, governance) in investments? Is it a primary or secondary focus for you?

Are sustainable startups treated differently in terms of seed funding readiness compared to traditional startups?

How do you balance financial performance with sustainability outcomes when evaluating startups?

Section 2: Sustainability's Role in the Seed Funding Process (10–15 minutes)

In your experience, how do sustainability factors shape the decision-making process for seed funding (e.g., investor interest, risk assessment, ROI expectations)?

What kind of metrics, data, or frameworks (e.g., ESG, impact measurement) do you require to validate a startup's sustainability claims?

Are there specific sustainability indicators (e.g., long-term impact, $CO_2$ reduction, social value) that resonate most with investors at the seed stage?

How do startups and investors navigate trade-offs between financial returns and sustainability impact?

Have you encountered skepticism or risks regarding the scalability or ROI of sustainability-driven startups?

Section 3: Barriers and Opportunities for Sustainable Startups (10–15 minutes)

What are the most significant barriers preventing sustainable startups from securing seed funding?

Are there particular areas where sustainable startups are perceived as higher risk compared to traditional startups?

What strategies can sustainable startups use to better align their value proposition with investor expectations?

How can storytelling, clear sustainability metrics, and impact measurement help startups overcome investor skepticism?

How can venture builders, incubators, or accelerators better support sustainable startups to prepare for seed funding?

Are there specific networks, programs, or platforms you recommend for sustainable startups to connect with aligned investors?

Conclusion (2–3 minutes)

Is there anything else you'd like to add that might help deepen this research?

Would it be okay if I contacted you again with follow-up questions or to share the final thesis?

Thank you very much for your time and your insights!

**Appendix H: Interview Guide – Ecosystem Stakeholder Perspective**

Research Topic:

"How do sustainability factors shape decision-making in the seed funding process for sustainable startups?"

Purpose:

"Thank you for taking part in this interview. I am researching how sustainability factors influence decision-making in seed funding processes for sustainable startups. Your role as a stakeholder—whether from an accelerator, incubator, venture studio, or financial advisory firm—provides an important perspective on the broader ecosystem supporting these startups."

Section 1: Role in the Startup Ecosystem (5–10 minutes)

Can you describe your organization's role in supporting early-stage startups?

How often do you engage with sustainability-focused startups in your work?

What types of support (mentoring, funding prep, partnerships) do you provide to such startups?

Section 2: Perceptions of Sustainability and Investment Readiness (10–15 minutes)

From your perspective, how does a startup's sustainability mission influence its funding readiness or attractiveness to investors?

Are sustainability-focused startups perceived as more or less investment-ready compared to others?

Do you notice differences in how sustainability claims are presented or validated by startups?

Section 3: Support for Impact-Oriented Startups (10–15 minutes)

What frameworks, tools, or metrics do you recommend startups use to communicate sustainability effectively to investors?

How do you support startups in balancing sustainability goals with profitability in their business models and pitches?

Have you observed specific challenges or barriers sustainability-focused startups face when fundraising?

Section 4: Insights and Recommendations (10–15 minutes)

In your experience, what practices or strategies increase the likelihood of sustainable startups successfully securing seed funding?

What advice would you give to sustainability-driven founders preparing to fundraise?

What improvements could the broader ecosystem make to better support these startups?

Conclusion (2–3 minutes)

Is there anything else you'd like to add that could enrich this research?

Would it be alright if I followed up with additional questions or shared the final thesis?

Thank you very much for your valuable insights and your time!

**Bibliography**

Aaltonen, P., & Kurvinen, E. (Eds.). (2025). Contemporary issues in Industry 5.0: Towards an AI integrated society (Technology, Work and Globalization). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-74779-3

Ayoub, M. R., Gottschalk, S., & Müller, B. (2017). Impact of public seed-funding on academic spin-offs. Journal of Technology Transfer, 42, 1100–1124. https://doi.org/10.1007/s10961-016-9476-5

Bellucci, A., Fatica, S., Georgakaki, A., Gucciardi, G., Letout, S., & Pasimeni, F. (2023). Venture capital financing and green patenting. Industry and Innovation, 30, 947–983. https://doi.org/10.1080/13662716.2023.2228717

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. Review of Finance, 26, 1315–1344. https://doi.org/10.1093/rof/rfac033

Block, J., Benz, L., Krämer-Eis, H., Botsari, A., Lang, F., & Mandys, F. (2024). Climate issues in portfolio investment decisions: A comparison of private equity and venture capital. Venture Capital, 1–31. https://doi.org/10.1080/13691066.2024.2351218

Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. Journal of Cleaner Production, 65, 42–56. https://doi.org/10.1016/j.jclepro.2013.11.039

Bonini, S., & Capizzi, V. (2019). The role of venture capital in the emerging entrepreneurial finance ecosystem: Future threats and opportunities. Venture Capital, 21, 137–175. https://doi.org/10.1080/13691066.2019.1608697

Bryman, A. (2016). Social research methods (5th ed.). Oxford University Press.

Buchanan, B., Silvola, H., & Vähämaa, E. (2024). Sustainability and private investors. European Journal of Finance, 1–28. https://doi.org/10.1080/1351847X.2024.2362282

byFounders. (2024). Integrating ESG & impact into the investment process. https://www.byfounders.vc/insights/integrating-esg-impact-into-the-investment-process

Carpenter, R. E., & Petersen, B. C. (2002). Capital market imperfections, high-tech investment, and new equity financing. Economic Journal, 112, F54–F72. https://doi.org/10.1111/1468-0297.00683

Charmaz, K. (2012). Constructing grounded theory: A practical guide through qualitative analysis (Reprint ed.). Sage.

Charmaz, K. (2006). Constructing grounded theory. Sage Publications.

Choi, D. Y., & Stack, M. (2005). Who adds value to ventures? Understanding the roles and relative contributions of key advisors in high-technology startups. Journal of Entrepreneurial Finance, 10, 75–88. https://doi.org/10.57229/2373-1761.1052

Clegg, S. R., Cunha, M. P. E., López, A., Sirage, E., & Rego, A. (2024). Tackling sustainable development goals through new space. Project Leadership and Society, 5, 100107. https://doi.org/10.1016/j.plas.2023.100107

Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. Journal of Business Venturing, 22, 29–49. https://doi.org/10.1016/j.jbusvent.2004.12.001

Cohen, G. (2023). The impact of ESG risks on corporate value. Review of Quantitative Finance and Accounting, 60, 1451–1468. https://doi.org/10.1007/s11156-023-01135-6

Cope, S., Zhang, J., Saletan, S., Smiechowski, B., Jansen, J. P., & Schmid, P. (2014). A process for assessing the feasibility of a network meta-analysis: A case study of everolimus in combination with hormonal therapy versus chemotherapy for advanced breast cancer. BMC Medicine, 12, 93. https://doi.org/10.1186/1741-7015-12-93

Cowling, M., & Liu, W. (2023). Access to finance for cleantech innovation and investment: Evidence from U.K. small- and medium-sized enterprises. IEEE Transactions on Engineering Management, 70, 963–978. https://doi.org/10.1109/TEM.2021.3066685

Creswell, J. W. (2013). Qualitative inquiry and research design: Choosing among five approaches. SAGE Publications.

Cumming, D., Meoli, M., Rossi, A., & Vismara, S. (2024). ESG and crowdfunding platforms. Journal of Business Venturing, 39, 106362. https://doi.org/10.1016/j.jbusvent.2023.106362

Derdabi, A., & Dvouletý, O. (2025). Funding sustainable entrepreneurship: A hybrid systematic literature review and bibliometric analysis. Nankai Business Review International. https://doi.org/10.1108/NBRI-03-2024-0025

Dushnitsky, G., & Lenox, M. J. (2006). When does corporate venture capital investment create firm value? Journal of Business Venturing, 21, 753–772. https://doi.org/10.1016/j.jbusvent.2005.04.012

Eisenmann, T. R. (2020). Determinants of early-stage startup performance: Survey results. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3725023

Frey, J. H., & Fontana, A. (2000). The interview: From structured questions to negotiated text (2nd ed.).

Garg, A., & Shivam, A. K. (2017). Funding to growing start-ups. Research Journal of Social Science, 10(2), 22–31. https://www.researchgate.net/publication/321796458_Funding_to_growing_startups

Gbadegeshin, S. A., Natsheh, A. A., Ghafel, K., Mohammed, O., Koskela, A., Rimpiläinen, A., Tikkanen, J., & Kuoppala, A. (2022). Overcoming the valley of death: A new model for high technology startups. Sustainable Futures, 4, 100077. https://doi.org/10.1016/j.sftr.2022.100077

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013a). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. Organizational Research Methods, 16, 15–31. https://doi.org/10.1177/1094428112452151

Gompers, P., Gornall, W., Kaplan, S. N., & Strebulaev, I. A. (2016). How do venture capitalists make decisions?

Gompers, P., & Lerner, J. (2001). The venture capital revolution. Journal of Economic Perspectives, 15, 145–168. https://doi.org/10.1257/jep.15.2.145

González, M. A., Terzidis, O., Lütz, P., & Heblich, B. (2024). Critical decisions at the early stage of start-ups: A systematic literature review. Journal of Innovation and Entrepreneurship, 13, 83. https://doi.org/10.1186/s13731-024-00438-9

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In Handbook of Qualitative Research (pp. 105–117). Sage Publications.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough?: An experiment with data saturation and variability. Field Methods, 18, 59–82. https://doi.org/10.1177/1525822X05279903

Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2018). A paradox perspective on corporate sustainability: Descriptive, instrumental, and normative aspects. Journal of Business Ethics, 148, 235–248. https://doi.org/10.1007/s10551-017-3587-2

Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2010). Trade-offs in corporate sustainability: You can't have your cake and eat it. Business Strategy and the Environment, 19, 217–229. https://doi.org/10.1002/bse.674

Haines, G. H., Madill, J. J., & Riding, A. L. (2003). Informal investment in Canada: Financing small business growth. Journal of Small Business and Entrepreneurship, 16, 13–40. https://doi.org/10.1080/08276331.2003.10593306

Hall, J., & Hofer, C. W. (1993). Venture capitalists' decision criteria in new venture evaluation. Journal of Business Venturing, 8, 25–42. https://doi.org/10.1016/0883-9026(93)90009-T

Harrer, T., & Owen, R. (2022). Reducing early-stage cleantech funding gaps: An exploration of the role of environmental performance indicators. International Journal of Entrepreneurial Behavior & Research, 28, 268–288. https://doi.org/10.1108/IJEBR-10-2021-0849

Honjo, Y., Kato, M., & Okamuro, H. (2014). R&D investment of start-up firms: Does founders' human capital matter? Small Business Economics, 42, 207–220. https://doi.org/10.1007/s11187-013-9476-x

Ioannou, I., & Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting.

Jeong, J., Kim, J., Son, H., & Nam, D. (2020). The role of venture capital investment in startups' sustainable growth and performance: Focusing on absorptive capacity and venture capitalists' reputation. Sustainability, 12, 3447. https://doi.org/10.3390/su12083447

Karani, C., & Mshenga, P. (2021). Steering the sustainability of entrepreneurial start-ups. Journal of Global Entrepreneurship Research, 11, 223–239. https://doi.org/10.1007/s40497-021-00279-w

Klingler-Vidra, R. (2016). When venture capital is patient capital: Seed funding as a source of patient capital for high-growth companies. Socio-Economic Review, 14, 691–708. https://doi.org/10.1093/ser/mww022

Kraus, S., Burtscher, J., Vallaster, C., & Angerer, M. (2018). Sustainable entrepreneurship orientation: A reflection on status-quo research on factors facilitating responsible managerial practices. Sustainability, 10, 444. https://doi.org/10.3390/su10020444

Kuckertz, A., & Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions—Investigating the role of business experience. Journal of Business Venturing, 25, 524–539. https://doi.org/10.1016/j.jbusvent.2009.09.001

Lange, J., Rezepa, S., & Zatrochová, M. (2024). The role of business angels in the early-stage financing of startups: A systematic literature review. Administrative Sciences, 14, 247. https://doi.org/10.3390/admsci14100247

Langley, A., Smallman, C., Tsoukas, H., & Van De Ven, A. H. (2013). Process studies of change in organization and management: Unveiling temporality, activity, and flow. Academy of Management Journal, 56, 1–13. https://doi.org/10.5465/amj.2013.4001

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. American Psychological Association.

Lee, W., & Kim, B. (2019). Business sustainability of start-ups based on government support: An empirical study of Korean start-ups. Sustainability, 11, 4851. https://doi.org/10.3390/su11184851

Lin, L. (2022). Venture capital in the rise of sustainable investment. European Business Organization Law Review, 23, 187–216. https://doi.org/10.1007/s40804-021-00238-8

Loew, E., & Cordovez, J. (2023). Analysis of the impact of ESG performance on the valuation and profitability of corporates in comparison to financial institutions. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.4557593

Lukkarinen, A., Teich, J. E., Wallenius, H., & Wallenius, J. (2016). Success drivers of online equity crowdfunding campaigns. Decision Support Systems, 87, 26–38. https://doi.org/10.1016/j.dss.2016.04.006

Magnani, G., & Gioia, D. (2023). Using the Gioia methodology in international business and entrepreneurship research. International Business Review, 32, 102097. https://doi.org/10.1016/j.ibusrev.2022.102097

Mansouri, S., & Momtaz, P. P. (2022). Financing sustainable entrepreneurship: ESG measurement, valuation, and performance. Journal of Business Venturing, 37, 106258. https://doi.org/10.1016/j.jbusvent.2022.106258

Mason, C. M., & Harrison, R. T. (2015). Business angel investment activity in the financial crisis: UK evidence and policy implications. Environment and Planning C: Government and Policy, 33, 43–60. https://doi.org/10.1068/c12324b

Mason, C. M., & Harrison, R. T. (2008). Measuring business angel investment activity in the United Kingdom: A review of potential data sources. Venture Capital, 10, 309–330. https://doi.org/10.1080/13691060802380098

Maxwell, J. A. (2012). Designing a qualitative study.

Menghwar, P. S., & Daood, A. (2021). Creating shared value: A systematic review, synthesis and integrative perspective. International Journal of Management Reviews, 23, 466–485. https://doi.org/10.1111/ijmr.12252

Miller, T., & Del Carmen Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity–firm performance relationship. Journal of Management Studies, 46, 755–786. https://doi.org/10.1111/j.1467-6486.2009.00839.x

Minzhen, L. (2024). Analysis of the impact of ESG on corporate financial performance and capital market value. Academic Journal of Business and Management, 6. https://doi.org/10.25236/AJBM.2024.061019

Mühle, C., Berrones-Flemmig, C. N., & Hattula, C. (2024). Sustainability in start-ups: A literature review.

Mukherjee, A., Owen, R., & Scott, J. M., & Lyon, F. (2024). Financing green innovation startups: A systematic literature review on early-stage SME funding. Venture Capital, 1–27. https://doi.org/10.1080/13691066.2024.2410730

Musa, R., Hashim, N., Rashid, U. K., & Naseruddin, J. (2017). Accelerating startups: The role of government assistance programs and entrepreneurial orientation.

O'Reilly, S., Mac An Bhaird, C., & Greene, F. J. (2024). The role of equity capital in speeding cleantechs across the 'Valley of Death.' International Small Business Journal: Researching Entrepreneurship. https://doi.org/10.1177/02662426241267813

Patton, M. Q. (1990). Qualitative evaluation and research methods (2nd ed.). Sage Publications.

Polzin, F., Egli, F., Steffen, B., & Schmidt, T. S. (2019). How do policies mobilize private finance for renewable energy?—A systematic review with an investor perspective. Applied Energy, 236, 1249–1268. https://doi.org/10.1016/j.apenergy.2018.11.098

Roundy, P. T., Brockman, B. K., & Bradshaw, M. (2017). The resilience of entrepreneurial ecosystems. Journal of Business Venturing Insights, 8, 99–104. https://doi.org/10.1016/j.jbvi.2017.08.002

Rubin, H., & Rubin, I. (2012). Qualitative interviewing (2nd ed.): The art of hearing data. SAGE Publications. https://doi.org/10.4135/9781452226651

Ruhnka, J. C., & Young, J. E. (1987). A venture capital model of the development process for new ventures. Journal of Business Venturing, 2, 167–184. https://doi.org/10.1016/0883-9026(87)90006-1

Santini, C. (2017). Ecopreneurship and ecopreneurs: Limits, trends and characteristics. Sustainability, 9, 492. https://doi.org/10.3390/su9040492

Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business models for sustainability: Origins, present research, and future avenues. Organization & Environment, 29, 3–10. https://doi.org/10.1177/1086026615599806

Shane, S., & Venkataraman, S. (2001). Entrepreneurship as a field of research: A response to Zahra and Dess, Singh, and Erikson. Academy of Management Review, 26, 13–16. https://doi.org/10.5465/amr.2001.27879269

Sreenivasan, A., & Suresh, M. (2023). Green start-ups: Start-ups accelerating sustainability. International Journal of Global Business and Competitiveness, 18, 80–89. https://doi.org/10.1007/s42943-022-00068-6

Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique. European Planning Studies, 23, 1759–1769. https://doi.org/10.1080/09654313.2015.1061484

Terán-Yépez, E., Marín-Carrillo, G. M., Casado-Belmonte, M. D. P., & Capobianco-Uriarte, M. D. L. M. (2020). Sustainable entrepreneurship: Review of its evolution and new trends. Journal of Cleaner Production, 252, 119742. https://doi.org/10.1016/j.jclepro.2019.119742

Thompson, N., Kiefer, K., & York, J. G. (2011). Distinctions not dichotomies: Exploring social, sustainable, and environmental entrepreneurship. In G. T. Lumpkin & J. A. Katz (Eds.), Advances in Entrepreneurship, Firm Emergence and Growth (pp. 201–229). Emerald Group Publishing Limited. https://doi.org/10.1108/S1074-7540(2011)0000013012

Tyebjee, T. T., & Bruno, A. V. (1984). A model of venture capitalist investment activity. Management Science, 30, 1051–1066. https://doi.org/10.1287/mnsc.30.9.1051

Viglialoro, D., Botelho, T., Ughetto, E., Laspia, A., & Landoni, P. (2024). Social impact business angels as new impact investors. British Journal of Management. https://doi.org/10.1111/1467-8551.12864

Vismara, S. (2019). Sustainability in equity crowdfunding. Technological Forecasting and Social Change, 141, 98–106. https://doi.org/10.1016/j.techfore.2018.07.014

Wang, L., & Wang, S. (2012). Economic freedom and cross-border venture capital performance. Journal of Empirical Finance, 19, 26–50. https://doi.org/10.1016/j.jempfin.2011.10.002

Yagüe-Perales, R. M., March-Chorda, I., & López-Paredes, H. (2024). Assessing the impact of seed accelerators in start-ups from emerging entrepreneurial ecosystems. International Entrepreneurship and Management Journal, 20, 1323–1345. https://doi.org/10.1007/s11365-024-00956-8

Zairis, G., Liargovas, P., & Apostolopoulos, N. (2024). Sustainable finance and ESG importance: A systematic literature review and research agenda. Sustainability, 16, 2878. https://doi.org/10.3390/su16072878

Zhang, H., Sun, X., & Lyu, C. (2017). Exploratory orientation, business model innovation and new venture growth. Sustainability, 10, 56. https://doi.org/10.3390/su10010056

Zhou, Y., Wang, L., Ren, H., Wang, L., & Zhang, S. (2022). Influence of financial subsidies on innovation efficiency of start-up enterprises. Frontiers in Environmental Science, 10, 1060334. https://doi.org/10.3389/fenvs.2022.1060334