DBA Dissertation

A practice-based approach
for businesses and their CEOs
to become regenerative

Submitted by Degree Candidate

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ABSTRACT

This study develops a consulting model aimed at steering businesses toward regenerative practices that simultaneously contribute to social, ecological, and economic value, aligning with the Sustainable Development Goals (SDGs) for long-term business success. It addresses the challenge businesses face in transitioning to regenerative models that benefit all stakeholders and their interconnected social-ecological systems, exploring the barriers to this shift.

Employing a hybrid methodology, the research combines grounded theory, abductive qualitative analysis, and autoethnographic insights. It begins with exploratory interviews, workshops, and narrative literature reviews to grasp the challenges impeding companies from becoming regenerative. The research progresses by synthesizing empirical data and refining the conceptual framework, leading to a regenerative consulting model's development. This practical model is validated through case studies and autoethnographic analysis within three real-life business contexts.

The findings disclose systemic barriers to regeneration, which can be mitigated through specific business capabilities and a unique form of CEO leadership diverging from conventional paradigms. The research delineates five primary systemic barriers (SPISO): sociocultural & imagination limitations, partner-network gap, implementation & scaling impediments, stakeholder complexity, and organizational resistance. To navigate these, businesses are advised to foster regenerative capabilities (CROMC): continuous network development, regenerative innovation, open stakeholder management, operating multiple business models, and establishing closed-loop value systems. Furthermore, effective CEO leadership (CHEMP) is essential, characterized by CEO consciousness, distinctive hallmarks, engagement, morality, and preemptiveness. The Regenerative Integrated Framework for Transformation (RIFT) integrates these barriers, capabilities, and CEO leadership facets into a coherent strategy for regenerative transformation.

The study posits that a regenerative transformation requires a reflexive, adaptive approach, acknowledging barriers as the foundation for developing regenerative capabilities, leading to authentic regeneration. The structured pathway provided by the framework of barriers, capabilities, and CEO leadership aspects facilitates businesses in

beginning their regenerative journey. Effective facilitation and training are deemed crucial in optimizing the model's application outcome.

By offering new theoretical insights and practical strategies, this research contributes significantly to the understanding of regenerative business practices and CEO leadership for regeneration. It underscores the transformative potential of businesses in rejuvenating social-ecological systems and contributing to the SDGs, thereby securing their future relevance and resilience.

Keywords: #Sustainable Development Goals #Regenerative business practices #Systemic barriers to regeneration #Regenerative business capabilities #CEO leadership for regeneration #Regenerative leadership

POSITIONALITY STATEMENT

As a doctoral candidate deeply rooted in the disciplines of sustainability, regeneration, and circularity, my scholarly endeavors are informed by a rich tapestry of experiences and commitments both within the academic realm and the broader business sector, including significant engagements with NGOs and industry associations. These roles have provided me with invaluable insights into the practical challenges and opportunities of implementing sustainable practices across different sectors and scales.

My doctoral research, titled 'A practice-based approach for businesses and their CEOs to become regenerative,' situated within the field of Business Administration, bears witness to my commitment to advancing regenerative practices within the business community to address and surpass the Sustainable Development Goals (SDGs). This work is further enriched by my active participation in various NGOs and industry associations, where I have worked collaboratively with diverse stakeholders to promote and develop sustainable and regenerative business models and practices. Through these engagements, I have not only contributed to but also shaped policies and strategies that underpin the transition towards a more sustainable and regenerative economy.

My professional background, spanning over three and a half decades in international business, has been instrumental in shaping my research interests and perspectives. This extensive experience, particularly in managing board and supervisory board functions, has afforded me a unique vantage point to examine and engage with the challenges and opportunities that businesses face in transitioning towards sustainability and beyond, towards regenerative practices. The direct involvement in the transformation of garden furniture supply chains from degenerative to regenerative, as detailed as an example in the dissertation, underscores my active participation and leadership in fostering sustainable change within the business sector.

This research journey is deeply personal and reflective of my broader life's work. It embodies my commitment to not just academic inquiry but practical application, striving to bridge the gap between theoretical frameworks and tangible business practices. The engagement with diverse stakeholders, from CEOs and C-level executives to international companies and institutions, reflects a holistic and inclusive approach to research, underscored by a strong ethos of collaboration and co-creation.

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The financial support from the Taskforce for Applied Research SIA and Avans University of Applied Sciences, along with the mentorship from my supervisors, Professor Céline Legrand and Professor Kaj Morel, has been instrumental in this endeavor. Their guidance has not only shaped the trajectory of my research but also deepened my understanding of the complexities involved in navigating the path towards regenerative business practices. This understanding has been further enriched by vigorous interchanges and discussions with peers and within research groups across several prestigious institutions, including Audencia, Avans, Wittenborg, Hanze, Fontys, Zuyd, Maastricht University, Tilburg University, VU, and Miami Ad School. These interactions across diverse academic settings have provided a broad spectrum of insights and critiques that have been pivotal in refining my approaches and expanding the impact of my research within the academic community and beyond.

Incorporating a reflexive account into my research has allowed me to explore the nuanced ways in which my personal experiences with business practices influence and enrich my theoretical frameworks. This reflexive approach ensures that my research is not only informed by empirical data and literature but is also deeply personal and contextually grounded. It highlights the synergy between my personal convictions and professional practices, emphasizing the transformative potential of businesses in contributing to sustainable development.

My positionality as a researcher is characterized by an integration of theoretical knowledge and practical experience, where personal insights play a crucial role in shaping a holistic approach to understanding and promoting regenerative business practices. This unique perspective enriches the research with a depth that is both academically rigorous and profoundly influenced by real-world applications and challenges.

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How can companies become regenerative?

1 How can companies become regenerative?

Defining regenerative in the context of this dissertation:
Regenerative' and 'regeneration' embody concepts with profound implications, transcending the boundaries traditionally set by sustainability. At its core, 'regenerative' describes practices or methodologies designed not just to preserve or sustain, but to actively rejuvenate and enhance ecological, social, and economic systems. This paradigm shift moves beyond preventing harm, aiming instead to contribute positively and dynamically to the health and vitality of our planet and its communities (Mang & Reed, 2012). In the sphere of business, 'regenerative' denotes strategies and operations that do more than minimize negative impacts; they create conditions conducive to life, fostering ecosystems and societies to thrive and evolve (Reed, 2007).

This dissertation adopts 'regenerative' as a descriptor signifying the most advanced form of environmental and social contribution, where activities are, next to their economic contribution, designed to heal and enrich our world. The distinction between 'sustainable' and 'regenerative' is crucial in both academic and practical discourse, reflecting a deeper engagement with our planet's and society's long-term health and prosperity. Whereas 'sustainable' practices aim to reduce harm and maintain balance, 'regenerative' practices seek to catalyze positive change, enhancing the social-ecological systems they touch. For example, while sustainable agriculture might focus on reducing chemical inputs, regenerative agriculture works to rebuild soil health, increase biodiversity, and restore ecosystems but also aims to revitalize rural economies and strengthen community ties.

In the context of this dissertation, 'regenerative' elucidates a vision of businesses not just as entities that do no harm, but as proactive agents of greater social cohesion, economic resilience, and environmental stewardship. Embodying the principle that the more a business operates within this framework, the more beneficial it becomes for the world at large, this paradigm champions an operational ethos where continual activity leads to widespread prosperity and wellbeing. This conceptual clarity is vital for advancing regenerative practices in the business world, encouraging a shift from harm reduction or merely sustaining a status quo to actively and consistently enhancing the world socially, ecologically, and economically.

This introductory chapter serves as the foundation for examining the transition of companies towards regenerative practices, a critical element in fulfilling the Sustainable Development Goals (SDGs). The narrative is enriched by the author's direct experiences and a robust review of relevant academic literature, aiming to bridge the gap between a growing recognition of sustainability issues and the prevalent adherence to degenerative business practices. The research focuses on identifying the obstacles impeding regenerative practices, explaining the essential capabilities businesses must develop, and highlighting the significant influence of CEO leadership characteristics in leading this transformative journey. Employing a multi-method qualitative approach, this chapter delves into how these three key elements of systemic barriers, regenerative capabilities, CEO leadership were investigated and how they formed the basis for three corresponding constructs. It outlines how these constructs were captured in a conceptual model for regeneration and how this was operationalized in a practice-based consulting model. Building on this, the implementation of the model in multiple cases and its facilitation are evaluated, ultimately leading to a method for implementation and a training for

facilitators. The thus established goal-oriented structure for the dissertation is instrumental in proposing an approach for regeneration, comprised of a model and a method for its practical implementation in the business realm.

The chapter is organized into four main sections: 1) the introduction, which outlines the motivation, objectives, and central research question; 2) a literature review that provides insights and clarifies key concepts on the SDGs and the role of businesses in achieving them; 3) a detailed description of the research methodology employed; and 4) a conclusive segment that previews the dissertation's structure.

Main argumentation in this chapter: to achieve the Sustainable Development Goals – a crucial milestone in progressing to a global well-being economy – there is a need for the business community to become regenerative. Via a multi-method qualitative abductive research approach the barriers to regeneration, capabilities to surmount these, and CEO leadership aspects required to make the transition to regeneration, will be investigated to develop a practice-based consulting model for regeneration.

1.1 Motive, aim and research question

In March 1998, NGO Global Witness reported on the devastating effects of the timber harvesting for wooden garden furniture sold in Europe on the tropical rainforests and its indigenous inhabitants (*Going places*, 2019). On the back of this report, several likeminded NGOs campaigned fiercely against retailers, going as far as blocking their stores. In the following five years, a consortium of some of the targeted retailers and their suppliers, with the help of NGOs and local communities, transformed these garden furniture supply chains from being degenerative into adding value for the environment and the local communities, while establishing a future-proof business model for all parties concerned (*The Forest Trust's Good Wood, Good Business Guide | Sustainable Forest Products*, n.d.).

As director of product management & marketing, and later CEO of one of the targeted companies, I was in the middle of these events and held final responsibility for our business. As one of the founding members of the stakeholder consortium, which later turned into a NGO (TFT – The Tropical Forest Trust, now Earthworm), I have witnessed firsthand the transformative potential of co-creation in an social-ecological system under adequate combined leadership.

Despite being part of these and many other good examples, after more than 35 years in international business, I have to note when taking stock that the degenerative examples of business practices – leading to negative consequences for others – are by far the majority. In the beginning of my career, this could be explained in part by a lack of familiarity with and ignorance of the negative externalities (consequences) of their activities in many businesses. Later, as awareness and knowledge increased, more and more companies and their leadership spoke out in favor of responsible and sustainable business practices. In spite of this, the vast majority of companies have failed, and still fail, to make the transition to consistently regenerative practices – leading to positive consequences for others –, even if they are willing to do so. Why is that? What is stopping them from making this transformation, and how can this be changed?

These personal observations of continuing degenerative business practices are corroborated in the academic literature. Despite the growing consensus around the critical need for sustainable business practices in the pursuit of the SDGs (He & Harris, 2020; Romanello et al., 2021), the business sector fails to rise to the occasion (Cavazotte et al., 2021; Liao, 2022; Piwowar-Sulej & Iqbal, 2022). This 'big disconnect' (Dyllick & Muff, 2016) between what is needed and what is done is becoming increasingly clear and voiced (Brown et al., 2019; Barford & Ahmad, 2021; Hahn & Tampe, 2021). While numerous studies have explored the concept of sustainability in businesses from a multitude of perspectives (Adu et al., 2022; Alonso-Martinez et al., 2021; Hockerts & Wüstenhagen, 2010; Scherer & Palazzo, 2011), there is a lack of comprehensive understanding regarding how businesses can effectively be navigated in this transformation (Lăzăroiu et al., 2020; Santana & Lopez-Cabrales, 2019). More research is needed on methods specifically centered on the transition from degenerative, extractive operational models to innovative, regenerative, circular ones (Seddon et al., 2020; Wang et al., 2021).

This research aims to enhance our understanding of the key elements hampering or driving a business in becoming regenerative and of any specific CEO leadership aspects necessary to make this happen. The central research question is:

How can companies become regenerative?

This research will explore the possibilities for transforming businesses practices from degenerative to regenerative. The final aim is to develop a theoretical model, and from

that construct a practice-based consulting approach (a model and a method of implementation) to support businesses and their CEOs to become regenerative, aiding the global business community in its collective efforts towards achieving the SDGs and helping the individual business to become futureproof.

Note: considering the SDGs conclude in 2030 and will likely be succeeded by new global objectives, regenerative business practices, inherently net positive in their social, ecological, and economic impacts, stand as crucial facilitators for these forthcoming goals too.

1.2 The role of businesses in achieving the SDGs

Amartya Sen, in his book 'Development as Freedom' (Sen, 1999), defines 'wellbeing' as the ability of an individual to lead a fulfilling life with freedom and choice. He argues that wellbeing cannot be measured solely in terms of economic indicators such as gross domestic product (GDP) or income, but rather by the capability of individuals to achieve their goals and objectives, and to have the freedom to make choices about their own lives. According to Sen, wellbeing is a multidimensional concept that includes not only material possessions but also social, political, and cultural factors that influence an individual's ability to live a fulfilling life. He emphasizes that development should be viewed as a process of expanding the freedom and capabilities of individuals, rather than simply increasing economic output (Sen, 1999). This comprehensive approach to development aligns closely with the objectives of the SDGs, which aim to promote holistic progress by addressing a wide range of issues from poverty and education to environmental sustainability (Colglazier, 2015). Robeyns' comprehensive overview of Sen's capability approach, discusses its core principles and its differentiation from other development and welfare theories, and showcases its applications. This article is a key piece for understanding the theoretical underpinnings and the broader implications of Sen's work on wellbeing (Robeyns, 2005).

Kate Raworth popularized the term 'wellbeing economy' in her 2017 book 'Doughnut Economics: seven ways to think like a 21st-century economist', where she argues that the current economic system is no longer fit for purpose and that we need to adopt a new economic model designed to meet the needs of all people within the means of the planet. Building on Sen's definition, a wellbeing economy is an economic system that prioritizes the wellbeing of people and the planet over economic growth and profit. It is an alternative to the traditional growth-oriented economic model, which tends to prioritize GDP growth and the pursuit of profit over social and environmental wellbeing. Raworth's concept of a wellbeing economy is based on the idea of a 'doughnut', which represents a

safe and just space for humanity to thrive. The inner ring of the doughnut represents the minimum standards of wellbeing that all people should be able to enjoy, such as access to food, water, and healthcare, while the outer ring represents the ecological limits of the planet. The challenge, according to Raworth, is to create an economic system that allows us to meet the needs of all people within these two boundaries (Raworth, 2017).

Defining 'wellbeing' and the 'wellbeing economy'

Diener and Suh define wellbeing in terms of subjective wellbeing, which includes people's emotional reactions, their domain satisfactions, and their global judgments of life satisfaction. According to them, wellbeing is not just the absence of negative emotions but also the presence of positive emotions and life satisfaction (Diener & Suh, 1997).

Ryff conceptualized wellbeing through six dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Her model is influential in psychological research and emphasizes personal fulfillment and psychological resilience as components of wellbeing (Ryff, 1989).

Dodge et al. offer a simple definition of wellbeing as 'the balance point between an individual's resource pool and the challenges faced.' This dynamic equilibrium moves beyond static measures to acknowledge that wellbeing involves continual adjustment and balancing acts in response to life's challenges (Dodge et al., 2012).

Costanza et al. argue for a shift from GDP to a broader set of indicators that more accurately reflect the wellbeing of a nation. They envision a 'wellbeing economy' as one that serves people and the planet, aiming for sustainable and equitable distributions of wealth, resources, and power (Costanza et al., 2014).

In their work on the wellbeing economy, Trebeck and Williams describe it as an economy that is 'purposefully designed to serve human and ecological wellbeing,' moving away from a focus on economic growth as an end in itself. They argue for economic systems that prioritize human wellbeing, social justice, and environmental sustainability (Trebeck & Williams, 2019).

The Wellbeing Economy Alliance, a global collaboration of organizations, alliances, movements, and individuals working towards a wellbeing economy defines it as an economy that delivers human and ecological wellbeing. A wellbeing economy is characterized by sustainable development, social justice, and a recognition that the economy is embedded within society and the natural world, rather than being separate entities (*Wellbeing Economy Alliance*, n.d.).

These definitions and perspectives highlight the multifaceted nature of wellbeing and the evolving understanding of what constitutes a wellbeing economy, emphasizing the need for holistic approaches that integrate economic, social, and environmental dimensions.

We are all part of the global society on one planet, and as such jointly affected by and responsible for its wellbeing and the continuous improvement towards a wellbeing economy. The United Nations initiated the SDGs to make this responsibility actionable, and as such achieving them can significantly contribute to creating a wellbeing economy (Costanza et al., 2018). Realizing the aspirations of the SDGs to reduce inequality, limit ecological damage, and secure resilient livelihoods is a grand challenge for the global society, including the business community, sustainability science, civil society and government (Bowen et al., 2017). Accelerating progress towards all 17 SDGs by the 2030 deadline is crucial for the world at large, including the business community within it. Whilst businesses are an important factor in achieving the SDGs and can significantly benefit in the process, they fail to live up to the challenge as a whole (Azmat et al., 2023).

Businesses and their CEOs must cultivate a systems thinking approach, recognizing the interconnectedness of social, economic, and environmental aspects. This mindset helps in understanding the complex dynamics within and between organizations with the outside world, and provides insights into creating regenerative, circular models. Alignment with the SDGs offers a comprehensive blueprint for CEOs to develop regenerative strategies. By integrating the SDGs into corporate vision, mission, and operations, CEOs can provide direction and coherence to the transition, ensuring that it contributes to broader sustainability goals. The SDGs are widely applied in all aspects of society and business and as such prove to be well applicable in the aim for practical relevance in the business field and to develop models, tools and interventions for it.

The interdisciplinary nature of the SDGs emphasizes the importance of collaboration. CEOs must actively foster partnerships across various stakeholders, including suppliers, customers, regulators, and other businesses. Such collaboration enables collective action, innovation, and shared value creation in the transition to regenerative models. The interdisciplinary approaches to the SDGs highlight the need for holistic and integrated thinking. These aspects need to be addressed in this research.

Defining sustainability: terms and applications

'Sustainability' and 'sustainable' are terms with multifaceted meanings, applied in diverse contexts. Fundamentally, 'sustainability' refers to a paradigm prioritizing the balance and enduring health of ecological, social, and economic systems (Brundtland, 1987). When 'sustainable' is employed as an adjective, it typically characterizes practices or methods that are ecologically sound, socially equitable, and economically viable for the long term, such as 'sustainable agriculture' or 'sustainable energy' (Keeble, 1988). In a business context, 'sustainability' may denote a specific function, such as departments or roles focused on sustainable practices (Dyllick & Muff, 2016), or a broader field encompassing sustainability-related research, consultancy, and innovation (R. Adams et al., 2016). The term has evolved to include aspects like 'social sustainability' and 'economic sustainability', emphasizing a comprehensive approach to human and environmental wellbeing (Lehtonen, 2004).

This dissertation employs specific terminology to distinguish aspects of sustainability: 'supportable' replaces 'sustainable' as a quality indicator, ranging from degenerative to regenerative impacts on social-ecological systems. It applies to various entities, such as businesses, projects, or processes. For example, 'supportable practices' or 'supportable business' implies actions beneficial to these systems. 'Sustainability' as a descriptor refers to roles or functions aimed at transitioning from degenerative to regenerative practices. This includes positions or departments like 'sustainability officer' or 'sustainability department'. 'Sustainability' as a paradigm encompasses the entire field of study, focusing on researching and transitioning towards less harmful and more beneficial practices.

In academia and business, 'sustainable' and 'sustainability' are often used interchangeably, leading to confusion. This dissertation seeks to clarify these terms through specific usage examples: 'Sustainable marketing' or 'sustainable reporting' indicates business functions adopting long-term viable, socially just, and ecologically sound practices. Example: 'As a responsible creative agency, we aim for sustainable marketing, both in-house and with our clients.' 'Sustainability marketing' or 'sustainability reporting' refers to business functions dedicated to advancing sustainable practices. Example: 'The sustainability marketing team is tasked with communicating and driving our sustainability efforts internally and externally.'

The evolving landscape of SDGs highlights the imperative for ongoing adaptation and learning. It becomes evident within this discourse that CEOs ought to prioritize investment in research, monitoring, and evaluation efforts. Such strategic focus is essential to grasp the nuanced impacts of transitional strategies, pinpoint avenues for enhancement, and remain agile in the face of new trends and challenges. This perspective is integral to the research presented here, emphasizing the proactive role leaders must play in steering their organizations towards sustainable success.

A comprehensive literature review on the SDGs and their historical development providing essential context and objectives for this study can be found in Appendix 1. Here, only the relevant conclusions are presented. The foundational assumption of this research, asserting the critical role of the global business community in achieving the SDGs, is validated. The application of SDGs across various contexts underscores the need

for leaders to integrate sustainability into all aspects of their organization. From strategic planning and operations to reporting and stakeholder engagement, sustainability should be deeply embedded into the fabric of the organization, aligning with the comprehensive and cross-cutting nature of the SDGs. The SDGs offer a comprehensive and integrative framework to investigate the barriers and solutions to becoming regenerative, both as context to operate in and as goals to strive for. They invite businesses to not only minimize harm but also to actively contribute to global sustainability. By aligning with the SDGs, regenerative leaders can guide their organizations towards a future that is sustainable, resilient, and inclusive, thereby playing a vital role in the global pursuit of sustainable development. As such the SDGs provide a good and valid framework, and support the aims of this research. Readers seeking more detailed insights, rather than a synopsis via the above conclusions, are once more referred to Appendix 1 for the full literature review.

Explanation of the core theoretical concepts

Comprehending the nuances of this research and its ensuing discussions necessitates precise understanding of key theoretical concepts and their definitions. Alongside the elaboration 'sustainable,' 'sustainability,' and 'supportable' (see also box on page 12), clear definitions and contextual positioning will be provided for the following terms: 1) 'degenerative,' 'supportable,' 'regenerative'; 2) 'business models,' 'business practices,' 'business operations'; 3) 'CEO leadership'; 4) 'transition' and 'transformation' and 5) 'stakeholders'.

Degenerative, supportable, regenerative

In alignment with the definitions outlined in the section 'Defining sustainability: terms and applications' on page 11, this document adopts specific terminology to delineate 'sustainable' as a quality (illustrated in Figure 1), a descriptor, and a paradigm. This subsection addresses the common use of the terms 'sustainable', 'restorative' and 'regenerative'. As of yet, there is no conclusive definition, nor use in academia, business practice, or popular media of these terms (Morseletto, 2020).
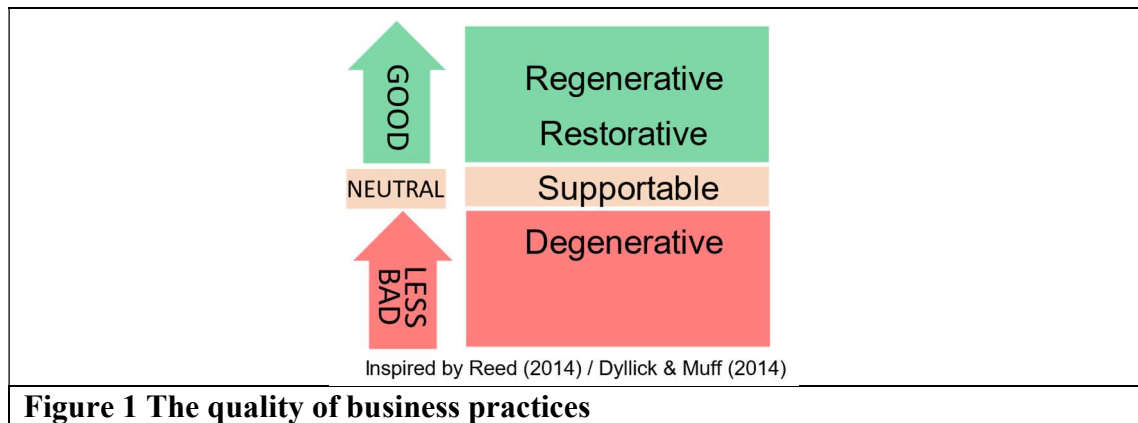
Figure 1 The quality of business practices

Ranking environmental and social practices from a perspective of positive impact, the applied definitions are:

- Degenerative: practices that degrade or diminish systems, making them less capable of self-renewal and resilience (Meadows et al., 1972). In this definition degenerative is applied irrespective of the intent behind or the awareness of the consequences of the practices.

- Sustainable: practices that aim to meet current needs without compromising the ability of future generations to meet their own needs (Brundtland, 1987). In the definitions of sustainable, restorative and regenerative, aim (or intent) is included to allow for them to be understood in the sense of 'to the best of knowledge and current know-how of measurement applied' as opposed to 'a fully objective and comprehensive measurement'.

- Restorative: practices that aim to repair or restore systems that have been degraded (Benyus, 1997).

- Regenerative: practices that aim not only to restore but to enhance systems, making them more resilient and vibrant than before (Mang & Reed, 2012). This 'enhancing of systems' is explained by Carol Sanford as creating new value, developing the capabilities of all stakeholders, and contributing to the health and evolution of whole systems (Caniglia et al., 2019).

Taking this perspective, sustainable practices are essential, but restorative practices are even more proactive in healing and improving systems (Reed, 2007).

Note: in this dissertation, the differentiation between 'restorative' and 'regenerative' is deemed superfluous, hence 'regenerative' will be uniformly employed to encompass both concepts. To denote a quality where the final impact is neutral, the term 'supportable,' as previously introduced, will be utilized.

Use examples of chosen nomenclature in this dissertation:

- 'We've made tremendous progress in making our inbound logistics fully supportable. How can we make the next step in achieving regeneration in some processes, while maintaining the minimum of supportability in all processes?'

- 'Since we've become aware of the degenerative impacts of our operations on this local community, we've done our utmost to become regenerative.'

<u>Business models, business practices, business operations</u>

The terms 'operations' and 'practices' are often used interchangeably, as are 'business operations' and 'business practices'. Consequently, this also applies to the term 'regenerative business practices'. No academic differentiation between the terms has been found.

Loosely based on Porter (1985), the following distinction is made in this dissertation:

- 'Business operations' are the day-to-day operations of a business, often tangible and immediate actions within its operational boundaries.
  Examples: supply chain management, production processes, energy sourcing, waste management.

- 'Business practices' include business operations, but also broader strategies, philosophies, and methodologies and relationships, opinions, and long-term visions the business fosters.
  Examples: the beforementioned operations, but also community engagement, employee wellbeing, corporate governance, stakeholder relationships.

For all intents and purposes of this dissertation, the term 'business practices' covers all tangible and intangible activities of a business, both on a daily basis and over long(er) periods. 'business operations' are a part of that and cover the tangible day-to-day activities of the business.

Use examples of chosen nomenclature in this dissertation:

- 'Making our daily business operations regenerative is part of our overall sustainability efforts aiming to make all of our business practices supportable and wherever possible regenerative.

<u>CEO leadership</u>

In the context of this research, 'Chief Executive Officer (CEO) leadership' refers to the unique set of roles, responsibilities, and influence wielded by the CEO within an organization. As such CEOs are not only responsible for setting strategic direction but

also play a pivotal role in shaping organizational culture, aligning resources with strategic priorities, and serving as the public face of the company. In the context of driving regenerative business practices, specific leadership aspects will be connected to this definition, partly by setting the required leadership aspects apart from what 'suffices' in traditional or sustainable leadership.

This research primarily focuses on the distinctive role of CEOs in facilitating the transition towards regenerative business practices, deliberately delineating its scope to exclude leadership dynamics emanating from top management teams (TMTs), employees, or stakeholders. Leadership exerted by entities other than the CEO will be conceptually framed as 'TMT leadership' (Hambrick & Mason, 1984), or as 'leaderful practices,' a term denoting the contributions of mid-level managers, employees, and stakeholders (Raelin, 2005, 2016). While these leadership dimensions may hold peripheral relevance to the study's central theme, they are deemed beyond its immediate focus. Acknowledging the potential influence of these leadership forms, the study posits that understanding TMT leadership and leaderful practices can offer valuable context for assessing the unique impact of CEO leadership in promoting regenerative practices. However, any in-depth exploration of these additional leadership modalities is reserved for future research endeavors. This approach allows for a concentrated examination of CEO leadership traits and their critical role in driving sustainability transformations, while also recognizing the broader leadership landscape as a secondary layer of analysis potentially ripe for subsequent scholarly inquiry.

Use examples of chosen nomenclature in this dissertation:

- 'Under the leadership of our management team we will significantly increase the share of supportable and qualitative products and services in our organization. As CEO, I bear both the final responsibility and the driving role in this leadership'.

> Note: from the preliminary literature review leadership theories and concepts emerged as most appropriate for this research. An overview of the theories touched upon for selection, but refuted in favor of the final theories is available upon request.

Transition and transformation

The terms 'transition' and 'transformation' are used interchangeably and often as buzzwords or container concepts in politics, business practice, and science. In general they indicate a need for major changes. Hölscher & Frantzeskaki (2021) find the terms not to be mutually exclusive, but nuanced in complementing each other, exact meaning

depending on the different research communities and context they are used in. Given the focus on business practices (including business dynamics and processes) and leadership (including agency and governance), the terms transition and transformation will be used in these applications:

- Transition when arguing on how systemic structures and processes influence the desired changes, and which are drivers or obstacles.

- Transformation when discussing what the systemic structures and processes are that influence the desired changes, and how they affect drivers and obstacles.

Use examples of chosen nomenclature in this dissertation:

- 'The transition from the current market setup of agriculture towards a regenerative industry is albeit impossible. The required transformation is for most companies extremely hindered by their widespread profit-centered focus'.

Stakeholders

Traditionally, stakeholders are segmented as internal or external. Internal stakeholders include employees and shareholders, and external stakeholders encompass suppliers, customers, and regulators. This approach often prioritizes primary stakeholders, who have a direct financial stake, over secondary stakeholders, such as the community and environment, who are indirectly affected (Freeman, 1984; Freeman & Mcvea, 2001). The network model of stakeholders opposes this and appears to align more closely with the principles of permanent regenerative improvement. This network model transcends the linear categorizations of internal/external and primary/secondary, promoting a complex web of interdependencies that includes social, economic, and environmental actors (Rowley, 1997). It emphasizes the interconnectedness and mutual influence among all stakeholder groups, reflecting the regenerative leadership's focus on holistic value creation, resilience, and system rejuvenation.

Most crucial insights from literature: the SDGs are actionable objectives towards a wellbeing economy, and the global business community has a significant role in achieving them. Collaborative efforts across various stakeholders, suggest the need for collective action, innovation, and shared value creation. The evolving nature of SDG-related challenges necessitates ongoing research, monitoring, and adaptation by businesses to remain effective in their sustainability endeavors.

Research gap: there is [1.1] a gap as to what specific leadership attributes are most effective in navigating the challenges and opportunities presented by the transition to a

wellbeing economy. Further research could also [1.2] explore the mechanisms through which CEO leadership influences organizational change towards sustainability and regenerative practices, contributing to the broader discourse on sustainable development and corporate responsibility.

1.3 Research method

This research section outlines the methodology adopted to investigate the pathways through which companies can transition to regenerative practices. Detailed elaboration of the literature reviews, data collection, and analytical procedures employed within the chosen methodology will be provided across Chapters 2 to 4.

The section commences with the delineation of four subsidiary research questions derived from the overarching research question. This is followed by a schematic representation and a broad overview of the methodology. Subsequently, the narrative unfolds in a sequential manner, detailing every phase of the research process. This includes the review of existing literature, collection of data, analytical techniques, the discussion of results, the development of constructs, and the construction of a conceptual model. The discussion extends to the empirical testing of the model through practical case studies, the articulation of the model's implementation strategy, and the development of corresponding training materials.

In order to find answers to the main research question
'How can companies become regenerative?',
this study employed abductive analysis, as described by Timmermans and Tavory (2012), which emphasizes iterative cycles of data collection and theory refinement. This approach facilitates an active and continuous analytical interaction between data and theory. The aim is to explore individual and collective perceptions and experiences related to transitions towards regenerative business practices (Ryan, 2018). A qualitative research approach was adopted, given its suitability for an in-depth examination of complex phenomena like the transition to regenerative business practices and its implications for leadership (Denzin & Lincoln, 2011). This approach is particularly effective in understanding the role of context, social interactions, and individual experiences in influencing leadership behavior and organizational change (Creswell & Poth, 2017). When investigating the application of the developed model in business practice, the

importance of the facilitator in the journey to regeneration became evident. For this final section of the research an autoethnographic approach was taken (Adams et al., 2014), ultimately making this a multi-method qualitative research (Creswell & Creswell, 2022).

Choosing different methods in the abductive process

The iterative process of moving between theory and empirical data to generate new insights and understandings influenced the research design, particularly in the choice of a multi-methods approach that allowed for the most appropriate method in each stage of the research. This lead to an inductive grounded theory approach in determining the theoretical constructs, deductive thematic analysis to develop the constructs, a selection of diverse case studies allowing for a validation and refinement in business practice and finally autoethnographic reflections on the role of the researcher and facilitator of the developed approach. This methodology could not be fully anticipated at the outset of the research, as it was directed by the intermediate findings in the process.. This methodology, inspired by Timmermans and Tavory, ensured that the research remained open to new directions and insights, thus enhancing its relevance and contribution to the field, both theoretically and practically.

By applying the abductive approach, the central research question was soon elaborated into three sub-questions, each focusing on defining and operationalizing a particular key constructs: systemic barriers to regeneration, regenerative business capabilities, and CEO leadership for regeneration. During the research, these were complemented by a fourth sub-question, focusing on methods of application of the developed model in practice. Remember that the motive for this research was the observation that companies want to become regenerative but for some reason fail to do so. Apparently, something is stopping them. While recent studies indicate the lack of sustainable progress in business practices and its consequences, there is little to no research on the specific aspects of a business transforming to regeneration, as opposed to reducing harm or showing supportable business practices. Hence, the first sub-question was:

1. What are the perceived barriers for regenerative business practices and what causes them?

In order to overcome these barriers, companies obviously need to be capable of doing so by developing specific capabilities that address them. Consequently, the second sub-question was:

2. What business capabilities are needed to surmount these barriers for regenerative business practices?

Recognizing barriers and developing capabilities to surmount them in a consistent and structural manner, requires specific leadership. These leadership aspects need to be build and developed in business leadership, especially that of the CEO. Thus, the third sub-question was:

3. What are the required and specific CEO leadership aspects that enable effective regenerative business practices?

Finally, we are interested in assessing the interplay and workings of barriers, capabilities and leadership aspects in real-life, as well as how companies can be supported on the road to regenerative business. Therefore, a fourth sub-question developed:

4. How is the developed model for regeneration applied in actual business practice?

The chosen multi-method approach ensured that the constructs of barriers, capabilities and CEO leadership would be (to some extent) measurable and applicable as a consulting model in a business context, complemented by an implementation method for the model in business-practice, making it an approach to regeneration. The qualitative model was developed with the intention of serving as a basis for proposing a theoretical model that could be tested and used to make measurements as part of a quantitative methodological approach. Derived initially from the researcher's extensive business experience, the barriers, capabilities and CEO leadership constructs were further explored through semi-structured interviews with industry leaders. The initial interviewees were purposively selected based on their organizational involvement in sustainability, representing a diverse range of companies and acting on CEO or C-level with significant tenure.

Overview of research methodology

The research adopts a multi-method qualitative abductive approach, intricately designed to navigate the complexities inherent in studying regenerative practices within organizations. This approach is meticulously crafted, drawing inspiration from the methodological principles advocated by Timmermans and Tavory (2012), who champion abductive reasoning as a pivotal means of fostering a reciprocal and evolving dialogue between theoretical constructs and empirical observations. The research design, as encapsulated in Figure 2, showcases a schematic overview that underscores the iterative cyclical process emblematic of abductive reasoning, where data collection and analysis

are in continuous interplay with the theoretical refinement. This methodological choice is particularly favorable for the exploratory essence of the study, permitting adjustments to the research trajectory in alignment with emergent insights, thereby ensuring a profound and nuanced comprehension of the deployment and ramifications of regenerative practices.

Pertinent literature in the domains of organizational change towards sustainability mirrors a tendency for such iterative and adaptable research designs. For instance, the work of Geissdoerfer et al. (2018) on circular economy practices, which leverages a blend of qualitative and quantitative methodologies, underscores the efficacy of integrating diverse data forms to capture the multifaceted nature of sustainability transitions comprehensively. Similarly, the qualitative inquiry by Russell and Vinsel (2020) into the implications of innovation narratives on meaningful work accentuates the value of in-depth interviews and case studies for eliciting rich, contextually embedded insights.

This research framework is deemed exceedingly suitable for the current investigation for several reasons. Foremost, the abductive approach facilitates a seamless integration of inductive and deductive reasoning, enabling a thorough exploration into how organizations navigate and actualize regenerative practices. Furthermore, the employment of a multi-method qualitative strategy, resonating with Geissdoerfer et al. (2018), affords the flexibility to delve into varied experiential perspectives while using quantification to appraise the impacts, thereby achieving a balanced elucidation of both the qualitative depths and quantitative extents of regenerative initiatives. Lastly, the inherent iterative design is indispensable for accommodating the fluid nature of regenerative practices, ensuring the research's relevance and adaptability to unfolding advancements within the sustainability and organizational change discourse.

> Note: the numbers and characters in parentheses – like (-4-) or (-‖-) –, indicated in this section, refer to the corresponding symbol in Figure 2.

In this section, the research process, inspired by Timmermans and Tavory (2012) and outlined in Figure 2, began with the central research question and its division into the **four sub-questions**. In Section 2.1, the validity of these sub-questions was assessed through analysis of five interviews and eleven purpose game sessions (a type of workshop, explained later in this section) (-1-). This initial data collection was later expanded with 35 more interviews and eight purpose game sessions into a further

expanded primary dataset **(-2-)**. Subsequent analysis of the revealed **systemic barriers**, which were further refined through five workshops, provided yet another addition to this developing dataset. The final validated systemic barriers emerged from the comprehensive analysis of this supplemented dataset **(-3-)**.

Based on the same rich dataset and partly in parallel with the previous analysis, **regenerative business capabilities** were uncovered in Section 2.2, by using an alternate perspective on the data (focus on the solution rather than the problem indicated) **(-4-)**. In Section 2.3, based on the developed constructs for barriers and capabilities, the development of a model for regeneration was prepared (in anticipation of the supplementary construct for CEO leadership for regeneration) **(-│-)**. Yet another perspective on the dataset and the comprehensive analysis up to that point, led to insights on **CEO leadership in regeneration (-5-)** in Section 3.2. This process was concluded with three refining and validating in-depth interviews and three validation workshops **(-6-)**. In Section 3.3, the developed construct of CEO leadership for regeneration was combined with the constructs for barriers and capabilities into a proposed conceptual model **(-‖-)**. Throughout the dissertation and mainly in Sections 1.2, 2.1 and 3.1, literature review paralleled the empirical research, aiding in abductive reasoning **(-L-)**. In the autoethnographic part of the research in Section 4.1, the empirical data from three intensely participatory companies was supplemented by additional primary and secondary data into three cases for an illustration of the **application and facilitation of the model in business practice (-7-)**. Based on this, a method for implementation of the model was developed in Section 4.2. In three final workshops the model and implementation method were tested in Section 4.3, of which one workshop was in joint facilitation with two colleagues, for which a training was developed **(-8-)**. Ultimately, the method for implementation of the model was captured in descriptive documentation and a training program **(-╫-)**. Jointly, the model and the method for implementation form the practice-based approach for regeneration.

The author and primary researcher typically assumed a central role in the interviewing, coding and categorization process of the collected data. However, recognizing the susceptibility of the data collection and coding process to individual biases and idiosyncratic interpretations, the incorporation of expert groups, panel sessions, inter-coder reliability alignment sessions, interview testing, and joint interviewing with colleagues served as a rigorous validation mechanism (as discussed in Section 4.4). These collaborative and cross-validation methods enhanced the reliability and credibility of the

coding process, ensuring a more objective and consistent interpretation of the data (Creswell & Poth, 2017).

Data collection & data analysis

The main data-collection for this research involved 40 semi-structured interviews with 13 CEOs and 27 C-level executives from 37 organizations **(-1-)**/**(-2-)**. The interviewees comprised nine women and 31 men from various regions: Europe (28), the USA (6), Africa (1), and Asia (3), representing nine nationalities and operating in nine countries. These 37 organizations included five consulting firms, 17 SMEs, six multinational companies, eight not-for-profits, and one NGO. The age distribution ranged between 25 and 74: seven participants aged 25-34, five aged 35-44, 14 aged 45-54, 12 aged 55-64, one under 25, and two above 65 years old. Participants for the study were selected from the researcher's direct and indirect network, in the latter case with no more than one intermediary. Additionally, six interviewees were referred to by other interviewees or participants from workshops. The initial contact with potential interviewees involved a consistent standard invitation, asking if they would be open to a 45-minute interview to discuss their experiences with businesses on their journey to full sustainability. The term 'full sustainability' was used as 'regeneration' proved to be rather unknown and a variously differentiated term for many people.

Why data collection via interviews:
Firstly, interviews allow for the exploration of deep, qualitative insights into individuals' experiences, perceptions, and the meaning they ascribe to their actions and decisions within an organizational context. This depth is crucial for uncovering the subtleties of how regenerative practices are implemented, perceived, and the challenges encountered, which might not be readily apparent through quantitative methods alone.
Secondly, interviews provide the flexibility to adapt and probe further into areas of interest that emerge during the conversation, enabling a richer and more detailed data collection than would be possible through surveys or secondary data analysis. This adaptability is particularly beneficial for exploring complex and dynamic subjects like regenerative practices, where each organization's approach and experience can significantly vary.
Furthermore, interviews facilitate the establishment of a rapport between the researcher and participants, often leading to more open and honest communication. Such an environment can encourage participants to share insights or sensitive information they might not disclose through other data collection methods, enhancing the richness and authenticity of the data collected.
Lastly, given the dissertation's abductive approach, inspired by Timmermans and Tavory (2012), interviews align well with the iterative process of theory and data interaction. They allow for the continuous refinement and development of theoretical insights as the research progresses, based on the emerging empirical evidence. This iterative cycle is central to abductive reasoning, making interviews a particularly suitable method for the dissertation's research methodology.

The 40 interviews were conducted predominantly in Dutch (23), along with English (11), German (2), French (1), and Limburgian dialect (3). The interviews were primarily in-person (27), supplemented by video calls (11) and phone conversations (2). During these

interviews, notes were consistently taken by the researcher, while 19 of the sessions were recorded. Auto-transcripts of most of the recordings were created using Microsoft Word, when necessary auto-translated into English, also in Microsoft Word, with the occasional use of Deepl for specific terminology. Data analyses was done on the original or translated English texts. The typical interview for the study involved the researcher visiting the interviewee's company headquarters. A notable session included an interview with a vice president of a global chemical manufacturing company. The interview, held in the R&D department's transparent meeting room, was described as energetic and insightful, covering the interviewee's personal journey and the company's commitment to sustainability. Following the interview, the researcher was given a tour of the facilities and introduced to other team members, highlighting the company's openness and engagement with sustainability. Each interview across the study offered distinct insights into the challenges and solutions in sustainability.

Alongside interviews, the research incorporated 19 purpose economy game sessions to assess companies' current sustainability practices ('Geef Betekenis aan circulaire kansen,' n.d.) **(-1-)**/**(-2-)**. This serious game, developed by the Dutch foundation Stichting Betekeniseconomie in Twente and based on the purpose economy principles described by Morel (2018), served as a secondary validation tool and enabled triangulation (Creswell & Poth, 2017). It helped confirm the relevance of the key constructs – barriers, capabilities, and CEO leadership – in sustainability, ensuring no critical themes were overlooked in addressing the research questions. In three instances, these sessions also provided additional empirical data. Details about these serious game sessions and the overall data collection methodology are elaborated in Appendix 2.
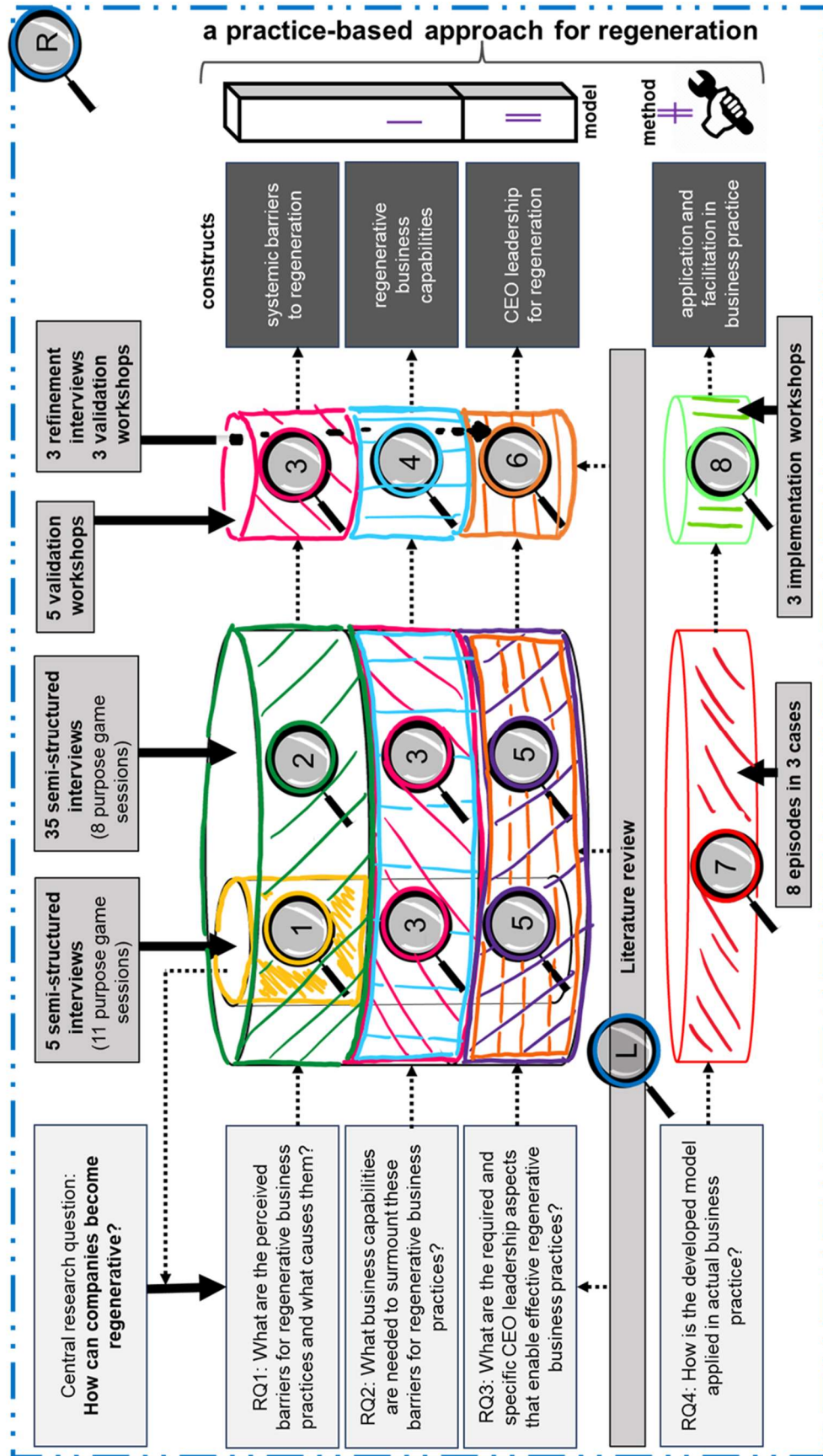
Figure 2 Schematic overview of the research methodology

In the research's initial exploratory stage **(-1-)**, interviews were conducted without pre-set themes, focusing on open-ended questions to freely explore sustainability and regenerative practices. The aim was to broadly gather insights, validate the pre-conceived themes, and identify emerging patterns. The first five exploratory interview transcripts were coded in Atlas.ti, blending inductive open coding with deductive methods **(-1-)**. This approach allowed themes to emerge organically, whilst confirming the significance of barriers, capabilities, and leadership in sustainability. Key phrases and themes from these interviews were coded and categorized. The analysis revealed no new crucial constructs beyond the three key themes. These first five exploratory interviews – which are described in Appendix 2 – confirmed the importance of the constructs barriers, capabilities, and leadership in sustainability. After this confirmation, these five interviews were supplemented by 35 additional interviews focused on investigating the barriers, capabilities and CEO leadership aspects **(-2-)**. These subsequent interviews **(-2-)** followed these themes (as did the three refining interviews later on **(-6-)**), using a structured note-taking approach for efficient data gathering, for which the template is available upon request. The additional key quotes and themes related to these constructs were systematically categorized in an Excel datasheet **(-2-)(-3-)(-4-)(-5-)(-6-)**. Data from field notes, recordings, pictures of used A3 sheets and flipcharts was subsequently recorded in the Excel sheet as direct quotations. These 40 semi-structured interviews with CEOs and C-level executives and 19 purpose game sessions from diverse organizations provided a comprehensive dataset.

> Note: the research strategy initially (**(-1-)** to **(-5-)**) emphasized capturing a wide range of perspectives rather than focusing on in-depth analysis of individual sources. For the leadership analysis **(-6-)**, a selective, in-depth approach was employed on a few sources to explore specific sustainability leadership aspects in detail. The autoethnographic study took the opposite approach of a deep-dive into a limited set of three very distinct cases **(-7-)**.

All the interviews were evaluated for pertinence to the research, and ranked accordingly. The pertinence was assessed on the basis of relevance to the research questions, triangulation with secondary data on the company and interviewee, and a critical self-analysis by the researcher on potential interviewer bias and assumptions. When in doubt, interviews were discussed with peers. As the ultimate aim was to get a comprehensive list of quotes on the three constructs, which was compiled up until saturation, the ranking of interviews on pertinence was not so much a factor of reliability, but of efficiency (the interviews with the lowest pertinence were those with the least time spend on analyzing them).

Note: while the analysis of the relevant data for the three constructs barriers, capabilities and CEO leadership were done sequentially, the data collection was done as described in **(-1-)** and **(-2-)** in one go. As shown in Table 1, the specific dataset was thus the five initial interviews fully coded in Atlas.ti, and the full set of 40 interviews and 19 purpose game sessions captured in three Excel worksheets with the coding of 156 challenge description quotes (barriers), 72 capability indicating quotes (capabilities) and 128 CEO leadership indicating quotes.

	Quotes from **(-1-)** / **(-2-)**	Developed constructs	
	156 challenge description quotes	5 SPISO systemic barriers	
	72 capability indicating quotes	5 CROMC regenerative capabilities	
	128 CEO leadership indicating quotes	5 CHEMP CEO leadership aspects	

Table 1 Quotes from interviews and purpose games used as base for constructs

The barriers to regeneration

Starting with the interviews with the highest pertinence, key quotes representing barriers to regeneration were extracted. They were translated into English when necessary, and catalogued in a separate list labeled 'Quotes related to perceived barriers' in Excel, with each quote prefaced by its sequence number from the interview or purpose economy game session. *For instance 'in a market of increasing costs and fierce competition, longer term goals are of low priority, including sustainability goals'* (#2, Male Buying Director, 62 years old, with 23 years of tenure, at a French home decoration retailer).

Note: quotations derived from empirical data are presented in *italics* for emphasis. Following each quote, the source of the data – whether an interview or a purpose game session – is referenced in parentheses, immediately following the quotation, and is preceded by a hashtag (#) sign to denote the specific data source number. Certain quotes are also given a little more background for better understanding. This is done by adding – after the data source number – a context-relevant addition such as function, type of organization or country. So this addition is deliberately not standardized. Example: (#33, female CEO of a global marketing agency based in Germany).

Many quotes could be directly linked to barriers, but some merely hinted at some blockade without explicitly mentioning it. E.g., the quote *'I don't think people understand that food technology is really complex and it's not just a simple matter of crushing up a few nuts, adding water, giving it a shake, and hello, you've got [vegan] milk.* (#69, Female CEO, 35 years old, leading agricultural company based in the Middle East)'. Only in the wider context of the interview and the specific section did the full understanding of a perceived barrier become evident. Each quote was distilled into a specific 'challenge description,' reflecting the participants' experiences or perceptions of barriers in implementing regenerative business practices. The first step involved understanding the underlying issue or concern each quote expressed. For example, the quote '*In a market of increasing costs and fierce competition, longer term goals are of low priority, including sustainability goals'* (#2, Male Buying Director, 62 years old, with 23 years of tenure, at

a French home decoration retailer) led to the challenge description *'conflict between short-term financial gains and long-term sustainable value creation'*. Coding was performed starting from the highest pertinence labels, continuing until saturation was reached after reviewing 35 data sources. *Explanation: interviews #71,#73, #82, #85 and #87 gave no new challenge descriptions and all found challenge descriptions had at least two entries up until that point.*

A total of 156 quotes on perceived barriers were categorized into 42 initial challenge descriptions, *averaging 4,6 quotes per data collection instrument and averaging 3,7 quotes per challenge description*.

Note: achieving an average of 4,6 quotes per 45-minute interview may appear modest. However, it is essential to recognize that the interviews were conducted in a semi-structured format, with the primary objective not being the direct elicitation of quotes concerning barriers. Instead, the focus was on exploring, through open-ended discussions, whether such barriers naturally surfaced while examining the regenerative state of the business and the roles of the interviewees within this context. This approach focused on the qualitative depth and contextual understanding rather than the quantity of explicit statements.

Concurrent literature review provided the institutional theory framework (further outlined in Section 2.1) as a perspective to categorize the 42 challenge descriptions into the theory's three defined pillars of barriers. This categorization process entailed a thorough examination of the challenges' primary sources as identified by the interviewees. Challenges were classified based on whether they originated from external regulations (encompassing laws, formal regulations, and rules), societal norms (involving social obligations, prevailing norms, and societal expectations), or internal organizational culture (encompassing shared beliefs, perceptions, and established practices within the organization). It is important to note that participants rarely referenced the specific barrier types of institutional theory directly. However, given the clear demarcation of these categories within institutional theory, assigning the challenge descriptions to the appropriate pillar was straightforward and intuitive. This structured approach not only aligned with the conceptual framework but also facilitated a nuanced understanding of the barriers as they relate to the broader institutional context. This process ultimately led to the 42 challenge descriptions categorized under the pillars of institutional theory as explained in Section 2.1. The categorized challenges were tested in three workshops (-3-) to gauge their comprehension, insights, and potential solution ideation.

Note: in Figure 2 at (-3-), five workshops are indicated, two of which were executed in a later stage after re-coding of the challenge descriptions as explained below).

Although the grouping via institutional theory explained the barriers well, the terminology and perspective were found to be too contemplative, externalizing issues

beyond an organization's direct influence. This is explained in more detail in Section 2.1. To address this negative outcome on the actionability of barrier categorization, the focus of the data analysis was shifted to actionability upon the determined barriers by the organization and the practitioner. Starting again from the 42 challenge descriptions, they were regrouped using abduction and retroduction into five themes of perceived barriers that allowed for proactive, actionable addressing. This iterative analysis process

Note: the utilization of five-aspect acronyms (like SPISO) for representing the constructs of systemic barriers, regenerative capabilities, and CEO leadership for regeneration aligns with the cognitive principles outlined by Miller (1956) regarding the optimal range for information processing and memory recall, commonly referred to as 'the magical number seven, plus or minus two' (Miller, 1956). This strategic choice in acronym design ensures that each construct's complexity is accessible and memorable, adhering to the cognitive capacity limits for processing and retaining information. By maintaining uniformity in construct acronyms, the approach not only facilitates easier retention and recall among readers but also supports a coherent and focused examination of the constructs. For the development of the subsequent model, this methodology aids in providing a clear, succinct, and comprehensive framework, enhancing the audience's ability to grasp and prioritize the core elements essential for understanding CEO leadership dynamics and regenerative capabilities within the context of systemic barriers. Specifically, the integration of 'sociocultural limitations' and 'imagination limitations' into 'sociocultural & imagination limitations' exemplifies the only construct aspect where this 'precondition' of five aspects came into play. This consolidation necessitated a more focused effort to precisely define this systemic barrier encompassing category, but did not present challenges during testing or throughout the remainder of the research.

culminated in the identification of five distinct categories that characterize the barriers to regeneration. These barriers were combined under the acronym SPISO and validated with the reviewed theories. Again, the details of this are to be found in Section 2.1.

The new setup of categorization and definition was tested in two workshops (-3-), identical in setup to the previous three workshops testing the categorization based on institutional theory pillars. This final evaluation and analysis, based on the alignment with existing theory and the two validating workshops, affirmed the SPISO barriers' validity and utility in delineating perceived regeneration barriers. Moreover, these workshops provided a solid foundation for analyzing the capabilities required to overcome these systemic barriers, directly contributing to the exploration of the subsequent sub-question, which was the next construct to be researched.

The capabilities for regeneration

The second study aimed to identify organizational capabilities necessary for overcoming the SPISO systemic barriers to regeneration as found in the previous study (-4-). Similar to the study on barriers, this study combined empirical findings with theoretical frameworks, specifically utilizing the systems thinking approach by Hahn and Tampe

(2021). Their framework – as explained in Section 2.2 – served as a guide and ultimate verification of validation for the uncovered capabilities, by linking 'empirical gap indicators' to essential business capabilities for effective regeneration.

Utilizing the same dataset of (-1-) to (-3-) used to identify systemic barriers, this research phase involved cataloging 72 quotes. These quotes highlighted the inconsistencies between an organization's current capabilities and its desired state, directly relating to the barriers previously recognized.

This process was instrumental in pinpointing specific areas where companies are falling short in their journey towards regenerative practices, thus providing a clearer understanding of the necessary business capabilities needed. Ultimately, this coding process identified 18 key terms as indicators of capability gaps in organizations pursuing sustainability and regeneration. Via thematic analysis five regenerative capabilities were found in a second round of coding, which were combined under the acronym CROMC. In Section 2.2 this analysis is explained in detail. As with the systemic barriers, the regenerative capabilities were validated with reviewed theory. Testing of the regenerative was not done in separate workshops like the barriers, but later in the process in combination with the constructs of barriers and CEO leadership. The reason for this was primarily the need to position the capabilities within the context of the barriers and the required leadership for relevant testing. A secondary reason was a more efficient use of scarce workshop opportunities in ideal settings, more specifically representative participants and sufficiently 'weighty' topics. More details on this can be found in Section 2.2.

Initial model development based on barriers and capabilities

To bridge theoretical insights with practical relevance, the research developed a model as a pivotal analytical and applicational tool. This model, evolving through an abductive reasoning process, facilitated a structured examination of the intricate dynamics within regenerative business practices. It started by analyzing the interdependencies within and between the constructs of SPISO barriers and CROMC capabilities, laying a foundational understanding of the obstacles and strategic directions essential for regeneration (- | -). This was done by iteratively revisiting the reviewed literature and the empirical data from the perspective of the barrier and capabilities constructs, looking for any emerging patterns and assessing the practical implications of the findings. In various cases, peers were consulted to validate the line of thought in determining interdependencies. Several

interdependencies emerged as relevant within the context of developing a model for regenerative business practices. In Section 2.3 this process is described in detail. While all CROMC capabilities were found to have a positive effect on addressing SPISO barriers, the nature of their relation were different. As detailed out in Section 2.3, the interdependencies were classified as having a direct influence – the capability specifically aims to surmount the barrier –, aligned influence – the capability helps to address the barrier –, facilitative influence – in the combination of capabilities there is a positive influence on reducing barriers –, or an indirect influence – the influence of the capability on the barrier is neutral or supportive in a unrelatable capacity – (Senge et al., 2008).

Next to the interdependencies, the prioritization within the constructs of barriers and capabilities was assessed. This analysis was done by revisiting the barriers and the capabilities and assessing for each combination whether one would have a bigger effect on the overall obstruction by the systemic barriers or on the overall benefits in surmounting barriers in the case of regenerative capabilities. As with the interdependencies, the findings were discussed with peers and revised throughout the research. For the barriers it was found that prioritization of their perceived (negative) impact is fully context-specific and should not be incorporated as a fixed factor in the model. While all capabilities are important, it was found that establishing a strong foundation in Open stakeholder management (c3) and Continuous network development (c1) may be prioritized as they support a more effective fostering of the other capabilities. The detail of this analysis are presented in Section 2.3.

As the construct of CEO leadership aspects was deemed to add a vital dimension of leadership and organizational culture to the model, the development of the model was postponed until all three constructs were fully investigated, which is presented in a later step in this Section and in detail in Section 3.3.

The CEO leadership aspects for regeneration

Starting from the investigated leadership theories **(-L-)**, a mapping of them versus the CROMC capabilities and SPISO barriers was done. As described in Section 3.2, the underlying constructs of the leadership theories were assessed on their relevance for identifying and potentially mitigating the barriers and for fostering the regenerative capabilities. A second perspective on the findings from the literature reviews was combining them in a comparison of traditional, sustainable and regenerative leadership styles, via a list of leadership aspects relevant to this comparison. These aspects were

determined over the course of the research in a separate list by the researcher, partly inspired by the discussed literature reviews and some additional work of theories reviewed and refuted for this research (a list of the reviewed and refuted theories is available upon request). The presented findings of this are discussed in Section 3.2. From the synthesis of these two tables, by comparing and contrasting various leadership concepts and their applications in different paradigms, five aspects on CEO leadership for regeneration were discerned as basis for the empirical data analysis.

The field notes from (-1-) and (-2-) were catalogued in a separate list of 'Quotes related to regenerative leadership' (-5-), *for instance ' building and maintaining strong relationships based on trust is essential for a sustainable transformation'* (#14, Male co-CEO, 30 years, second generation family business in building renovation). Some quotes could be directly linked to regenerative leadership, but most referred to sustainable or responsible leadership. I.e., *'embracing change is at the heart of sustainable leadership; it's about being open to new ways of doing business.* (#24, Female CEO, 26 years old, at a German start-up company in advanced robotics)'. Only by understanding the quote against the background of the full interview, the differentiation between the intention of sustainable and regenerative leadership became clear. The 'narrative' quotes were grouped into the predetermined five CEO leadership aspects for regeneration. As the leadership aspects often are interconnected, while some quotes hold multiple aspects, specific quotes could arguably be attributed to multiple CEO leadership aspects. For instance: *'Adopting a sustainable business outlook means thinking about the long-term impacts of our decisions.'* (#55, Female CEO & second generation co-owner, 35 years old, at a Taiwanese trade company) can be attributed to CEO Consciousness (as in 'understanding the responsibilities of a business don't end at their formal boundaries'), but also to CEO Hallmarks (as in 'clear and consistent goalsetting now and for the future'). In cases were a quote expressed aspects of multiple CEO leadership aspects, it was categorized under each of them. This sequence of data sources was again, as with the barriers and capabilities, starting from pertinence indicator '5' down. As the themes in this case were predetermined, saturation was determined after at least four quotes per theme. This was after the 29th data source of the priority list. *Explanation: after coding data source 87, all five CEO leadership aspects had at least eight quotes attributed to them.* The details and output of this deductive coding process are presented in Section 3.2. In total 128 quotes were analyzed and categorized under one or more CEO leadership aspects. The five CEO leadership aspects for regeneration were found to jointly be

comprehensive enough to represent all quotes in their given context, and combined under the acronym CHEMP.

The refined examination of the CHEMP leadership aspects was conducted through a series of three workshops **(-6-)** specifically with non-CEOs, labeled '100 biggest culprits'. The description and evaluation of these workshops can be found in Section 3.2. Throughout the workshops, all identified leadership aspects were discussed, though their frequency and relevance varied according to the unique dynamics of each session. This variance provided insights into the adaptability and relevance of the leadership themes within the assumed business context, highlighting the complexity and diversity of leadership challenges in steering large corporations towards regeneration. The full account of this is given in Chapter 3. It was established that the five CEO leadership aspects have the ability to cover all leadership aspects showed, however their definition and depth needed to be revisited. The CHEMP leadership aspects proved sufficiently robust and complete as determinants influencing effective CEO leadership in transitioning to regenerative business practices. The validation of the five CHEMP leadership aspects for regeneration was complemented by a series of three expert interviews with CEOs across a spectrum of industries **(-6-)**. Again, details of this can be found in Section 3.2. The valuable insights and feedback garnered from these interviews not only refined the conceptual definitions but, in some instances, led to the reevaluation of their nomenclature. This comprehensive process affirmed the practical relevance and critical importance of the identified CEO leadership aspects, reinforcing their applicability in steering organizations toward regenerative practices.

Full model development by incorporating the construct for CEO leadership

As mentioned previously, adding the construct of CEO leadership aspects, brought a vital dimension of leadership and organizational culture to the model. The addition of the construct to the barriers and capabilities was done by defining the interdependencies between and potential prioritization of the CHEMP CEO leadership aspects, and relating them to the SPISO barriers and CROMC capabilities, using the same approach as for these previous constructs. As for the barriers and capabilities, several interdependencies and considerations for prioritization emerged as relevant for the CEO leadership aspects and between all 15 components of the barriers, capabilities and CEO leadership constructs. This provide the basis for the development of the full conceptual model for regeneration **(-‖-)**. The interdependencies and prioritizations within and

among SPISO, CROMC, and CHEMP aspects revealed a comprehensive – and at first glance complex framework – where barriers are addressed through specific capabilities, all guided by strategic and ethical leadership qualities. While the conceptual model's complexity enriches scientific understanding, its direct application in business practice may encounter practical challenges. To facilitate understanding and implementation, and allow for greater operational flexibility, the conceptual model of regeneration was distilled into a practice-oriented model, symbolized by the metaphor of a hurdles race. This analogy demystifies the journey from degenerative to regenerative business practices. The details of how this model emerged and how the SPISO barriers, CROMC capabilities and CHEMP CEO leadership aspects are incorporated in it can be found in Section 3.3.

<u>Applying the model in business practice and assessing the role of the facilitator</u>
Now that the emerged model was described, focus was shifted to testing and refining it in business practice (**(-7-)** and **(-8-)**). Throughout the research into how companies can transition to regenerative practices -whether in the investigation, development, or testing phases – each individual interaction, be it an interview, a purpose game session, or a workshop, served as a rich source of data on the identified barriers, capabilities, and leadership aspects. Simultaneously, these interactions yielded empirical insights into the researcher's role and the transformational impact of each intervention. As the research progressed, a shift was observed in the researcher's role, evolving from mere data collection to actively facilitating the transformation process at the company that acted as participant or was part of the case studies. This evolution was frequently acknowledged by participants, who noted that the collaborative exploration of sustainability topics catalyzed significant change. Consequently, during this study the facilitator's role emerged as a pivotal element in effectively implementing the developed model within a business context. Consequently, this was added to the scope during the study.

The utilization of an autoethnographic approach in studying the model's application in business practice stems from this observational insight. Autoethnography, inherently qualitative, descriptive, and interpretive, places a deliberate emphasis on the researcher's personal experiences while applying a developed model in actual business scenarios. This introspective methodology facilitates an in-depth examination of the model's nuances within diverse organizational contexts, through a personal and reflective narrative (T. E. Adams et al., 2014). Given the researcher's dual role as a key facilitator in organizational change and a direct observer of the phenomena under study, autoethnography emerged as

a fitting methodology to test the model in business settings. It allows the researcher's experiences to be contextualized within broader cultural, social, and organizational frameworks, thereby yielding a rich, narrative-driven examination. This approach uncovers the intricate interaction between the individual and the organization, offering valuable insights into how the model both shapes and is shaped by this dynamic interplay (Godber & Atkins, 2021). Aligned with the subjective essence of the autoethnographic method, this study does not primarily aim to derive universally applicable guidelines but rather to depict the model's implementation across diverse business environments, accentuating the specificities and complexities inherent in each setting. The narrative approach of the study effectively communicates the intricate process of translating theoretical models into practical applications (R. Cooper & Lilyea, 2022).

The selection of the three cases and the eight pivotal episodes **(-7-)** was aimed at examining the model's versatility in different contexts and to assess the facilitator's influence during the change process (Seawright & Gerring, 2008). Furthermore, finding sufficient significant events in various phases of the application of the model within one case would have been difficult in the given timeframe of the research. In each of the three selected cases, their inclusion was integral to the broader purpose of sampling within the research process. These cases were distinctive due to the unparalleled, transparent access granted to me across the organizations. This access encompassed dialogues with various stakeholders, entrée to sensitive information, and witnessing the organizations' commitment to transformative change. The decision to focus on three cases was also driven by a desire to explore the model's adaptability across diverse scenarios, as well as to examine the pivotal role of the facilitator in the change process (Seawright & Gerring, 2008). Each episode from the three cases underscored the model's adaptability, yet also illuminated how its application is intricately shaped by the specific dynamics of the organizational setting and the nuanced role the facilitator plays in supporting this transformation. In the application of the model at the case companies specific events proved integral to the transformation process. Some of the selected episodes were pre-planned and well prepared and some happened spontaneously and often unexpectedly. The planned episodes were named 'workshops' and the unplanned 'snippets' (fragments). They were selected as 'pivotal episodes' when in hindsight they proved significant and essential in the model application process. In order to paint a complete picture of the

model's application in practice, ultimately eight episodes were selected based on their complementarity of significance to the application process.

Ultimately, each episode from the three cases underscored the model's adaptability, yet also illuminated how its application is intricately shaped by the specific dynamics of the organizational setting and the nuanced role the facilitator plays in supporting this transformation.

Developing a method and a training for implementation of the model

Ultimately, the method for implementation of the model and the facilitation of this were tested in three implementation workshops **(-8-)**. Parallel to this, the transferability of the facilitation by someone other than the researcher was evaluated and a (basic) training program was developed. The training and a joint facilitation were tested in the last of the three workshops. The findings were captured in descriptive documentation for implementation and a training program **(-╫-)**. Jointly, the model and the method for implementation form the practice-based approach for regeneration. The details of this stage can be found in Section 4.2.

Literature reviews

Concurrent with the described empirical data gathering and analysis, focused literature reviews were undertaken**(-L-)**. These reviews aimed to identify theoretical frameworks

> *Typifying the chosen episodes from the cases as 'pivotal'*
> The term 'pivotal' aptly encapsulates episodes that signify a significant shift in direction, pace, or scope within a regenerative transformation process. Unlike 'integral' and 'fundamental,' which denote necessary and foundational aspects respectively, or 'critical,' which implies a heightened level of importance or urgency, 'pivotal' specifically conveys the transformative essence of these episodes. It denotes a central point around which other elements turn or adapt, reflecting the dynamic and transformative nature of these episodes. In the context of regenerative transformation, 'pivotal episodes' are those moments where strategic decisions, innovative practices, or critical insights lead to a marked change in the trajectory of the process. These are the junctures where the potential for regeneration is either significantly advanced or hindered, making the term 'pivotal' particularly resonant for describing such transformative phases in the journey towards sustainable and regenerative business practices.

suitable for analyzing emerging themes and topics from the data. This process was essential to provide a solid theoretical basis for the research and to ensure that the empirical findings were interpreted and understood within an established academic context. The literature review was a continuous process, accompanying the stages of

empirical data collection and data analysis, and helped to frame the research within the broader academic discourse on sustainability and regenerative practices.

In a post profit-maximization era, where the focus is increasingly shifting towards sustainability, social responsibility, and holistic value creation, theories originating from a profit-maximization paradigm may not fully capture the complexities or ethical considerations of modern business practices. The up-to-datedness of all the applied theories was assessed to ensure they remain relevant and applicable in this research.

Although the literature review was a constant and concurrent element in the research, the investigated theories each had a distinctive role in the research. The SDGs offer a universal set of goals that encompass environmental, social, and economic dimensions of sustainable development. They provide the overarching objectives that regenerative business practices aim to achieve, serving as the ethical and strategic compass guiding the overall direction of the transition. The SDGs highlight the critical areas where businesses need to focus their regenerative efforts, ensuring their practices contribute positively to global challenges. Regenerative leadership provides the qualities and behaviors required from leaders to drive this transition. It builds on other leadership theories, like upper echelon theory, by detailing the leadership approach needed: one that is systemic, holistic, and designed to foster organizational cultures that are adaptive, innovative, and oriented towards long-term sustainability. Regenerative leadership practices ensure that leaders not only espouse the values necessary for regeneration but also model these behaviors in their decision-making and strategic initiatives. Stewardship theory complements regenerative leadership by highlighting the importance of situational conditions that enable stewardship behavior within organizations. It focuses on creating organizational cultures and governance structures that empower individuals and align their interests with the long-term success of the organization and its broader ecological and social contexts. This theory advocates for a shift from controlling to empowering strategies, emphasizing trust, collective success, and shared values as drivers of organizational change. Specific aspects of upper echelon theory emphasize the impact of top executives' personal values, experiences, and cognitive styles on organizational strategy and outcomes. In the context of regenerative transformation, it suggests that the commitment, vision, and cognitive diversity of the top management team, especially the CEO, are crucial in shaping the organization's strategic shift towards regenerative practices. It underscores the need for leadership that is open to innovation, sustainability,

and systemic thinking. Regenerative business practices provide the actionable strategies and operational changes needed to implement the vision set forth by the SDGs, guided by upper echelon theory, regenerative leadership, and stewardship theory. These practices involve adopting circular economy principles, biomimicry, and systems thinking in product design, manufacturing, and business models. They operationalize the approach by detailing how businesses can transform their processes, products, and services to be not just sustainable but regenerative.

Ensuring research validity and minimizing biases

Methodological rigor to enhance validity of research findings was done through continuous triangulation, cross-verification, and the strategic use of expert and control groups to mitigate biases and observer-expectancy effects **(-R-)**. By integrating a variety of data sources—including exploratory interviews, focus groups, in-depth interviews, workshops, and secondary data analysis—the research employs a comprehensive approach to ensure the credibility and robustness of its conclusions. The inclusion of peer-review, expert and control groups throughout the research process served as a critical mechanism for controlling potential biases and validating findings, with expert groups contributing additional layers of validation and control groups facilitating comparisons to ascertain the reliability of observed effects.

This methodology section meticulously outlined the strategies employed to ensure the qualitative research's integrity and validity. Credibility was achieved through triangulation across multiple sources, prolonged engagement with the participants and the data, and expert and peer reviews, ensuring data accuracy and interpretation confidence. Transferability was addressed by providing detailed descriptions of research contexts and participants, enhancing findings' applicability across various settings. Dependability was ensured by thorough documentation of the research process, including research design and execution changes. Confirmability was achieved by identifying and minimizing biases, supported by data-driven findings. Lastly, reflexivity was embraced, with the researcher's background and assumptions transparently discussed, acknowledging their influence on the research outcomes.

1.4 Structure of the dissertation

Figure 3 demonstrates the structured approach in this dissertation to examining how businesses can adopt regenerative practices. In five chapters it highlights the journey of overcoming systemic barriers through the development of regenerative business capabilities, under the crucial role of CEO leadership. A journey that ends with a method for implementation and facilitation to apply the developed model in business practice.

The first chapter of the dissertation, titled 'How can companies become regenerative?', sets the stage for the research on how companies can evolve into regenerative entities, contributing positively to their social-ecological system and society in line with the Sustainable Development Goals (SDGs). It outlined the author's extensive experience in transforming business practices and noted the persisting prevalence of degenerative practices in businesses despite increased awareness and intentions towards sustainability. The central research question, the sub-questions, aims, and objectives were introduced to provide direction to the study. A literature review focusing on the SDGs presented an overview of the existing body of knowledge, introducing key concepts and terminologies pertinent to the research. The chapter outlined the general research approach, explaining the rationale behind the chosen methods, while reserving the detailed application of methodology for Chapters 2 and 3, which delve into the studies on barriers & capabilities and CEO leadership, respectively. The chapter concluded with a comprehensive structure of the dissertation, setting the stage for the following chapters.

Chapter 2, 'Navigating the path to regeneration: identifying barriers and fostering capabilities', delves into the barriers to regeneration and capabilities needed for overcoming them, combining literature and empirical evidence. It details how the specific research methods were employed in this segment of the study, reports the findings, and links the study's conclusions to the central research question. By describing the constructs of barriers and capabilities, it lays the groundwork for the model for regeneration.

Chapter 3, 'Leadership in action: mitigating barriers and cultivating regenerative capabilities', mirrors the structure of Chapter 2 and delves into the pivotal role of CEO leadership in identifying barriers fostering regenerative practices. It outlines the specific aspects of leadership necessary to successfully navigate and overcome systemic barriers, while also nurturing the capabilities essential for regenerative business practices. Combined with the findings of the previous chapter, it introduces the conceptual model for regeneration, and the practical model for implementation in business practice.

Chapter 4, 'Visualizing regeneration: three case examples illustrating the application of the developed consulting model', delves into an examination of key elements identified in previous data studies, with a specific focus on understanding the dynamics of organizational implementation. It presents eight integral episodes within three organizational case studies that provide practical insights into the initial phases of applying the model in business practice. Employing an autoethnographic approach, this chapter offers a vivid portrayal of how the developed model is applied within these distinct organizational settings and how the role of the facilitator interacts with the model

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┌─────────────────────────┐
│ 1 │ How can             │
│   │ companies           │
│   │ become              │
│   │ regenerative?       │
└─────────────────────────┘
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| 1 | Motive, aim and research question | 2 | The role of businesses in achieving the SDGs | 3 | Research method | 4 | Structure of the dissertation |

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┌─────────────────────────┐
│ 2 │ Navigating the path │
│   │ to regeneration:    │
│   │ identifying barriers│
│   │ and fostering       │
│   │ capabilities        │
└─────────────────────────┘
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| 1 | Systemic barriers to regeneration | 2 | Regenerative business capabilities | 3 | Initial model development | 4 | Summary of key findings |

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┌─────────────────────────┐
│ 3 │ CEO leadership in   │
│   │ action: surmounting │
│   │ barriers and        │
│   │ fostering           │
│   │ regenerative        │
│   │ capabilities        │
└─────────────────────────┘
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| 1 | CEO leadership to surmount barriers | 2 | CEO leadership to foster capabilities | 3 | Full model development | 4 | Summary of key findings |

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┌─────────────────────────┐
│ 4 │ Visualizing         │
│   │ regeneration: three │
│   │ case examples       │
│   │ illustrating the    │
│   │ application of the  │
│   │ developed consulting│
│   │ model               │
└─────────────────────────┘
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| 1 | Model application in business practice | 2 | Method for implementation and facilitation of the model | 3 | Summary of key findings |

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┌─────────────────────────┐
│ 5 │ Integrating insights│
│   │ for regeneration:   │
│   │ reflections and     │
│   │ future directions in│
│   │ regenerative        │
│   │ business            │
│   │ development         │
└─────────────────────────┘
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| 1 | Summary and conclusions | 2 | Contributions to theory | 3 | Contributions to practice | 4 | Model and method limitations | 5 | Suggestions for further research |

Figure 3 The structure of the dissertation

and the context of application. Significantly, it serves as a conduit between theoretical concepts discussed in earlier chapters and their tangible applications, illustrating real-world examples of supporting transformation towards regeneration. Ultimately, the model, combined with the method for implementation, the facilitation of the model and the training, are presented as the practiced-based approach for regeneration for businesses and their CEOs.

Chapter 5, 'Integrating insights for regeneration: reflections and future directions in regenerative business development', brings together the key findings of the research to address the central question. It evaluates the study's theoretical and practical contributions, positioning the results within the wider context of academic and business practices. This chapter offers managerial insights and actionable recommendations for businesses and CEOs. It also acknowledges the research's limitations and suggests areas for future exploration in regenerative business practices and CEO leadership, aiming to guide further development in this field.

> *Guidance for the reader*
> For the convenience of the reader, each chapter begins with an italicized paragraph in the introduction that outlines the main argumentation presented. Following each literature review section, which runs concurrently with the empirical research, an italicized paragraph is provided to highlight the key insights from the literature and identify the research gaps uncovered. The identified research gaps are consecutively numbered in square brackets, from [1.1] to [3.5] for later reference.

In this chapter, we've established a comprehensive foundation for understanding the pivotal role businesses play in achieving sustainability and regeneration, particularly in the context of the Sustainable Development Goals (SDGs). Through the lens of the author's extensive experience and a critical examination of existing literature, the chapter delineates the research's scope, aims, and methodology, highlighting the significant gap between current degenerative business practices and the potential for regenerative transformation. It underscores the necessity of identifying systemic barriers, fostering essential business capabilities, and recognizing the critical influence of CEO leadership in steering organizations towards regenerative practices. This exploratory journey sets the stage for a deeper dive into overcoming these barriers and operationalizing regenerative principles, aiming to construct a practice-based consulting approach – with a model and a method of implementation – that supports businesses in their transition towards sustainability and resilience, thereby contributing positively to their social-ecological systems and society at large.

2
Navigating the path to regeneration: identifying barriers and fostering capabilities

2 Navigating the path to regeneration: identifying barriers and fostering capabilities

This chapter advances the foundational discussions initiated in Chapter 1, where we explored the first two guiding sub-questions of this research: 1) 'What are the perceived barriers to regenerative business practices, and what causes them?' and 2) 'What business capabilities are necessary to overcome these barriers for regenerative business practices?' As such, it builds on the groundwork established in the previous chapter about the need for regenerative business practices and the SDGs. It delves into the practicalities of shifting business models towards regeneration, addressing the critical questions of identifying barriers to this transformation and the capabilities necessary for overcoming these barriers. Through an amalgamation of empirical evidence and an extensive literature review, this chapter identifies the systemic barriers—termed SPISO—that hinder the adoption of regenerative practices. It also defines the crucial organizational capabilities—referred to as CROMC—necessary for an effective transition towards regenerative business practices. Through a detailed description of the analysis and results, of which the methodology was outlined in Section 1.3, this chapter connects the theoretical underpinnings of regenerative business practices with actionable insights, aiming to guide businesses on their path towards sustainability and beyond by answering the beforementioned first two sub-questions of this research.

Structured into four segments, the chapter 1) begins with the identification and examination of systemic barriers to regeneration (SPISO). It then 2) proceeds to discuss the indispensable regenerative capabilities needed to overcome these obstacles. Subsequently, 3) it elaborates on the development of constructs for both elements, laying the groundwork for model development in Section 3.3. The chapter 4) concludes with a comprehensive discussion of the key findings and their implications, explaining the essential barriers and capabilities associated with transitioning towards regenerative business practices. This section synthesizes the insights gathered, highlighting the strategic pathways and necessary organizational shifts required to foster sustainability and regeneration within the business sector.

Main argumentation in this chapter: literature and empirical data confirm that systematic barriers block regenerative business practices. These barriers are grouped into five actionable categories (SPISO). Likewise, five categories of regenerative capabilities

(CROMC) are uncovered to surmount these barriers on the path to regeneration. The barriers and capabilities form the constructs for a model for regeneration.

2.1 Systemic barriers to regeneration

Regenerative business practices are a crucial factor in achieving the SDGs. These practices involve strategies and operations that extend beyond sustainability, focusing on actively restoring, renewing, and revitalizing the sources of energy and materials used by businesses. This approach results in social-ecological systems that are not only sustainable but also vibrant and resilient. To get a more practical sense of the difference between regenerative, sustainable and traditional (degenerative) business practices, a comparison on various aspects is shown in Appendix 3.

> Note: Social-ecological systems refer to integrated systems comprised of ecosystems and human societies with reciprocal feedbacks and interdependence. These systems emphasize the complex interactions between humans and nature, recognizing that human activities and environmental processes are deeply intertwined. While ecosystems concentrate on biological and physical interactions within a specific environment, social-ecological systems take a holistic approach, integrating human dynamics with ecological processes to address sustainability and resilience in the face of environmental changes (Hahn & Tampe, 2021).

Rooted in the principles of regenerative design, these practices aim not just to minimize harm but also to enhance the health and vitality of the communities and environments in which businesses operate (Fullerton, 2015). For these practices to be structurally viable, businesses must adopt regenerative business models, representing a paradigm shift in the creation and delivery of value. Such models are designed to generate positive impacts that benefit the environment, society, and the economy, thereby creating and delivering value at multiple stakeholder levels with a net positive impact (Lacy & Rutqvist, 2016). The increase in regenerative business practices is identified as a key driver in achieving the SDGs (Konietzko et al., 2023).

> Note: in the subsequent sections, comprehensive timelines -like in Figure 4 – were established detailing the principal theories and concepts explored within the literature, including Sustainable Development Goals (SDGs), regenerative business practices, regenerative leadership theory, stewardship theory, and upper echelon theory. These timelines highlight significant events and key articles relevant to each area. During the refinement and scoping of the literature review, selective decisions were made to focus the discussion, meaning not every event or article listed will be elaborated upon in the dissertation's main text. To maintain clarity and conciseness, portions of the literature review have been relocated to the appendices, and some content, while not included, is available upon request.

Regenerative business practices
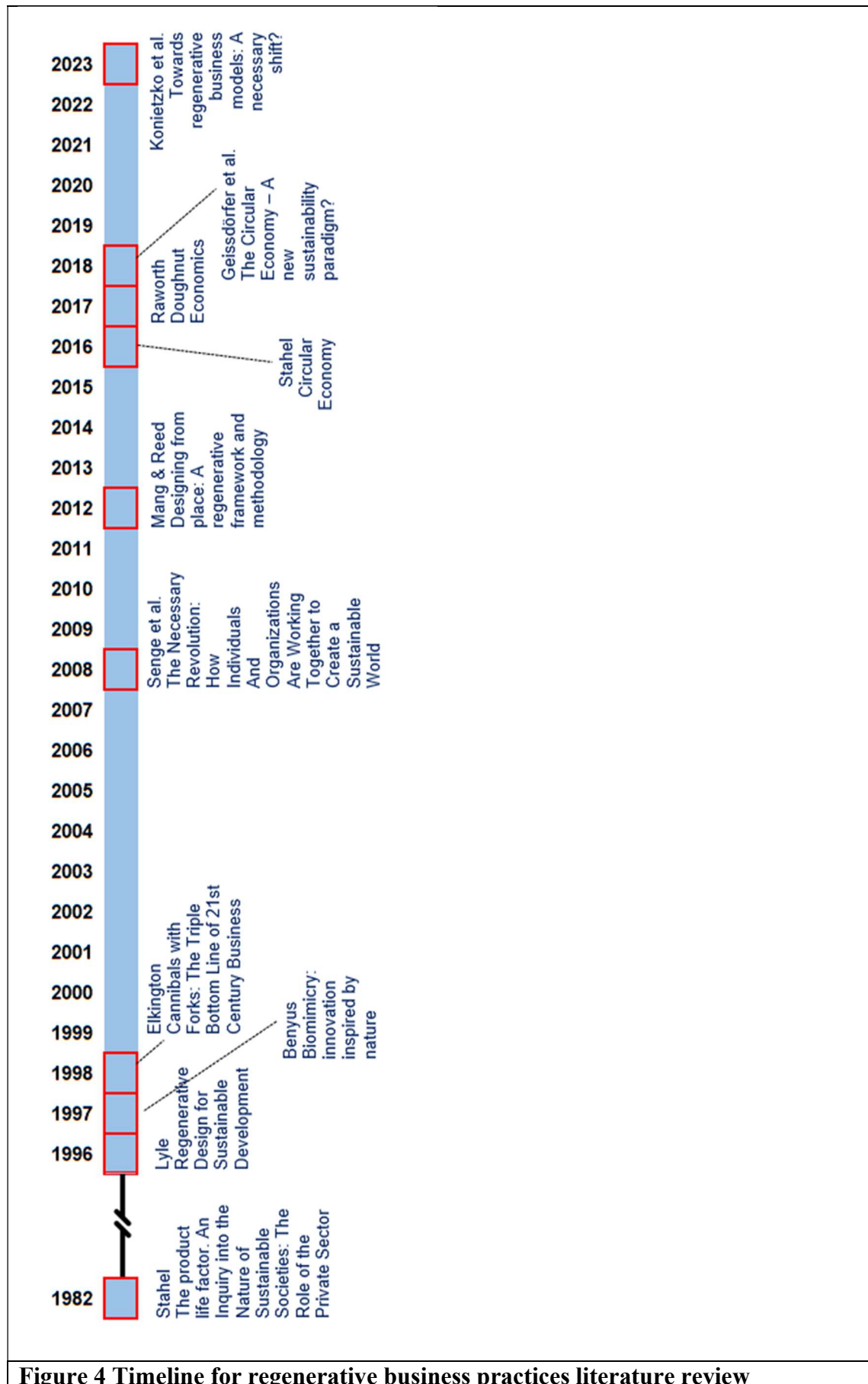
Figure 4 Timeline for regenerative business practices literature review

Regenerative business practices, emerging at the intersection of ecology, economy, and sustainability, have evolved through contributions from various fields, notably influenced by John T. Lyle's concept of regenerative design (1996) and furthered by pioneers like Walter Stahel in the circular economy (Stahel, 1982), Janine Benyus in biomimicry (Benyus, 1997), and Elkington's triple bottom line approach (Elkington, 1998). These practices, aiming to align business models with natural system principles and the circular economy, emphasize creating operational systems that restore and regenerate, guided by leaders who play a crucial role in their implementation. Despite its complexity, the shift towards regenerative models offers a path to sustainability and resilience, addressing global socio-ecological challenges and aligning with broader ecosystemic principles. Recent studies underscore the significance of regenerative business practices for advancing a sustainable economy (Lacy & Rutqvist, 2016), rooted in the principles of regenerative design and circular economy to minimize waste and enhance resource efficiency (Mang & Reed, 2012; Pathak, 2019). These practices advocate for a shift from traditional, unsustainable models to regenerative models that contribute positively to the environment and society, aligning with Sustainable Development Goals (SDGs). Central to this transition is the role of CEOs and leadership in steering organizational change towards sustainability and resilience, emphasizing the need for strategic, structural, and cultural shifts within organizations (Maak et al., 2016). Regenerative practices aim to create closed-loop systems that restore and regenerate resources, moving from a linear to a circular model (Geissdoerfer et al., 2018; Raworth, 2017). Despite the clear benefits, including improved sustainability and brand reputation, challenges remain in effectively implementing these practices, highlighting the importance of leadership in navigating the shift towards a more sustainable and resilient business model (Gibson et al., 2013).

The first and foremost construct in regenerative business practices is regenerative design, based on the assumption that businesses should operate like healthy ecosystems, regenerating and sustaining themselves over time (Mang & Reed, 2012; Pathak, 2019).

The construct of the circular economy is another pillar in the understanding of regenerative business practices. It assumes that resources, once used, should not be regarded as waste but rather reintegrated into the economic cycle (Geissdoerfer et al., 2018; Stahel, 2016).

Regenerative business practices also reconceptualizes the notion of multiple-value creation. The assumption is that businesses should not only focus on financial value creation but also take into account the social and environmental values they can generate.

This can be achieved through the delivery of products and services that provide wider benefits to society and the environment, beyond just meeting customer needs (Lacy & Rutqvist, 2016; Maak et al., 2016).

Regenerative business practices, adaptable across various industries, are shaped by factors such as geographical location, industry sector, and business scale, aiming to advance sustainability in alignment with the SDGs. In developing countries, these practices often leapfrog traditional development stages, directly adopting sustainable technologies, while in developed economies, the focus is on transitioning to more sustainable practices, like energy-efficient building retrofits (Ghisellini et al., 2016; Stahel, 2016). Governments, by incorporating regenerative practices, can shift towards long-term ecosystem health, promoting policies that foster circular economies. The manufacturing sector adopts circular systems for resource efficiency, exemplified by companies like Interface Inc., which significantly reduced waste (Anderson & White, 2009; Geissdoerfer et al., 2018) . Similarly, the service sector, through sharing economy models, optimizes resource use, despite potential negative externalities (Belk, 2014; Lacy & Rutqvist, 2016). Regenerative practices vary with business size, with large corporations integrating comprehensive supply chain changes, and SMEs focusing on local circular economies (Bocken et al., 2016). In education, regenerative practices enhance learning environments, promoting sustainability (Seppänen et al., 2023). The science and technology fields innovate with regenerative solutions, including biomimicry and circular technologies (Benyus, 1997; Stahel, 2016). Health and care sectors shift towards promoting wellness with sustainable practices. Civil society engagement and urbanization benefit from regenerative practices, fostering resilient communities and sustainable cities (Francis et al., 2003; Webster, 2017). These diverse applications highlight regenerative business practices' versatility in driving a sustainable, inclusive future across all sectors.

Regenerative business practices require an interdisciplinary approach, blending system dynamics, ecological economics, organizational change, leadership, and industrial ecology. Systems thinking is essential, viewing businesses as part of a larger interconnected system, focusing on holistic impacts and leveraging strategic points for regenerative transformation (Meadows, 2008; Senge et al., 2008). Ecological economics stresses managing businesses in sync with environmental sustainability, advocating for resource efficiency and fair distribution (Costanza et al., 1996). Leadership and organizational change underscore the importance of strategic leadership and a culture

prioritizing sustainability and regeneration (Kotter, 1996; Maak et al., 2016). Industrial ecology offers practical tools, such as life cycle assessment (Kloepffer, 2008) and industrial symbiosis (Chertow, 2000), promoting circular economy principles by turning waste into resources. This multifaceted perspective is crucial for businesses aiming to achieve economic viability alongside ecological sustainability and social equity.

The regenerative business practices field is rapidly evolving, driven by global environmental, social, and economic challenges. Technological advancements, such as artificial intelligence and big data analytics, are enhancing resource efficiency and advancing circular economies, presenting new research avenues (Korhonen et al., 2018). A shift towards social innovation and sustainable entrepreneurship reflects a growing commitment to solving societal and environmental issues (Mair et al., 2012). Supportive regulatory and policy changes, exemplified by the EU's circular economy action plan and the Green Deal, are promoting sustainable and resilient business models (European Commission, 2020). The COVID-19 pandemic has further highlighted the need for resilient business strategies that incorporate regenerative practices for post-pandemic recovery (Ibn-Mohammed et al., 2021). Legislation like the 'right to repair' and anti-planned obsolescence laws, especially in France, underscore a legislative push towards sustainability, emphasizing product longevity, waste reduction, and sustainable consumption (Moore, 2020; *Right to Repair*, n.d.; Thursday et al., n.d.).

Regenerative business practices, aimed at addressing key environmental, social, and economic challenges, face critiques and limitations. Transitioning from linear to regenerative models introduces complexities such as operational changes, costs, and stakeholder resistance (Geissdoerfer et al., 2018). Critics note a potential overemphasis on economic benefits at the expense of social and environmental welfare, highlighting the risk of prioritizing resource efficiency over comprehensive ecosystem health (Murray et al., 2017). The reliance on advanced technologies like IoT and AI may exclude businesses with limited technological access, especially in developing regions (Korhonen et al., 2018). Additionally, supportive policy frameworks are essential for the widespread adoption of these practices, with their absence in some areas hindering progress (Urbinati et al., 2017). Unintended consequences, such as the 'rebound effect' where increased efficiency boosts overall consumption, and potential job losses in traditional sectors, pose further challenges to the implementation of regenerative business models (Sorrell, 2007).

Most crucial insights from literature: regenerative business practices are a transformative approach towards achieving the SDGs. Leadership, particularly CEOs, have a pivotal role, in navigating the shift towards them. Systems thinking is essential, viewing businesses as part of an interconnected system and leveraging strategic points for transformation towards regeneration. An interdisciplinary approach is needed. Despite clear benefits, challenges remain in implementing regenerative practices effectively.

Research gap: the gap in literature primarily revolves around [2.1] the operationalization and scalability of regenerative practices across different contexts and sectors. [2.2] There is a lack of empirical evidence on leadership aspects for regeneration, and on [2.3] comparative analysis on how to tailor and implement regenerative practices in different contexts. [2.4]. There is a lack of comprehensive studies that integrate various interdisciplinary approaches in a cohesive manner to guide the practical implementation of regenerative business practices. [2.5] There is a need for more focused research on overcoming the obstacles in the transition, and strategies to mitigate stakeholder resistance.

Data analysis aimed at identifying barriers

As presented in Section 1.3, to uncover the barriers and complexities of transitioning to regenerative business practices, 40 semi-structured individual interviews were conducted, whilst the findings were triangulated with 19 purpose game sessions (as visualized in the discussed Section 1.3 Figure 2, **(-1-)/(-2-))**. From the onset, interviewees emphasized the difficulties in achieving significant progress towards sustainability. In the concurrent literature review, regenerative business practices theory provided the perspective of what the barriers in the empirical data were actually blocking, but it gave little guidance as to how the barriers could be identified and potentially categorized. Institutional theory emerged as a fitting framework to interpret the empirical data's perceived impediments to regenerative practices, aligning with both interview insights and purpose game session outcomes.

Institutional theory

Institutional theory offers a framework for understanding how social structures, norms, and rules shape and influence organizational behavior. This theory, which originated in sociology in the 1980s (DiMaggio & Powell, 1983; Meyer & Rowan, 1977), focuses on the alignment of organizational structures with societal expectations.

At the heart of institutional theory are three pillars: regulative, normative, and cultural-cognitive. These pillars represent different mechanisms through which institutions exert influence on organizations (Scott, 2014). The concept of institutional isomorphism, which describes a process that leads to homogeneity in organizational practices, is another critical aspect of this theory (DiMaggio & Powell, 1983).

Institutional theory is particularly relevant in exploring why organizations adopt specific practices, how cultural norms influence organizational strategies, and the impact of regulatory environments on business behavior (David et al., 2019). It offers valuable insights into the adoption of sustainable and regenerative practices by businesses, taking into account external pressures and internal cultural dynamics.

While critiques of the theory have centered on its perceived determinism and a lack of emphasis on individual agency (Greenwood et al., 2008), recent scholarly developments have incorporated aspects of agency. This newer perspective examines how actors within organizations can actively influence institutional theory (David et al., 2019).

Therefore, institutional theory emerged as a powerful analytical tool for examining organizational change and the perceived barriers therein. It is particularly useful for understanding the adoption of regenerative business practices within a broader societal and environmental context.

As outlined in Section 1.3, the first five exploratory interviews (Figure 2, **(-1-)**) confirmed the importance of barriers and capabilities as constructs in understanding an organization's transition to regeneration. As explained there, the 156 quotes on perceived barriers were categorized in 42 challenge descriptions. Using the institutional theory perspective, the 42 challenge descriptions were grouped into the theory's three barrier pillars. The process of categorizing each challenge involved analyzing the primary indicated source of the challenge by the interviewee, so whether it stemmed from external regulations (issues related to laws, regulations, and formal rules), societal norms (related to social obligations, norms, and expectations), or internal organizational culture (shared beliefs, perceptions, and ingrained practices), and then categorizing it under the corresponding pillar.

Illustrative Coding Examples
'Adapting to rapidly changing environmental regulations' falls under regulative barriers because it directly relates to legal and regulatory frameworks that organizations must navigate. *'Competitors making unverified sustainability claims leading to unfair* competition' is categorized under normative barriers because it deals with societal norms and expectations around sustainability, as well as industry standards for sustainable practices. *'Internal resistance to sustainable changes'* or *'misalignment between corporate strategy and sustainable goals'* are categorized under cultural-cognitive barriers because they involve internal beliefs, perceptions, and the existing culture of an organization that may hinder the adoption of sustainability and regeneration practices.

This process ultimately led to the 42 challenge descriptions categorized under the institutional pillars as depicted in Appendix 4, Table 21.

As outlined in Section 1.3, the categorized challenges were tested in three workshops (Figure 2, (-3-)) to gauge their comprehension, insights, and potential solution ideation. While the institutional theory offered valuable insights into the systemic barriers to organizational change, during the testing it lacked some form of actionability for the participants. The terminology and perspectives were found to be too contemplative, externalizing issues beyond an organization's direct influence. A blanket of general inertia and defense of the status quo was found in all three workshops.

Illustrative examples from the workshops
Knowing that barriers arise from external formal (regulative), external informal (normative) or internal (cultural-cognitive) was helpful to understand the origins of the barrier, but failed to trigger ideation for solutions to the barriers. Responses like *'legislation must change'* (on regulative barriers), or *'these perceptions need to change'* (on normative barriers)*, or 'as an organization, we need to change our view on such matters'* (cultural-cognitive) illustrated the inertia stemming from these perspectives.

The combination of institutional theory as a helpful theoretical perspective on challenge descriptions to regeneration and the perceived inertia in the workshops, spurred an additional literature review. In the realm of organizational behavior and decision-making, there was found a tendency known as external attribution bias.

External attribution bias
This bias occurs when individuals or organizations predominantly attribute the causes of their actions, decisions, or situations to external factors, rather than acknowledging the influence of their own choices and internal dynamics. Such a bias can lead to an overemphasis on the impact of external circumstances or environmental factors, while the role of the organization's own decisions and internal processes is underestimated (Weiner, 1985). Recent work of Cooper and Gibson on this 'inner' and 'outer' sustainability indicates that mitigating this external attribution bias by a more internal attribution approach to individual and organizational traits and capabilities can positively influence sustainability transformations at various levels like local and global, and including social, economic and environmental dimensions simultaneously. They refer to them as multi-scalar (K. J. Cooper & Gibson, 2022). The above corresponds to earlier discussed critiques of institutional theory on its perceived determinism and a lack of emphasis on individual agency (Greenwood et al., 2008). Recent work has incorporated agency into the theory and this newer perspective examines how actors within organizations can actively influence institutional theory (David et al., 2019). However, exploring this latter avenue was deemed out-of-scope for this research.

In the context of this research, particularly during the testing workshops, this bias manifested in a way that was counterproductive to the study's objectives. The focus on external factors led to a lack of ideation towards actionable solutions for the perceived barriers to regenerative practices. Participants in the workshops tended to externalize the issues, which did not facilitate the generation of practical, internally-driven strategies to overcome the barriers.

> Note: in this context, the term 'external' applies to factors outside of the participants' perceived circle of influence, so including internal company factors on which the participants felt they had no 'acting' power or agency. For clarity in definitions, we will use the terms 'perceived barriers' and 'actionable barriers' to distinguish between those beyond one's control and those barriers one can influence.

The primary takeaway from this observation was the need to redirect the focus towards empowering people in organizations to recognize and act upon their own capacity for change, thereby addressing the barriers more effectively. The perspective taken to achieve this is via the concept of 'framing'(Paton & Dorst, 2011)

Recoding of the challenge descriptions towards actionability

Given the tendency to attribute barriers predominantly to external institutional pressures – outside of the participants' circle of influence –, the focus of the data analysis was shifted to actionability by the organization and the practitioner. Starting again from the 42 challenge descriptions, they were regrouped using abduction and retroduction into five themes of perceived barriers that allowed for proactive, actionable addressing. This involved additional literature review on the beforementioned external bias mitigation to understand more about the potential reasons behind the perceived barriers. In summary of the reviewed literature: while external factors undoubtedly influence the uncovered barriers to regeneration, a significant portion of what might initially appear as external or perceived barriers should, in fact, be actionable when adopting an internal attribution perspective. This shift enables organizations and individuals to recognize their own role in creating, perpetuating, or overcoming these barriers, highlighting the importance of internal strategies, cultural change, and stakeholder engagement in navigating the complexities of sustainability and regeneration (Cooper & Gibson, 2022; Paton & Dorst, 2011; Weiner, 1985). This intermediate coding is presented in Appendix 4, Table 20.

> *Characteristics of an actionable categorization of barriers*
> The found characteristics for spurring actionable can be summarized as a type of framing towards: specific and contextually relevant to the business setting, operationally focused in operational terms that practitioners can directly relate to, emphasizing direct influence or control to create a sense of agency and some potential for action, action-oriented language focused on practical implications, and facilitation of solution ideation by breaking down barriers into delineated components (Cooper & Gibson, 2022; Paton & Dorst, 2011; Weiner, 1985).

This iterative analysis process culminated in the identification of five distinct categories that characterize the barriers to regeneration. These categories were not found to be isolated; rather, they are deeply interconnected and collectively impact the system as a whole. Recognizing the need for a holistic approach to address these barriers, the study introduces the term 'systemic regeneration barriers'. This concept underscores the

necessity of considering changes across the entire social-ecological system of an organization, encompassing internal culture, external partnerships, stakeholder relations, and operational capabilities.

Illustrative examples of the coding process
Barriers like market dynamics, public perception, and societal norms, which are inherently external, – e.g., a quote like *'Breaking away from industry standards to innovate is not encouraged'* (#57, Male CFO, 45 years old, global maritime construction company) – necessitate an organizational 'adaptation to' these factors, as opposed to directly 'changing' them. These barriers fall under the category of 'sociocultural & imagination limitations'. On the other hand, issues related to collaboration difficulties or partnership struggles – e.g., a quote like *'We lack a diverse range of viewpoints in our network'* (#3, Male CEO, 67 years old, at a global marketing agency) – are grouped under 'partner-network gap'. Each of these categories reflects a specific aspect of systemic regeneration barriers, highlighting the multifaceted nature of the barriers organizations face in adopting regenerative practices.

Ultimately, the 42 challenge descriptions were categorized into five systemic barrier categories as presented in Section 1.3, Table 1: sociocultural & imagination limitations (6 of the 42 challenge descriptions), partner-network gap (6), implementation & scaling impediments (7), stakeholder complexity (10), and organizational resistance (13).

Note: as is evident from the table, the three institutional theory pillars (as presented under 2nd level coding institutional theory) are distributed across all five systemic barriers, apparently without any underlying logic to it. Although this is not further investigated, it would seem that this is due to the categorization perspective from a more granular, actionable and practical approach (the systemic barriers from the re-coding) versus a more theoretical approach (the pillars of institutional theory from the initial coding).

These systemic regenerative barriers were categorizes under the acronym '**SPISO**,' and defined as follows:

S: Sociocultural & imagination limitations (b1): organizations often conform to traditional planning methods, constrained by regulatory compliance, industry norms, and ingrained cultural beliefs. This adherence results in a reliance on predictive strategies and scenario planning, which fails to account for the volatile, uncertain, complex, and ambiguous nature of business environments. Such a narrow focus impedes the imaginative thinking essential for regeneration.

P: Partner-network gap (b2): a notable deficiency in partners for co-creating regenerative initiatives is observed, frequently attributed to restrictive legislation and a lack of industry standards or incentives promoting collaboration.

I: **Implementation & scaling impediments (b3)**: sustainability initiatives frequently encounter limited benefits and scalability challenges. This is often due to their compliance-driven nature, rather than being based on effective and adaptable strategies.

S: **Stakeholder complexity (b4)**: balancing the divergent requirements of various stakeholders, including the biosphere and society, presents a significant challenge. This complexity is compounded by varying regulations, societal norms, and internal organizational cultures.

O: **Organizational resistance (b5)**: internal structures and decision-making processes in organizations typically favor short-term gains. This bias impedes the adoption of regenerative practices, entrenched in professional norms and resistance to change.

The SPISO barriers were deemed to be framed more actionably than the institutional theory's three pillars because they focus on specific, operational, and strategic barriers within the control of the organization, and link the external out-of-influence barriers to a component of 'how to work with and prepare for them'. They imply a problem-solution orientation that emphasizes the agency of organizations and individuals in overcoming these barriers, suggesting a proactive rather than reactive approach to the challenges of sustainability and regeneration.

Validating the SPISO barrier categories with the reviewed theory

To validate if the determined systemic barriers to regenerative business transformation actually hinder the role of businesses in achieving the SDGs and thus transitioning towards a wellbeing economy, they were compared to the presented literature in Chapter 1 and in this section.

The adherence to traditional planning methods, as discussed in **Sociocultural & imagination limitations (b1)**, resonates with the literature on regenerative business practices that emphasizes the necessity for businesses to operate like healthy ecosystems (Mang & Reed, 2012; Pathak, 2019). This barrier's focus on overcoming predictive strategies through imaginative thinking aligns with the call for innovative economic models, like Raworth's doughnut economics (Raworth, 2017), which advocates for a systemic shift beyond conventional economic indicators to address ecological and social well-being comprehensively.

The **Partner-network gap (b2)** in finding co-creative partners for regenerative initiatives mirrors the interdisciplinary and collaborative approaches underscored in the SDG-related literature (Costanza et al., 2018; Bowen et al., 2017). This barrier highlights the necessity for CEOs to foster partnerships across stakeholders, reflecting the collaborative ethos essential for achieving the SDGs and fostering a regenerative economy.

The difficulty of **Implementation & scaling impediments (b3)** in sustainability initiatives discussed in this barrier is echoed in the literature that critiques the linear economic model and calls for a transition to circular and regenerative practices (Geissdoerfer et al., 2018; Lacy & Rutqvist, 2016). The barrier's emphasis on adaptable strategies over compliance-driven initiatives aligns with the need for businesses to innovate and implement practices that are not only sustainable but also capable of regeneration and positive impact.

Balancing **Stakeholder complexity (b4)** aligns with the complex, networked model of stakeholder engagement discussed in sustainability and regenerative business literature (Rowley, 1997; R. Freeman & McVea, 2001). This barrier underscores the interconnectedness of social, economic, and environmental systems, emphasizing the holistic value creation and system rejuvenation that regenerative leadership aims to achieve.

The **Organizational resistance (b5)** to adopting regenerative practices mirrors discussions on the necessity for strategic, structural, and cultural shifts within organizations to achieve sustainability and resilience (Maak et al., 2016; Gibson et al., 2013). This barrier highlights the pivotal role of leadership in steering organizational change towards sustainability, aligning with the literature's emphasis on the critical role of CEOs and leadership in driving the transition to regenerative and sustainable business models.

Testing the SPISO barrier categories for relevance in business practice

To assess the practical relevance and actionability of the SPISO barriers to regeneration, two validation workshops were conducted, following a methodology akin to earlier sessions centered on institutional theory's barrier types (Figure 2, (-3-)). The objective was to examine the pertinence of the SPISO categories for fostering 'actionable ideation.'

This ideation was notably stimulated through discussions on systemic barriers from a capability development perspective, allowing the participants to 'believe' corrective actions were possible within their sphere of influence.

Sociocultural & imagination limitations (b1) acknowledges external influences, but connects them with the internal barriers to imaginative thinking and innovation. This dual focus helps balance the analysis by illustrating how internal limitations, such as adherence to traditional planning methods, contribute to organizational inertia towards possibly wrongfully viewed as outside of once influence. It addresses the risk of attributing inaction solely to external non-influenceable factors and helps to categorize barriers more realistically. Truly external barriers can be addressed by working with and preparing for them.

Identifying the **Partner-network gap (b2)** in co-creating networks for regenerative initiatives implicates an organizations' internal strategic choices and their ability or willingness to engage in collaborative efforts. This barrier might initially seem external, but on closer inspection, it reveals actionable elements. Organizations can work on building strong relationships and advocating for policy changes or industry standards that support collaboration, thus addressing both the perceived and actionable aspects of this barrier. This category underscores the importance of internal strategies in overcoming or navigating external barriers.

The **Implementation & scaling impediments (b3)** brings to light the internal challenges organizations face in implementing and scaling sustainability initiatives, such as the predominance of (external) compliance-driven approaches over effective and adaptable strategies. By doing so, it directly addresses the tendency to externalize failures or challenges in scaling, pointing instead to internal strategic and operational deficiencies.

Acknowledging the **Stakeholder complexity (b4)** of balancing diverse stakeholder requirements, including regulatory, societal, and internal organizational cultures, this category illustrates the multifaceted nature of the barrier. It suggests that external attributions like varying regulations and societal norms are intertwined with internal organizational dynamics, necessitating a more integrated and strategic internal response.

Focusing on internal **Organizational resistance (b5)** to change, rooted in professional norms and preferences for short-term gains, highlights the significant internal barriers to adopting regenerative practices. This recognition serves as a crucial counterbalance to the external attribution bias by spotlighting the internal sources of inertia and resistance within organizations. This barrier is largely actionable as it is influenced by organizational culture, norms, and decision-making processes. By addressing these internal dynamics and fostering a culture that prioritizes long-term sustainability and regeneration, organizations can overcome resistance to change.

This analysis, based on the alignment with existing theory and the two validating workshops, affirmed the SPISO barriers' validity and utility in delineating perceived regeneration barriers. Moreover, these workshops provided a solid foundation for analyzing the capabilities required to overcome these systemic barriers, directly contributing to the exploration of the subsequent sub-question.

2.2 Regenerative business capabilities

As outlined in Section 1.3, this research segment aimed to identify organizational capabilities necessary for overcoming the SPISO systemic barriers to regeneration as found in the previous section. The study combined empirical findings with theoretical frameworks, specifically utilizing the systems thinking approach by Hahn and Tampe (2021). Their framework as depicted in Table 2, which categorizes regeneration strategies into three levels—restore, preserve, and enhance—served as a guide and ultimate verification of validation. Focusing on 'enhance', Hahn and Tampe's most advanced level, the research identified key organizational capabilities vital for achieving the highest degree of regeneration. This approach linked empirical gap indicators to essential business capabilities for effective regeneration.

Principles	Systems based level of aspiration			Adaptive management approach		
Criteria / Strategies	Impact on ecosystem	Relation with ecosystem	Underlying business rationale	Sense of place	Temporal orientation	Business strategy and strategizing practices
Restore	Firms deploy damaging activities, such as open pit mining, but acknowledge the need to repair the damage.	Firms see ecosystems, such as mineral deposits, as commercially valuable objects to be owned and exploited.	Firms optimize the rent from exploiting ecosystems under the constraint of restoring ecosystem functioning.	Firms engage with place to the degree necessary to restore ecosystem functioning, for instance, through renaturation plans.	Firms interact with the ecosystem for the limited time of the transaction, often codified through temporary exploitation rights.	Firms adhere to profit maximizing strategies but adjust practices so that SES can resume functioning.
Preserve	Firms choose practices that safeguard the functioning of the SES, such as restricting access to ecotourism sites.	Firms understand that they depend on functioning ecosystems, such as ecotourism sites.	Firms are willing to limit business growth to remain within the carrying capacity of the ecosystem they depend on.	Firms seek to understand the conditions and dynamics of local SES they rely on.	Firms are interested in the long-term functioning of ecosystems that they depend on.	Firms react to changing conditions of SES to preserve the status quo, such as fauna and flora of an ecotourism destination.
Enhance	Firms develop business practices that enhance the health of SES, for instance, through farming practices that increase soil quality.	Firms see themselves as one part among others in a SES.	Firms couple their business activities to the development and health of SES.	Firms see themselves as integral part of a specific place and its SES dynamics.	Firms live with the cyclical and seasonal rhythm of the SES they are part of.	Firms iteratively adapt to the evolving conditions through robust action in collaboration with stakeholders.

Degree of regeneration

SES: social-ecological system.

(Hahn & Tampe, 2021)

Table 2 Practical applications of regenerative business strategies

Utilizing the same dataset that helped identify systemic barriers, this research phase involved cataloging 72 quotes highlighted the inconsistencies between an organization's current capabilities and its desired state (Figure 2, (-1-) to (-3-)) directly relating to the barriers previously recognized. This process was instrumental in pinpointing specific areas where companies are falling short in their journey towards regenerative practices, thus providing a clearer understanding of the necessary business capabilities needed. In Figure 5, an example flow of this thematic gap analysis is shown.

In this illustrative example of the analysis, an interview with the Belgian buying director of a French large SME in home decoration was scrutinized, yielding four quotes that highlighted a discrepancy between the organization's current capabilities and those required for effective sustainable practices. The quotes, identified by terms as marked in yellow, underwent a second round of thematic analysis to link them to systemic regeneration barriers and identify key keywords reflecting their essence. This process utilized the 'enhance' level from Hahn & Tampe's framework, facilitating the pinpointing of these crucial keywords. In this instance, the quote *'There's a lack of creative solutions due to our rigid corporate culture'* highlights a gap in capabilities, specifically identified by the term 'lack' within its context. This quote is connected to the barrier of 'sociocultural and imagination limitations (b1)', as it attributes a lack of imagination to the corporate culture. Additionally, the mention of a 'lack of creative solutions' pointed to a deficiency in 'innovation', aligning with Hahn & Tampe's principle on enhancing social-ecological systems through innovative business practices. Furthermore, the connection made by 'due to' suggested a gap in 'learning orientation', reflecting a need for greater adaptability and collaboration with stakeholders as per Hahn & Tampe's principles. As Figure 5 depicts, an identical thematic analysis was applied to the two remaining quotes from the interview.
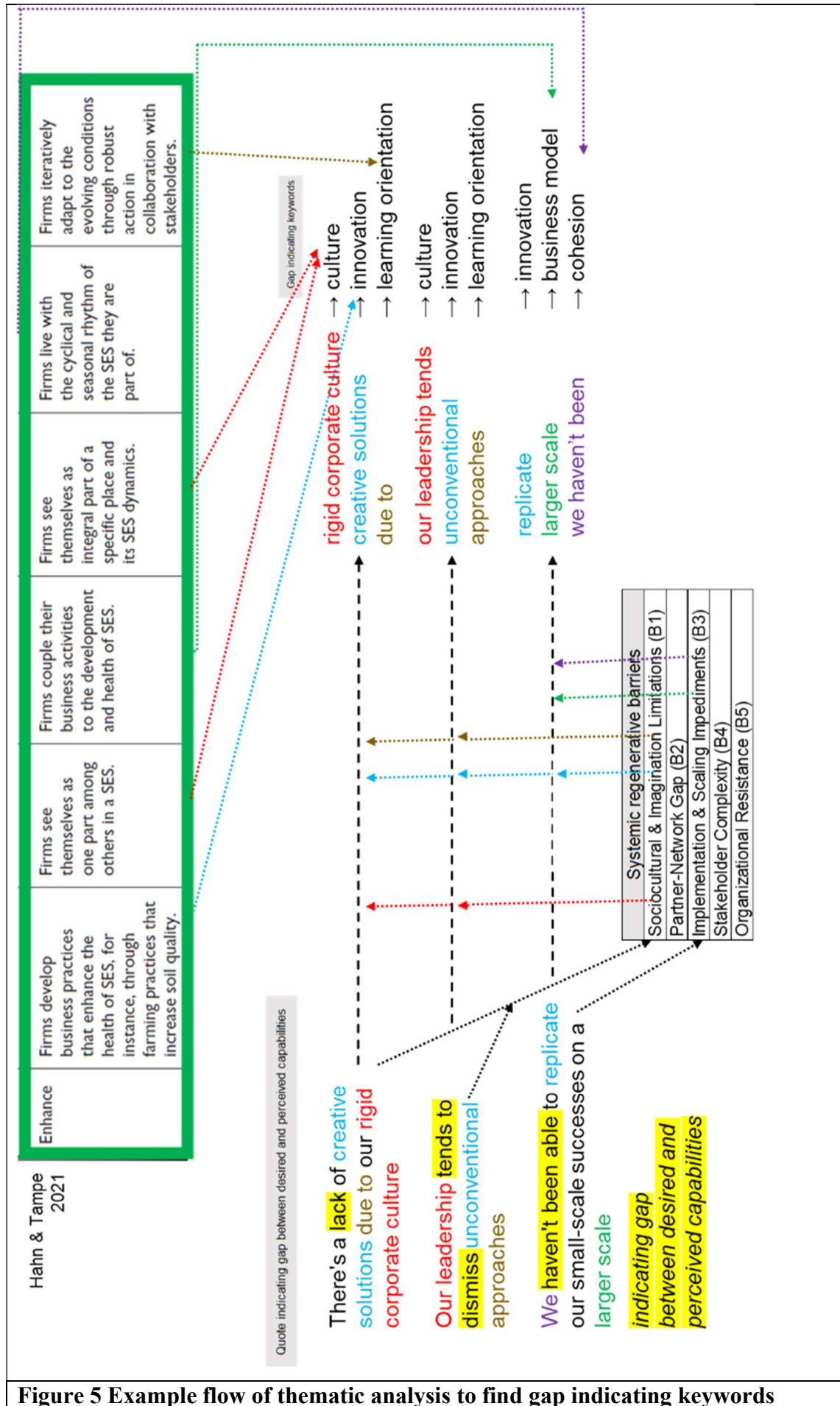
Figure 5 Example flow of thematic analysis to find gap indicating keywords

Appendix 5 showcases the outcome of this intermediate step in coding, detailing 18 key terms identified as indicators of capability gaps in organizations pursuing sustainability and regeneration. These terms include adaptability, business model, cohesion, communication, culture, engagement, expectation management, innovation, integration, learning orientation, misalignment, options, partners, social-ecological system, stakeholders, strategic fit, value system, and visionary thinking. Notably, innovation, culture, and stakeholders were the most frequently highlighted as critical gap areas. This comprehensive set of indicators offers a broad perspective on the potential barriers businesses face in their regenerative journey.

Starting with the most prevalent gap indicating keyword '**innovation**', narratives were constructed to find interconnectedness to other indicators. Quotes like *'Breaking away from industry standards to innovate is not encouraged'* (#57, Male CFO, 45 years old, global maritime construction company) and *'We haven't been able to replicate our small-scale successes on a larger scale'* (#2, Male Buying Director, 62 years old, with 23 years of tenure, at a French home decoration retailer) helped to contextualize the specific quality of innovation necessary as a business capability to mitigate the systemic barriers. Other gap indicating keywords like adaptability, learning orientation, and visionary thinking were recognized as essential for fostering innovation towards regeneration. One of the constructs in regenerative business practices is regenerative design (Mang & Reed, 2012; Pathak, 2019). Businesses should operate like healthy ecosystems, regenerating and sustaining themselves over time, for which innovation is quintessential. Innovative, regenerative, circular business operations are diagonally positioned as the opposite of degenerative, extractive ones (Seddon et al., 2020; Wang et al., 2021). While design is an essential element of the innovation process, focusing on the creation and planning phases, innovation encompasses the broader lifecycle of introducing, implementing, and adopting new solutions. Thus, '**regenerative innovation**' was formulated as a pivotal business capability, integrating innovation with adaptability, learning orientation, and visionary thinking. In this capacity regenerative innovation fully aligns with the 'enhance' strategy of Hahn and Tampe's framework, most specifically for the criterion 'business strategy and strategizing practices', expressing the need for business to iteratively adapt to evolving conditions.

Figure 6 illustrates this process, where **1** to **5** indicate the sequence of the narrative building from the gap indicating keyword with most occurrences (innovation -**1**) to the

interconnected gap indicating keywords, building up to the formulation of each regenerative business capability, in this case 'regenerative innovation'.

gap indicating keyword	#	regenerative innovation	continuous network development	multiple business models	open stakeholder management	closed loop value systems	occurrence
g4 innovation	32	x	x		x		15%
g1 culture	23	x	x		x		11%
g3 stakeholders	21		x		x	x	10%
g2 misalignment	17	x	x	x	x	x	8%
g7 value system	16		x	x	x	x	7%
g5 partners	14	x	x		x	x	7%
g10 adaptability	11	x	x	x	x		5%
g12 learning orientation	11	x	x	x	x	x	5%
g6 business model	11	x	x	x	x	x	5%
g16 engagement	10	x	x		x		5%
g13 strategic fit	9		x	x	x	x	4%
g17 communication	9		x		x		4%
g14 cohesion	7	x		x		x	3%
g18 expectation management	7		x	x	x	x	3%
g15 integration	6	x	x	x	x	x	3%
g9 social-ecological system	5		x		x	x	2%
g11 visionary thinking	4	x		x	x	x	2%
g8 options	2	x	x	x	x		1%
18	215	12	16	11	17	12	100%

Figure 6 Formulation of five regenerative business capabilities

Subsequently to 'innovation', the focus shifted to the second most frequent gap indicating keyword '**culture**' (indicated by 2 in Figure 6) – e.g., *'We rarely question our long-standing operational norms.'* (#71, Male VP Operations, 50 years old, at a global industrial equipment manufacturer). The narrative began by recognizing that a more

'open and development-oriented culture' was needed, which should include all stakeholders, one of the determinants of regeneration, thus incorporating the third most found gap indicator 'stakeholders', e.g., *'We face resistance from stakeholders who prioritize short-term gains'* (#62). Caniglia et al. stated that the 'enhancing of systems' is creating new value, developing the capabilities of all stakeholders, and contributing to the health and evolution of whole systems (Caniglia et al., 2019). Rowley advocated a complex web of interdependencies between stakeholders including all actors to become truly regenerative (Rowley, 1997). Based on this, the found capability was coined '**open stakeholder management**' as it requires an open culture that values all contributions from stakeholders and integrates them based on strong and open communication into the business strategy. As such the gap indicators 'value system' (*'Our current resource allocation does not support our sustainability ambitions'* [#61, Male CEO, 55 years old, US based private education institute]), 'expectation management' (*'Building consensus among diverse stakeholder groups is a major hurdle'* [#58, Male Managing Director, 48 years old, at a US real estate company]), 'integration' (*'Our current network doesn't support our regeneration goals'* [#85, Male CEO, 60 years old, 20 years tenure, at an animal nutrition multinational]), and 'communication' (*'Our supply chain partners are not aligned with our sustainability vision* [#17, Male CEO, 50 years old, at a Scandinavian retailer in hobby and craft supplies]), need to be addressed by this capability. Again, the uncovered regenerative business capability was checked against Hahn & Tampe's framework and was found to match with the 'enhance strategy'. As companies 'see themselves as one part among others', 'engage in robust adaptive action in collaboration with stakeholders'.

Next, gap indicator '**misalignment**' indicate in Figure 6 by 3 (*'We need a more inclusive approach to stakeholder management'* [#17, Male CEO, 50 years old, at a Scandinavian retailer in hobby and craft supplies] and *'There's a gap between our sustainability goals and actual execution'* [#32, Male VP R&D, 63 years old, 35 years tenure, at an independent health research center]) was scrutinized. The suggested lack of coherence was to be found between different parts of the organization, from strategic planning to daily operations, and between the organization and its stakeholders. Revisiting Rowley, the network model of stakeholders emphasizes the interconnectedness and mutual influence among all stakeholder groups, reflecting the regenerative leadership's focus on holistic value creation, resilience, and system rejuvenation (Rowley, 1997). Without alignment, efforts become siloed, and the collective impact is diluted. The highest level

of alignment of processes and resource flows can be found in circular value chains. These emphasize the need for a system where waste is minimized, resources are recycled, and all actions are geared towards maintaining the balance between input and output, aligning with sustainability principles. This circular economy is another pillar in the understanding of regenerative business practices (Geissdoerfer et al., 2018; Stahel, 2016) However, to fully include the realignment of values, processes, and stakeholder interactions next to this material loop, a more holistic approach is needed, which can be coined **'closed-loop value systems'** indicating that above recycling of materials, a recycling of ideas, feedback, and strategies all feeds into a continuous improvement loop. By adopting 'closed-loop value systems,' the organization commits to a transparent, inclusive process where stakeholder feedback is integral to continuous development. This system requires meticulous mapping of all business processes to identify areas where misalignment occurs, from conceptualization to delivery of sustainability initiatives. The organization thus embarks on a journey to re-engineer its operations to ensure that the value generated is not lost but is recaptured and reinvested into the system. This includes creating forums for stakeholder engagement, developing metrics for measuring alignment, and instituting feedback mechanisms that inform decision-making. Through this transformation, the organization sees a gradual but definite shift towards coherence in its approach to sustainability. Stakeholders feel more invested as their inputs directly influence the systemic flow, and the organization sees tangible improvements in achieving its sustainability goals. By closing the loop, the organization not only optimizes its resources but also aligns itself more closely with the regenerative principles it aspires to embody. Comparing the regenerative business capability with Hahn & Tampe's 'enhance strategy' proved positive in 'impact on ecosystem', and 'living with the cyclical rhythm of the social-ecological systems they are part of'.

Continuing with the abductive reasoning process, gap indicator '**partners**' (Figure 6, **4**), a narrative can be traced that illustrates the transition from recognizing the need for diverse and robust partnerships to the strategic capability of 'continuous network development.' As learned from literature, regenerative practices vary with business size, but are always done in close concertation with a multitude of partners in the local community, the supply or the value chains (Bocken et al., 2016). It's evident form the empirical data that while there are many existing partnerships for each organization interviewed, they lack depth in engagement (active involvement and mutual investment in the partnerships) and effective communication, and they're not fully integrated with

the broader social-ecological context. This shortfall is limiting the organization's ability to innovate and operate sustainably. The current network does not adequately consider or integrate with the wider social-ecological system, missing out on crucial interactions and learnings. The strategic capability aiming to address these specific gaps was coined '**continuous network development**', as it encompasses actively involving a diverse range of partners in meaningful collaborations., establishing robust communication channels to facilitate transparent and effective information exchange, ensuring that the network is aware of and responsive to the broader social-ecological system's dynamics.

The organization embarks on a journey to revamp its network approach. It begins by reaching out to existing and potential partners, inviting them to engage in open dialogues and co-create sustainable initiatives. The company invests in communication tools and platforms to ensure clear, consistent, and transparent communication.

In parallel, it actively seeks connections that extend beyond traditional business relationships to include social and environmental groups, recognizing the importance of the social-ecological system. These new connections provide insights into local and global ecological challenges and opportunities, allowing the organization to align its strategies more closely with ecological realities. Validating against the 'enhance strategy', this regenerative capability aligns with 'the relation with the ecosystem' and 'the continuous investment in cooperation with all stakeholders'.

Finally, a narrative was constructed that transitions from recognizing a gap in '**business model**' (Figure 6, (-5-)) to the strategic capability of 'multiple business models,' incorporating elements of 'strategic fit,' 'cohesion,' and 'options'. The organization identifies that its current business model is not adequately aligned with the evolving demands of sustainability and regeneration. This gap is particularly evident in its inability to adapt to market changes and integrate sustainable practices effectively. There's a realization that the current business model doesn't align well with the company's long-term sustainability goals (strategic fit). The organization notices a lack of cohesion between various departments and functions, stemming from a singular business model that doesn't cater to diverse sustainability needs (cohesion). Lacy and Rutqvist deemed regenerative business models a prerequisite for regenerative business practices to be structurally viable. They called for a paradigm shift in the creation and delivery of value (Lacy & Rutqvist, 2016). Limited flexibility and adaptability in the current business model restrict the organization's ability to explore different sustainable pathways and opportunities (options). In response to these gaps, the organization should develop the

capability of '**multiple business models**', including the sharing of human and physical resources (Belk, 2014).

Recapping the above, this research identified five regenerative business capabilities: continuous network development, regenerative innovation, open stakeholder management, multiple business models, and closed-loop value systems. Keeping Cooper and Gibson's framework for assessing inner-outer sustainability transformations in mind, the determined capabilities emphasizes the integration of core regenerative requirements from both inner (personal development, mindsets, values) and outer (behavioral, organizational) perspectives. As such, the distinction in five capabilities seeks to give clarity on each separate capability, while leveraging synergies and interdependencies between them. All capabilities are framed as such that they drive interventions for inner transformation on a personal and organizational level, while allowing for alignment with broad regenerative. This addresses the multi-scalar nature of sustainability challenges as recognizing in their framework (K. J. Cooper & Gibson, 2022). Ultimately, these capabilities, collectively abbreviated as '**CROMC**,' were defined as follows:

C: Continuous network development (c1): the capability to actively engage with a diverse range of partners, maintaining robust communication, and aligning the network with broader social-ecological systems. As seen in literature, the value creation network and therefore the scope for partners in regenerative practices vary with business size (Bocken et al., 2016). The optimal value network for regeneration is embedded in this capability. *An example would be an electronics manufacturer establishing a reverse logistics network that enables customers to return used or end-of-life electronic devices. The company then systematically disassembles these products, salvaging usable components and raw materials. This network is supported by partnerships with logistics companies specialized in reverse flows and remanufacturing facilities. This approach not only reduces waste and resource consumption but also strengthens the manufacturer's supply chain by ensuring a steady, cost-effective supply of materials for future production.*

R: Regenerative innovation (c2): the capability for continuous evolution and improvement in business practices to support regeneration. The discussed principles of regenerative design and circular economy (Mang & Reed, 2012; Pathak, 2019) are part of this, but the innovation should be done on every aspect of the organization, including

product, process, organization, marketing and business models. Finding inspiration and solutions in developing countries, that often leapfrog traditional development stages to directly adopting sustainable technologies (Ghisellini et al., 2016; Stahel, 2016) is a facet of this capability. As is innovating with regenerative solutions, including biomimicry and circular technologies (Benyus, 1997; Stahel, 2016). Incorporating practical tooling – such as life cycle assessment (Kloepffer, 2008) and industrial symbiosis (Chertow, 2000) –, and technological advancements – like artificial intelligence and big data analytics (Korhonen et al., 2018) – are a component of regenerative innovation too. Perhaps less evident, but of great importance is the inclusion of potential operational changes, costs, and stakeholder resistance in the regenerative innovation process (Geissdoerfer et al., 2018). Only by incorporating all aspects – product, process, organization, marketing, business models – to be considered and their potential consequences in the innovation upfront, can the critiques on regenerative business practices be tackled. Considering them as an afterthought makes solving them much more difficult.

> Note: while trial and error can foster innovation and adaptability, it poses significant risks when applied to regenerative business practices. It could lead to circumventing the required deep understanding of complex ecological, social, and economic systems, and it's short-cycle approach offers little attention to actions taken have long-term impacts that may not be immediately apparent (Mang et al., 2016).

For instance a software company revising its product development process includes regular consultation with a diverse range of users, such as individuals with disabilities, to ensure their software is universally accessible. This not only improves the product's usability across a broader audience but also demonstrates the company's commitment to inclusivity, thereby enhancing its brand value and stakeholder satisfaction.

O: Open stakeholder management (c3): the capability to create an open culture that values contributions from all stakeholders. In this capacity, the discussed network model of Rowley, viewing stakeholder management as managing the full web of interdependencies of all – social, economic, and environmental – actors, forms the basis for that capability (Rowley, 1997). Here, the beforementioned leapfrogging to sustainable solutions in developing countries is relevant again, from the viewpoint that even considering this requires an open approach to stakeholders (Ghisellini et al., 2016; Stahel, 2016).

> Note: a word here on the difference between continuous network development and open stakeholder management in this regard. The network development is specifically aimed at actors and partners in the value creation of an organization, whereas stakeholders

encompass all parties who have an interest in the organization. In that respect, network partners are a subset of all stakeholders.

An example would be a renewable energy company forming a community advisory board, including local residents and environmental groups, to collaboratively plan and implement sustainable energy projects. This improves community relations and builds trust, while ensuring a lasting support and impact within their ecosystem.

M: Multiple business models (c4): the capability to develop flexible, adaptable business models that cater to diverse business and social-ecological system needs. These social-ecological system needs allude to Sen's inclusion of the capability of individuals to achieve their goals and objectives, and to have the freedom to make choices about their own lives (Sen, 1999). This also builds on Gibson et al.'s statement on the importance of shifting towards more sustainable and resilient business models (Gibson et al., 2013). The need for business to deliver products and services that provide wider benefits to society and the environment – beyond just meeting customer needs – as addressed in abundant research (Lacy & Rutqvist, 2016; Maak et al., 2016), should be met by the appropriate business models. The discussed sharing economy models are examples of potential business models for an organization (Belk, 2014; Lacy & Rutqvist, 2016). Knowledge of supportive regulatory and policy changes that support sustainable and resilient business models (European Commission, 2020), and of legislative push towards sustainability (Moore, 2020; *Right to Repair*, n.d.; Thursday et al., n.d.) is another facet of this capability. The noted potential overemphasis on economic benefits of sustainability efforts – highlighting the risk of prioritizing resource efficiency over comprehensive ecosystem health – should be countered in this capability (Murray et al., 2017). *Illustrating this is a large-scale printer manufacturer offering 'printing-as-a-service' next to selling the printers. In this model, instead of purchasing the printers, customers pay for the printing services based on usage. This approach includes maintenance and upgrades, ensuring that customers always have access to the latest technology. This shift allows the manufacturer to maintain long-term customer relationships, manage the lifecycle of the printers more sustainably, and streamline the supply chain for consumables and parts, ultimately leading to enhanced operational flexibility and a more resilient business model in the face of changing market demands.*

C: Closed-loop value systems (c5): the capability to align business processes and resource flows to minimize waste and optimize resource utilization. As literature

showed, closed-loop systems that restore and regenerate resources, moving from a linear to a circular model, are an important aspect of regenerative practices aim to create (Geissdoerfer et al., 2018; Raworth, 2017). By adding the term 'value' (in this case, short for multiple value) to this capability, it indicates the capability to do business practices with net positive effect on all material, energy, ecological and social externalities. *A beverage company implementing a bottle return and refill program, reducing waste and encouraging sustainable consumption habits among its customers would exemplify this. This can significantly reduce waste, minimizes the environmental impact of packaging, and contributes to a reduction in the company's carbon footprint.*

Validating the CROMC regenerative capabilities with the reviewed theory

As presented below, the CROMC regenerative capabilities align closely with the theoretical frameworks discussed earlier, emphasizing the significance of regenerative business practices, collaborative stakeholder engagement, and the integration of sustainability principles into business models to achieve the SDGs.

Continuous network development (c1) reflects the literature's emphasis on collaborative, interdisciplinary approaches necessary for achieving SDGs (Costanza et al., 2018; Bowen et al., 2017). This capability underlines the importance of fostering partnerships across stakeholders, as illustrated by the electronics manufacturer example, which mirrors the circular economy's principles (Geissdoerfer et al., 2018; Stahel, 2016) by ensuring resource efficiency and enhancing supply chain resilience.

Regenerative innovation (c2) embodies the call for businesses to operate like healthy ecosystems, as posited by Mang & Reed (2012) and Pathak (2019), by continually evolving business practices towards inclusivity and sustainability. The software company's approach to product development exemplifies this by broadening accessibility, aligning with the broader socio-ecological systems' needs, and enhancing stakeholder value creation.

Open stakeholder management (c3) aligns with the network model of stakeholder engagement, which transcends traditional categorizations to promote a complex web of interdependencies (Rowley, 1997). The renewable energy company's formation of a community advisory board embodies this principle, fostering a culture of collaboration

and mutual respect among diverse stakeholders, thereby supporting the regenerative leadership's aim for holistic value creation.

Multiple business models (c4) reflects the adaptability and resilience required to thrive in the shifting economic landscape, as advocated by Raworth's doughnut economics (Raworth, 2017). The printer manufacturer's shift towards a service-based model demonstrates an innovative approach to business that prioritizes long-term sustainability and customer relationships, echoing the need for flexible, adaptable business models that cater to both business and social-ecological system needs.

Closed-loop value systems (c5) directly supports the principles of the circular economy (Geissdoerfer et al., 2018; Stahel, 2016) by minimizing waste and optimizing resource utilization, as exemplified by the beverage company's bottle return program. This capability showcases the practical application of regenerative business practices, aiming to restore and regenerate ecosystems, aligning with sustainability and resilience principles.

Testing the CROMC regenerative capabilities for relevance in business practice

The testing of the CROMC capabilities was strategically postponed until the full model for regeneration was complete (presented in Section 3.3, indicated in Section 1.3, Figure 2 by **-6-**) to ensure a comprehensive and cohesive approach to assessing their effectiveness and applicability. This decision was rooted in the understanding that regenerative practices and capabilities are highly interconnected, with their true impact and potential for fostering sustainability and resilience only fully discernible within the context of a holistic, integrated model and adequate facilitation of the model and the method of application. The testing of the model and its method of application and facilitation is described in Chapter 4.

2.3 Initial model development

As outlined in Section 1.3, to bridge theoretical insights with practical relevance, the research developed a model as a pivotal analytical and applicational tool. It this section, this is started by integrating the SPISO barriers and CROMC capabilities, laying a foundational understanding of the obstacles and strategic directions essential for regeneration (Figure 2, **(- │ -)**). As Section 1.3 explained, the construct for CEO leadership aspects will be added in Section 3.3 to develop the full model (Figure 2, **(- ║ -)**).

Several interdependencies and considerations for prioritization emerged as relevant within the context of developing a model for regenerative business practices.

Interdependencies among SPISO barriers

Sociocultural & imagination limitations (b1) and **Organizational resistance (b5)** are closely linked, as the cultural norms and entrenched ways of thinking within an organization can significantly contribute to resistance against adopting regenerative practices. Addressing sociocultural limitations may also help mitigate organizational resistance by shifting perceptions and attitudes.

Addressing the **Partner-network gap (b2)** requires understanding and navigating the **Stakeholder complexity (b4)** of various needs and expectations. Effective management of stakeholder relationships can bridge gaps in the partner network by fostering collaboration and co-creation.

The **Implementation & scaling impediments (b3)** are often a direct result of the other four barriers. For instance, overcoming sociocultural limitations and organizational resistance can facilitate smoother implementation and scalability of such initiatives.

Organizational resistance (b5) can significantly drive **Stakeholder complexity (b4)**, as it creates internal stakeholder complexity and hinders understanding and engaging with diverse stakeholder needs.

Prioritization of SPISO barriers

Prioritize addressing barriers based on their impact on the organization's transition towards regenerative practices versus the effort required to overcome them. This could mean initially focusing on low-hanging fruits that can yield significant benefits, such as enhancing stakeholder engagement to reduce complexity and resistance.

Align efforts to address SPISO barriers with the organization's overall strategic goals and sustainability objectives. This ensures that the model's application directly contributes to achieving long-term visions.

Some barriers may need to be addressed before others due to their foundational nature. For example, tackling sociocultural and imagination limitations might be necessary before effectively engaging with partners or scaling initiatives.

Interdependencies among CROMC capabilities

Continuous network development (c1) and **Open stakeholder management (c3)** are intrinsically linked as engaging with a diverse range of stakeholders and maintaining robust communication are foundational for developing a strong network. Effective stakeholder management fosters trust and collaboration, which are critical for establishing and nurturing continuous development networks.

Regenerative innovation (c2) often requires rethinking and redesigning processes to minimize waste and optimize resource utilization, directly contributing to the development of **Closed-loop value systems (c5)**. Innovations can lead to more efficient circular processes, enhancing the organization's sustainability.

The capability to develop and implement **Multiple business models (c4)** is enhanced by and enhances all other capabilities. For example, a diverse range of business models can support the scalability of **Regenerative innovations (c1)** and facilitate more comprehensive **Open stakeholder management (c3)**. It also allows for greater flexibility in **Continuous network development (c1)** and the establishment of **Closed-loop value systems (c5)**.

Prioritization of CROMC capabilities

Prioritize the development of capabilities that align closely with the organization's strategic sustainability objectives and immediate goals. This ensures that efforts are concentrated where they can have the most significant impact.

While all capabilities are important, establishing a strong foundation in **Open stakeholder management (c3)** and **Continuous network development (c1)** may be prioritized. These foundations can support more effective **Regenerative innovation (c2)**, the development of **Multiple business models (c4)**, and the implementation of **Closed-loop value systems (c5)**.

Prioritize capabilities based on the urgency of sustainability challenges faced by the organization and the feasibility of implementing each capability. This pragmatic approach ensures that resources are allocated efficiently.

Interdependencies between SPISO barriers and CROMC capabilities

While all CROMC capabilities have a positive effect on addressing SPISO barriers, some relations are stronger. In Table 3, the interdependencies are depicted as having a direct –

the capability specifically aims to surmount the barrier –, aligned – the capability helps to address the barrier –, facilitative – in the combination of capabilities there is a positive influence on reducing barriers –, or indirect – the influence of the capability on the barrier is neutral or supportive in a unrelatable capacity -.

influence of capability on barrier		CROMC capabilities for regeneration	c1 Continuous network development	c2 Regenerative innovation	c3 Open stakeholder management	c4 Multiple business models	c5 Closed-loop value systems
b1c2	direct influence						
b5c4	aligned influence						
b1c1	facilitative influence						
	indirect influence						
SPISO barriers to regeneration							
b1 **S**ociocultural & imagination limitations			b1c1	b1c2	b1c3	b1c4	b1c5
b2 **P**artner-network gap			b2c1	b2c2	b2c3	b2c4	b2c5
b3 **I**mplementation & scaling impediments			b3c1	b3c2	b3c3	b3c4	b3c5
b4 **S**takeholder complexity			b4c1	b4c2	b4c3	b4c4	b4c5
b5 **O**rganizational resistance			b5c1	b5c2	b5c3	b5c4	b5c5

Table 3 Interdependencies between SPISO barriers & CROMC capabilities

Regenerative innovation (c2) directly addresses **Sociocultural & imagination limitations (b1)** by fostering a culture of creativity and out-of-the-box thinking that is essential for overcoming entrenched norms and beliefs and may also help mitigate **Organizational resistance (b5)** by shifting perceptions and attitudes and **Implementation &scaling impediments (b3)** by fostering adaptable and resilient business practices that can scale regeneratively.

Continuous network development (c1) aims to bridge the **Partner-network gap (b2)** by actively engaging with diverse partners and fostering robust communication channels, thereby facilitating the co-creation of regenerative initiatives.

The development of flexible and adaptable **Multiple business models (c4)** addresses **Implementation & scaling impediments (b3)** by providing organizations with a variety of approaches to effectively implement and scale sustainability initiatives. It can also help counteract **Organizational resistance (b3)** by demonstrating the viability and economic benefits of regenerative practices, encouraging organizational buy-in.

Open stakeholder management (c3) is designed to navigate **Stakeholder complexity (b4)** by creating an inclusive culture that values contributions from all stakeholders, ensuring their needs and expectations are considered in decision-making processes.

Implementing **Closed-loop value systems (c5)** can demonstrate the tangible benefits of regenerative practices, thereby helping reduce **Organizational resistance (b5)** and **Implementation &scaling impediments (b3)** by showcasing the economic, environmental, and social value of sustainability initiatives and by developing good practices for circularity and regeneration.

Prioritization of SPISO barriers and CROMC capabilities

Prioritize capabilities that address the most immediate and impactful barriers faced by the organization. For instance, if **Organizational resistance (b5)** is a significant barrier, focusing on demonstrating the benefits of **Closed-loop value systems (c5)** may be prioritized.

Leverage existing organizational strengths in CROMC capabilities to address SPISO barriers. If an organization already has strong **Continuous network development (c1)**, it can utilize this strength to overcome **Partner-network gaps (b2)** more effectively. Prioritize the development of capabilities that are of strategic importance to the organization's long-term vision for sustainability and regeneration. This ensures alignment between immediate actions and long-term goals.

This first phase of the model development recognizes the complexity and interconnectedness of barriers and capabilities culminates in the depicted model. In Chapter 3 this will be complemented with the CROMC CEO leadership aspects for regeneration, culminating in a conceptual model for regeneration and a practical representation of that model for consulting and implementation purposes

2.4 Summary of key findings

The presented comprehensive analysis of the transition towards regenerative business practices, emphasized systemic barriers (SPISO) and essential regenerative organizational capabilities (CROMC) for overcoming these challenges.

Key findings from this chapter:

1) Five systemic barriers to regeneration were found: Sociocultural & imagination limitations, Partner-network gap, Implementation & scaling impediments, Stakeholder complexity, and Organizational resistance.

2) Five regenerative capabilities were established: Continuous network development, Regenerative innovation, Open stakeholder management, Multiple business models, and Closed-loop value systems.

3) The foundations were laid for a model for businesses to become regenerative and contribute positively to the SDGs.

In conclusion, this chapter has systematically explored the barriers to regenerative business practices and identified the crucial capabilities businesses must develop to overcome these challenges. By meticulously analyzing empirical data alongside theoretical insights, it has highlighted the multifaceted nature of systemic barriers—ranging from sociocultural limitations to organizational resistance—that hinder the adoption of regenerative models. Furthermore, it has underscored the significance of fostering key capabilities, such as regenerative innovation and open stakeholder management, essential for businesses aiming to transition towards sustainability and contribute positively to the SDGs. This investigation not only enriches the academic discourse on regenerative practices but also provides practical guidance for businesses seeking to navigate the complexities of becoming regenerative entities. Through this comprehensive analysis, the chapter bridges the gap between theoretical understanding and actionable strategies, offering a blueprint for businesses to effectively address systemic barriers and embrace the transformative potential of regenerative practices.

Main points to retain from this chapter: five categories of systemic barriers block regenerative business practices (SPISO). These can be surmounted by developing five regenerative capabilities (CROMC). Together with adequate CEO leadership, the constructs of these barriers and capabilities form the basis for a model for regeneration.

3
CEO leadership in action: surmounting barriers and fostering regenerative capabilities

3 CEO leadership in action: surmounting barriers and fostering regenerative capabilities

After determining the systemic barriers to regeneration and the regenerative business capabilities to surmount them in Chapter 2, this chapter critically examines the role of CEO leadership in this process towards regeneration. Through a detailed analysis of empirical insights and theoretical frameworks, it positions regenerative leadership theory (Hutchins, 2019) as the focal point, with stewardship theory (Davis et al., 1997) providing complementary insights, and select and demarcated aspects of upper echelon theory (Hambrick, 2007; Hambrick & Mason, 1984) enhancing the literature review. The investigation underscores the instrumental role of CEO leadership in the intricate journey toward regeneration, advocating for a refined understanding of leadership dynamics essential for facilitating this transition. By delving into the practical aspects of regenerative leadership, the chapter provides profound insights into how CEOs can guide their organizations towards regeneration. This analysis not only advances the scholarly conversation on leadership and regeneration but also acts as a strategic guide for leaders aiming to effect substantial change within their organizations and the broader community. Structured in three segments, the chapter encompasses a review of relevant theories, an analysis of empirical data through the integrated theoretical lens, and concludes with the incorporation of identified CEO leadership aspects into the developed model in Chapter 2, augmenting the model for regenerative business practices.

Ordered into four segments, the chapter 1) starts with reviewing and comparing leadership theories in relation to regeneration. It then 2) proceeds to identify the CEO leadership aspects conducive for regeneration (CHEMP). Subsequently, 3) it elaborates on the development of the constructs for these CEO leadership aspects, ultimately building the model for regeneration on the groundwork laid in Section 2.3. The chapter 4) concludes with a comprehensive discussion of the key findings and their implications, explaining the essential CEO leadership aspects required for transitioning towards regenerative business practices. This section synthesizes the insights gathered, Elaborating on the model for regeneration within the business sector.

Main argumentation in this chapter: leadership theories and empirical data present CEO leadership aspects that are essential and conducive to identifying the systemic barriers (SPISO) and fostering the required organizational capabilities (CROMC) in regeneration. A grouping into five CEO leadership aspects (CHEMP) proposes a

comprehensive and integrated additional construct for a conceptual model for regeneration. After establishing a conceptual model, a translation is made into a practical model for implementation in business practice.

3.1 CEO leadership to surmount barriers

Chapter 1 highlighted an existing research gap in aligning leadership theories directly with the principles of regenerative business, despite extensive investigations into leadership's influence on sustainability (Lăzăroiu et al., 2020; Santana & Lopez-Cabrales, 2019; Seddon et al., 2020; Wang et al., 2021). The development of a unified conceptual framework that consolidates these insights, with a focus on CEO traits and behaviors in regenerative contexts, stands to significantly propel forward our comprehension in this domain. Furthermore, the evolution of this framework into a practical model, poised for application and empirical validation within business environments, promises to elevate its utility, effectively linking theoretical advancements to implementable leadership strategies that catalyze regenerative change. Section 1.3 explained that three leadership theories were scrutinized within this study: regenerative leadership theory, which outlines the essential qualities and actions leaders must embody to champion regenerative business transformations (Hutchins, 2019); stewardship theory, which underscores the critical situational conditions fostering stewardship behaviors in organizations (Davis et al., 1997); and select components of upper echelon theory, accentuating how top executives' personal values, experiences, cognitive frameworks and their managerial discretion influence organizational strategies and results (Hambrick, 2007; Hambrick & Mason, 1984). Together, these theories construct a comprehensive lens through which the dynamics of CEO leadership in promoting regenerative business practices can be examined and understood.

Note: more extensive literature reviews, balancing the benefits of the reviewed theories with the sometimes extensive and fundamental critiques and limitations on them, is available on request.

Regenerative leadership theory
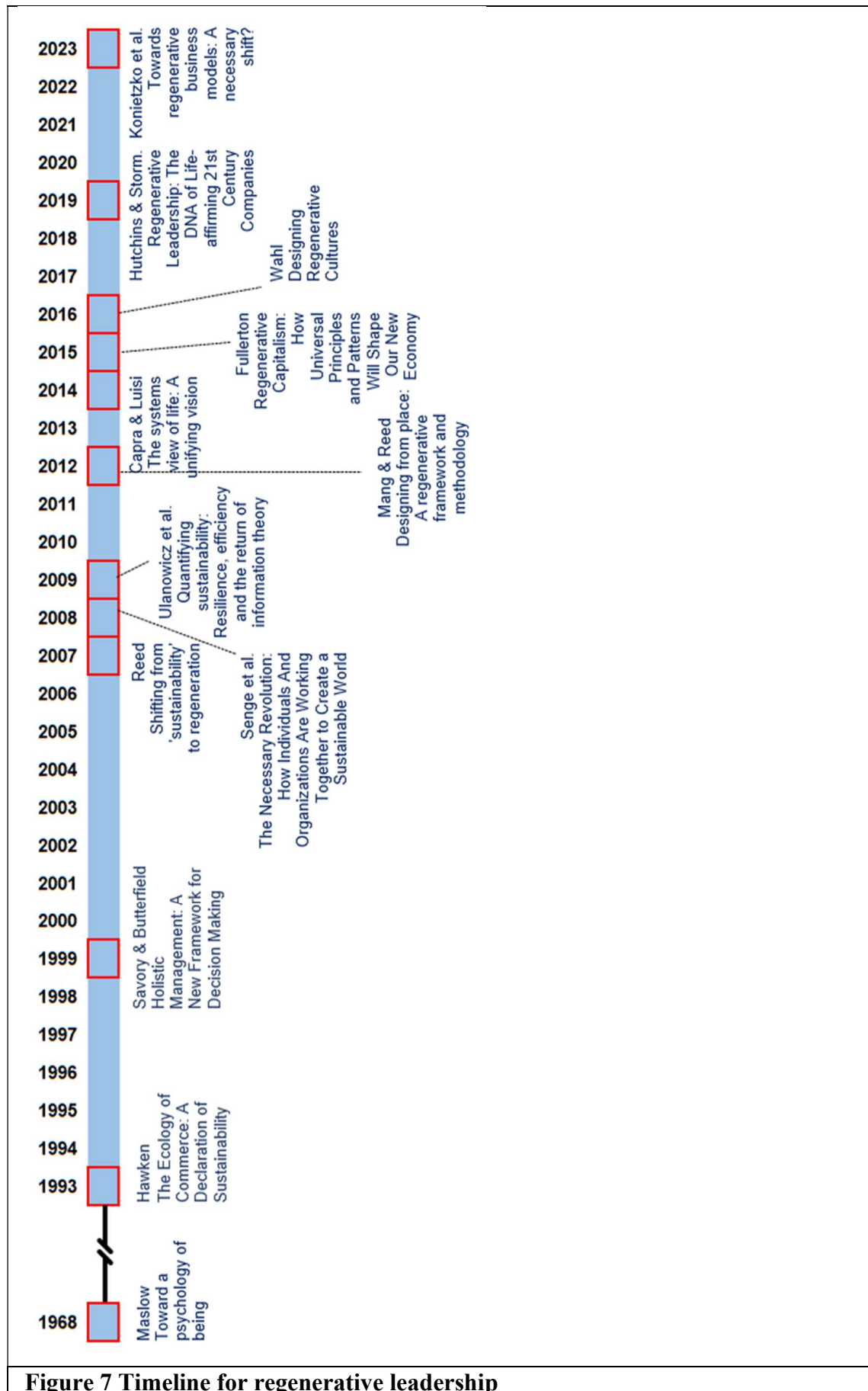
Figure 7 Timeline for regenerative leadership

Regenerative leadership emerges as a comprehensive paradigm that integrates principles from organizational development, complexity science, evolutionary biology, and ancient wisdom to cultivate businesses that are life-affirming and nature-aligned (Hutchins & Storm, 2019). This approach has become increasingly relevant as organizations strive for sustainability and resilience amidst global challenges. By rooting itself in systems thinking and regenerative design, regenerative leadership surpasses conventional leadership frameworks, integrating social, economic, environmental, and spiritual dimensions to benefit all stakeholders (Hardman, 2010; Senge et al., 2008). It distinguishes itself by prioritizing collaboration and adaptability, drawing from regenerative capitalism, biomimicry, ecological systems thinking, holistic management, the human potential movement, and the sustainability movement to deepen its foundation (Benyus, 1997; Capra & Luisi, 2014; Fullerton, 2015; Mang & Reed, 2012).

Empirical research, including studies on sustainability and complexity leadership theory, provide a scientific and social context for regenerative leadership, supporting its applicability and impact (Arena & Uhl-Bien, 2016; Ulanowicz et al., 2009). The evolving discourse on regenerative leadership, evident in recent studies, underscores its influence on transforming business models and organizational cultures, with an emphasis on appreciative intelligence and the cultivation of regenerative cultures as areas ripe for further exploration (Hahn & Tampe, 2021; Konietzko et al., 2023; Pai & Aithal, 2022; Wahl, 2016). Central to regenerative leadership are key constructs that view organizations as interconnected social-ecological systems, stressing the mutual dependency of all elements within and beyond the organization. This approach encourages leaders to adopt a systemic perspective, promoting collective responsibility and systemic thinking (Fullerton, 2015). A focus on continuous learning and adaptation is essential, as it enables regenerative leaders to foster environments that support feedback, innovation, and resilience, crucial for navigating the complexities of today's global business landscape (Gidley, 2017; Sanford et al., 2011; Wahl, 2016). Additionally, the commitment to creating value for all stakeholders, ensuring the well-being and fair treatment of employees, customers, communities, and the environment, underscores the pursuit of balancing economic viability with social and ecological stewardship (Senge et al., 2008).

Regenerative leadership's universal principles make it applicable across various sectors, enabling innovative, holistic approaches to governance, business, education, science, health care, non-profits, and urban development. It encourages government agencies to

adopt systems thinking for improved public service and policy effectiveness (Senge et al., 2008). In business, it redefines success to include value creation for all stakeholders, promoting community and environmental well-being (Sanford et al., 2011). Educational institutions can incorporate regenerative principles into curricula to nurture sustainability-minded, global citizens (Wahl, 2016). The science and technology sector benefits from regenerative leadership by designing solutions that contribute positively to socio-ecological systems, with advancements like renewable energy and circular economy strategies guided by this approach (Benyus, 1997; Hutchins & Storm, 2019; McDonough & Braungart, 2010). In health care, it fosters a holistic model focusing on overall health and well-being, supporting both patients and healthcare professionals (Chowthi-Williams & Davis, 2022; Laloux, 2014). Non-profits under regenerative leadership can enhance their societal impact by integrating social and ecological values into their missions (Konietzko et al., 2023). Urbanization benefits from regenerative principles, guiding city planning towards solutions that enhance urban vitality and resilience, through initiatives like green infrastructure and inclusive community programs (Farr, 2008; McDonough & Braungart, 2010; Reed, 2007). Regenerative leadership thus provides a framework for fostering innovation, sustainability, and resilience across multiple domains.

Regenerative leadership integrates concepts from environmental sciences, social sciences, business management, psychology, spirituality, complexity theory, and systemic thinking. This interdisciplinary approach is informed by environmental science principles such as closed-loop systems and biomimicry, guiding leadership towards ecological resilience and restoration (Reed, 2007). From social sciences, it adopts a focus on stakeholder engagement, social equity, and community development, emphasizing societal well-being and justice (Ulanowicz et al., 2009). Business management principles like creating shared value, corporate social responsibility, and the triple bottom line inform its approach to balancing economic, social, and environmental responsibilities (Fullerton, 2015). Psychological and spiritual theories contribute to its emphasis on self-awareness, consciousness, and interconnectedness, reflecting principles of humanistic and transpersonal psychology, as well as spiritual teachings on unity (Wahl, 2016). Lastly, insights from complexity theory and systemic thinking help leaders navigate and thrive in complex, dynamic environments, underscoring the need for adaptive and holistic leadership practices (Arena & Uhl-Bien, 2016).

Recent advancements in regenerative leadership research highlight its emergence as a significant paradigm shift towards sustainability and resilience in leadership practices. This evolving field has garnered attention across various sectors, evidenced by case studies in diverse organizational settings (Sanford et al., 2011; Wahl, 2016). Contributions from multiple disciplines, including environmental science, business management, and psychology, have broadened the theoretical base of regenerative leadership (Arena & Uhl-Bien, 2016; Fullerton, 2015). Despite these strides, future research directions are crucial for further development. Empirical studies are needed to substantiate the impact of regenerative leadership, suggesting a focus on longitudinal research and comparative analysis with other leadership models to deepen understanding and application (Senge et al., 2008; Ulanowicz et al., 2009). Additionally, exploring pathways for developing regenerative leadership skills could inform targeted training programs, enhancing the practical adoption of these principles in leadership development (Hardman, 2010).

Regenerative leadership, while offering innovative leadership approaches, faces critiques concerning its theoretical coherence, practical application, and empirical support. The integration of principles from diverse fields enriches its framework but may cause inconsistencies (Wahl, 2016). The adaptation of ecological concepts like regeneration and resilience to organizational contexts is sometimes criticized for oversimplifying complex natural processes (Arena & Uhl-Bien, 2016). Implementing regenerative leadership challenges traditional business models, requiring significant cultural, structural, and processual shifts that are hard to achieve (Ketprapakorn & Kantabutra, 2022). Engaging stakeholders and creating shared value, central to regenerative leadership, presents practical difficulties in competitive environments (Senge et al., 2008). Furthermore, the current empirical evidence supporting regenerative leadership is limited, primarily qualitative, and lacks generalizability. Thus, more rigorous empirical research is needed to substantiate the theory's effectiveness and benefits (Ulanowicz et al., 2009).

Most crucial insights from literature: Regenerative leadership is a holistic paradigm crucial for businesses aiming to transition towards regenerative practices. At the core of regenerative leadership is the application of systems thinking and regenerative design principles. Its diversity of underlying disciplines encourages businesses to adopt innovative, holistic approaches to governance and operations. It has a cross-sectoral applicability and emphasizes continuous learning and adaptation.

Research gap: [3.1] there is a need for empirical research to substantiate the impact and applicability of regenerative leadership in business settings. Suggested research directions include [3.2] longitudinal studies and [3.3] comparative analyses with other leadership models to deepen understanding and practical application.

Stewardship theory

Stewardship theory, introduced by Davis, Schoorman, and Donaldson (1997), offers an alternative perspective to agency theory, suggesting that managers are motivated by the success of their organizations rather than just personal gain. This theory contrasts with the earlier agency theory by Jensen and Meckling (1976), which posited managers act in self-interest, potentially harming owner interests. Stewardship theory argues managers, or stewards, prioritize organizational over personal welfare, aiming to align their actions with the company's wellbeing. This approach has been recognized for encouraging a leadership style that fosters corporate health and resilience, and has gained relevance in discussions on sustainable business practices and corporate social responsibility (CSR). Recent scholarship has explored its implications for organizational culture, technology governance, and data management, reflecting the theory's broad applicability and evolving relevance in contemporary corporate governance and sustainability discussions (Davis et al., 1997).

Key constructs of stewardship theory include psychological empowerment and organizational identification, fostering a deep connection and commitment to organizational success. Furthermore, stewardship behavior flourishes in environments that promote autonomy, shared decision-making, and trust. Additionally, cultural factors like power distance influence stewardship, with more egalitarian cultures fostering such behaviors.

Stewardship theory has been applied widely, influencing policy making, corporate governance, business practices, education, science & technology, health care, civil society, non-profit organizations, and urbanization. It advocates for a shift from control to empowerment, fostering trust and long-term wellbeing across various sectors (Caldwell et al., 2008). In policy making, it supports public stewards in addressing societal issues through service-oriented collaboration. In corporate governance, it encourages a holistic approach that promotes corporate social responsibility and sustainability. Businesses adopting stewardship can redefine success, embracing
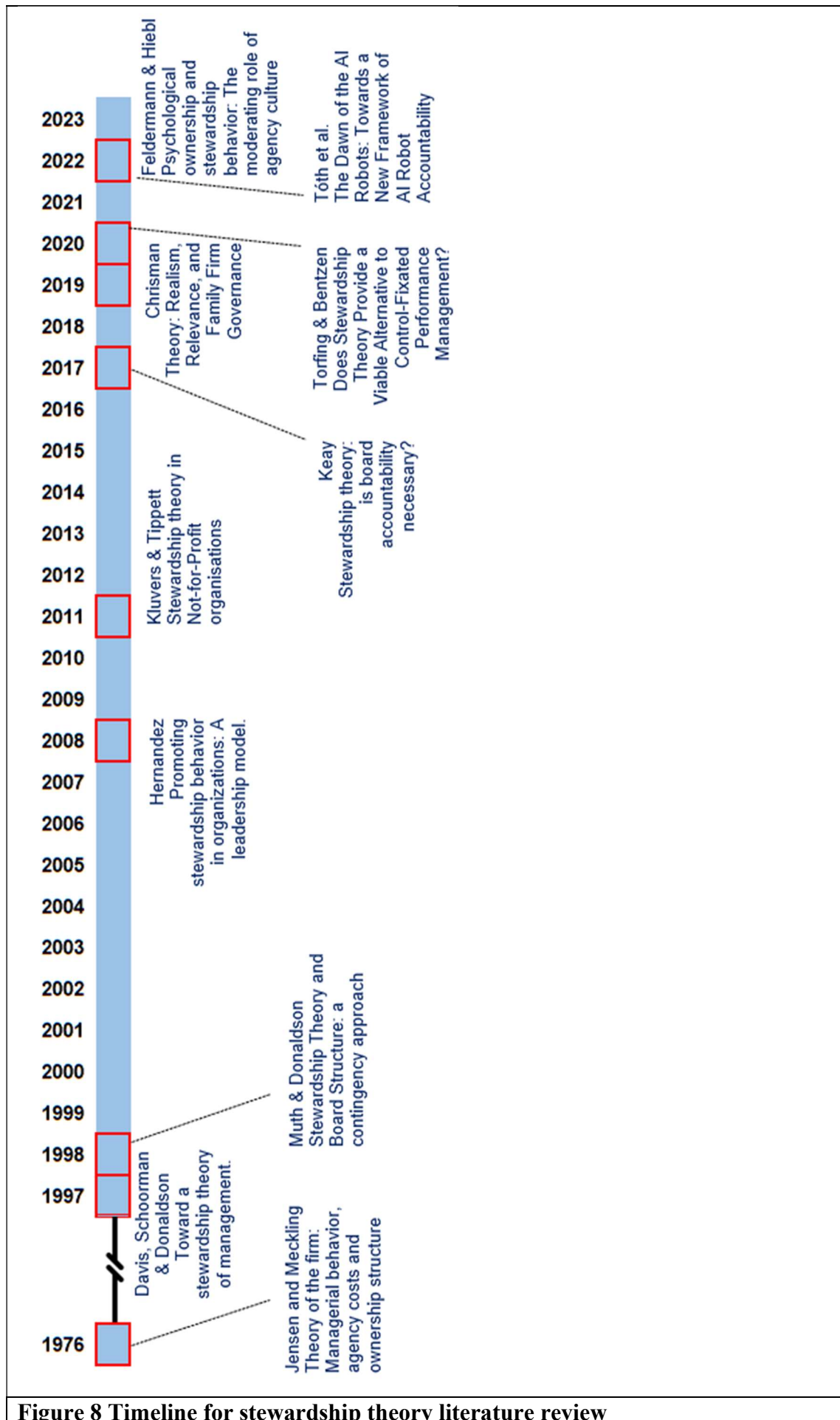
Figure 8 Timeline for stewardship theory literature review

regenerative models that benefit all stakeholders and the environment (Crilly et al., 2012; Hernandez, 2008). In education, it emphasizes empowerment and collective mission, enhancing learning environments (Hernandez, 2008; Sergiovanni, 2009). For science & technology, it underscores the responsibility of innovators to act in society's best interest (Brammer et al., 2007; Sama et al., 2022; Tóth et al., 2022). In health care, it prioritizes patient welfare and equitable resource use (Brinkerhoff et al., 2019; A. J. He et al., 2022). Civil society organizations guided by stewardship principles focus on community welfare and efficient resource management (Eikenberry, 2009; Sargeant & Shang, 2010). Non-profit governance under stewardship theory enhances trust and organizational effectiveness (Muth & Donaldson, 1998). Finally, in urban development, it guides sustainable and inclusive growth, balancing economic and environmental needs with active community participation (Connolly et al., 2013; Pickett et al., 2004).

Stewardship theory has evolved into an interdisciplinary framework, integrating insights from sociology, psychology, ethics, and technology governance. Sociologically, it underscores the role of organizational culture and high-trust environments in nurturing stewardship, advocating for shared decision-making and a unified organizational purpose (Davis et al., 1997). Psychologically, it focuses on the intrinsic motivations and job satisfaction that drive stewardship behaviors, emphasizing psychological empowerment (Hernandez, 2008). Ethical perspectives tie stewardship to moral philosophy, considering stewards as moral agents acting in the organization and stakeholders' best interests, reflecting organizational ethics (Crilly et al., 2012). In the digital realm, stewardship principles guide ethical technology use and responsible data management, highlighting its relevance in contemporary governance challenges. This interdisciplinary approach enriches our understanding of stewardship across various contexts, illustrating its broad applicability and the diverse motivations behind stewardship behaviors (Tóth et al., 2022).

Recent trends in stewardship theory research highlight sustainability, with studies examining corporate responsibilities extending to social and environmental realms beyond mere financial accountability. This aligns stewardship theory with corporate sustainability efforts (Crilly et al., 2012). Research has also explored board accountability within the stewardship framework, challenging the traditional agency theory's focus on director behavior and emphasizing stewardship's role in governance (Keay, 2017). Cultural influences on stewardship behaviors are being investigated, recognizing how cultural and organizational contexts shape stewardship effectiveness (Licht, 2014).

Technological advancements have spurred interest in technological stewardship, applying the theory to responsible technology use. These developments signal a broadening of stewardship theory's application, integrating sustainability, cultural context, and technological ethics into its scope (Tóth et al., 2022).

Critiques of stewardship theory highlight its limitations, notably its focus on intrinsic motivation, overlooking extrinsic motivators like compensation and job security (Davis et al., 1997). It also neglects bounded rationality and pre-employment aspects, questioning its realism (Chrisman, 2019). Its applicability in the non-profit sector is considered limited due to the unique dynamics of these organizations (Muth & Donaldson, 1998). The theory's failure to account for cultural differences questions its universality, as cultural contexts influence behavior (Klepczarek, 2022). Moreover, there's a scarcity of empirical evidence linking stewardship behaviors to organizational performance, with further research needed to test its effectiveness across diverse settings (Hernandez, 2008; Torfing & Bentzen, 2020).

Most crucial insights from literature: managers, when acting as stewards, are motivated more by the success and well-being of the organization than by personal gains. It is rooted in psychological empowerment and organizational identification, promoting a governance model that emphasizes empowerment over control.

Research gap: [3.4] there is a lack of empirical evidence directly linking stewardship behaviors to enhanced organizational performance, suggesting that more work is needed to fully understand the efficacy and applicability of stewardship theory across diverse settings.

Upper echelon theory
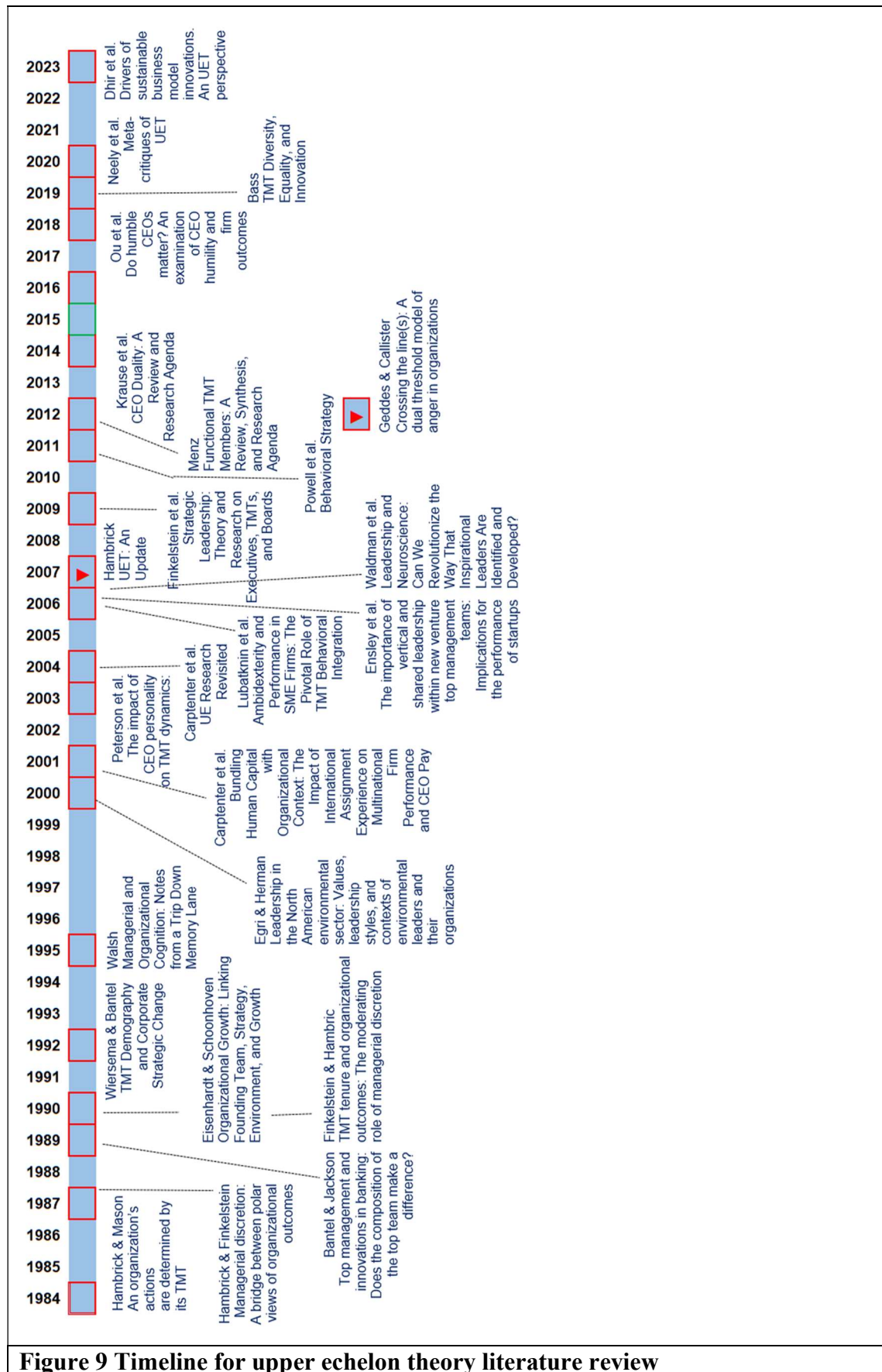
Figure 9 Timeline for upper echelon theory literature review

Hambrick and Mason's upper echelon theory posits that the characteristics and cognitions of top management teams significantly influence organizational strategies and outcomes. This theory, foundational in organizational leadership literature since 1984, advocates that the personal attributes of executives, extending beyond mere demographic details to encompass cognitive bases, tenure, gender, and team diversity, play a pivotal role in shaping organizational decisions and performance. Research underscores the positive impact of executives' heterogeneity on innovation, strategic agility, and sustainability outcomes, noting the importance of CEO traits, such as humility, in driving consensus and bolstering both business and sustainability performance (Hambrick, 2007; Piwowar-Sulej & Iqbal, 2023; White et al., 2023).

Key constructs of upper echelon theory relevant to this research include the diversity within executive teams, which introduces varied perspectives enhancing decision-making quality and sustainability performance, and managerial discretion, which underscores the extent of executives' influence on outcomes, including those related to sustainability (Everaert et al., 2019; Hambrick & Finkelstein, 1987). The managerial cognition perspective, highlighting how executives' personal experiences and characteristics shape strategic choices, further aligns with the focus of this research (Walsh, 1995).

The application of upper echelon theory in contexts significant to SDGs illustrates how executives' international experience and values influence environmental sustainability efforts and organizational responses during crises. This theory's interdisciplinary application supports its integration with regenerative leadership and stewardship theory, provided it underscores specific aspects of the regeneration model being developed. Despite criticisms of upper echelon theory for potential determinism and inadequate attention to lower organizational levels and team dynamics, its insights remain valuable for understanding leadership's role in regeneration (Finkelstein et al., 2009; Hambrick, 2007; Peterson et al., 2012).

The integration of regenerative leadership theory and stewardship theory with selective insights from upper echelon theory offers a nuanced framework for examining leadership dynamics within sustainable and regenerative business practices. This approach highlights the importance of CEO behavior and managerial discretion in driving organizational regeneration, despite the noted critiques of upper echelon theory. As this research progresses, it aims to enrich the empirical and theoretical understanding of leadership requirements for fostering sustainable business practices aligned with the

SDGs, addressing the challenges of theoretical coherence, empirical validation, and practical implementation.

Most crucial insights from literature: aligning leadership characteristics with the goals of sustainability and regeneration is crucial. Executives' diversity fosters innovation and strategic dynamism, critical for addressing complex sustainability challenges. Managerial discretion is key as it allows leaders to implement regenerative and autonomy in effecting change.

Research gap: [3.5] there is a lack of empirical examination of how specific executive characteristics, beyond demographics, such as values, cognitive complexity, and ethical ideology, impact the implementation of sustainability and regeneration strategies.

3.2 CEO leadership to foster capabilities

As outlined in Section 1.3, starting from the constructs of the investigated leadership theories, a mapping of them versus the CROMC capabilities and SPISO barriers was done (Figure 2, **(-L-)**). As depicted in Table 4, the underlying constructs of the leadership theories were assessed on their relevance for identifying and potentially mitigating the barriers and for fostering the regenerative capabilities. The constructs of 'behavioral integration of the TMT' and 'power distance and cultural factors' were deemed out-of-scope for this research.

regenerative leadership theory constructs	holistic approach to the social-ecological system	continuous learning and adaptation	value creation for all stakeholders	
Continuous network development	🟩	🟩		
Regenerative innovation		🟩		
Open stakeholder management			🟩	
Multiple business models			🟩	
Closed-loop value systems	🟩			
Sociocultural & imagination limitations	🟥	🟥		
Partner-network gap				
Implementation & scaling impediments		🟥		
Stakeholder complexity	🟥		🟥	
Organizational resistance		🟥		
upper echelon theory constructs	cognitive diversity	executive discretion	behavioral integration of the TMT	managerial interpretation
Continuous network development		🟩		
Regenerative innovation				🟩
Open stakeholder management		🟩		
Multiple business models				🟩
Closed-loop value systems				🟩
Sociocultural & imagination limitations	🟥	🟥		🟥
Partner-network gap				
Implementation & scaling impediments				🟥
Stakeholder complexity	🟥	🟥		🟥
Organizational resistance	🟥	🟥		🟥
stewardship theory constructs	promoting autonomy, shared decision-making and trust	psychological empowerment	organizational identification	power distance and cultural factors
Continuous network development	🟩			
Regenerative innovation		🟩		
Open stakeholder management	🟩		🟩	
Multiple business models			🟩	
Closed-loop value systems	🟩			
Sociocultural & imagination limitations		🟥		
Partner-network gap				
Implementation & scaling impediments	🟥		🟥	
Stakeholder complexity	🟥		🟥	
Organizational resistance	🟥	🟥	🟥	

Table 4 Mapping leadership theory constructs with CROMC & SPISO

A second perspective on the findings from the literature reviews is combining them in a comparison of traditional, sustainable and regenerative leadership via a list of leadership aspects relevant to this comparison. These aspects were determined over the course of the research in a separate list by the researcher, partly inspired by the discussed literature reviews and some additional work of theories reviewed and refuted for this research as mentioned in Section 1.3. The presented findings of this are presented in Table 5.

Leadership aspects	Traditional	Sustainable	Regenerative
Roles of Leadership	Key in decision-making, strategy formulation and guidance towards goals		
Goal orientation	Leaders set and pursue objectives to enure organization succes		
Bigger picture (outlook)	Maximize for today and limit harm for tomorrow	Balance for today with stewardship for tomorrow	Revatilize for today aimed a tomorrow
Perspective on organizations	Mechanistic	Holistic	Living system
Predictability base	Information	Relationships	Interconnectedness
Prioritization	(ST) Financial	Multi value	Net Positive Impact
Transformation	Change management in a defined period	Continuously reduce negative & enhance positive impacts	Adapting via an inherent & systemic evolution to maximize Net Positive Impa
Business outlook	Short to middle term succes of the organization / licence-to-operate	Long term succes of the organization / corporate citizenship	Long term viability of the organization / Net Positive Impact on its Sphere of Influence
Change	Linear & top-down	Balance between top-down and bottom-up	Constant & Natural part of a organization
Change process	Change & Project management	Stakeholder management & continuous improvement	Cultivate learning, adaptibili & innovation
Change focus	Financial, efficiency, productivity	Balance between economic, social & environmental responsibilities	Enhance economic, social ecological systems
Change driver	Shareholders, Competititon, Regulations	Internal & external stakeholders	Opportunity for additional regenerative value
Improvement	Incremental	Sustainable	Regenerative

Table 5 Regenerative, sustainable and traditional leadership

From the synthesis of Tables 4 and 5, by comparing and contrasting various leadership constructs and their applications in different paradigms, five aspects on CEO leadership for regeneration were discerned as basis for the empirical data analysis. Via color coding this analysis and identification is schematically depicted in Figure 10. The constructs and leadership aspects marked by the colored frames correspond to the determined CEO leadership aspects framed in the same color. The example shows 'continuous learning' 'adapting via an inherent & systemic evolution to maximize net positive impact', and 'change as a constant & natural part of an organization' are combined in the leadership aspects CEO preemptiveness. In the same way the other four CEO leadership aspects are color coded.
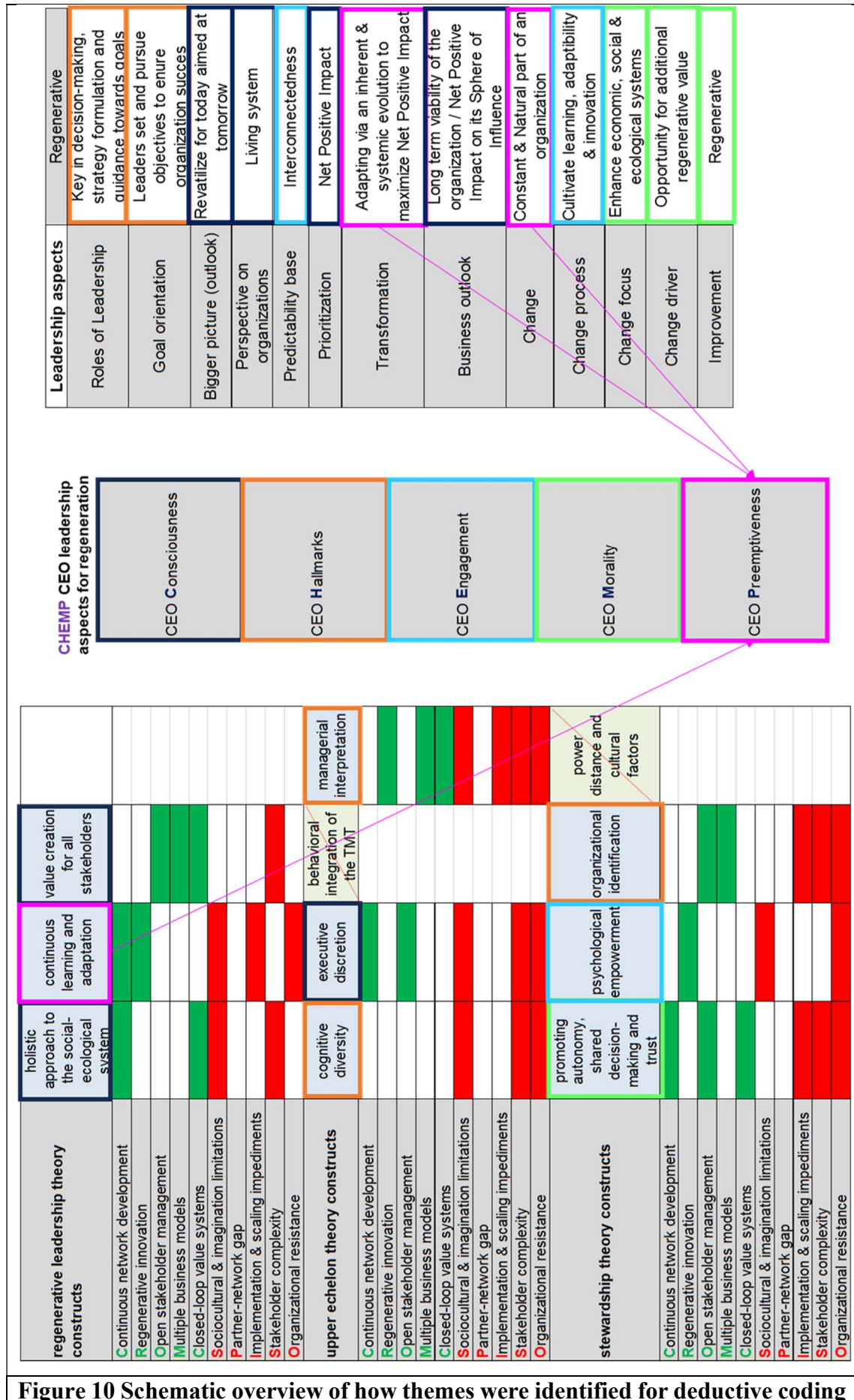
Figure 10 Schematic overview of how themes were identified for deductive coding

The five identified CEO leadership aspects for regeneration then served as the basis for the empirical data analysis, providing a structured framework to explore and analyze the collected data, as explained in Section 1.3 (Figure 2, (-5-)).

The 'narrative' quotes were grouped into the predetermined 5 CEO leadership aspects for regeneration. As the leadership aspects often are interconnected, while some quotes hold multiple aspects, specific quotes could arguably be attributed to multiple CEO leadership aspects. For instance: *'Adopting a sustainable business outlook means thinking about the long-term impacts of our decisions'* (#55, Female CEO & second generation co-owner, 35 years old, at a Taiwanese trade company) or *'Dealing with resistance and skepticism has been emotionally taxing, but staying committed to our sustainable vision is crucial.'* (#51, Female CEO, 40 years old, US educational institution) can be attributed to CEO Consciousness (as in 'understanding the responsibilities of a business don't end at their formal boundaries, nor do they need to be 'easy'), but also to CEO Hallmarks (as in 'clear and consistent goalsetting now and for the future'). In cases were a quote expressed aspects of multiple CEO leadership aspects, it was categorized under each of them.

Illustrative examples of the coding process

The quote *'I always prioritize initiatives that promise the most significant sustainable impact, even if they don't offer immediate financial returns'* (#41, Male, COO & co-owner of a European food and beverage company) was coded in CEO Consciousness, CEO Hallmarks, and CEO Morality.

The quote *'Communicating the long-term benefits of sustainability, despite short-term questions, has been a critical aspect of my leadership.'* (#52, German VP R&D, 50 years old, 20 years tenure, at a global chemical company). was coded into CEO Consciousness, CEO Hallmarks, and CEO Morality.

This categorization also served as a framework for analyzing and developing leadership competencies in the context of regenerative business practices. As participants typically reflected on their own leadership or the (typically higher-up) leadership within their organization, the quotes were understood as topical, not necessarily evident of the specific leadership quality of that topic nor its actual evidence in practice. For instance: *'as a leader, my role involves demystifying ways to renew the environment for my team, ensuring everyone is aligned and moving in the same direction'* (#54, CEO of multinational in mobility services) was coded to the aspect 'CEO Engagement'. Thus acknowledging the importance of the aspect to the participant, but refraining from qualifying the aspect as being done well or poorly. The output of this deductive coding process is presented in Appendix 6. In total 128 quotes were analyzed and categorized under one or more CEO leadership aspects. The 5 CEO leadership aspects for regeneration were found to jointly be comprehensive enough to represent all quotes in

their given context. In Table 6, the 5 aspects are ranked according to their number of mentions.

CEO leadership aspects for regeneration	frequency	percentage
Consciousness	43	26%
Hallmarks	58	35%
Engagement	27	16%
Morality	19	11%
Preemptiveness	21	13%
	168	100%

Table 6 Ranking mentions of the five CEO leadership aspects for regeneration

This process further validated and refined the exact definition and scope of the five CEO leadership aspects, ensuring they accurately represent key aspects of leadership necessary for fostering regeneration. Their final description is given below.

As the literature review showed, the role of CEOs and leadership in steering organizational change towards regeneration is key (Maak et al., 2016). Building on that, the basis for investigating CEO leadership aspects for regeneration stems from the upper echelon theory's explicit focus on executives' personal attributes directly influencing organizational strategies and performances, as opposed to a prior focus on structural and economic factors (Hambrick, 2007). In the context of this research, this would mean that moving towards regenerative business practices is possible in any given context, as long as the adequate leadership is present. Given the lack of empirical substantiation of this, whether adequate CEO leadership for regeneration is always sufficient remains inconclusive. However, it can be stated that it is of utmost importance and probably preconditional for sustained progress towards regeneration.

Ultimately, the five CEO leadership aspects for regeneration were captured under the acronym '**CHEMP**', as described below.

C: **CEO Consciousness (l1)** encapsulates a leader's profound grasp of the interplay between business operations and the broader social-ecological system, echoing the insights from regenerative leadership literature (Hardman, 2010; Senge et al., 2008) and

the latitude of action for a CEO in making decisions and choosing behaviors. This perspective mandates decisions that harmonize with ecological and social imperatives, affirming upper echelon theory's emphasis on executive discretion in shaping organizational outcomes (Hambrick & Finkelstein, 1987). Such decision-making draws from a commitment to creating value for all stakeholders—employees, customers, communities, and the environment—underscoring a redefined notion of organizational welfare that extends to the entire social-ecological system (Davis et al., 1997; Senge et al., 2008). As previously discerned, when managerial discretion is high, CEOs' values and perceptions influence openness and disclosure on sustainability (Everaert et al., 2019). The broadened concept of welfare for all stakeholders aligns with stewardship theory's perspective, advocating for a leadership approach that transcends personal gains in favor of regenerative practices that benefit both stakeholders and the environment (Crilly et al., 2012; Hernandez, 2008). CEO Consciousness includes the call-to-action from Gibson et al., when they state that leadership is responsible for navigating their organizations towards more sustainable and resilient business models (Gibson et al., 2013). CEO Consciousness is characterized by a readiness to embrace uncertainty and complexity, a departure from the more risk-averse approaches seen in traditional and sustainability leadership models. It promotes a mindset aimed at ecosystem enhancement rather than mere harm reduction or exclusion of the social-ecological system from strategic considerations. This leadership aspect addresses Raworth's challenge to create an economic system that allows us to meet the needs of all people within the 'Doughnut' (Raworth, 2017) on the individual organization level. Effective regenerative leadership, as such, necessitates the ability to exercise discretion across the social-ecological spectrum, ensuring that every decision contributes positively to a regenerative future. This discretion has a formal component – like organizational policies and procedures, regulatory frameworks, and authority levels –, but the 'informal' limitation of managerial discretion – for instance due to institutional isomorphism (DiMaggio & Powell, 1983) or organizational and personal characteristics – can also significantly impact the scope and effectiveness of a CEO's decision-making capability. CEO Consciousness shows awareness of and adequately handling of these factors to maximize managerial discretion for the social-ecological system. Originally conceptualized as Chief social-ecological system discretion, the term has evolved to CEO Consciousness for consistency and practical application within the leadership model, emphasizing a systemic, stakeholder-inclusive approach to regeneration. In the empirical analysis, CEO Consciousness was highlighted in 26% of the leadership

quotes, underlined by statements such as *'Adopting a regenerative business outlook means thinking about the long-term impacts of our decisions'* (#55, Female CEO & second generation co-owner, 35 years old, at a Taiwanese trade company), emphasizing a forward-looking, impact-conscious approach. This aspect was further illustrated by *'in navigating our company towards regeneration, my understanding of sustainable ecosystems has been key; it's not just about reducing harm, it's about actively contributing to the environment's health'* (#58, Male Managing Director, 48 years old, at a US real estate company), showcasing a proactive contribution to environmental health. Additionally, *'our decision-making is driven by what's best for the planet and people, not just our profit margins'* (#87, Male General Manager, 49 years old, 15 years tenure, at a financial service provider) reflects a prioritization of ecological and social well-being over financial gains, embodying the essence of CEO Consciousness in operationalizing a regenerative vision. The quote *'As a leader, instilling environmental consciousness throughout our corporate culture is imperative for regenerative success'* (#61, Male CEO, 55 years old, US based private education institute) illustrates how a CEO voices the consciousness of the responsibility for the social-ecological system and the managerial discretion to act upon it. Finally, *'Our environmental consciousness drives us to pursue practices that support and revitalize natural ecosystems'* (#37, Female CMO, 40 years old, German based agricultural company) is a direct statement of how CEO Consciousness drives regeneration in an organization.

H: The distinctive traits or **CEO Hallmarks (l2)** differentiating CEOs for regeneration from traditional and sustainable leaders emphasize the importance of clear, visionary communication that is open to new ideas and rigorous in evaluating the impact of their actions. This approach is reinforced by the literature review on regenerative leadership, which suggests that principles of business management, such as creating shared value, corporate social responsibility, and adherence to the triple bottom line, are essential for a CEO's balanced approach to economic, social, and environmental responsibilities (Fullerton, 2015). The upper echelon's theory, particularly its focus on managerial cognition, further elaborates on how CEOs' personal experiences and characteristics shape their interpretation of situations and, consequently, their strategic decisions (Walsh, 1995). The ability to view the business as part of a larger interconnected system, focusing on holistic impacts and leveraging strategic points for regenerative transformation is another characteristic in CEO Hallmarks (Meadows, 2008; Senge et al., 2008). Hence, a CEO's diverse 'toolkit' of perspectives and lived

experiences significantly enhances their decision-making and leadership capabilities. According to regenerative leadership theory, redefining success to encompass value creation for all stakeholders and fostering community and environmental well-being are crucial aspects of a CEO's profile (Sanford et al., 2011). Testimonials from CEOs and top managers highlight the importance of authenticity in sustainability efforts: *'Authenticity is key; people can sense when a company is genuine about its sustainability efforts; it's about being part of the change, not just marketing it'* (#15, Male co-CEO/co-owner, 35 years old, 10 years tenure, global marketing agency). Likewise, the role of leadership in driving regenerative change: *'As a CEO, I see myself as a driver of change, pushing our company towards more ways to renew the environment'* (#82, Female CEO, 35 years old, Dutch private education institute) and *'I drive change by setting an example and encouraging others to join the regenerative movement'* (#50, Male Managing Director/owner, 67 years old, US based legal firm). The emphasis on generating positive impacts rather than merely mitigating negatives is illustrates by quotes like: *'Leading a regenerative change is tough; it requires not just planning but also strong feelings'* (#20, Male CEO/owner, 50 years old, Benelux food retailer) and *'The focus of our change efforts is on creating positive impacts, not just reducing negatives'* (#31, Male COO, 55 years old, Dutch housing corporation).

E: **CEO Engagement (l3)** in regenerative leadership encapsulates a leader's adeptness in cultivating trust, nurturing relationships, and actively involving a broad spectrum of stakeholders, showcasing a holistic approach that transcends social, economic, environmental, and spiritual dimensions to deliver value universally (Hardman, 2010; Senge et al., 2008). This aspect of leadership, distinguished from traditional and sustainable paradigms, champions a shared vision and collective action towards regeneration, underlining the transformative potential of engaged leadership in evolving business models (Hahn & Tampe, 2021; Konietzko et al., 2023) and fostering organizational cultures that embrace these ideals (Pai & Aithal, 2022). A pivotal aspect of this engagement is its emphasis on societal well-being and justice, underscoring the importance of building social equity and fostering community development (Ulanowicz et al., 2009). The ability to inspire and motivate employees, and drive consistent organizational performance towards regeneration as stated by Kaplan et al. (2008) is part of this leadership aspect. The critique of regenerative business practices introducing stakeholder resistance (Geissdoerfer et al., 2018) should be addressed by this leadership aspect. Illustrating this approach, one leader

shared, '*As a leader, my role involves demystifying ways to renew the environment for my team, ensuring everyone is aligned and moving in the same direction*' (#54, CEO of multinational in mobility services), highlighting the importance of clear direction and collective understanding in regenerative efforts. Another noted, *'If you believe in something or support it, your engagement is more meaningful'* (#20, Male CEO/owner, 50 years old, Benelux food retailer), emphasizing the value of genuine commitment to the regenerative cause. The strategic aspect of this is captured in the reflection, *'Staying goal-oriented lets us track our progress in tangible ways as we strive for regenerative outcomes'* (#14, Male co-CEO, 30 years, second generation family business in building renovation), indicating the importance of measurable achievements in the regenerative journey. Furthermore, the emotional dimension of leading transformative change is acknowledged, *'The journey towards regeneration has been as much an emotional process as a strategic one, involving highs and lows as we break new ground'* (#54, CEO of multinational in mobility services), underscoring the complex, multifaceted nature of regenerative leadership. 'As a leader, my role involves demystifying ways to renew the environment for my team, ensuring everyone is aligned and moving in the same direction'(#54).

M: The ethical conduct of regenerative leaders, encapsulated by their **CEO Morality (l4)**, manifests through a steadfast dedication to the welfare of society and the environment, paired with the skill to adeptly navigate the emotionally charged and intricate terrain of transformative change. Central to this leadership aspect is the nurturing of life-affirming businesses that harmonize with natural systems, embodying a profound alignment with ecological principles (Hutchins & Storm, 2019). Distinguished from other leadership models, regenerative leaders are propelled by moral imperatives, transcending mere compliance and profit motives to embrace a morally and ethically grounded business ethos that aspires to benefit all stakeholders (Caldwell et al., 2008). The concept of fair distribution is part of CEO Morality (Costanza et al., 1996). This leadership aspect becomes truly critical in addressing the by critics noted potential overemphasis on economic benefits of sustainability efforts (Murray et al., 2017). Ultimately, when prioritizing sustainability trade-offs – like resource efficiency over comprehensive ecosystem health – calculation and awareness can 'only' do so much. At some point an objective moral judgment is needed. A similar dilemma might occur when optimizing value networks for regeneration. As seen in literature, the reliance on advanced technologies like IoT and AI may exclude businesses with limited technological access,

especially in developing regions (Korhonen et al., 2018). Whether an organization offers help and access for current and potential value network partners to these technologies cannot be addressed purely from a 'business case' approach, even if those include multiple value creation for the involved stakeholders (as they should). The choice here is whether a partner should be helped to remain or become a value network partner. This approach to leadership intrinsically prioritizes the creation of value for all involved parties, translating into the well-being and fair treatment of employees, customers, communities, and the environment—a cornerstone of regenerative principles (Senge et al., 2008). Within the context of stewardship theory, these leaders emerge as moral agents, championing organizational ethics and the broader interests of stakeholders (Crilly et al., 2012). The critique of unintended consequences of regenerative business models, such as the 'rebound effect' where increased efficiency boosts overall consumption, and potential job losses in traditional sectors (Sorrell, 2007) is also in the realm of CEO Moralism. One leader poignantly remarked, *'There does not have to be a payback model in being more sustainable'* (#41, Male, COO & co-owner of a European food and beverage company), emphasizing the intrinsic value of sustainability beyond financial returns. Another shared, *'It's better to work on projects that align with your values'* (#15 Male co-CEO/co-owner, 35 years old, 10 years tenure, global marketing agency), highlighting the importance of ethical congruence in their endeavors. The source of genuine motivation is further explored, *'True motivation comes from a belief in making a positive difference'* (#58, Male Managing Director, 48 years old, at a US real estate company), reflecting the inner drive towards impactful change. The sentiment, *'I believe genuine commitment to sustainability is crucial'* (#14, Male co-CEO, 30 years, second generation family business in building renovation), underscores the foundational role of moral authenticity in regenerative leadership. Lastly, the encompassing nature of this approach is captured, *'The regenerative approach is all-encompassing, impacting the social, economic, and environmental threads of life'* (#31, Male COO, 55 years old, Dutch housing corporation), illustrating the comprehensive impact of regenerative leadership on various facets of existence.

P: **CEO Preemptiveness (l5)** embodies a leader's capacity to foresee and navigate future challenges and opportunities, thereby initiating change proactively rather than as a mere response to external pressures. This quality is central to regenerative leadership, which is characterized by a forward-looking approach that seeks not only to adapt but to transform organizational practices innovatively. Regenerative leaders are distinguished

by their commitment to continuous learning and adaptation, fostering environments where feedback, innovation, and resilience are paramount. This proactive stance is crucial as organizations contend with the complexities of the global business landscape, highlighting the significance of adaptability and a relentless pursuit of innovation (Gidley, 2017; Sanford et al., 2011; Wahl, 2016). The leaders' dedication to discovering new solutions and their responsibility to act in the best interest of society reflect a deep commitment to future-oriented leadership (Brammer et al., 2007; Sama et al., 2022; Tóth et al., 2022). The preemptive stance includes awareness of supportive regulatory and policy changes – like the EU's circular economy action plan and the Green Deal – which promote sustainable and resilient business models (European Commission, 2020), and knowledge of legislation – like the 'right to repair' and anti-planned obsolescence laws – emphasizing product longevity, waste reduction, and sustainable consumption (Moore, 2020; *Right to Repair*, n.d.; Thursday et al., n.d.). On the opposite side of the spectrum, this leadership aspect should safeguard the organization from institutional isomorphism (DiMaggio & Powell, 1983), allowing it to act in the best interest of the organization and its social-ecological system. This convergence is driven by pressures to conform to norms, rules, and standards that define legitimate organizational behavior in a given field. A quote of one leader, also referred to in CEO Engagement – articulated, *'Staying goal-oriented lets us track our progress in tangible ways as we strive for sustainable outcomes'* (#14, Male co-CEO, 30 years, second generation family business in building renovation), emphasizing the importance of measurable objectives in guiding preemptive actions. The same person conveyed, '*Guiding the change process effectively requires clear vision, commitment, and patience'* (#14), highlighting the essential attributes for leading transformative efforts. Reflecting on the broader implications of leadership decisions, a leader noted, *'Adopting a sustainable business outlook means thinking about the long-term impacts of our decisions'* (#55, Female CEO & second generation co-owner, 35 years old, at a Taiwanese trade company), underscoring the forward-thinking mindset required in regenerative leadership. The proactive approach to sustainability is further advocated, *'Companies should be more proactive in reducing emissions and using sustainable materials'* (#17, Male CEO, 50 years old, at a Scandinavian retailer in hobby and craft supplies), illustrating the urgent need for anticipatory actions in environmental stewardship. Conversely, a reflection on the potential consequences of a lack of ambition in sustainability efforts reveals, *'So call it maybe not overly ambitious, but I don't have the impression – I can contribute to it – that I'm going to get the wheel*

turning towards more sustainability' (#36, Female CMO/second generation co-owner, 28 years old, European processor of natural stone), highlighting the critical need for leadership drive in achieving significant sustainable transformations.

Testing the found CEO leadership aspects for relevance in business practice

As described in Section 1.3, the refined examination of the CHEMP leadership aspects was conducted through a series of three workshops specifically with non-CEOs, labeled '100 biggest culprits' (Figure 2, **(-6-)**). The involvement of business practitioners and stakeholders in validating CEO leadership aspects for regeneration was chosen due to their provision of practical insights, diverse perspectives, and alignment with stakeholder interests, which collectively enrich the validation process. Practitioners offer firsthand experiences that ground leadership aspects in real-world applicability, while the inclusion of a broad spectrum of stakeholders—ranging from employees to investors—ensures a holistic examination from multiple vantage points. These sessions involved participants numbering from five to twelve, who were introduced to a scenario where they assumed the roles of CEOs from leading global companies. These companies were characterized by their significant negative impact on the environment, positioning them within the top 100 global companies contributing to environmental degradation. The primary goal was to engage these executive role-players in a collaborative effort towards transitioning their businesses to adopt regenerative practices, guided by the facilitation of an expert researcher. This setting aimed to assess the applicability and emergence of various CEO leadership aspects within the context of regenerative business transition, in an environment where each participating company was a significant contributor to global environmental challenges. Throughout the workshops, all identified leadership aspects were discussed, though their frequency and relevance varied according to the unique dynamics of each session. This variance provided insights into the adaptability and relevance of the leadership themes within the assumed business context, highlighting the complexity and diversity of leadership challenges in steering large corporations towards sustainability.

Why?

PROBLEM: Representatives of different stakeholders often fail to understand the complexities related to the specific role, which hampers joint problem solving & co-creation

CONTEXT: Simulation of a 'real life' setting that requires active argumentation and reflection of a stakeholder

OUTPUT: List of aspects found to affect the role, felt contradictions, observations, insights

OUTCOMES: Increased understanding of various stakeholders & potentially helpful insights on how to facilitate constructive interaction

Who?

ROLE/EXPERIENCE: Any representative of a specific stakeholder group with at least 1y of experience in that role

DYNAMICS: All participants have the role of a CEO of a specific company from the list

The workshop facilitator has the role of external consultant/content expert on external developments

How?

FORMAT: ONSITE or ONLINE (not HYBRID) – 1 to 2 hrs Prepare Add-in findings capture[a] & side-info[a] 1 facilitator >10 participants, split in groups and instruct co-expert

TOOLING: Field notes Flip charts

What?

ACTIVITIES: Pre-reading/-info[a] Introduction/context setting Roles to take (give/choose) Simulate the situation Evaluate (content & format) Capture output[a]

INFO-STRUCTURE: Input: pre-read Output: list of insights Work canvas: discussion

Remedy?

ACTION: 'Breaking news' or 'Jammer/NGO representative'

AIM

Align participants	
Change Management	
Conflict Resolution	
Create a joint base	
Engage participants	
Enhance mutual understanding	✓
Experience complexity	✓
Feedback Loop	
Gather insights	✓
Have fun	
Idea generation	
Process Improvement	
Reach agreements	
Skill Development	
Stakeholder Engagement	
Strategic Alignment	
Team Building	

DELIVERABLE

Action plan	
Feedback forms	
Guideline	
List of insights	✓
List of priorities	
Minutes	
Prototypes/models	
Roadmap	
Skill assessment	
Stakeholder Map	
Storyboard	
Video	
Vision document	
Visualization	

Figure 11 The 100 biggest Culprits – workshop

The general setup of the workshops is presented in Figure 11. The participants ranged in age approximately between 22 and 62, predominantly with a Dutch background and quite evenly spread between female and male. The invitation was very basic, along the line of 'in our next meeting, I want to take 60 minutes of your time to discuss specific findings of my research'. After a quick introduction to who the participants were meant to be (the CEO of 1 of the top-100 companies with the highest net negative impact in the world), they were given 2 minutes to choose the company they would represent. The researcher introduced himself as an expert facilitator of the meeting, which was aimed at finding some initial ideas on joint and common ground to change their negative impact to a positive one in the upcoming years. After an introduction to the state of the world and the role of the 100 biggest companies of which each participants/CEO's company was one, the group was left to discuss the issue and solutions among themselves only occasionally assisted by the expert when specifically addressed or when the participation wavered.

In every workshop the discussion started immediately and surprisingly most participants quickly embraced their roles as CEOs. The wealth of perspectives and angles with which the problem was addressed proved unexpectedly high for the researcher when comparing this to his own business background and experience. In the evaluation this was mentioned and an overall conclusion was that the vast majority of the participants had never been in a CEO type of role and about 40% had no actual business experience. As such it was an outside-in perspective that could account for the broad approach and multitude of perspectives from the sessions.

The ultimate aim was to validate and refine the 5 CHEMP CEO leadership aspects for regeneration. It was established that the 5 leadership aspects have the ability to cover all leadership aspects showed, however their definition and depth needed to be revisited. The five CEO leadership aspects proved sufficiently robust and complete as determinants influencing effective CEO leadership in transitioning to regenerative business practices. These themes offer a comprehensive understanding of the complex and multifaceted role of CEOs in spearheading regenerative initiatives.

As presented in Section 1.3, the validation of the five CHEMP leadership aspects for regeneration was complemented by a series of three expert interviews with CEOs across a spectrum of industries (Figure 2, **(-6-)**). In these sessions, CEOs were invited to delve into the relevance and practical application of each leadership aspect, integrating them within their unique organizational contexts and challenges. The methodological approach entailed presenting each leadership aspect according to a predefined definition, accompanied by two illustrative quotes to anchor the concept. Following this introduction, CEOs were encouraged to seek clarifications, ensuring a robust understanding of each leadership construct. Once comprehension was assured, CEOs reflected on these aspects, often drawing on their own business experiences to provide real-world context. This reflective process was systematically applied to all five leadership aspects, culminating in a discussion aimed at identifying any potential gaps in the framework, inviting CEOs to suggest additions through examples or quotes. The valuable insights and feedback garnered from these interviews not only refined the conceptual definitions but, in some instances, led to the reevaluation of their nomenclature. This comprehensive process affirmed the practical relevance and critical importance of the identified leadership aspects, reinforcing their applicability in steering organizations toward regenerative practices.

3.3 Full model development

As outlined in Section 1.3, after preparing for the model for regeneration development based on the constructs from the SPISO barriers and CROMC capabilities in Section 2.3 (Figure 2, **(- | -)**), in this section the CHEMP CEO leadership aspects were incorporated into the model (Figure 2, **(- || -)**). As for the barriers and capabilities, several interdependencies and considerations for prioritization emerged as relevant for the CEO leadership aspects and between all 15 components of the barriers, capabilities and CEO leadership constructs.

Interdependencies between CHEMP CEO leadership aspects

The interdependencies between the CHEMP CEO leadership aspects for regeneration reflect a complex and synergistic relationship that underpins effective regenerative leadership. These aspects are not isolated but deeply interconnected, each reinforcing and being reinforced by the others in a dynamic interplay that shapes a CEO's ability to lead their organization towards regeneration. Below is an exploration of these interdependencies:

CEO Consciousness (l1), characterized by a deep understanding of the business's impact on the broader social-ecological system, naturally complements **CEO Engagement (l3)**, which focuses on building trust and fostering relationships across a broad stakeholder spectrum. A leader aware of these complex interplays is better positioned to engage stakeholders meaningfully, ensuring that engagement efforts are informed by a comprehensive view of the organization's role within the ecosystem.

The distinctive **CEO Hallmarks (l2)**, which emphasize visionary communication and openness to new ideas, are critically supported by **CEO Morality (l4)**, the ethical underpinning of leadership actions. Ethical conduct ensures that the innovative and forward-thinking approaches championed by CEO Hallmarks are grounded in a commitment to societal and environmental welfare, thus ensuring that leadership is not only innovative but also ethically responsible.

CEO Engagement (l3) in cultivating a shared vision and collective action is enhanced by **CEO Preemptiveness (l5)**, the foresight to navigate future challenges. Engaged leadership that is also preemptive can foster an organizational culture that is both

collaborative and forward-looking, making it more resilient and adaptable to future challenges and opportunities.

CEO Morality (l4), with its focus on ethical conduct and societal welfare, feeds into and is fed by **CEO Consciousness (l1)**. A moral leader is inherently conscious of the broader impacts of business decisions, and this consciousness, in turn, informs the moral compass of the CEO, ensuring decisions are made with a comprehensive understanding of their ethical implications.

CEO Preemptiveness (l5), the capacity to foresee and initiate change, is crucial for the visionary communication and openness to new ideas highlighted in **C**EO Hallmarks (l2). A preemptive approach ensures that the vision communicated by the CEO is not only innovative but also anticipatory of future trends and challenges, allowing the organization to stay ahead in its regenerative efforts.

Prioritization of CHEMP CEO leadership aspects

Prioritization among the five CEO leadership aspects for regeneration is inherently interconnected, reflecting a holistic approach rather than a hierarchical one. However, understanding their relative emphasis as listed below, provides insight into effective leadership for regeneration.

CEO Consciousness (l1) forms the foundational layer, as it encapsulates a leader's deep understanding of the business's impact on the broader ecosystem and the discretion to act upon it. Without this awareness and managerial discretion, efforts in other areas may not be fully aligned with regenerative principles. CEO Consciousness underpins the strategic orientation towards regeneration, guiding decision-making that considers ecological and social imperatives.

CEO Morality (l4) acts as the ethical compass for the organization, ensuring that actions taken are not only strategic but also ethically sound and aligned with the welfare of all stakeholders. It ensures that the organization's direction is morally grounded, prioritizing long-term ecological health and social equity.

CEO Engagement (l3) on the foundation of consciousness and morality, engagement focuses on cultivating trust and relationships across stakeholders, essential for collective

action towards regeneration. Engagement operationalizes the vision and ethical stance into tangible collaborative efforts, mobilizing internal and external stakeholders towards shared goals.

CEO Preemptiveness (l5) ensures that the organization remains forward-looking and proactive in addressing future challenges and opportunities. It builds on the established ethical framework and stakeholder engagement, guiding the organization to anticipate changes and innovate continually, thereby maintaining resilience and adaptability.

CEO Hallmarks (l2), while not last in importance in the strict sense, reflects the manifestation of the above aspects in the leader's distinct traits and actions. It encapsulates how leaders communicate, embody, and operationalize their consciousness, morality, engagement, and preemptiveness, differentiating regenerative leaders from traditional and sustainable leadership paradigms.

This prioritization does not imply a strict sequence but rather highlights the foundational role of **CEO Consciousness (l1)** and **CEO Morality (l4)** in shaping a regenerative leadership approach, with engagement, preemptiveness, and distinctive hallmarks building upon this foundation to drive comprehensive regenerative transformation. Each aspect reinforces and is reinforced by the others, creating a dynamic and integrated model for leadership in regeneration.

Interdependencies between CHEMP CEO leadership aspects and CROMC capabilities

These interdependencies between CEO leadership and building regenerative capabilities are direct and surmount via these capabilities the systemic barriers. Specific CEO leadership aspects help to identify and classify some systemic barriers sooner and more explicitly. As this aspect of CEO leadership arguably is reflected in the interdependency with the capabilities, these connections are not explicitly discussed nor visualized in the relations between the constructs.

influence of CEO leadership on capabilities			CHEMP CEO leadership for regeneration	l1 Consciousness	l2 Hallmarks	l3 Engagement	l4 Morality	l5 Preemptiveness
c1l1	direct influence							
c1l2	aligned influence							
c4l5	facilitative influence							
	indirect influence							
CROMC capabilities for regeneration								
c1	Continuous network development			c1l1	c1l2	c1l3	c1l4	c1l5
c2	Regenerative innovation			c2l1	c2l2	c2l3	c2l4	c2l5
c3	Open stakeholder management			c3l1	c3l2	c3l3	c3l4	c3l5
c4	Multiple business models			c4l1	c4l2	c4l3	c4l4	c4l5
c5	Closed-loop value systems			c5l1	c5l2	c5l3	c5l4	c5l5

Table 7 Interdependencies between CHEMP CEO leadership and CROMC capabilities

CEO Consciousness (l1) is foundational, influencing all other aspects by ensuring leaders understand and prioritize the interplay between business operations and the broader social-ecological system.

CEO Hallmarks (l2), through visionary leadership, directly impacts **Regenerative innovation (c2)** and **Multiple Business Models (c4)** by driving the strategic direction towards sustainability. It that same capacity, it has an aligned influence on **Continuous network development (c1)** and **Open stakeholder management (c5)** in driving an open mindset to cooperation outside of organizational boundaries and one's comfort zone.

CEO Engagement (l3) enhances **Continuous network development (c1)** and **Open stakeholder management (c3)**, as engaged leadership fosters stronger partnerships and stakeholder relations. High CEO engagement also has an aligned influence on all other capabilities.

CEO Morality (c4) underpins ethical considerations in **Closed-loop value systems (c5)** and the development of **Multiple business models (c4)**, ensuring decisions are aligned with broader societal and environmental welfare. In this capacity, it's aligned influence is present on the other capabilities too.

CEO Preemptiveness (c5) supports all aspects of CROMC by anticipating future challenges and opportunities, guiding the organization towards proactive rather than reactive strategies.

As depicted in Figure 12, the interdependencies and prioritizations within and among SPISO, CROMC, and CHEMP aspects reveal a comprehensive – and at first glance complex framework – where barriers are addressed through specific capabilities, all guided by strategic and ethical leadership qualities. This intricate web of interactions underscores the importance of a multifaceted approach to achieving regeneration, highlighting how leadership qualities directly influence organizational capabilities and, in turn, address systemic barriers to regeneration. While the conceptual model's complexity enriches scientific understanding, its direct application in business practice may encounter practical challenges. CEOs and businesses practitioners may find the model's complexity daunting. Simplifying the conceptual model will facilitate understanding and implementation, and allows for greater operational flexibility. Focusing on a subset of interdependencies or prioritizations that offer the most significant immediate impact can help organizations achieve early successes, build momentum, and gradually tackle more complex aspects of the model.

Note: all arrows between the aspects indicate the direction of the effect, whereas for all red arrows these effects are negative (as in barrier raising) and for the green and purple arrows positive (as in regenerative capacity increasing).
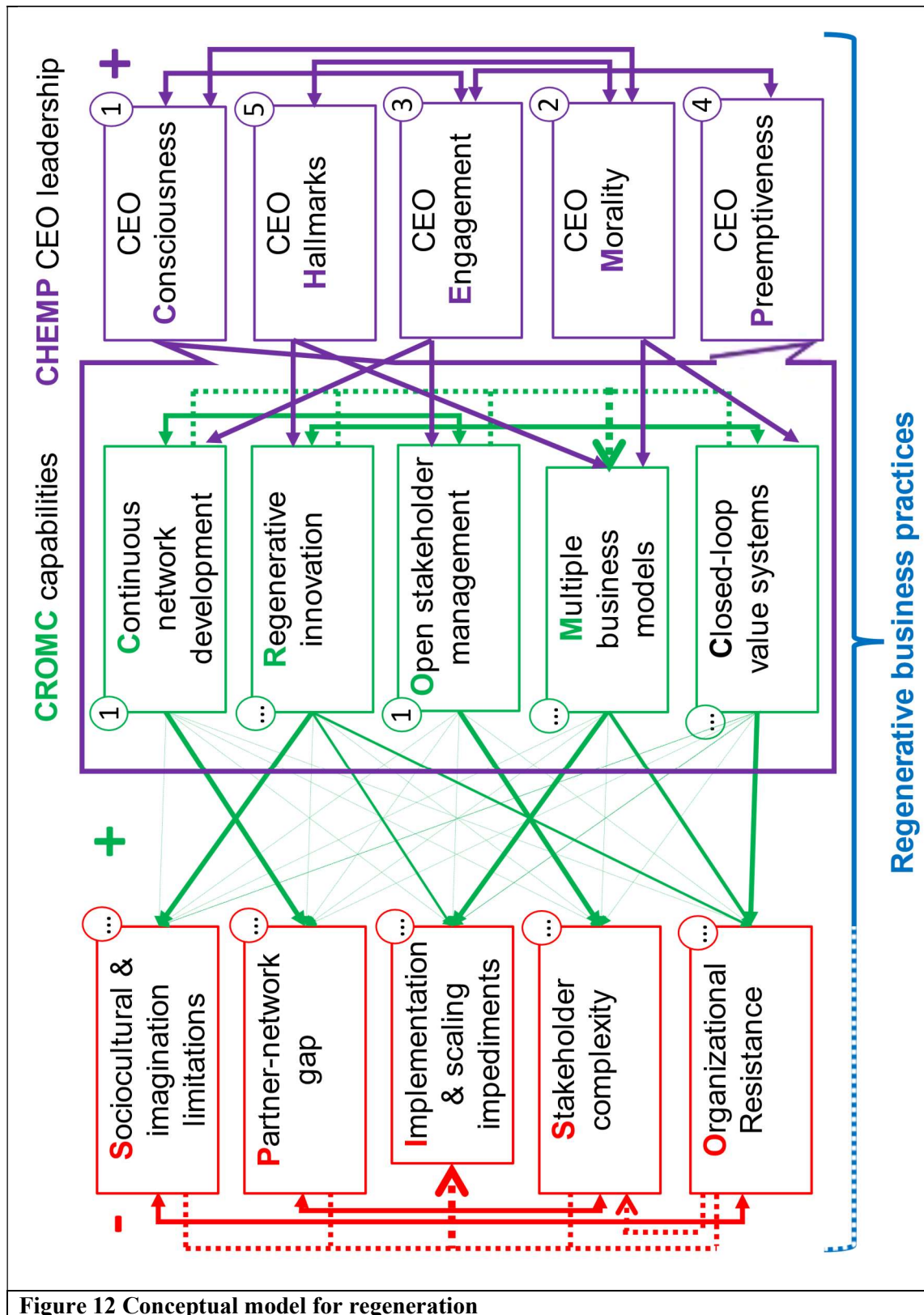
Figure 12 Conceptual model for regeneration

As visualized in Figure 13, the conceptual model of regeneration was distilled into a practice-oriented model, symbolized by the metaphor of a hurdles race. This analogy demystifies the journey from degenerative to regenerative business practices. In this race, the barriers identified by the SPISO framework are visualized as hurdles on the track, representing the diverse challenges that businesses must leap over to progress from a degenerative to a regenerative state. The capabilities outlined in the CROMC framework are akin to the athlete's skills and resilience, essential for overcoming each hurdle with speed, agility and strength. Furthermore, the CHEMP framework's leadership qualities are likened to the condition of the track, which significantly influences the hurdler's performance. This metaphor highlights the necessity for dynamic, continuous effort in adopting regenerative practices, emphasizing that surmounting these obstacles requires more than mere physical prowess – it demands strategic foresight, adaptability, and unwavering dedication.
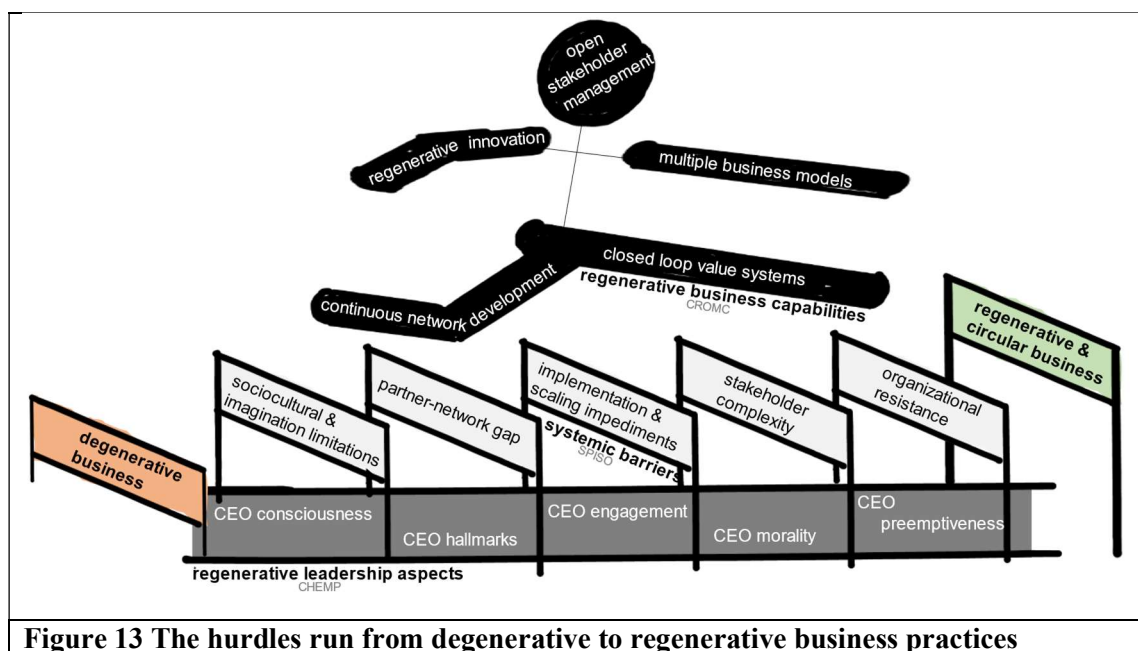
Figure 13 The hurdles run from degenerative to regenerative business practices

The race against these hurdles is not won through a singular effort but through a sustained strategy of adaptation, learning, and resilience, mirroring the athlete's journey of rigorous training and relentless refinement of technique. The quality of the track – shaped by effective CEO leadership – plays a crucial role, underscoring the importance of creating an enabling environment that supports the organization's regenerative ambitions. This analogy not only simplifies the conceptual framework for easier comprehension and practical application but also vividly illustrates the interconnectedness between overcoming regeneration barriers, harnessing organizational capabilities, and leveraging strategic leadership. It reinforces the view

that the path to regeneration is a proactive and iterative process, echoing the athlete's dedication to excellence. Through this metaphor, the model becomes a compelling narrative of transformation, inviting businesses to embark on a regenerative journey characterized by continuous improvement and guided by visionary leadership.

3.4 Summary of key findings

The role of CEO leadership in guiding organizations towards regenerative practices was critically examined, integrating insights from regenerative leadership theory, stewardship theory, and upper echelon theory. It introduces a construct named CHEMP, which stands for CEO Consciousness, Hallmarks, Engagement, Morality, and Preemptiveness. These aspects are identified as essential for overcoming the systemic barriers to regeneration outlined in Chapter 2. Through a combination of empirical analysis and theoretical examination, the chapter presents a compelling argument for the significance of transformative CEO leadership in embedding sustainability and regeneration at the core of organizational strategies, thereby contributing substantially to the attainment of the SDGs. Even though the focus is on the CEO in this study, regenerative leadership is a team effort, and further work is needed to understand better how the CEO is supported internally and externally in his actions. Nonetheless, the CEO acts as a 'champion' for being regenerative, which is why it was decided to focus on CEOs and propose the CHEMP model.

Key findings from this section:

1) CEOs, through their distinct leadership qualities, can effectively address systemic barriers to regeneration and foster the necessary business capabilities for such a transformation.

2) CEO leadership, categorized into five aspects (CHEMP), is pivotal for advancing towards regenerative business practices.

3) Along with the constructs for barriers (SPISO) and capabilities (CROMC), the groundwork is laid for both a conceptual and practical model for applying regenerative practices in business contexts.

Main points to retain from this chapter: CEO leadership, crucial for progress towards regenerative business practices, can be categorized into five leadership aspects (CHEMP). Together with the constructs for barriers (SPISO) and capabilities (CROMC),

they form the basis for a conceptual model for regeneration and a practical model for application in business practice.

4
Visualizing regeneration: three case examples illustrating the application of the developed consulting model

4 Visualizing regeneration: three case examples illustrating the application of the developed consulting model

This chapter offers a comprehensive exploration of the developed consulting model's practical application through three organizational case studies, emphasizing the dynamic interaction among the model, the prevailing business context, and the facilitator's role in guiding the transition towards regenerative practices. By delving into eight critical episodes, it meticulously examines how the model is deployed within diverse business environments to identify systemic barriers, cultivate regenerative business capabilities, and foster leadership conducive to regeneration. These narratives highlight the model's adaptability across various stages of organizational transformation, revealing the challenges, strategies, and successes encountered in fostering a culture of regeneration. Through workshops and spontaneous interactions, the chapter underscores the importance of flexibility, creativity, and leadership in implementing conceptual models in the corporate world, contributing significantly to the understanding of regenerative leadership and its practical application in steering organizations towards a more sustainable and resilient future. Based on these findings, the method for practical implementation is explained, together with the crucial facilitation of its implementation and application. Based on the analysis of this facilitation, the key aspects for good facilitation and the training towards it are illustrated.

The chapter is organized into three main sections: 1) the model application in practice, which outlines the practical application in three diverse business cases; 2) the discussion of the developed and refined method for implementation, along with the required facilitation and the training for it; 3) a discussion of the key findings and their implications, synthesizing the insights gathered into a comprehensive method for implementing the model for regeneration.

Main argumentation in this chapter: the developed model for regeneration is confirmed in validity and effectiveness by testing and refining it in business practice, leading up to a proposed structured method for implementation. Facilitation of the model's implementation is found to be vital for success. Complementing the model with the qualities required for facilitation and a training approach to achieve this, the practice-based approach for regeneration is presented.

4.1 Model application in business practice

As outlined in Section 1.3, in this section the facilitator's role is added to the research via an autoethnographic approach in studying the model's application in business practice. To examine the model's versatility in different contexts and to assess the facilitator's three cases and within them eight the pivotal episodes were selected.

<u>General introduction to the three case companies</u>

To contextualize the business environments of the featured episodes, a generic, anonymized portrayal of the three case companies, Do, Ju, and Ki, is presented. The researcher's engagement with these cases was structured and extended over considerable periods—a year and a half with Ki, some four with Do, and more than five years with Ju. Throughout these collaborations, the researcher's involvement was characterized by a consultative and advisory capacity.

Moving forward, the narrative will shift from a third-person perspective ('the researcher') to a first-person account to provide a more intimate and direct recounting of the research experience.

> *Typifying the chosen episodes from the cases as 'pivotal'*
> The term 'pivotal' aptly encapsulates episodes that signify a significant shift in direction, pace, or scope within a regenerative transformation process. Unlike 'integral' and 'fundamental,' which denote necessary and foundational aspects respectively, or 'critical,' which implies a heightened level of importance or urgency, 'pivotal' specifically conveys the transformative essence of these episodes. It denotes a central point around which other elements turn or adapt, reflecting the dynamic and transformative nature of these episodes. In the context of regenerative transformation, 'pivotal episodes' are those moments where strategic decisions, innovative practices, or critical insights lead to a marked change in the trajectory of the process. These are the junctures where the potential for regeneration is either significantly advanced or hindered, making the term 'pivotal' particularly resonant for describing such transformative phases in the journey towards sustainable and regenerative business practices.

For reasons of readability, this chapter comprehensively elaborates on the case of Ju with its underlying pivotal episodes. In the descriptive discussion, these Ju pivotal episodes serve as a detailed exemplar. In the subsequent analysis, significant findings of all pivotal episodes – including those at Do and Ki – are included. For an in-depth descriptive exploration of the cases Do and Ki, readers are directed to Appendix 7 (see Figure 14).
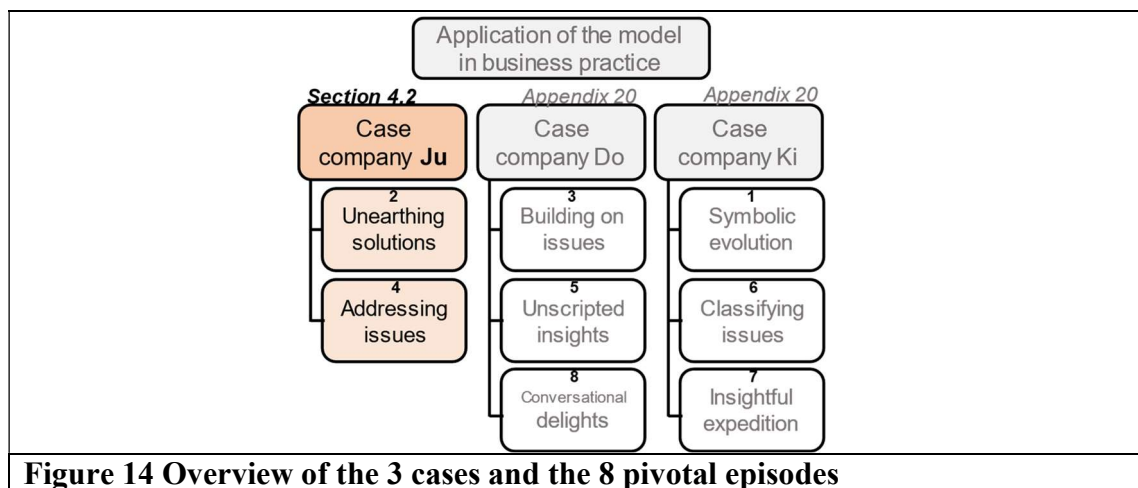
Figure 14 Overview of the 3 cases and the 8 pivotal episodes

Introduction to Ju Outdoor-kitchen Renovation

Ju Outdoor-kitchen Renovation commenced its journey in the quaint Dutch town of Fukuro, near the borders of Limburg and Belgium. Founded by Piet and Truus Janssen, Ju originated from a bathroom renovation enterprise in 1989. The couple, spotting a niche in the Dutch market for outdoor-kitchen renovation, sought to introduce a sustainable, maintenance-friendly, and hygienic solution. This led to the birth of Ju Outdoor-kitchen Renovation in 1990, distinguished as the inventor and sole developer of the outdoor-kitchen renovation product, thereby establishing itself as the leader in the market. Ju, reflecting its growth and customer demand, ceased bathroom renovations to focus exclusively on outdoor-kitchen renovations in the Benelux. This shift was marked by an expansion of their product range to include barbecues, outdoor furniture and outdoor lighting, offering comprehensive outdoor-kitchen renovation solutions. The company's commitment to quality and innovation led to its recognition as one of the '50 Best managed companies' in the Deloitte 'Building the Best' competition, highlighting its excellence in financial and talent management, as well as technology use.

Notable milestones include the establishment of Daiku production, an in-house production facility ensuring continual quality control, and the launch of the World Collection, featuring diverse metal, wood textures, concrete, marble structures, and leather looks, all produced exclusively by Ju. Ju has also ventured into media collaborations, notably with the TV program 'Escape to the Country', and expanded its operations to Scandinavia, France and Germany, in 2012.

Their 20th-anniversary celebration in 2010 highlighted their continual growth and innovation, and they actively engaged in social causes, like the campaign against cancer during the World Cancer Days from 2011 till 2019. Ju has shown a keen interest in

sustainable practices, exemplified by their collaboration with the German Minister of Agriculture for the utilization of Paulownia trees in their production processes, a move reflecting their commitment to sustainable and bio-based solutions.

In 2007, the company expanded into a new facility in Afuweren to accommodate its growth, and launched 'Ju Inspiration,' a showroom to immerse customers in the world of outdoor-kitchen renovation. Furthermore, Ju has been recognized as a 'World-class workplace' in 2020, with 93% of its employees expressing pride in their affiliation with the company.

The company celebrated its 25th anniversary in 2015, a significant milestone that saw the introduction of the Mirkwood decor and the publication of the 'Book of outdoor-kitchen stories,' a collection of fantasy stories symbolizing the company's dedication and energy. Ju continues to innovate and stay ahead of trends, as seen in their latest collections, including the Enka Collection, which embodies luxury and sustainability.

In summary, Ju Outdoor-kitchen Renovation represents a fusion of sustainable innovation, quality craftsmanship, and a deep commitment to social and environmental responsibility. This case study will explore how the developed model for regeneration fits in their journey and strategies, and how the initial experiences are in applying them.

Table 8 offers a concise summary of some of the mentioned key attributes Ju and compares them to the other case companies Do and Ki. The introduction (for Ju here in the main text, for Do and Ki in Appendix 7) and this table serve as a foundational prelude to the detailed discussion and analysis of the pivotal episodes. The most important aspects of differentiation relevant to this investigation are the company categorization and the ownership structure.

Company	Industry/Sector	Established	Company categorization	Ownership Structure	Corporate HQ Location	Employees global	Local entity location	Employees local	Sustainability & Regeneration Initiatives	Notable characteristic
Do	Mobility services	1980	multinational corporation	private equity	USA	5.000	NL	1.000	shared mobility energy hub safety & security labor inclusivity	merging cutting-edge technological solutions with modern urban design
Ju	Home improvement & renovation services	1995	SME	family owned	NL	250	NL	150	sustainable materials inclusive labor energy efficiency	as inventor of outdoor kitchen renovation a fusion of sustainable innovation and quality craftsmanship
Ki	Advanced technology	1900	multinational corporation	stock listed	Japan	200.000	NL	5.000	circularity product longevity inclusive labor	a symbol of resilience, innovation, and dedication to excellence in the high-tech industry

Table 8 Company characteristics of the 3 cases

The engagement with Ju Outdoor-kitchen Renovation

My first contact with Ju was established in 2016 in a prior business capacity. The actual engagement for this research was established as one of the first when the initial contours of it were forming. Over the course of almost five years, the relationship was with the CEO and top management, often on a weekly basis. During this period, I had full access to the company and its employees, but my main interaction for the purpose of this research was with 20 participants, many of whom were present throughout the full period. Although there were occasional telephone and videocalls (especially during the COVID-period), most of the communication was done in-person at the Ju facilities. Access to confidential data, written and oral, was given under a gentlemen's agreement which was implicitly assumed for my role, which can be described as mentorship.

Table 9 presents a comparative analysis of the nature of interaction established between case companies and myself in the dual capacity of researcher and facilitator.

Company	Period of engagement	Frequency of interaction	Main contact	Number of company participants	Access level	Nature of relationship	Mode of communication
Do	4 years (Oct. '20)	monthly	CEO	8	gentleman's agreement	professional	in-person
Ju	5 years (Apr. '19)	weekly	CEO	20	gentleman's agreement	mentorship	in-person
Ki	1½ years (Sep. '22)	bi-weekly	C-level	20	non-disclosure agreement	consultative	hybrid

Table 9 Type of engagement with the case companies

Notable differences between the 3 cases are the frequency and mode of interaction and the nature of the relationship. The frequency of interaction is partly a consequence of the nature of the relationship.

The 'addressing issues' workshop at Ju

This session occurred after an initial round of interviews with the key actors in the process at Ju, some 3,5 years into my overall engagement of more than 5 years with Ju. Following my suggestion for a joint work session to assess the status, Ju management consented to conduct a workshop, starting with five key issues that I had predetermined entering the session. These top five sustainability issues were selected based on previous interviews and meetings. The list was intended merely as a starting point for the session, not as a complete or fully accurate description of the issues. In discussions with the CEO and COO leading up to the session, it became clear that they recognized the session's potential

benefits but were unsure of the approach to take. They were comfortable with me leading the session, primarily in a facilitative role. The session took place in a spacious and airy meeting room at Ju's headquarters in Fukuro, featuring a large conference table at the center surrounded by six chairs, and at one end of the room, 5 flipcharts (referenced in Figure 15). These 5 predetermined key issues were displayed on a flipchart, positioned openly and transparently in the center of the room (position 3), visible to anyone passing by in the central hallway.
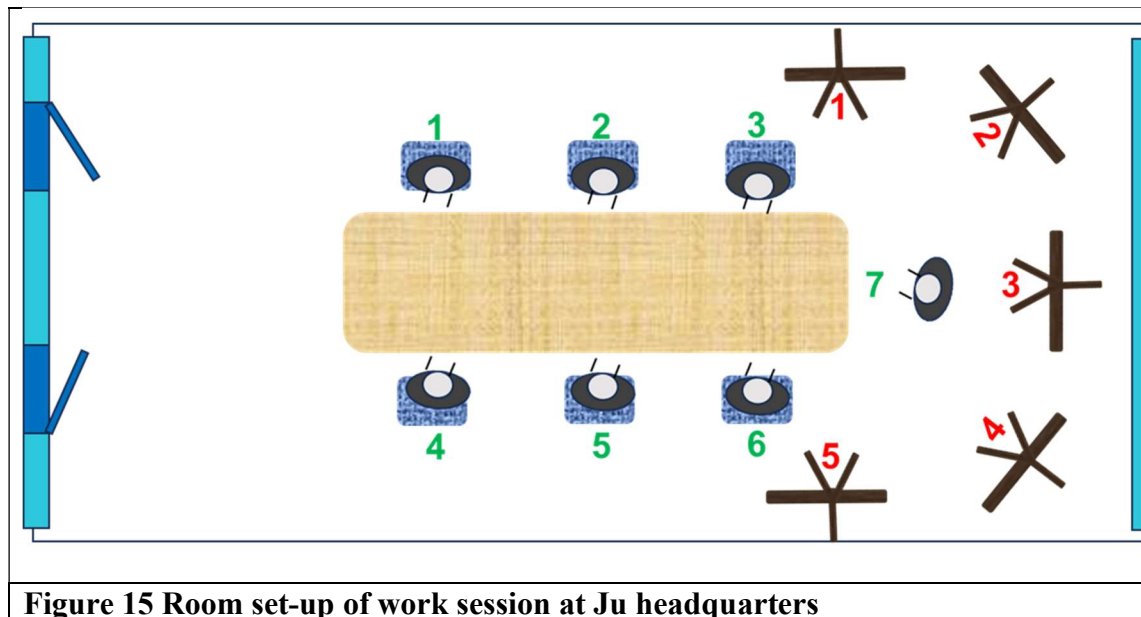
Figure 15 Room set-up of work session at Ju headquarters

After enjoying a light lunch that we had gathered ourselves in the company restaurant, the CEO, upon my previous request, opened the session. He began by explaining the reasons for the meeting and the events that had led up to it. Then, he briefly outlined the current status of Ju's sustainability journey, affirming its significance for the future and continuity of the organization. Subsequently, he handed over the floor to me. Present in the session were the CEO, COO, head of marketing, head of finance, head of manufacturing, and head of services. All seven of us, myself included, were well-acquainted and accustomed to conducting meetings together, though they were typically led by the CEO. My initial step was to offer everyone a chance to express their initial thoughts on the session briefly. Following the CEO's introduction, there was general agreement on the 'why' of the session, but some participants questioned the format and composition of the group. There was a consensus that more preparation was necessary and that additional staff members were needed to fully grasp the matter at hand. One of the flipcharts, positioned as number 1, was employed to document any pertinent points not directly related to the five issues. This approach facilitated a dual focus on both the

content of the issues and other relevant matters concerning context, process, expectations, etc.

After the initial round, I presented the issues, leading to their open and constructive discussion. This process culminated in a collective understanding and agreement on all issues by the team. Upon my inquiry, and while not exhaustive of all issues, the list was accepted as reflective of the current situation and the path towards regeneration. Subsequently, I briefly introduced a potential perspective on the five issues by presenting the five SPISO systemic barriers to regeneration. These were introduced as findings from my research, intended as a framework to examine situations, events, projects, etc. With this perspective in mind, we began revisiting the current challenges Ju faces in pursuing sustainable practices: (1) the absence of explicit consumer demand for sustainable products, (2) the lack of an affordable alternative to compressed wood pulp as a base material for countertops, (3) the inconsistent quality and availability of fully biobased pulp supply, (4) the degenerative nature of producing and installing some outdoor kitchens, and (5) the consideration of whether to include sustainability in our communication and, if so, how.

Approximately 10 minutes into the session, we initiated a second flipchart (positioned as number 2) to document the types of systemic barriers we were encountering. Issues (1) and (5) were primarily categorized under Stakeholder complexity (b4), while issues (2) and (3) were identified as Partner-network gap (b2), following the consensus that a technical solution existed but had yet to be discovered; issue (4) wasn't seen so much as a barrier, but rather as a current situation requiring attention, and thus it was recorded on the 'other session' flipchart (position 1). Upon reaching agreement on the two barrier types we faced, I shifted our focus to identifying what was necessary to surmount these barriers in relation to the four remaining issues (bearing in mind, issue (4) was earmarked for a future session). I documented the five regenerative capabilities (symbolized by the CROMC acronym) on the flipchart at position 4 and, utilizing color crayons, mapped the connections between the issues, their corresponding barriers, and the regenerative capabilities we determined were essential for overcoming them. This mapping process took around 20 minutes. The comprehensive details captured on the final flipcharts are illustrated in Figure 16.

Figure 16 The flipcharts at the end of the Ju workshop
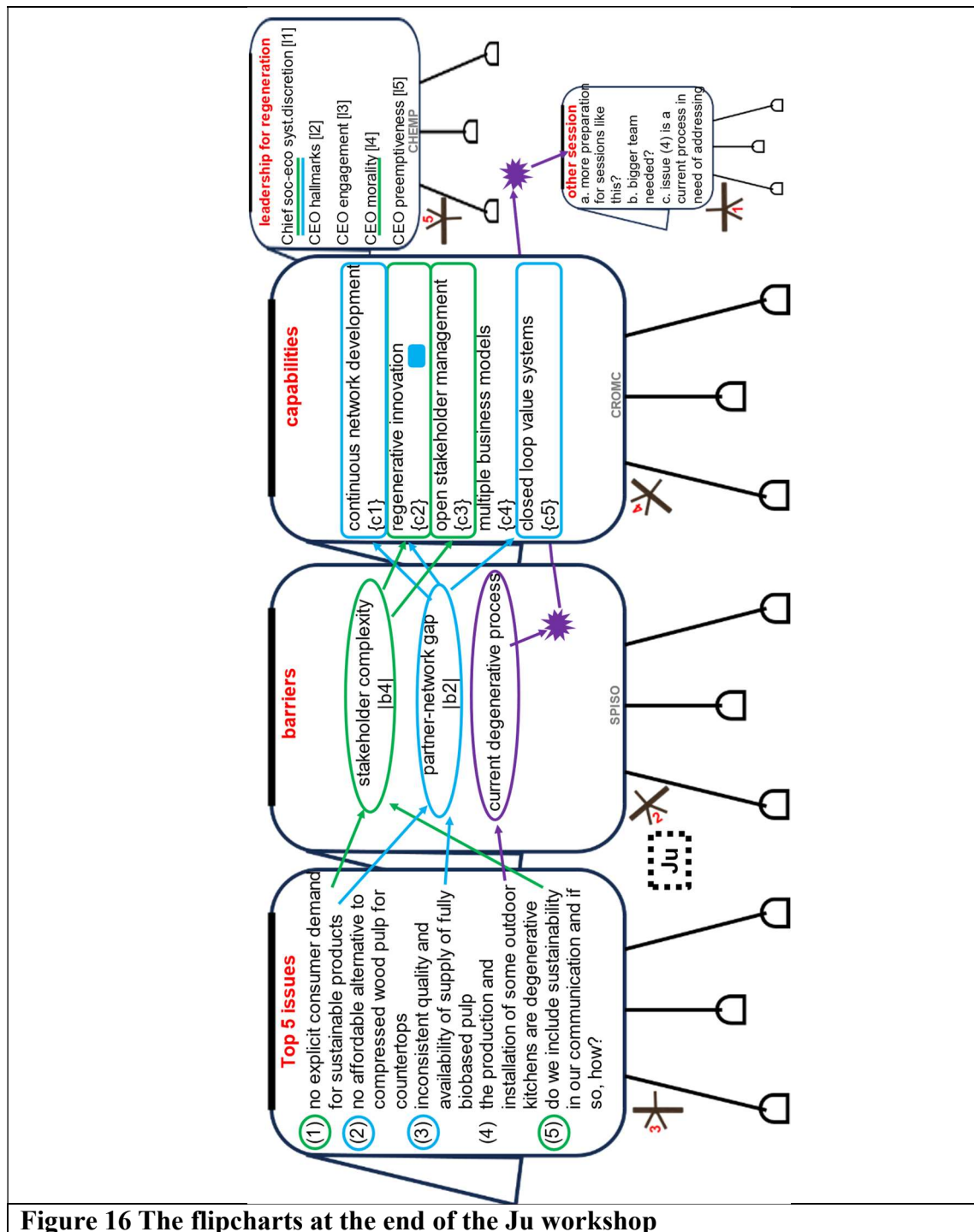
For instance, the issue of lacking explicit consumer demand for sustainable products and the absence of affordable alternatives was perceived as a fixed and unchangeable reality. However, when analyzed through the lens of systemic barriers, consumers emerged as stakeholders potentially connected to the company. Given that sustainability had not featured prominently in sales discussions, been highlighted as a selling point by buyers, or identified as a crucial brand aspect in marketing, it was implicitly assumed that consumers were indifferent to sustainability. Viewing this issue as stakeholder complexity, rather than an immutable fact, allowed participants to reassess what the issue

truly suggested and its validity. Identifying stakeholder complexity as a systemic barrier naturally led to connecting it with the capability for open stakeholder management. This realization prompted participants to question the authenticity of the initial claim, debate its verification through customer and sales data, and brainstorm ways to engage consumers with Ju's sustainability efforts. With guidance, this discussion eventually tied back to regenerative innovation. This approach was applied to the remaining three issues, linking them to two systemic barriers and identifying four regenerative capabilities as essential for overcoming these barriers. An in-session evaluation revealed that the first steps of capability building were occurring within the session itself, particularly through regenerative innovation and open stakeholder management, fostered by the session's creative process and the newly developed awareness and openness. After roughly 1.5 hours and a brief 15-minute break, the focus shifted to leadership requirements. Instead of explicating the five leadership aspects for regeneration, participants were encouraged to share their views. About 20 minutes later, I summarized their input on a fifth flipchart, leading to the identification of chief social-ecological system discretion (later in the research renamed to consciousness) and CEO morality as crucial for transitioning the session's approach into a standard practice for addressing the issues. Inquiry into feedback suggested that varying issues might necessitate different or additional leadership qualities beyond the two identified. Concluding the session after approximately two hours, a short evaluation highlighted three main insights: 1) the systemic barriers perspective offered a novel and empowering viewpoint on the issues, 2) identifying capabilities for overcoming barriers was a creative yet fact-dependent process, and 3) deliberating on the necessary leadership for regeneration proved challenging and abstract within this context.

The 'unearthing solutions' snippet at Ju

Sourcing sufficient biobased and circular raw materials for sustainable kitchen tabletops had been an issue at Ju for quite some time. Despite extensive sessions exploring supply chain solutions, consulting specialists, and engaging with production teams, a groundbreaking solution remained elusive. That was until a serendipitous moment during a routine meeting. Ju's CEO, almost whimsically, introduced a contact involved with rapidly growing trees. This wasn't the scheduled topic of our meeting, and the mention came almost as an anecdote. He recounted an interaction with an individual working with a specific type of tree, notable for its rapid growth and versatility as a raw material, though the exact species momentarily escaped him. This narrative, seemingly

digressive to the meeting, piqued my curiosity, prompting a series of inquiries about the contact, the nature of their connection, and the potential applications of these trees. This simple exchange transformed the meeting. A dynamic brainstorming session unfolded, transcending the day's agenda. The energy was palpable as we navigated through a realm of possibilities, each more inventive than the last. Ideas ranged from establishing our own forests to securing exclusive rights to this biobased material, integrating it into our broader campus vision, and beyond. The profound lesson from this experience was the power of open dialogue and the willingness to diverge from a predetermined path. By embracing an unexpected topic and allowing the conversation to flow freely, we not only overcame a longstanding barrier but also ignited a highly creative and open-minded discourse. This approach unlocked a spectrum of innovative opportunities, underscoring the importance of flexibility and receptivity in our quest for sustainable solutions.

Pivotal episodes

As previously mentioned, during the exploration, development, and testing of the regenerative model, a sequence of pivotal episodes – like the two described for Ju – unfolded within the three cases, each signifying a critical stage in the transformation journey. Selected for their illustrative richness and transformative impact, these pivotal episodes formed the empirical basis of this research. Three episodes, structured as workshops, were orchestrated by the researcher and employed a variety of flipcharts to navigate and record the sessions. The workshop at Ki was hosted in English and attended by 12 individuals, while the Ju and Do sessions were conducted in Dutch, with attendances of 6 and 5 people respectively, excluding the researcher. The provided illustrations, depicting the room layouts and a stylized rendition of the flipcharts, are intended to recreate the ambiance of the sessions, particularly emphasizing the session for Ju as a detailed exemplar.

To determine and capture the relevant characteristics of the pivotal episodes, an iterative approach was taken by compiling a first set, expert consultation with fellow researchers, and participant feedback, leading up to a working list, which remained under continuous improvement.

Captured characteristics of the pivotal episodes
Company: refers to the (anonymized) case company involved in the episode.
Pivotal episode name: the designated title of the episode being analyzed.
Pivotal episode number: a sequential identifier assigned to the episode.
Type of episode: the format or style of the episode (e.g., workshop, snippet).
Mode of communication: the method through which communication was conducted during the episode.
Main application of the model: the primary function of the model during the episode.
Purpose of model use (to provide): what the model was intended to achieve or provide during the episode.
Moment in the facilitation process: when the episode took place during the facilitation process.
Journey position (relative): the episode's timing relative to the overall transformation journey.
Status before the event: the condition or situation before the episode occurred.
Status after the event: the condition or situation following the episode.
Initial focus: the primary topic or issue at the beginning of the episode.
Number of participants: the count and composition of individuals involved in the episode.
Participant mix: the levels of hierarchy of the participants involved.
Objective / initial Problem: the primary goal or problem addressed in the episode.
Duration (min.): how long the episode lasted.
Role of specific preparation: the importance of preparation for the episode.
Role of mindset/alertness: the impact of the participants' mindset or alertness on the episode.
Role of setting: the influence of the physical or contextual setting on the episode.
Role of facilitator (process): the facilitator's role in the process aspect of the episode.
Role of facilitator (content): the facilitator's role in the content aspect of the episode.
Role as facilitator (posture): the facilitator's approach or stance during the episode.
Role of participants: the participants' role and influence in the episode.
Role of CEO: the CEO's involvement and impact on the episode.
Role of model for regeneration: how the model was used to drive regeneration during the episode.
Implicit/explicit use of the model: whether it was applied in a direct (explicit) or indirect (implicit) manner.
Techniques used in the application: specific techniques or methods employed during the model's application.
Level of participant engagement: the degree of participant involvement and engagement during the episode.
Context and background: the broader context and background in which the episode occurred.
Trigger event: the event or factor that initiated the episode.
Stakeholder reactions: the reactions or feedback from stakeholders in response to the episode.
Strategic decisions: key decisions made during the episode.
Change in direction: any shifts or changes in strategy or approach as a result of the episode.
Outcomes: the results or effects following the episode.
Future implications: the potential long-term consequences or impacts of the episode.
Why this event is significant/relevant: the reason why the episode is considered important.
Form of significance: how the appearance of this significance becomes evident.
Unexpected elements: any surprising or unforeseen aspects that arose during the episode.
Reflections on my role of the facilitator: personal reflections on the facilitator's role during the episode.

Table 10 provides a comprehensive breakdown of the eight integral episodes across the three cases, delineating their significance in demonstrating the model's application and highlighting the facilitator's involvement in each instance. The episodes are presented in order of the main application of the model (framework for development, comprehension, or reference) and within that by their relative position in the transformational journey towards regeneration at the moment of occurrence.

Company	Ki	Ju	Do	Ju	Do	Ki	Ki	Do
Pivotal episode name	Symbolic evolution	Unearthing solutions	Building on issues	Addressing issues	Unscripted insights	Classifying issues	Insightful expedition	Conversational delights
Pivotal episode number	1	2	3	4	5	6	7	8
Type of episode	snippet	snippet	workshop	workshop	snippet	workshop	snippet	snippet
Mode of communication	video call	in-person	in-person	in-person	in-person	in-person	in-person	in-person
Main application of the model (1st sequence of presentation)	framework for development	framework for development	framework for development	framework for comprehension			framework for reference	framework for reference
Purpose of model us (to provide:)	development	development	development	clarity	understanding	structure	reference	reference
Moment in the facilitation process (2nd sequence of presentation)	early	later	later	early	mid	mid	start	early
Journey position (relative)	early	mid	later	early	early	mid	early	early
Status before the event	a not fully accurate representation had become symbolic of the desired change	grappling with persistent challenges in sourcing sustainable raw materials	questions on what the next steps should be on the decided course	paralysis due to an over-abundance of topics	lack of primary data on the status of the company	lack of insight on what the status of the company was	lack of entry points to assess potential areas of improvement	unclarity about possible constraints due to company ownership
Status after the event	better understanding of the effects of symbolism in the change process	a clear path for a source of sustainable raw materials	more clarity on the next steps to take	a better understanding of how to view the various topics	a wealth of primary data presented against a comprehensive backdrop	a perspective on how to assess the status of the company	identification of several entry points for improvement	openness and transparency on potential effects of the company ownership
Initial focus	the most accurate description	regular update meeting	what to do as a next step on our path	how can we start to address the issues we face	a semi-structured interview	what is our status in our journey	touring the facilities	lunch
Number of participants	2+1+1	3+1	5+1	6+1	1+1	9+2+1	6+1	2+1
Participant mix	C-/B-level	C-level	C-/B-level	C-/B-level	C-level	C-/B-level	B-level	C-level
Objective / initial problem	acuracy	none	priority	focus	primary data	clarity	none	none
Duration (min.)	10	30	90	105	60	150	60	90
Role of specific preparation	3	1	5	5	3	5	1	1
Role of mindset/alertness	3	3	5	5	5	5	3	3
Role of setting	1	3	5	5	3	5	5	5
Role of facilitator (process)	3	3	5	5	3	5	3	3
Role of facilitator (content)	5	3	3	3	3	3	5	3
Role as facilitator (posture)	3	3	3	3	5	3	5	3
Role of participants	3	5	3	5	5	3	5	3
Role of CEO	3	5	5	5	3	3	3	5
Role of model for regeneration	5	1	5	5	5	5	3	3
Implicit/explicit use of the model	implicit	implicit	explicit	explicit	implicit	explicit	implicit	implicit
Techniques used in the application			appreciative inquiry[1]	jobs-to-be-done[2]		appreciative inquiry		
Level of participant engagement	co-research	ownership	collaborative	collaborative	ownership	collaborative	ownership	ownership
Context and background	delicate initial phase	dead end on options	clear strategy, lack of actions	ambition high, options low	lack of consistency	good basis, how to scale up	need for solution approaches	taboo' subject
Trigger event	participant query	facilitator stimulation	CEO initiative	CEO initiative	facilitator stimulation	C-level initiative	facilitator interest	facilitator question
Stakeholder reactions	project team ↑	top management team ↑	middle management ↑	top management team ↑	facilitator ↑	problem owners ↑	facilitator ↑	facilitator ↑
Strategic decisions								
Change in direction								
Outcomes	increased quality	specific course of action	action plan	list of topics	increased understanding	clarity on barriers	increased know-how	increased trust
Future implications	process facilitation ↑	regenerative practices ↑	regenerative practices ↑	regenerative understanding ↑	process facilitation ↑	regenerative understanding ↑	process facilitation ↑	transparency & trust ↑
Why this event is significant/relevant	step-change	pathways	step-change	understanding	understanding	clarity	pathways	trust
Form of significance	from symbolic to literal	from impossible to possible	from plan to action	from reactive to proactive	from unstructured to structured	from generic to specific	from uninspired to inspired	from taboo to acceptable
Unexpected elements	a bird in the hand …	ideas are born, not found	actionability is energy	the why drives the how	dump the plan for something better	more in common than we think	look beyond the expected	the 'at ease' factor
Reflections on my role of the facilitator	trainable	partly trainable	trainable	trainable	partly trainable	trainable	partly trainable	highly personal

Table 10 Overview of the eight pivotal episodes within the three cases

The episodes consistently led to positive changes in each case study, and no clear negative episodes were found in any of the three initiatives. The direct correlation between this uniformly positive trajectory and the deployed model and its specific application in the specific episodes may not be definitively established, yet the approach of identifying barriers and using them to foster capabilities seems to play a crucial role. A notable illustration of such effective management, detailed in Appendix 7, is the episode 'from cross to wheel.' This instance, inherently fraught with the potential for significant

negative impact, was adeptly navigated to avert adverse outcomes. This adept handling underscores the effectiveness of the approach in navigating barriers and directing them towards constructive outcomes.

Form of significance	from symbolic to literal	from impossible to possible	from plan to action	from reactive to proactive	from unstructured to structured	from generic to specific	from uninspired to inspired	from taboo to acceptable
Why this event is significant/relevant	step-change	pathways	step-change	understanding	understanding	clarity	pathways	trust
Role of model for regeneration	5	1	5	5	5	5	3	3
Role of CEO	3	5	5	5	3	3	3	5
Role of participants	3	5	3	5	5	3	5	3
Role as facilitator (posture)	3	3	3	3	5	3	5	3
Role of facilitator (content)	5	3	3	3	3	3	5	3
Role of facilitator (process)	3	3	5	5	3	5	3	3
Role of setting	1	3	5	5	3	5	5	5
Role of mindset/alertness	3	3	5	5	5	5	3	3
Role of specific preparation	3	1	5	5	3	5	1	1
Duration (min.)	10	30	90	105	60	150	60	90
Objective / initial problem	acuracy	none	priority	focus	primary data	clarity	none	none
Participant mix	C-/B-level	C-level	C-/B-level	C-/B-level	C-level	C-/B-level	B-level	C-level
Journey position (relative)	early	mid	later	early	early	mid	early	early
Moment in the facilitation process	early	later	later	early	mid	mid	start	early
Pivotal episode number	1	2	3	4	5	6	7	8
Purpose of model use (to provide:)	development	development	development	clarity	understanding	structure	reference	reference
Main application of the model	framework for development			framework for comprehension			framework for reference	

Table 11 The pivotal episodes by main application of the model for regeneration

From the primary objective of illustrating and comprehending the model's application stages, three principal utilizations emerged: as a development framework, a comprehension framework, and a reference framework. Table 11 represents this grouping of the pivotal episodes, with their characteristics and results, which are discussed below.

Framework for development

Episodes 1 to 3 centered on using the model for developmental purposes across all three case studies, manifesting in both structured workshops and spontaneous snippets. Facilitation occurred at varying stages (early and later) of the facilitation trajectory, and in various stages of the regeneration journey of each company. Status before and after the episode showed development in the sense of movement. The progress was measurable as steps in the process (*the 'what' in the process*). The initial focus of the episode was very diverse, as was its (lack of) objective. Duration ranged between 10 and 90 minutes. All context variables varied in importance across the episodes and the model was used both implicit and explicitly. The level of participant engagement varied between all episodes and the related context and background to the episode was as diverse. The triggering event creating the pivotal value of the episode was also very diverse. The outcomes of these episodes were very concrete actions, enabling growth in regenerative practices. The significance of the episode was in making something intangible ('a symbol') or unobtainable ('impossible to do') actionable, while the uptake of this was either by the management or the project team. In conclusion, these episodes, diverse in every measured factor – from the initial focus and objectives to participant engagement and triggering events – showcased development as a measurable, inherent quality of the model, adaptable to various needs and contexts.

Framework for comprehension

Episodes 4 to 6 aimed respectively to provide clarity, understanding, and structure. Implemented in all case studies through workshops and snippets, these episodes occurred in the early to mid-stages of the facilitation process and the broader journey towards regeneration. The initial focus of the episodes was very diverse, as was its (lack of) objective. Duration ranged between 60 and 105 minutes. Two context variables were of the highest importance across the episodes, being the role of mindset/alertness and the role of the model itself. The model was used both implicitly and explicitly. The level of participant engagement varied as did the related context and background to the episode.

The triggering event creating the pivotal value of the episode was also very diverse. They marked progress in terms of information availability, perspectives, and understanding, primarily impacting the actors and stakeholders involved *(the 'who' in the process)*. Outcomes were enabling ('list of topics', 'clarity on barriers') and future implications primarily on making the actors and stakeholders better equipped to make the journey to regeneration. The episodes underscored the model's role and the importance of mindfulness in its application, emphasizing the need for precision and consistency in communication and alignment with the underlying conceptual framework. The model's role as a comprehension tool, though diverse in its application, highlighted its inherent capacity for fostering a deep understanding when applied with meticulous accuracy.

Framework for reference

In episodes 7 and 8, the model served as a reference point, executed through snippets in the early stages of facilitation and the regeneration journey. These episodes brought to light new opportunities, mapping out potential pathways for the company's progression *(the 'where to' in the process)*. Despite their diverse focus and objectives, the episodes shared a common emphasis on the significance of the setting and the facilitator's role in eliciting pivotal value. Outcomes of opening new pathways were increase in trust and know-how, directly for the facilitator and thus for the improved facilitation of the transformation process The model's implicit use and the participants' sense of ownership towards the regenerative transformation underscored the model's adaptability and its utility as a reference framework. It highlighted the model's capacity to guide and inform the regeneration journey, reinforcing its inherent qualities for development and comprehension when applied with precision and a mindful approach.

Findings in a Q&A format

The selection of a Question and Answer (Q&A) format for this section is driven by the intent to present the exploration and application of the practical model in a manner that is both accessible and engaging. This format allows for a direct and structured approach to unpacking the complexities and nuances of the model, facilitating a clearer understanding for readers. The questions were meticulously chosen to cover a comprehensive range of topics essential for grasping the model's conceptual foundations, its practical implementation, the challenges encountered, and the outcomes observed. This selection process was informed by a thorough analysis of the model's key components and the practical experiences of applying it in various organizational contexts. Presenting the questions in this specific order follows a logical progression. They begin by scrutinizing

the model's theoretical underpinnings against the realities of business practice, ensuring a robust foundation for further inquiry. Subsequent questions delve into the model's operationalization, specifically how systemic barriers are identified and navigated, the facilitation of regenerative capabilities within organizations, and the model's influence on leadership and stakeholder engagement. A pivotal focus is placed on practical application and the dynamic role of facilitators, addressing the challenges encountered and strategies for overcoming resistance. The questions also seek to illuminate the tangible outcomes and indicators of success in the transition towards regenerative practices, evaluating the model's efficacy across various organizational contexts. Additionally, inquiries into the facilitator's role, the adaptability of the model, and the conditions under which it delivers the most value, highlight the practical considerations and nuances of implementing the model.

1) Does the developed model's conceptual foundation stand up to the scrutiny of application in business practice?

In all pivotal episodes the content of the model proved valid, albeit that not all aspects of the model were relevant or required in the episode. In the planned episodes (the workshops), the model offered a base for a variety of approaches and techniques depending on the aim and context. In the unplanned episodes (the snippets), it gave me a framework of reference against which I could assess my response to the situation at hand. In conclusion, the conceptual base of the model stands firm, the application of the model varies significantly per occurrence, dependent on context and the 'trigger' of the occurrence.

2) How were systemic barriers identified and addressed using the model within each organizational context?

The naming of reasons why further steps toward sustainability cannot be taken occurs in almost all interviews, snippets and workshops, although the manifestation is very diverse. In both implicit and explicit use of the model, systemic barriers are found by looking at what is said through the lens of the five systemic barriers. This initially sees that it is about barriers, be secondarily classifies them, creating understanding. Ultimately, the fully correct classification is not the final goal, but that barriers are recognized as such and that a sense of addressability about these barriers arises. The approach to identifying barriers is less important than a single-minded focus on recognizing and acknowledging

them. In that sense, it requires more of an alert attitude than a very specific approach by the facilitator.

3) In what ways did the model facilitate the cultivation of regenerative business capabilities?

Developing and promoting capabilities can be both structured and Intuitively driven. In the first case, interventions are possible where, from a particular point of view – e.g., systemic barriers, a brainstorm for new ideas, or the operationalization of a particular plan or project – there is a consistent look at what it takes to respond appropriately and make use of the situation. Ultimately, by using the five business capabilities in the model as reference, an action list of the capabilities needed is established, possibly elaborated into concrete qualities of that capability. To manage intuitively for capabilities is to be alert in every situation to an indication of (further) capabilities to be developed and to name or not name that in the situation, but in any case to track and evaluate it systematically.

4) How does the model engage various stakeholders, and what impact does this engagement have on the regeneration process?

The model significantly emphasizes stakeholder engagement throughout the regeneration process, adopting a structured yet adaptable approach that encourages inclusive decision-making, innovation, resilience, trust, and transparency. By incorporating diverse perspectives from internal and external stakeholders, such as employees, customers, suppliers, and community members, the model not only fosters a culture of collaboration and shared value but also ensures that regeneration efforts are comprehensively aligned with the broader community and environmental needs. This engagement facilitates the empowerment of stakeholders, enabling them to contribute actively to the regeneration process, and establishes feedback loops for continuous improvement and adaptive management. The profound impact of this stakeholder involvement enhances the efficacy, sustainability, and acceptance of regenerative practices, ensuring that the initiatives are not only aligned with organizational goals but also resonate with wider societal and ecological objectives.

5) How did the model influence leadership styles and behaviors towards fostering a culture of regeneration?

Adequate leadership is missed when it is not there and almost unrecognized when it is. With the five leadership aspects in mind, we can look explicitly at where leadership is

working and where it is not. Depending on the role of the facilitator, this can be discussed with the CEO and other executives. Alternatively, interventions and training that promote appropriate leadership can be undertaken. Facilitated peer-to-peer intervision sessions within an organization as well as with CEOs from different organizations could support this. Application of the model in consultation with the CEO, in whatever form, seems to contribute in itself to leadership awareness and development.

6) What mechanisms does the model need to incorporate to ensure the sustainability of regenerative practices over the long term?

While these mechanisms have not been established in detail, several key mechanisms are inherent to it: the continuous network development and open stakeholder management will create implicit feedback loops as continuous feedback mechanisms are vital for monitoring progress, evaluating the effectiveness of cooperation and communication, and making necessary adjustments. To optimize this, a basis of formal feedback loops should be established to complement and maintain this more informal process. Engaging a broad range of stakeholders, including employees, customers, suppliers, and community members, in continuous and open dialogue ensures diverse perspectives are considered. Regenerative innovation and Multiple business models require and allow for the flexible adjustment of strategies in response to changing conditions and new insights. Maintaining the knowledge, skills, and competencies necessary for Closed-loop value systems requires training programs, knowledge sharing, and creating a culture of learning and innovation that supports regenerative goals. Next to these regenerative capability aspects, the CEO leadership for regeneration through all five leadership aspects leadership 'breathes' long-term focus. The challenge here is to make this CEO leadership and its managerial discretion for regeneration consistent in case of change in composition of the shareholders, TMT , supervisory boards and other decisive entities. Finally, establishing clear metrics for regeneration and regularly reporting on these metrics helps track the long-term effectiveness of regenerative practices. This transparency and accountability mechanism encourages continuous improvement and supports evidence-based decision-making.

7) How does the model integrate feedback loops for continuous improvement and adaptation based on outcomes and new insights?

Outside of this research scope, the future development of the model needs an iterative and continuous feedback loop process, based on the definition of clear baselines and

regeneration metrics that measure the effectiveness of regenerative practices. Continuous monitoring of these metrics should allow the model to gather data on the outcomes of implemented practices, while its analysis should generate insights into their performance. These insights are to be shared with stakeholders, including employees, customers, community members, and partners, to gather their feedback and perspectives. Based on the above, adaptive decision-making on adjusting existing practices, scaling successful initiatives, or discontinuing ineffective ones becomes possible. This is crucial for ensuring the model remains relevant and effective over time. Implementation of changes should be carefully planned and communicated to ensure all stakeholders understand the reasons for the changes and their expected impact, and finally lessons learned from the feedback loop process are documented and shared across the organization and with external stakeholders.

8) What was a significant moment or turning point (from the eight critical episodes) that exemplifies the model's practical application and its interaction with the business context?

In one of the workshops at Ki, there was a heated discussion among participants about where Ki's responsibility for a value chain begins and where it ends. After listening to the discussion for about 10 minutes, I stood up and displayed the value chains on a flipchart as circles to represent the ambition toward circularity. I asked participants for an example value chain and we went through it step by step, indicating in red which step was done directly by Ki and in black which was done by third parties. Then we went through the red steps in terms of possible barriers and what capacity we brought or needed. Then we did the same for the steps done by third parties. In the end, the final picture painted a very different picture on the value chain and proved that the choice of responsibility was entirely in Ki's hands, something that seemed impossible during the earlier discussion. In the evaluation of the workshop immediately following with management, we discussed what role they could have taken in the discussion and how it could then have positively impacted the process toward regeneration at Ki.

9) What challenges or resistances were encountered while applying the model, and how were they navigated?

In none of the cases and I encountered resistance to the model or its application. However, there was resistance to the issues discussed or possible consequences of the entire approach through the model. In most cases these could be reduced to fear that it would

have negative consequences for the company or for the person in question himself. Possible consequences for the organization itself were discussed directly in the sessions as much as possible; after all, this is an integral part of the barrier approach. The consequences for one's own role and personal future we discussed in all cases in a general sense during the evaluation with management. I got an important perspective on that situation from another participant who said 'there is no such thing as unwillingness, only powerlessness of someone in the situation that has arisen.

10) How did the role of the facilitator evolve during the model's implementation, and what were the key factors contributing to this evolution?

The actual application of the model was done first on initial components during development and was better supported during the study by further development of the model. Through the discussion, validation and application of the increasingly developed model, I, as facilitator, gained more and more confidence in the model and in my own role. This was evident to me, but also to participants. From a highly structured approach, we went more and more to organically designed sessions and conversations. In many cases, this enhanced the value of the sessions. The facilitation role itself also developed the longer the process ran at a company. Once the thinking, the terminology used and certain forms of work became more of my own, I could start to focus more on the content and less on the facilitation process as a facilitator. This brought my attention to the larger transformation process that was underway. The role thus evolved from process facilitator and expert to reflector and anchor point.

11) What were the observable outcomes or early indicators of success in the organizations' transition towards regenerative practices as a result of implementing the model?

What was repeatedly observed and also explicitly returned by participants is the awareness that arises during the application of the model. It is difficult to fully attribute this to the model, but in any case there is a positive effect. The first indication of progress is particularly in the way situations, problems and plans are described and the way they are talked about. The moment (some of the) participants begin to see the perspectives of the model, an initial set of terminology and some forms of work, progress toward regeneration finally occurs.

12) Based on your observations, how does the model's efficacy vary across different organizational sizes, industries, or cultural contexts?

The three cases and the episodes described within them are of different character, as described in Table 15. In all cases there was a significantly positive outcome and thus sufficient effectiveness. There were also episodes where little or no effect was achieved, but these were then not described as episodes. Effectiveness in every situation is not the primary goal, as long as there is no relapse or unnamed contradiction in the approach to a situation. Optimal adaptation to circumstances is beyond the scope of the study and available data, but for now there is no reason to believe that the model could not work in certain circumstances. Of course, a particular situation may call for a different approach and model, in that sense it is not a solution for everything. The lens of barriers, capabilities and leadership in the work bag does seem to implicitly add value in any situation.

13) In which circumstances is the model of most value in the process towards regeneration?

In my experience so far, the models offers sufficient flexibility to be tailored to the unique circumstances of each potential application. Whether this would also be the case if the facilitator was not me, the author of the model, remains to be assessed. The flexibility of use appears to differ substantially between a planned episode (i.e., workshops) and an unplanned one. For the workshops altering the entry point – like starting from issues, a strategy or barriers – and sequence – starting with barriers or with current capabilities – when using the model required some skill. In the snippets, having the model in my toolbox enabled an appropriate explicit or implicit use of the model. This also required skill and creativity of the facilitator. The level of impact of the facilitator appears to vary across the episodes, but this requires further research for which the available empirical data is insufficient at this point.

14) Can the model be applied successfully without a facilitator?

These investigations revealed that while the model's framework remains consistent, its successful explicit application hinges on the ability to skillfully navigate and leverage its inherent flexibility. As an implicit model that actors are aware of in the transformation process towards regeneration, it can be helpful in itself to provide a common vocabulary and perspective in the journey. However, to fully capitalize on any potentially valuable occurrence, a facilitator role seems required. This requires an alertness and some skill in

applying the model, but the role can be taken by any actor in the occurrence with sufficient training.

15) What is the role of the facilitator in applying the model?

This study introduced an additional dimension to the method, the necessity of integrating a facilitator who can not only employ the model effectively but also provide reflective insights when needed. The role has proven integral as it contributes a broader perspective, offering critical analysis, alternative approaches, and thought stimulation when applying the model (implicitly or explicitly). This depth of involvement enriches the process, highlighting why external guidance is often indispensable for fostering innovative thinking and ensuring the model's impactful application.

16) To what extent does the facilitator need to be well-versed in the organization itself to be a good facilitator?

It is beneficial for a facilitator to be well-versed in the organization to effectively facilitate discussions on regenerative practices, but it is equally important to maintain an objective perspective that allows for the introduction of new ideas and challenges to existing assumptions. The extent of this necessity varies, but a balance must be struck to ensure that the facilitation leads to meaningful, actionable outcomes that align with the goals of regeneration and sustainable development. In this sense, a good understanding of the model and its application is crucial for a facilitator, deeper knowledge of the organization itself can be helpful.

17) Can multiple, varied and successive facilitators apply the model jointly?

There is insufficient empirical data to answer this with certainty. In some of the interventions I was with colleagues and this certainly helped. In addition, my specific background and the fact that I developed the model were helpful in my facilitating role. For facilitators with less experience or less industry expertise, a joint effort with explicit roles most probably is of added value. A variety of role within the application of the model can also add significant value, one could expect especially in different phases of the application and the journey of the organization itself. Successive facilitators is more difficult to assess at this point. Intuitively, I would opt for at least 1 lead facilitator to be present as much as possible throughout the full journey.

18) Does the application of the model vary depending on the stage of the transformation to regeneration a company is in?

When the developed model is employed implicitly by the facilitator, so without explicitly naming it, a creative sequencing of the three constructs 'barriers', 'capabilities', and 'leadership', along with a prioritization of one or more of the underlying aspects per construct appears to bring the best added value in any situation. This could be termed as 'tacit model application'. This approach reflects a nuanced, context-sensitive application of the model's principles, where the facilitator subtly weaves the model's components into the process while tailoring the emphasis on specific aspects to suit the unique needs and dynamics of the situation. The facilitator's adeptness in applying the model's framework into the intervention can have a profound effect on the outcome.

19) How can pivotal episodes be achieved by applying the model?

Whilst the planned workshops can benefit enormously from a sound preparation, it is no guarantee for any breakthrough outcomes. The minimum outcome of each intervention should be some progress, however small and no degradation of previous achievements. I would not call for a defensive stance, but the consistency in confirming the journey, the direction and the achievements so far is added value in itself. Using the ratchet mechanism metaphor can help to remind everybody on this. Explicitly voicing this need to progress and never regress can be helpful and in no way diminishes the position of the participants, the facilitator or the CEO. In the end, value is created by continuous progress in building capabilities and intermittent progress in the ultimate business objectives. Remember, we are managing by capabilities, not by objectives.

Putting to use any unplanned situations in the transformation process should have the same two aims: confirmation and no regression of the process towards regeneration and openness to any (breakthrough) added value. Again, a pivotal outcome cannot be forced, but it can be facilitated by careful interaction based on the provided guidance by the model. One might almost say that in this sense, application of the model is an art as much as a skill.

20) Is the model adaptable and scalable to fit in every situation?

The model exhibits a fundamental adaptability and potential for scalability in the investigated business contexts, yet its universal applicability across every situation cannot be determined based on the available data. While its core principles are designed to be versatile and responsive to a range of organizational contexts, the efficacy of the model

is likely to be influenced by specific situational factors. These factors may include the unique cultural, economic, and regulatory landscapes in which a business operates, its ownership structure, the specific industry dynamics, and the particular organizational structure and leadership style in place. Scalability is conceivable, given the application in a large SME and two multinationals. In the episodes investigated, the facilitator was able to effectively addresses the inherent complexities and nuances of larger organizations via the model. However, for general application, this scalability might necessitate tailored adaptations or supplementary mechanisms to ensure that the model's application remains effective and aligned with the overarching goals of regeneration.

4.2 Method for implementation and facilitation of the model

Note: within the scope and space provided by this DBA dissertation, the implementation method, facilitation, and training are described in general outlines.
Details and working materials to apply in business practice are available upon request.

The method of implementation for the regeneration model, as presented in Table 12, outlines a strategic and adaptable approach designed to navigate organizations through the complexities of transitioning towards regenerative practices. The ten-phase process ensures a tailored fit to each organization's unique context, ensuring that the model's application is both practical and impactful across various contexts.

Starting with 1) **Groundwork and validation**, the model undergoes rigorous evaluation through pivotal episodes to confirm its applicability across various contexts, emphasizing the need for flexibility and responsiveness.

1) Groundwork and validation
In the first phase of implementation, a solid foundation for successful implementation should be laid. The implementation context, determined by factors like the initiator of the assignment (i.e., the CEO or a sustainability officer), the organization's previous experiences related to sustainability and regeneration, prior initiatives or projects, initial conditions, motivations, historical background, and other factors determine the launch platform for implementation. The optimal 'mode of entry' – the strategic approach or method used to introduce and integrate the model into the business – is determined here. This could involve direct consultation, workshops, training sessions, or a pilot project, depending on the organizational culture and readiness for change.

Moving into 2) **Barrier identification and addressing**, the SPISO component of the model serves as a lens to identify and categorize systemic barriers, encouraging a proactive stance towards recognizing and overcoming these obstacles. The 3) **Capability cultivation** phase focuses on leveraging the CROMC component of the model to identify and develop the necessary business capabilities, fostering an environment of continuous

learning and adaptation. 4) **Stakeholder engagement** then ensures that all relevant parties are involved in an open dialogue, reinforcing the collaborative nature of regenerative transformation. In the 5) **Leadership influence** phase, the CHEMP component of the model assesses and guides leadership behavior to align with regenerative principles, highlighting the crucial role of executives in driving change. 6) **Regeneration mechanisms** and 7) **Feedback integration** phases incorporate long-term sustainability strategies and establish feedback loops for ongoing improvement, ensuring that regenerative practices are deeply integrated and continuously refined. As the model is applied in 8) **Practical application and adaptation**, its flexibility allows for tailored implementation, responsive to each unique organizational context, thus facilitating impactful outcomes. The 9) **Facilitator evolution** phase sees a shift in the facilitator's role, enhancing the depth and impact of sessions through a more content-focused approach. Finally, in 10) **Outcome observation and analysis**, the implementation's effectiveness is assessed, with a focus on monitoring key indicators of successful regeneration practices.

This ten-phased method underscores the importance of a dynamic, adaptable approach, capable of guiding businesses through the intricacies of adopting regenerative practices, thereby contributing to a sustainable future.

	phase	what	deliverable
1	Groundwork and validation	begin by validating the model's theoretical foundation for the specific settings of the organization within its social-ecological system, allowing for adjustments based on the specific needs of each business context	ensure the model's applicability and relevance, adapted to the business and implemenetation context
2	Barrier identification and addressing (SPISO)	employ the model to identify and classify systemic barriers within organizational contexts by initiating and interpreting discussions through the SPISO lens, with an emphasis on the proactive acknowledgment and addressing of barriers	an overview of the barriers to regeneration classified along the SPISO categorization
3	Capability cultivation (CROMC)	leverage the model for both structured brainstorming on projects and intuitive identification of capability development opportunities, ensuring comprehensive capability enhancement aligned with regenerative goals	an overview of current and required regenerative capabilties classified along the CROMC categorization, each linked to the systemic barriers they aim to surmount
4	Stakeholder engagement	foster continuous, open dialogues with a broad spectrum of stakeholders, crucial for identifying challenges and opportunities in the regeneration process, supported by the model's framework	a comprehensive and continuously supplemented and updated mapping of the specific SPISO barriers, CROMC capabilities and CHEMP leadership aspects identified and their relation to each specific stakeholder category
5	Leadership influence	utilize the model to influence leadership styles and behaviors, encouraging a shift towards regenerative leadership, involving direct discussions with CEOs and executives or the implementation of targeted interventions	a detailed leadership development plan, outlining the strategies and actions for modifying leadership styles and behaviors to foster a culture of regeneration within the organization
6	Regeneration mechanisms	incorporate key mechanisms from CROMC like continuous network development and open stakeholder management, supported by formal feedback loops, to ensure enduring regenerative practices and continuous capability development	a comprehensive regeneration 'architecture', designed to integrate long-term sustainability mechanisms into the organizational structure, ensuring that regenerative practices are maintained and continuously improved
7	Feedback integration	set up a feedback process based on clear baselines and metrics, allowing for the iterative improvement of regenerative practices and capabilities, ensuring they remain effective and relevant over time	an integrated feedback and continuous improvement system, designed to ensure the organization's regenerative practices are continuously evaluated, adapted, and improved based on outcomes, stakeholder feedback, and new insights
8	Practical application and adaptation	apply the model flexibly, adjusting its implementation based on the unique circumstances of each case, facilitating meaningful outcomes and supporting the dynamic nature of regeneration across the organization, its value networks, locations and social-ecological system(s)	a tailored implementation report that documents how the model was adapted and applied across various contexts within the organization, including specific adaptations to the model (with their rationale and outcomes)
9	Facilitator evolution	ultimately transition the facilitator's role from a process-oriented to a content-focused approach, enhancing the facilitation process, allowing for deeper engagement with the context, journey and material and more impactful sessions	a development plan for facilitators that outlines the transition of roles, including training materials, session feedback summaries, and a roadmap for future facilitation development
10	Outcome observation and analysis	monitor the implementation's impact, focusing on changes in awareness, terminology adoption, and discussion dynamics, helping to assess the success of the regeneration and capability building efforts and ensures continued progress without regression	an outcomes report that compiles observations, analyses, and the impact of the model's implementation on the organization's transition towards regenerative practices

Table 12 Method of implementation of the practical model for regeneration

<u>Facilitation of implementation and training</u>

The key to facilitating the model for regeneration and its method of implementation involves a comprehensive understanding of the model's principles, the ability to navigate systemic barriers, foster regenerative capabilities, and influence leadership towards a culture of regeneration. Table 13 shows an overview of the nine distinct roles of the facilitator(s), detailing the roles, descriptions, quality determinants, and necessary facilitator qualifications to ensure effective adoption and execution within organizations.

In 1) **Guidance and direction**, facilitators are expected to offer strategic guidance, setting clear objectives aligned with the organization's regenerative goals. The quality of facilitation here hinges on a deep understanding of the model and strategic thinking, qualities bolstered by experience in similar transformation projects and a background in management consulting. 2) **Capacity building** entails educating and empowering employees about regenerative principles. The effectiveness of this role is determined by the facilitator's comprehensive knowledge of regenerative principles, enhanced by a background in education or organizational development and experience in sustainability practices. 3) **Stakeholder engagement** requires facilitators to work across a spectrum of organizational stakeholders, ensuring inclusive dialogues. Skills in communication and conflict resolution are vital, with sector knowledge and experience in community engagement further enriching stakeholder interactions. The role of 4) **Cultural transformation** necessitates promoting values that support regenerative practices, requiring facilitators to have a profound understanding of organizational behavior and change management principles. A background in organizational development and experience in cultural transformations solidify the effectiveness in this role. For 5) **Barrier identification and overcoming**, facilitators leverage institutional theory to understand and navigate systemic barriers. Analytical skills and problem-solving abilities are essential, with a strong background in business analysis or management consulting contributing significantly to overcoming challenges. 6) **Innovation facilitation** involves encouraging and supporting organizational innovation. Here, creativity, experience in innovation management or R&D, and an entrepreneurial background are crucial for nurturing a culture of creativity and experimentation. 7) **Monitoring and evaluation** demands establishing KPIs and tracking progress. Facilitators must be proficient in data analysis and performance management, with qualifications in business analytics or project management being critical for effective monitoring and evaluation. 8) **Advocacy**

and inspiration is about motivating the organization to maintain momentum in its regenerative journey. A passion for sustainability, excellent communication skills, and the ability to motivate others are key, with a background in leadership coaching or motivational speaking providing the necessary credibility. Lastly, 10) **Systems thinking** is fundamental, requiring facilitators to guide the organization in recognizing the interconnectedness of its actions with broader systems. A deep understanding of systems theory and practical experience in systemic approaches to business is essential, typically supported by a background in environmental science, ecology, or systems engineering.

Each of these roles is paired with relevant facilitator qualifications that the author – in the capacity of this research's main facilitator – also possesses to varying degrees, ranging from theoretical knowledge to extensive practical experience, ensuring the facilitator is well-equipped to navigate the complexities of regenerative transformation. As the table shows, in each role of facilitation, relevant background and experience is helpful, but ultimately facilitation can be trained, as explained in the latter part of this section.

#	role	description	what	determinant of quality of facilitation	relevant facilitator qualifications	author's qualifications
1	Guidance and direction	the facilitator provides strategic guidance and direction to ensure the organization's efforts align with regenerative principles and practices.	helping to set clear objectives, identifying priorities, and mapping out a pathway for the transition that aligns with the organization's vision and values	the facilitator's deep understanding of the RIFT model, combined with strategic thinking capabilities	experience in similar transformation projects and a background in strategic management or consulting can enhance the facilitator's ability to provide clear direction	firsthand experience in multiple transformation projects, background in C-level management & management consulting
2	Capacity building	a crucial role of the facilitator is to build the organization's capacity for regenerative thinking and practices	this includes conducting training sessions, workshops, and seminars to educate and empower employees at all levels about the principles of regeneration, circular economy, biomimicry, systems thinking, and other related concepts	relies on the facilitator's comprehensive knowledge of regenerative principles and educational techniques	a background in education, training, or organizational development, along with experience in sustainability practices, enriches the learning experience for participants	experience as lecturer at multiple universities, consultant & trainer at big five consultant firm, non exec board at NGO, 25 years experience in sustainability practices
3	Stakeholder engagement	facilitators actively work to engage a broad spectrum of stakeholders, including employees, customers, suppliers, community members, and regulatory bodies	they facilitate dialogues, workshops, and collaborative sessions to ensure diverse perspectives are considered and integrated into the regenerative transformation process	the quality of stakeholder engagement is enhanced by the facilitator's skills in communication, negotiation, and conflict resolution	knowledge of the organization's industry or sector helps in understanding stakeholder perspectives and interests, while experience in community engagement or public relations is beneficial for facilitating broader dialogues	various levels of knowledge of the investigated sectors, from 'no knowledge' to 'industry expert'
4	Cultural transformation	facilitating a shift in organizational culture towards one that embraces regenerative practices is a critical aspect of the facilitator's role	this involves promoting values such as sustainability, stewardship, collaboration, and long-term thinking, and fostering a culture that supports innovation, flexibility, and adaptability	facilitating cultural change requires the facilitator to have a deep understanding of organizational behavior and change management principles	a background in psychology or organizational development, combined with experience in leading cultural transformations, supports effective guidance through the cultural shift towards regeneration	limited theoretical background and extensive practical background in both organizational development and cultural transformations
5	Barrier Identification and overcoming	facilitators assist organizations in identifying barriers to regeneration - whether they be cultural, structural, operational, or external - and developing strategies to overcome these obstacles	this includes leveraging institutional theory to understand systemic barriers and applying practical insights to overcome these challenges	the ability to identify and address barriers effectively depends on the facilitator's analytical skills and experience in problem-solving within organizational contexts	knowledge of institutional theory and systems thinking, as well as a background in business analysis or management consulting, can significantly contribute to overcoming challenges	both theoretical and practical knowledge, and a background in management consulting
6	Innovation facilitation	the facilitator encourages and supports innovation within the organization, helping to identify and develop regenerative solutions to business challenges	this involves promoting creative problem-solving, supporting pilot projects, and facilitating the integration of regenerative design principles into products, services, and processes	encouraging innovation requires the facilitator to be creative and forward-thinking, with a strong foundation in design thinking, regenerative design principles, or product development	experience in innovation management or R&D, coupled with an entrepreneurial background, helps in nurturing a culture of creativity and experimentation	medium background in innovation management and R&D, some entrepreneurial experience
7	Monitoring and evaluation	implementing the RIFT model requires ongoing monitoring and evaluation to assess progress, measure impact, and adjust strategies as necessary	the facilitator is responsible for establishing key performance indicators (KPIs) related to regenerative transformation & ensuring that data collection, analysis, and reporting processes are in place to track these metrics	the quality of this aspect is determined by the facilitator's proficiency in data analysis, performance management, and reporting	a background in statistics, business analytics, or project management, along with experience in setting and tracking KPIs, is crucial for effective monitoring and evaluation	strong background in business analytics and project management, extensive experience in setting and tracking KPIs
8	Advocacy and inspiration	facilitators also serve as advocates and sources of inspiration within the organization, championing the regenerative transformation and motivating individuals at all levels to participate actively in the process	this involves sharing success stories, highlighting the benefits of regenerative practices, and maintaining momentum and enthusiasm for the transformation	effective advocacy and inspiration depend on the facilitator's passion for sustainability and regeneration, excellent communication skills, and the ability to motivate others	a background in leadership coaching or motivational speaking, along with personal achievements in sustainability initiatives, can make the facilitator a credible and inspiring figure	experience in leadership coaching, hands-on motivational speaking, and personal achievements in sustainability initiatives
9	Systems thinking	encouraging systemic thinking is a fundamental aspect of the facilitator's role, helping the organization to see the interconnectedness of its actions with broader social, economic, and environmental systems	this involves guiding the organization to consider the wider impacts of its decisions and operations and to strive for solutions that benefit not just the company but the entire ecosystem it operates within	facilitating systemic thinking requires the facilitator to have a deep understanding of systems theory and the ability to apply it to complex organizational and environmental contexts	a background in environmental science, ecology, or systems engineering, combined with practical experience in applying systemic approaches to business challenges, is essential for promoting holistic thinking	educated in systems engineering, practical experience in researching and applying systemic approaches to business challenges

Table 13 Roles, quality determinants and qualifications of facilitators

The facilitation training for the model's implementation is designed to equip practitioners with a comprehensive skill set, ensuring they can effectively guide organizations through the regeneration process.

	training outcome	training content & format
1	Deep understanding of the RIFT model	a comprehensive overview of the model's theoretical foundations, including the SDGs, regenerative business practices, and related theories, case studies showcasing the model's application in various organizational contexts to illustrate practical applications and outcomes
2	Systemic barrier identification (SPISO) and addressing skills	techniques for identifying systemic barriers using the SPISO framework. strategies for fostering an environment where barriers are not only recognized but are also addressed in a constructive manner
3	Capability development (CROMC)	methods for assessing organizational capabilities and identifying areas for development & tools for brainstorming and operationalizing plans to enhance regenerative business capabilities
4	Stakeholder engagement strategies	training on inclusive dialogue techniques to engage a broad spectrum of stakeholders effectively
5	Leadership influence and development	insights into the characteristics of regenerative leadership and how to cultivate these within organizational leaders
6	Regeneration mechanisms integration	understanding of mechanisms that ensure the long-term endurance of regenerative practices, case studies and good practices for embedding continuous improvement and adaptive management into organizational processes
7	Feedback loop construction and management	techniques for establishing and managing feedback loops for continuous improvement, training on how to collect, analyze, and act on feedback from various stakeholders
8	Facilitation skills	development of facilitation skills to guide discussions, workshops, and interventions effectively
9	Adaptive decision-making	exercises in adaptive decision-making, allowing facilitators to tailor the model's application to unique organizational needs, training on managing unplanned situations (pivotal episodes) and leveraging them for regenerative progress

Table 14 Training outcomes, content and format

As presented in Table 14, the training encompasses nine core outcomes, each paired with specific content and formats for a deep and practical learning experience:

1) **Deep understanding of the model**: facilitators are provided with a detailed overview of the model's theoretical underpinnings, including SDGs and regenerative business practices. Case studies from diverse organizational contexts offer practical insights into the model's real-world applications and outcomes.

2) **Systemic barrier identification and addressing skills (SPISO)**: participants learn techniques to identify systemic barriers using the SPISO component of the model and

develop strategies that foster an environment conducive to recognizing and constructively addressing these barriers.

3) **Capability development (CROMC)**: the training offers methods for assessing organizational capabilities via the CROMC component of the model and thus identifying areas for growth. Tools are provided for brainstorming and operationalizing plans to enhance regenerative business capabilities within organizations.

4) **Stakeholder engagement strategies**: the program includes training on inclusive dialogue techniques, ensuring facilitators can effectively engage a broad spectrum of stakeholders in the regenerative process.

5) **Leadership influence and development**: insights into the characteristics of regenerative leadership are shared, focusing on how to nurture these attributes within organizational leaders to drive the transformation process.

6) **Regeneration mechanisms integration**: facilitators gain an understanding of mechanisms that sustain regenerative practices over the long term. Case studies and best practices for embedding continuous improvement and adaptive management into organizational processes are explored.

7) **Feedback loop construction and management**: techniques for establishing and managing feedback loops for continuous improvement are taught. The training covers how to collect, analyze, and act on feedback from various stakeholders to foster ongoing development and adjustment.

8) **Facilitation skills**: development of facilitation skills is a critical component, preparing participants to effectively guide discussions, workshops, and interventions that drive the regenerative process.

9) **Adaptive decision-making**: exercises in adaptive decision-making are provided, allowing facilitators to customize the model's application to the unique needs of organizations. Training on managing unplanned situations and leveraging them for regenerative progress is included to ensure facilitators can navigate the complexities of real-world applications.

Training delivery should be interactive, utilizing a mix of lectures, workshops, role-playing, and real-world case studies. Opportunities for hands-on practice with feedback from experienced facilitators to refine skills should be actively searched for. A support network for facilitators to share experiences, challenges, and insights would be a valuable asset in building a professional group of facilitators. This support network could facilitate ongoing learning opportunities through advanced modules, updates on the model, and

access to the latest research and case studies. Overall, the training for facilitation of the consulting model is comprehensive and dynamic, combining theoretical knowledge with practical tools and techniques. It is designed to ensure facilitators are well-prepared to lead organizations in their journey towards regeneration, addressing current challenges, and fostering sustainable growth and innovation. As previously mentioned, details of the working materials as described in this section are available upon request.

In Figure 17, the previously presented consulting model, depicted as a hurdles run (Figure 13) is now complemented by the facilitator, portrayed as coach, optimizing the effectiveness of the hurdler. Combined with the findings of this chapter, the model, the method of implementation, the facilitation and the appropriate training, provide a comprehensive approach for business and their CEOs to become regenerative. The completed practice-based approach for regeneration, including the facilitator role is presented in Figure 17, and is named RIFT, the Regenerative Integrated Framework for Transformation.
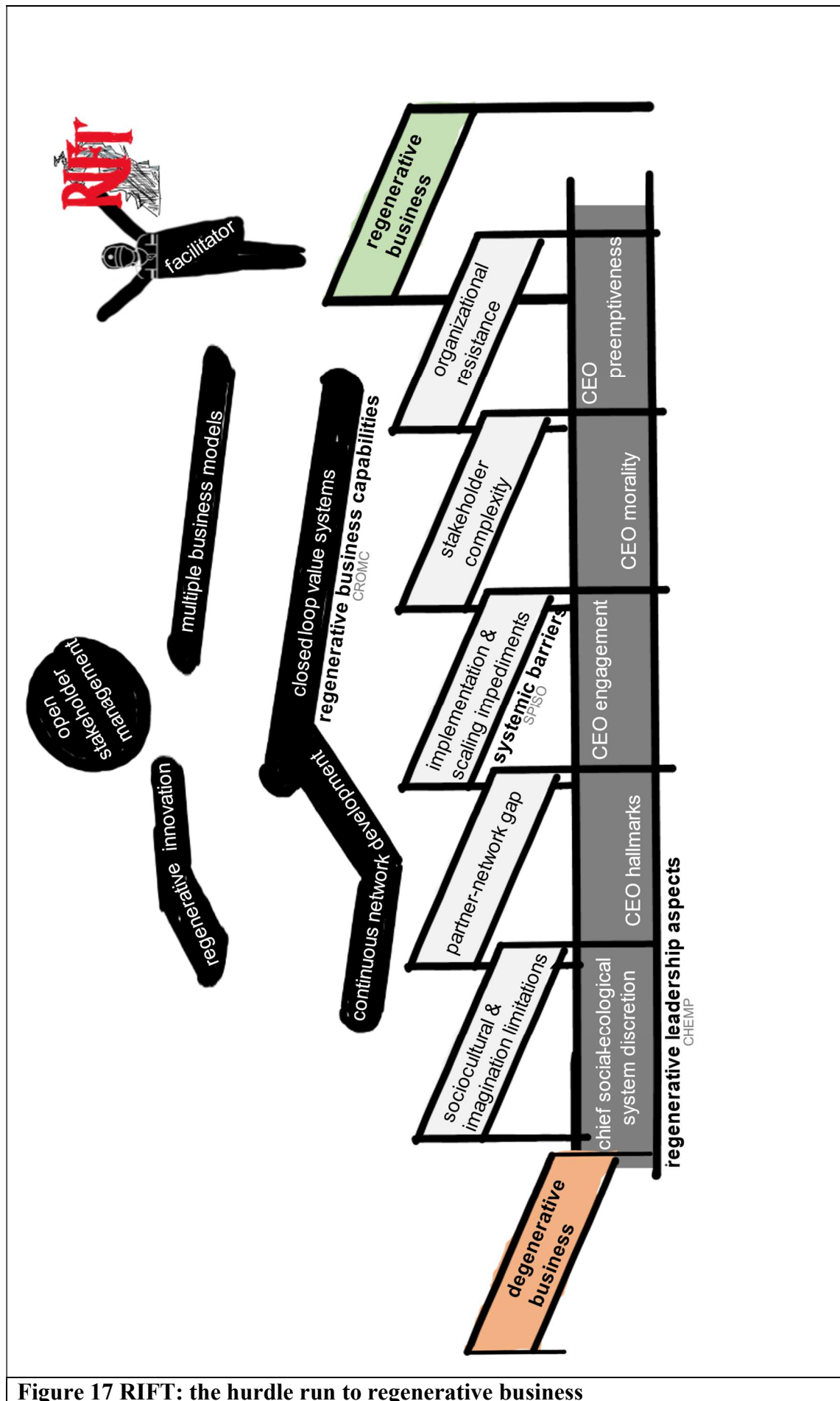
Figure 17 RIFT: the hurdle run to regenerative business

4.3 Summary of key findings

The practical application of a developed consulting model for regeneration across three organizational case studies, showcased the model's adaptability and effectiveness in fostering regenerative business practices. The findings underscore the dynamic interplay between the model, the business environment, the implementation method, and the facilitator's role in facilitating organizational transformation toward regeneration.

Key findings from this section:

1) The RIFT model for regeneration is effective, adaptable and applicable in diverse business settings: the RIFT consulting model demonstrates high adaptability and effectiveness in diverse business environments, facilitating the identification of systemic barriers and the cultivation of regenerative capabilities. Its application is marked by the facilitator's strategic engagement and the deployment of creative and flexible approaches to guide organizational transformation.

2) Facilitation of the RIFT model is a key enabler of successful implementation: the facilitator's role emerges as crucial in applying the model, requiring a blend of flexibility, creativity, and leadership. The development and nurturing of leadership within the organizations are pivotal in steering the regenerative transformation, emphasizing the need for leaders who are adaptable, open to learning, and capable of fostering a culture of regeneration.

3) Practical implementation requires a strict methodology: the chapter details a methodological approach for the practical implementation of the model, including phases such as groundwork and validation, barrier identification, capability development, stakeholder engagement, and leadership influence. Each phase is critical in ensuring the model's effective application and the organization's successful transition towards regenerative practices.

4) The facilitator role is trainable, but requires development: the importance of training for facilitators is highlighted, outlining the competencies required to effectively guide organizations through the regeneration process. This includes a deep understanding of the model, skills in identifying systemic barriers, fostering regenerative capabilities, engaging stakeholders, and influencing leadership.

The chapter provides valuable insights into the practical application of a consulting model for regeneration, emphasizing the intricate relationship between the model, the facilitator,

and the organizational context. It showcases the model's adaptability and the critical role of facilitation in navigating organizational transformation towards sustainable and regenerative practices. The findings contribute significantly to the understanding of regenerative leadership and offer a comprehensive method for implementing regenerative models in business contexts.

Main points to retain from this chapter: the developed RIFT model for regeneration proves effective in business practice. Facilitation – which proves to be trainable – of its implementation is a key enabler for success.

5
Integrating insights for regeneration

5 Integrating insights for regeneration

In this chapter, we synthesize the comprehensive findings from our investigation into the transition towards regenerative business practices. Highlighting the integration of theoretical insights with practical applications, the discussion unfolds around the central research question, enriched by the nuanced exploration of systemic barriers, regenerative capabilities, and the pivotal role of CEO leadership in facilitating this transformative process. Through a detailed examination of the developed consulting model's application across varied business scenarios, this chapter articulates the interconnected dynamics between theory and practice, offering a cohesive overview of the strategies and mechanisms that enable businesses to navigate the complexities of regeneration. By situating our findings within the broader academic and practical discourse, we aim to contribute a robust framework that not only addresses the inherent challenges in adopting regenerative practices but also underscores the potential for businesses to play a catalytic role in achieving sustainable development goals. This synthesis not only encapsulates the essence of our research journey but also sets the stage for future explorations in the realm of regenerative business, leadership, and sustainability.

The chapter is organized into five main sections: 1) the overall summary and conclusions of the research; 2) the contributions of the findings to theory; 3) the contributions of the findings to practice; 4) the limitations of the developed model and its method for implementation; and 5) suggestion for further research.

Main argumentation in this chapter: the central question of how companies can become regenerative has been answered by developing the RIFT approach, including a conceptual model, a practical model, a method of implementation, and a training for facilitation. The initial testing and application of the model indicate its significant contribution to practice. The contribution to the various literatures presented is in the integration of theories, their verification with empirical data, and their connection to the established constructs and the conceptual model. Limitations of the model, the methods and the research in general are clearly mentioned and together with out-of-scope topics form a rich basis for suggestions for further research.

5.1 Summary and conclusions

<u>Summary</u>

This study embarked on a distinctive quest to unravel the evolution of companies into regenerative entities, making significant contributions that set it apart from existing literature. At the outset, it introduces a novel framework addressing four critical sub-questions concerning barriers to, capabilities for, and CEO leadership in regenerative business practices, along with the practical application of a newly developed regeneration model. This research stands out by combining interviews, serious gaming sessions, literature review, and empirical case studies to shed light on systemic barriers (SPISO), crucial business capabilities (CROMC), and CEO leadership qualities (CHEMP) essential for fostering regenerative practices. This study not only identifies perceived barriers through innovative methods but also elucidates business capabilities and leadership aspects necessary for overcoming these hurdles. This approach significantly advances our understanding of regenerative practices by detailing the practical application of the model in diverse business scenarios, thus demonstrating its adaptability and effectiveness as both a decision-making framework and an advisory tool. The model's flexibility, evidenced by its successful implementation across various contexts, underscores the dissertation's originality. This adaptability, coupled with the facilitator's skill in applying the model, emerges as a pivotal success factor. While the dissertation outlines the model's conceptual robustness and general applicability, it also candidly addresses limitations and avenues for further research, reinforcing the study's contribution to the broader discourse on sustainable and regenerative business practices.

The study concludes by affirming the model's robust conceptual foundation, evident through its successful application in varied business environments. It highlights the model's adaptability, enabling alignment with different organizational structures and corporate cultures, and addresses systemic barriers to regeneration, marking significant departures from conventional business practices towards more adaptive, innovative, and integrated approaches. Through a multi-layered analysis (encompassing barriers, capabilities, and leadership), the dissertation delineates a comprehensive pathway for companies aspiring to adopt regenerative practices, thereby marking a distinctive contribution to the field and setting a foundation for future scholarly exploration.

1. What are the perceived barriers for regenerative business practices and what causes them?

As presented in Section 2.1, the research identified perceived barriers through the combination of a series of interviews and serious (purpose) game sessions with extensive literature review. These systemic barriers were encapsulated in the acronym SPISO and described in detail as a base for a practice-based consulting model for regeneration.

2. What business capabilities are needed to surmount these barriers for regenerative business practices?

Building on this, Section 2.2 revisited the extensive empirical data and the analysis on systemic barriers, supplementing it with additional refinement interviews and workshops, the regenerative business capabilities to surmount these barriers were uncovered. These capabilities referred to as CROMC were also described in detail to add to the model.

3. What are the required and specific CEO leadership aspects that enable effective regenerative business practices?

As outlined in Chapter 3, the complete empirical dataset and all analysis were re-examined and complemented with narrative literature reviews on leadership theory and refinement interviews. This, to determine the CEO's leadership aspects that help identify systemic barriers and build regenerative business capabilities. These CHEMP leadership aspects formed the final addition to establish the model for regeneration.

4. How is the developed model for regeneration applied in actual business practice?

Finally in Chapter 4, the practical application of the model was showcased through its use in various business contexts, detailing both explicit and implicit uses. An important finding was the potential for optimizing the added value of the model by the facilitator employing it as a framework for decision-making and advising. The dissertation explored how the model's flexibility allowed it to be adapted to the unique circumstances of each case company, with the facilitator's skill in applying the model being a critical factor for its successful implementation.

The practical application of the model across diverse business scenarios underscored its adaptability and effectiveness, revealing the model's role as both a decision-making framework and an advisory tool. This flexibility facilitated its tailored application to the unique circumstances of each case company, with the facilitator's proficiency emerging

as a critical success factor. The overall conceptual robustness and general applicability across regions, sectors and type of businesses requires additional work as is detailed in the limitations (Section 5.4) and suggestions for further research (Section 5.5).

Conclusions

The study's findings confirm the robust conceptual basis of the model, supported by its effective application across varied business contexts. The adaptability of the model was evident, demonstrating its capacity to align with distinct organizational structures, cultures, and industry-specific challenges. The model demonstrated a high versatility, accommodating a spectrum of pivotal episodes ranging from incremental changes to major step changes in the journey towards regeneration. The model's value in identifying and addressing systemic barriers to regeneration was arguably one of the highlights of the findings. Embracing the challenges due to these barriers as opportunities to nurture regenerative business capabilities was another significant outcome. Leadership behavior was significantly impacted by the application of the model, steering it towards fostering a regenerative culture. The findings highlighted the model's ability as a catalyst, inspiring a leadership style that championed capability-building, collaboration and foresight on the importance of being committed to sustainability.

The facilitator's role emerged as a cornerstone in the application of the model. In connecting theory and practice, the facilitator's expertise and skill to foster engagement appeared instrumental in guiding organizations through the complexity of adopting regenerative practices. The facilitator's adeptness in navigating organizational dynamics, aligning stakeholder interests, and steering the process towards constructive outcomes proved essential in optimizing the model's potential. Alertness and context-sensitivity were found to be more important than rigid application of methodology. Whenever context, facilitation and model application aligned, the model's ability to instigate both structured and intuitive regenerative growth was evident. The findings explained the intricate interplay between theoretical constructs and practical application, underscoring the model's potential as a transformative tool in the realm of regenerative business practices. The study's insights into the decisive roles of facilitation, systemic barrier navigation, capability development, and CEO leadership behavior provided a comprehensive understanding of the dynamics involved in steering organizations towards a regenerative future.

The synthesis of the findings revealed a multi-layered approach (barriers, capabilities, leadership) to regeneration, necessitating a departure from conventional business practices towards ones that are adaptive, innovative, and deeply integrated with the social-ecological systems businesses are part of. The empirical data gathered from various organizational settings underscored the need to develop new regenerative business capabilities to mitigate and surmount the omnipresent and multifaceted systemic barriers to regeneration. Given the right sort of leadership for regeneration, especially by the CEO, companies can recognize systemic barriers and by addressing them develop regenerative capabilities.

5.2 Contributions to theory

This research makes substantial contributions to theoretical development in the field of regenerative business practices and the SDGs, offering a multifaceted analysis that integrates and extends upon existing theoretical frameworks. The structured contributions to theory, based on the detailed exploration of regenerative business practices, leadership theories, the operationalization of these concepts into practical strategies, and the integration with empirical data, are outlined as follows:

> Note: the contributions are presented as addressing the identified research gaps in literature - indicated by [1.1] to [3.5] –, and as contributions to existing research on the discussed topics - indicated by {1} to {6} -. The contributions are grouped on perspective, not necessarily by order.

Extension and application of SDGs

Section 1.2 {1} This study extends the SDGs into the realm of regenerative practices, positioning these global goals as a foundational framework for guiding businesses beyond traditional sustainability, towards practices that actively regenerate environmental, social, and economic systems. This theoretical advancement underscores the necessity for businesses to embrace a broader, holistic perspective on sustainability, incorporating regenerative principles (Seddon et al., 2020; Wang et al., 2021; Konietzko et al., 2023).

CEO leadership for regeneration (CHEMP)

Section 3.1 {2} The research delineates specific leadership qualities essential for regenerative transformation, enhancing leadership theory by operationalizing regenerative leadership within the strategic context of sustainability and regeneration. This includes:

    a. Recontextualizing stewardship theory to emphasize situational conditions and cultures that foster stewardship and regenerative aims (Davis et al., 1997).

    b. Incorporating elements of upper echelon theory to explore the influence of CEOs' personal values and cognitive styles on regenerative strategies (Kaplan et al., 2008; Finkelstein et al., 2009).

Section 3.2 {3} Integrating CEO leadership aspects (CEO Consciousness, Hallmarks, Engagement, Morality, Preemptiveness) into the conceptual model, highlights the critical role of executive leadership in driving organizational change towards sustainable and regenerative practices. This addition provides a comprehensive understanding of the multifaceted nature of leadership required for significant organizational transformation, aligning with the dissertation's aim to support businesses in becoming regenerative. More specifically:

    a. CEO Consciousness underscores the importance of executive awareness and understanding of the interplay between business operations and the broader social-ecological system. This aligns with the stewardship theory, which advocates for leadership practices that prioritize long-term welfare over short-term gains. The emphasis on CEO discretion in decision-making processes resonates with upper echelon theory's focus on the role of top executives' values and experiences in shaping organizational strategies (Hambrick & Finkelstein, 1987).

    b. CEO Hallmarks reflect the unique attributes that differentiate regenerative leaders from traditional and sustainability-focused leaders, emphasizing visionary communication and a holistic view of business impacts. This aspect ties back to the principles of regenerative leadership and upper echelon theory, indicating the influence of executives' personal attributes on strategic decision-making (Walsh, 1995).

    c. CEO Engagement highlights the role of leaders in actively involving stakeholders and nurturing relationships, fostering a culture of trust and collective action towards regeneration. This aspect aligns with the transformative potential of engaged leadership in evolving business models and organizational cultures towards sustainability (Konietzko et al., 2023; Hahn & Tampe, 2021), highlighting the shift from traditional leadership paradigms.

    d. CEO Morality emphasizes the ethical and moral imperatives driving regenerative leaders, focusing on the welfare of society and the environment. This leadership aspect is critical in addressing potential overemphasis on economic benefits and ensuring fair distribution and treatment of all stakeholders, resonating with the

critique of sustainability efforts and the foundational principles of regenerative leadership (Murray et al., 2017; Caldwell et al., 2008).

e. CEO Preemptiveness focuses on the forward-looking, proactive approach to leadership, essential for navigating future challenges and opportunities. This aspect underscores the importance of continuous learning, innovation, and resilience, highlighting the need for leadership that anticipates and initiates change rather than reacting to external pressures (Gidley, 2017; Sanford et al., 2011).

Section 1.2 [1.1] The CEO leadership aspects for regeneration (CHEMP) specifically address the determined gap in in exiting research on the SDGs and the well-being economy on the specific leadership attributes that are most effective in navigating the challenges and opportunities presented by the transition to a wellbeing economy.

Section 1.2 [1.2] The formulation and integration of constructs for CEO leadership (CHEMP), systemic barriers (SPISO), and overcoming capabilities (CROMC) into a coherent model sheds light on the mechanisms through which CEO leadership catalyzes organizational transformation towards sustainability and regenerative practices.

Section 2.1 [2.2] The empirical base for, and the testing and refining in business practice of, the construct for CEO leadership for regeneration (CHEMP) and the underlying RIFT model, present answers to the determined a lack of empirical evidence on leadership aspects for regeneration.

Section 3.1 [3.3] The apparent lack of empirical evidence linking stewardship behaviors to enhanced organizational performance, is lessened somewhat, by the theory's direct influence on the CEO leadership aspects for regeneration (CHEMP), most notably CEO Morality and CEO preemptiveness, and the subsequent testing in various contexts.

Section 3.1 [3.5] By elucidating the interaction between CEO leadership aspects (CHEMP) and regenerative capabilities (CROMC), and through the empirical testing and refinement of the model in business practice, this research contributes to the understanding of how specific executive characteristics impact the implementation of sustainability and regeneration strategies.

Systemic barriers (SPISO) and regenerative capabilities (CROMC)

Section 2.1{4} Application of institutional theory illuminates systemic barriers (SPISO) to regeneration, advancing understanding of organizational and external challenges in adopting regenerative practices (DiMaggio & Powell, 1983; Scott, 2014).

Section 2.2{5} Introduction of regenerative business capabilities (CROMC) provides actionable strategies for overcoming these barriers, framing a holistic approach to regenerative business transformation.

Operationalization and scalability

Section 3.3{6} By synthesizing insights from SDGs, regenerative leadership, stewardship, and upper echelon theories, the research contributes a comprehensive framework for the practical implementation of regenerative models. This addresses the literature gap on operationalizing regenerative practices, offering structured pathways for business transformation towards circular and systemic sustainability models (Lacy & Rutqvist, 2016; Fullerton, 2015).

Section 2.1 [2.1] The RIFT consulting model addresses the need for more operationalization and scalability of regenerative practices across different contexts and sectors, contributing to the broader discourse on sustainable development and corporate responsibility.

Section 2.1 [2.3] Demonstrating the model's application in varied industry settings, alongside methods for implementation and prerequisites for facilitation and training, this research meets the demand for adaptable strategies for implementing regenerative practices.

Section 2.1 [2.5] The identification of five systemic barriers to regeneration (SPISO) and corresponding regenerative capabilities (CROMC) directly confronts the call for focused research on navigating the challenges inherent in the transition towards regeneration.

Empirical research and model application

Section 3.1 [3.1] The investigation of the RIFT model's impact, versatility, and facilitation mechanisms in Chapter 4 responds to the call for empirical studies on the effectiveness of regenerative leadership in business contexts.

Section 3.1 [3.2] Acknowledging the research did not extend to longitudinal studies on the impact of regenerative leadership, this limitation is recognized as an area for future inquiry.

This research significantly contributes to the theoretical landscape by providing a nuanced understanding of how regenerative principles can be integrated into business practices and leadership strategies. It fills existing gaps by offering empirical evidence and practical insights into the operationalization of regenerative models, leadership

behaviors conducive to sustainability and regeneration, and strategies for overcoming systemic barriers to organizational transformation.

5.3 Contributions to practice

Table 15 gives an overview of some of the key models applied for sustainability in business, both from an academic and a commercial background.

From academic research
1.**Triple Bottom Line (TBL)**: Focuses on three pillars of sustainability—environment, social, and economic—encouraging organizations to measure their impact in these areas beyond traditional financial metrics.
2.**Natural Step**: Provides a science-based framework for organizations to progress towards sustainability by reducing their ecological footprint through systematic changes in materials and processes.
3.**Cradle to Cradle (C2C)**: Emphasizes designing products with the end-of-life in mind, promoting the use of biodegradable materials and the recyclability or reusability of components.
4.**Circular Economy**: Advocates for a systemic shift away from a linear "take-make-dispose" model towards a circular system that designs out waste, keeps products and materials in use.
5.**B Corporation Certification**: Guides businesses in meeting comprehensive social and environmental performance standards, legal accountability, and public transparency to balance profit and purpose.
6.**GRI (Global Reporting Initiative)**: Offers standards for sustainability reporting, helping organizations understand and communicate their impacts on critical sustainability issues.
From commercial or collaborative research
1.**Audits, testing, and verification**: Collecting of business environmental data to ensure regulatory compliance, verify sustainability certifications, and compare performance to competitors. Mostly focused on understanding a company's current footprint.
2.**Technical support**: Consulting on green construction, energy projects, and waste management systems. Focuses on impact-reduction of large-scale infrastructure.
3.**Strategy and planning**: Consulting that helps clients develop a strategic plan to improve sustainability performance, including current state assessments, goal definition, road-mapping, and implementation.
Key players
1.**Large consulting companies**, like McKinsey, Deloitte, PWC, or KPMG, for whom sustainability is one branch among many.
2.**Boutique consultancies**, like Forum for the Future or SustainAbility, which purely specialize in sustainability and have no other branches.
3.**Nonprofit organizations pro-bono sustainability consulting**, like EasySustainability or Green Pro Bono, who provide services to raise awareness for environmental issues and set an example for an industry to follow.
4.**Freelance or solo practitioners**, like EA3, which are mostly individuals with experience that operate under their own name or a company name with no (permanent) employees.

Table 15 Existing sustainability models

Compared to these and other models, the developed RIFT (Regenerative Integrated Framework for Transformation) model and its method of implementation offers a completely novel and distinctive approach that enriches the landscape of existing consulting models for sustainability by emphasizing not just sustainability but regeneration. As depicted in Figure 18, this model: 1) goes beyond the traditional focus on minimizing negative impacts to actively promoting positive ecological and social outcomes; 2) it integrates systemic thinking, recognizing the interdependence of social, ecological, and economic factors; 3) advocates for transformative changes that enhance the vitality of both human and natural systems. Through its comprehensive implementation strategy, the model 4) facilitates a deeper engagement with stakeholders, encouraging collaborative solution-finding and fostering a culture of innovation and resilience. Its setup enabling feedback loops and adaptive management 5) ensures that practices are continuously refined in response to evolving insights and external conditions. Moreover, 6) the model's focus on developing regenerative leadership and

capabilities within organizations positions it as a tool for not only addressing immediate sustainability challenges but also driving forward a more profound, systemic change.

	RIFT consulting model for regeneration	Existing consulting models for sustainability
Goal	have a net positive effect on the socal-ecological system the business operates in on social, ecological and economic aspects	avoid harm and minimize the environmental footprint
Key focus	systemic development of capabilities and leadership to inherently incorporate ecological restoration, social equity, and economic vitality	target specific areas like carbon footprint reduction, waste minimization, energy efficiency, and social responsibility
Implemen-tation	in a holistic approach, integrating feedback loops, stakeholder engagement, adaptive management, and leadership development to address barriers and foster capabilities for systemic change	deploy a mix of best practices, guidelines, and standards for sustainable operations, focusing on compliance, reporting, and incremental improvements within existing frameworks
Starting point	a transformative shift towards practices that not only sustain but enhance environmental quality, social wellbeing, and economic prosperity, ensuring resilience and thriving social-ecological systems	seek to balance economic development with environmental stewardship and social equity, aiming for long-term sustainability within the limits of ecological systems
Evaluation	emphasize qualitative assessments of systemic changes, stakeholder wellbeing, and social-ecological system health, alongside quantitative measures of (improvement of) internal capabilities and external impact	rely on quantifiable metrics related to environmental impact, social outcomes, and economic performance, with certifications and standards to benchmark progress
Adaptability & scalibility	designed to be flexible and adaptable, recognizing the unique contexts of different organizations and social-ecological systems, and scalable across various sectors and regions	vary in their adaptability and scalability, with some offering tailored solutions for specific industries or challenges, while others provide more generalized frameworks

Figure 18 Distinctive approach to consulting models for sustainability

By aligning closely with the principles of regeneration, the model offers a forward-looking perspective that complements and extends the impact of existing models, providing a robust framework for businesses seeking to contribute meaningfully to a sustainable and regenerative future. On a more abstract level, the model advocates 7) a management aimed at fostering (regenerative) capabilities as opposed to a more singular management by objectives.

In summary, while both the regeneration model and existing sustainability models aim to address the urgent need for sustainable development, the RIFT model extends beyond sustainability to encompass a broader vision of systemic renewal and enhancement. It challenges organizations to not only mitigate harm but actively contribute to the health and vitality of social-ecological systems.

If all businesses were to strategically concentrate on enhancing their regenerative capabilities – aiming for a net positive impact in the internal and external areas of highest materiality (so where the highest impact on the social-ecological system is), both externally and internally –, while maintaining a net neutral (supportable) stance in other realms, significant progress could be made towards achieving the SDGs. Such an approach would create a synergistic effect: companies would specialize in generating positive impacts in sectors where they have the most influence and expertise, thereby

maximizing the effectiveness of their sustainability efforts and building multiple value creating competencies and unique selling points.

The research highlights the model's applicability across a spectrum of organizational contexts, underscoring its versatility and adaptability. Whether it's a startup, a non-profit organization, or a well-established multinational, the model provides a basis for integrating regenerative practices in a manner that is consistent with the organization's unique culture, operational dynamics, and strategic objectives. This adaptability makes the model a valuable tool for practitioners seeking to navigate the complex landscape of organizational change towards sustainability and regeneration

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Illustrations of the RIFT model's versatility in practical application
A food production company might focus on regenerative agriculture, while a tech firm could aim for net positive contributions in digital inclusion. By aiming for supportability in other aspects, companies avoid the pitfalls of overextension and maintain a balanced focus, thereby still contributing to broader sustainable development without diluting their efforts. This segmented yet integrated approach could significantly amplify the collective capability of the business sector to drive forward the realization of the SDGs, creating a more sustainable, equitable, and resilient global system.
The model's versatility allows for application on value chains and networks, locations like regions or industry parks, and production or office facilities. It could be focused on heavily polluting factories in critical industries, where it could help those sites to become supportable and ultimately regenerative. This would help achieve the SDGs on a global scale, by not 'exporting' degenerative production to less regulated countries, but by developing good regenerative practices that can be applied elsewhere.

On an operational level, the RIFT model offers a pragmatic approach for businesses aspiring to become regenerative. It provides 1) actionable insights into identifying and surmounting systemic barriers to regeneration, 2) nurturing requisite business capabilities, and 3) fostering leadership conducive to sustainable transformation. The model's adaptability across different business contexts – from small enterprises to multinational corporations – underscores its utility as a versatile tool for guiding businesses on their journey towards regeneration.

A further contribution of this research is the nuanced understanding of the facilitator's role in the practical implementation of the model. The study delineates how the facilitator's role evolves from merely presenting the model to actively engaging in the transformation process, thereby becoming an integral part of the organization's journey towards regeneration. It emphasizes the facilitator's need for alertness, adaptability, and a deep understanding of an organizational episode's unique context. Practitioners in the field are encouraged to view the facilitator not just as a conveyor of the model but as a

dynamic change agent whose role can be instrumental in steering the organization through the complexities of regenerative transformation.

For practitioners in the field, the key takeaway from this research is the holistic approach to regeneration. The study advocates for a comprehensive perspective that encompasses not just the operational aspects but also the cultural, strategic, and leadership dimensions of the organization. It encourages practitioners to adopt a systems-thinking approach, recognizing the interconnectedness of various organizational facets and the importance of aligning them harmoniously to drive effective and sustainable regeneration.

Adding to these contributions, it is paramount to underscore the broader implications and potential applications of this research methodology beyond the initial industries explored. The adaptability and versatility of the RIFT model, as evidenced through its application in varied organizational contexts, from startups to multinational corporations, highlight its relevance and potential impact across different sectors. Future book publication endeavors could benefit from delving into these potential applications, providing insights into how the RIFT model can address similar challenges in industries like healthcare, education, and manufacturing, thereby facilitating their transition towards regenerative practices. This expanded focus would not only enrich the discourse on sustainability and regeneration but also inspire actionable change across the global business landscape, contributing to the achievement of the SDGs.

5.4 Limitations of the model and methodological approach

As mentioned in Section 5.1, the overall conceptual robustness and general applicability of the approach for regeneration can be scrutinized. This is reflected in this section. Due to the multi-method qualitative approach in this research, some limitations of it vary across the separate studies. The limitations that may impact the generalizability and robustness of the findings have been grouped for relevance.

Scope and generalizability limitations
1) Due to accessibility and availability, the geographic diversity of the participants in the empirical data collection was skewed towards European and North-American businesses.
2) For similar reasons, the study may have insufficient width of industries, regions, or type of organizations, which could limit the generalizability of the findings.

3) The scope of the study on leadership aspects for regeneration was explicitly restricted to CEO leadership, potentially overlooking other pivotal leadership roles and manifestations.

4) The research is based on a limited number of three case studies, which may constrain the breadth of applicability and generalizability of the findings.

Methodological and data collection limitations

Methodological and data collection limitations are thoroughly discussed in Chapter 1, noting efforts to maintain research integrity and validity. Despite these efforts, limitations persist:

5) The sample size of participants involved in interviews – determined via purposive & snowballing sampling – may have limitations in terms of representativeness.

6) There might be inherent biases in the selection of interview participants, which could introduce potential bias in the results.

7) The data collected through interviews and self-reporting methods may be subject to social desirability bias. Participants may have provided responses that they perceive as favorable or aligned with sustainability expectations. This bias could impact the accuracy and reliability of the findings.

8) Due to the extensive experience and tacit knowledge of the researcher in the field, confirmation bias could have influenced the data analysis.

9) The study primarily relies on qualitative data, which may limit quantifying and measuring certain aspects of regenerative leadership and regenerative business practices.

10) Triangulation for participant honesty and the recollection of events was done, but due to the wide array of interventions proved difficult.

11) A certain predisposition towards regenerative practices was evident with some interviewees (reflected in a lower pertinence factor for the interview); the effects of that on the research are hard to assess.

Theoretical and conceptual limitations

12) As a result of the multi-theory context, the depth of research on each reviewed theory might have been less than in a single umbrella theory context.

13) Partly due to the complex methodology, the research trajectory was very time and resource intensive, potentially leaving insufficient time to deep-dive into certain specific aspects of the research.

Model-specific limitations

14) There are limitations inherent in the model itself, particularly its reliance on skilled facilitation. The model's effectiveness is partly determined by the quality and consistency of the facilitation.

15) The model's application and efficacy can be significantly influenced by the prevailing organizational culture.

16) Generalizability from the action research phase should be scrutinized, given the limited number of evaluated episodes and the qualitative nature of the research; this extents to the validation of the qualitative model.

Researcher and participant limitations

17) Potential biases could arise from the facilitator's dual role as both the researcher and a facilitating actor in the change process. It may also introduce subjective biases and influence the interpretation of findings.

18) The inherent subjectivity in autoethnographic approaches, can limit the objectivity and generalizability of the conclusions drawn.

19) The awareness factor of consequences of reported decisions and practices of participants could be limited at times, potentially downplaying their significance.

20) Being the predominant and often sole researcher and analyst in this study could inadvertently introduce biases in data collection, analysis, and interpretation, as the researcher's preconceptions and experiences might influence the research outcomes. Moreover, the solitary nature of this approach may limit the depth and breadth of analytical perspectives, potentially overlooking alternative interpretations or insights that could be revealed through collaborative analysis, thus challenging the study's replication.

5.5 Suggestions for further research

The exploration of regenerative practices and leadership is an emerging and inherently interdisciplinary field. As this domain is in its nascent stages, it presents a wide array of research opportunities that reflect its breadth and depth. As mentioned in Section 5.1, the overall conceptual robustness and general applicability of the approach for regeneration within this domain can be scrutinized. This is reflected in the suggestions for further research, which are organized into thematic categories to provide structure and coherence. Notably, topics marked with an asterisk (*) will be central to the author's future research agenda. These topics are specifically chosen to enhance the RIFT approach for

regeneration, aiming to enhance its research robustness and ensure its effectiveness across various geographic locations, sectors, and organizational structures. Additionally, this agenda includes evaluating the long-term impact of regenerative practices and regenerative innovation, integrating technologies for enabling and monitoring these practices, and developing comprehensive metrics for their assessment and optimization.

Innovation and business model adaptation

1*) Deepening regenerative innovation: while the emphasis on regenerative innovation has been established, there is room to delve deeper into what constitutes such innovation in various industries. How can regenerative innovation be standardized, or should it remain adaptive to specific contexts?

2) Exploring business model adaptability: the efficacy and challenges of operating multiple business models concurrently warrant in-depth exploration. What are the best practices, pitfalls, and sustainability of such a flexible approach, especially in different market contexts?

Leadership, organizational culture, and stakeholder engagement

3) Evolution of leadership for regeneration: as leadership dynamics shift towards being more collaborative and process-oriented, it would be beneficial to investigate how this evolution manifests across sectors, cultures, and scales of business.

4) Organizational culture and regenerative transition: organizational culture plays a pivotal role in the success or failure of any transformative initiative. Investigating the cultural adaptations, challenges, and shifts during the transition to regenerative practices can provide valuable insights. Specifically, understanding how to foster a culture conducive to regeneration and how to navigate resistance can be enlightening for many organizations.

5) Stakeholder dialogue dynamics: the mechanics, challenges, and best practices of open stakeholder dialogues in diverse organizational settings can be a rich area for research. How do different stakeholders perceive and engage with such dialogues?

Cognitive and metric transformations

5) Cognitive paradigm shifts: understanding the cognitive processes that underlie the transition from traditional to regenerative thinking in organizational contexts can provide insights into facilitating smoother transitions.

6*) Traditional metrics vs. regenerative metrics: the redefinition of traditional business metrics in the context of regenerative practices poses an interesting avenue for research. How do these metrics evolve when managing on capabilities vs. objectives and targets, and what new metrics emerge?

Cross-domain applications and long-term impacts

7) Regenerative practices in non-business domains: exploring how regenerative principles can be applied in non-business sectors, like public administration, education, or health, can provide a holistic understanding of its potential and ultimately create more impact.

8*) As acknowledged in Section 5.2, this research did not address the call for longitudinal studies on the impact of regenerative leadership. Longitudinal studies can assess the sustained impact of the model. Tracking the evolution of regenerative initiatives over time can provide insights into the durability of the changes implemented and the long-term benefits.

9*) The same applies to long-term impacts of the regenerative transition itself: investigate the long-term economic, social, and environmental impacts of businesses that have successfully transitioned to regenerative practices. Are there unforeseen challenges, collateral damages or benefits that manifest over extended periods?

Global perspectives and model application

10*) As the participants in the empirical data collection and cases were skewed towards Europe and North-America, additional data collection by more global and cross-cultural studies could add depth and new perspectives to the findings. Research in this area can guide the customization of the model to suit diverse cultural norms, values, and business practices, enhancing its global applicability.

11) Applying the model in a diverse array of industries and organizational contexts can provide a richer understanding of the model's versatility and the nuances involved in its application across different sectors. Investigations into how the model performs in varying organizational sizes can offer insights into scalability and adaptability challenges.

12) Investigating the possibility and efficacy of applying the model without the direct involvement of a skilled facilitator can broaden its accessibility and applicability. This exploration can include the development and evaluation of self-guided tools, frameworks, and digital platforms that enable organizations to independently navigate the transition towards regenerative practices.

Technology integration

13*) Integration of technology and regenerative practices: in the era of digital transformation, understanding how emerging technologies such as AI, blockchain, and IoT can support, enhance, or challenge regenerative initiatives is crucial. Research can focus on the synergies and conflicts between tech-driven growth and regenerative practices.

14*) Research into how advancements in technology and digitalization can support and enhance the application of the regenerative model. Studies can explore the integration of digital tools, data analytics, and artificial intelligence in monitoring, managing, and fostering regenerative practices within organizations.

Enhancing RIFT approach robustness

15*) To address the limitations posed by being the predominant researcher and analyst, future studies could benefit from the establishment of collaborative research teams that include scholars from diverse backgrounds.

16*) Implementing cross-validation studies involving different researchers could help in assessing the reproducibility and reliability of the findings.

17*) Publishing a peer-reviewed academic article and soliciting external feedback on the research can significantly strengthen its robustness.

18*) Organizing (more) training workshops where the author shares insights and techniques related to the study's methodology could aid in overcoming replication challenges. These workshops would provide a platform for transferring knowledge and skills essential for duplicating the research approach.

19*) Assessing the relevance of the RIFT-approach to any framework for global wellbeing or any (new) set of goals could bolster its relevance beyond achieving the SDGs, which will end in 2030.

This chapter synthesized theoretical insights and practical findings from our study on regenerative business practices. It highlighted the importance of recognizing systemic barriers to regeneration, fostering the required business capabilities, and nurturing leadership qualities essential for regenerative efforts. The application of the RIFT consulting approach across various business settings demonstrates the transformative power of regenerative practices for businesses and the wider socio-ecological systems. Our findings enrich academic knowledge and offer practical strategies for businesses

aspiring to adopt sustainable and regenerative models. Additionally, the chapter underlines facilitation's crucial role in model implementation, suggesting a tailored approach to manage organizational change. Thus, this chapter not only summarizes the research's core contributions but also sets the stage for further exploration in the evolving domain of regenerative business and leadership.

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APPENDIX 1: Full literature review on the Sustainable Development Goals

This appendix presents all details of the comprehensive literature review on the Sustainable Development Goals (SDGs) – including their historical development – as referred to in Section 1.2.
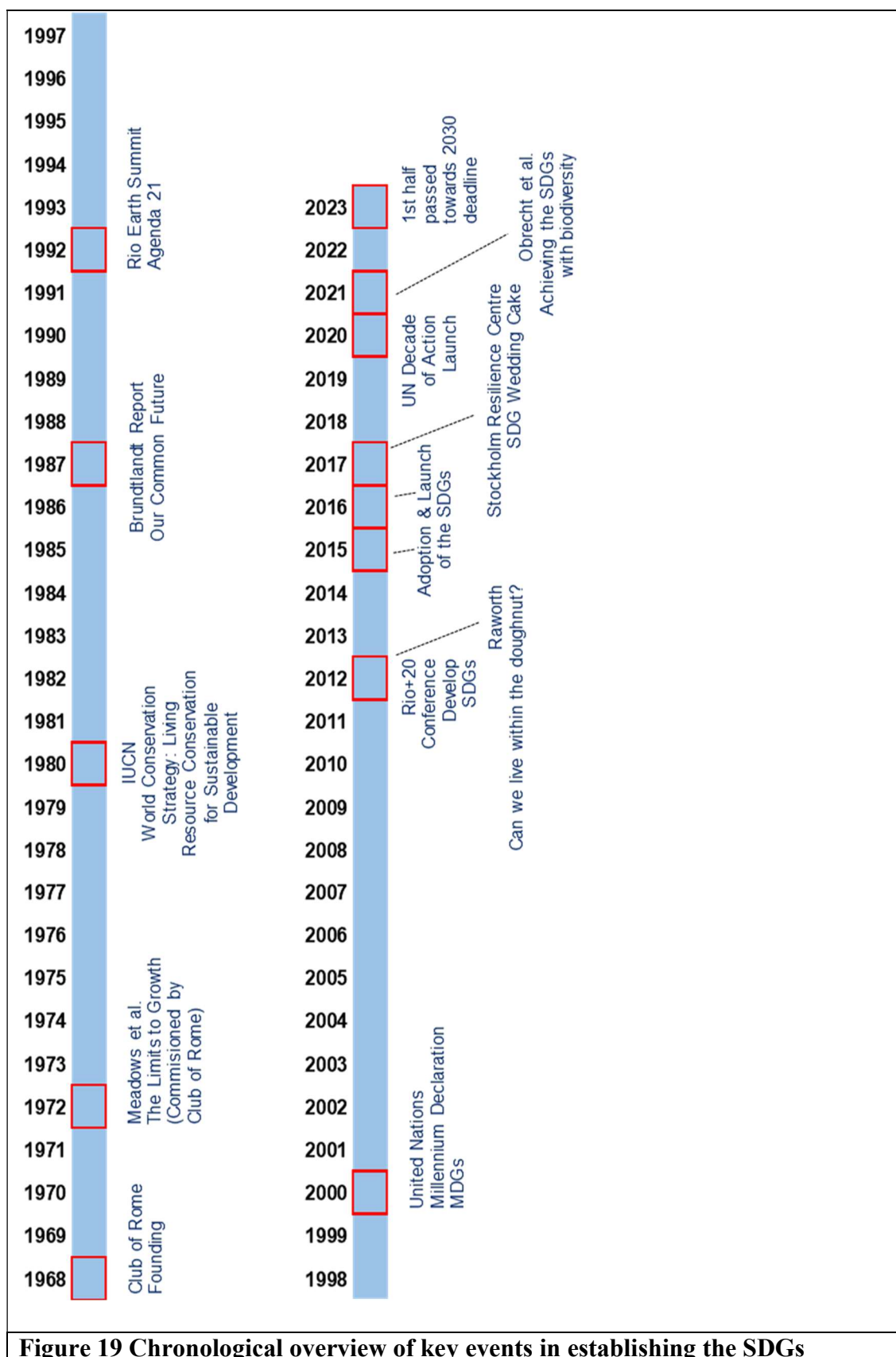
Figure 19 Chronological overview of key events in establishing the SDGs

Figure 19 presents a chronological overview of the process and events leading up to the development of the Sustainable Development Goals (SDGs) and the current status. The SDGs, initiated by the United Nations in 2015, are an ambitious global attempt to address a broad array of social, economic, and environmental challenges facing the world (Whittingham et al., 2023). The SDGs evolved from the previous Millennium Development Goals (MDGs) which were in effect from 2000 to 2015. While the MDGs made significant strides, they were criticized for their top-down approach, lack of attention to environmental concerns and their main focus on developing countries. The SDGs were developed to address these shortcomings (Sachs, 2012). The SDGs comprise 17 interrelated goals with 169 associated targets, intending to promote a more balanced approach to sustainable development (Le Blanc, 2015).

The origins of the SDGs date back to the 1970s and 1980s, when awareness about global environmental issues started gaining traction. The Club of Rome, a global think tank, was founded in April 1968 in Rome, Italy, by Italian industrialist Aurelio Peccei and Scottish scientist Alexander King. Their mission was to promote understanding of the global challenges facing humanity and to propose solutions through scientific analysis, communication, and advocacy. The 1972 report 'The Limits to Growth' (Meadows et al., 1972) was commissioned by them to a team of researchers from the Massachusetts Institute of Technology (MIT), who applied computer modeling to simulate the interplay between population growth, industrial output, food production, and limits in resources. The report suggested that if society continued its trends of exponential growth in a world with finite resources, it would face a decline in industrial output and population in the 21st century. This provocative report sparked a significant global debate about economic growth, sustainability, and the environment (Aigner-Walder & Döring, 2022).

The term 'sustainability' arose in the 1980s from discussions about depletion of natural resources and environmental degradation, backed by an emerging awareness of the potential long term effects thereof. The concept of 'sustainable development' was introduced and started to become influential in global policy discussions (Meadows et al., 2004, 1972). The first notable use of the term sustainable development, in the context of environmental and economic development, was by the International Union for conservation of Nature (IUCN) in its World Conservation Strategy, published in 1980 (International Union for Conservation of Nature and Natural Resources, 1980).

After publication of the Brundtland Report 'Our Common Future' in 1987 by the World Commission Environment and Development (Keeble, 1988), this two word combination became a widely accepted term, even to the point of being a container term in today's business, scientific and everyday life. In the Brundtland report which popularized the concept of sustainable development and emphasized the interdependence of economic development and environmental sustainability, 'sustainability' and 'sustainable development' were used interchangeably. Using 'sustainability' interchangeably for very different aspects is still common in scientific and popular discussions and often complicates them. The term sustainability is used for an area of research (such as e.g. sociology or engineering), as part of a strategy (such as e.g. quality or public relations), as a level achieved (such as e.g. restorative or degenerative), or adjective (such as e.g. sustainable development, sustainable actions). It is for this reason that a precise definition for the different meanings of sustainable and sustainability has been formulated in this thesis (see box on page 8).

In 1992 the United Nations Conference on Environment and Development, also known as the Rio Earth Summit, was held. The summit led to several major agreements aimed

at promoting sustainable development, including Agenda 21, a comprehensive plan of action to be taken globally, nationally, and locally by organizations of the UN, governments, and major groups (Doyle, 1998).

At the turn of the century, in September 2000, the UN established the Millennium Development Goals, a set of eight goals designed to address key issues like poverty, education, and health. While these goals had significant impacts, they were also criticized for their narrow focus and lack of emphasis on environmental sustainability (Fehling et al., 2013; Sachs, 2012).

During the 2012 United Nations Rio+20 Conference on Sustainable Development held again in Rio de Janeiro, Brazil, member states agreed to launch a process to develop a set of SDGs. They aimed for these new goals to be more comprehensive and universally applicable than the MDGs (Bulkeley et al., 2013).

Finally, on 25 September 2015, all 193 UN member states adopted the 2030 Agenda for Sustainable Development, which came officially into force on January 1st, 2016. The SDGs expanded upon the MDGs, covering a broad range of interconnected issues, from ending poverty to improving health and education, reducing inequality, and combating climate change (Colglazier, 2015). An influential group of authors and captains of industry introduced the term 'cockpit-ism' as the illusion that top-down steering by governments and intergovernmental organizations alone can address global problems. They addressed the risk of falling short of expectations and called for the SDGs to additionally mobilize new agents of change such as businesses, cities and civil society (Hajer et al., 2015).

Since their adoption, countries have been working towards the SDGs, integrating them into national development plans and initiatives. Regular meetings known as the High-Level Political Forum on Sustainable Development are held to review progress, discuss challenges, and mobilize further actions (Beisheim & Fritzsche, 2022). To ensure that the SDGs are achieved by 2030, the UN launched the Decade of action in 2020. This global effort aims to accelerate sustainable solutions to all of the world's biggest challenges by 2030. As of mid-2023, the world is just over halfway through the timeline set for achieving the SDGs. Progress has been made on several fronts, but significant challenges remain, particularly due to the global impacts of the COVID-19 pandemic. The focus now is on accelerating progress towards all 17 goals by the 2030 deadline. One of the root causes for delayed progress is the slow or limited adoption and implementation of the SDG Agenda by large multinational corporations in close interaction with government policies (Mio et al., 2020; Sachs & Sachs, 2021; Van Tulder et al., 2021).

Key constructs of the SDGs

The fundamental constructs of the SDGs arise from their three pillars: economic growth, social inclusion, and environmental sustainability. Robust and sustained economic growth is important for improving living standards, reducing poverty, and enabling other development outcomes. Goals such as SDG 8 (decent work and economic growth) and SDG 9 (industry, innovation, and infrastructure) articulate this construct. Social inclusion and equitable societies where opportunities are available to all, regardless of gender, ethnicity, age, or disability are a vital pillar too. This is expressed in SDGs like SDG 4 (quality education), SDG 5 (gender equality), and SDG 10 (reduced inequalities). The SDGs underline the inextricable link between human wellbeing and the health of our planet. This environmental sustainability is articulated through goals such as SDG 13 (Climate action), SDG 14 (Life Below Water), and SDG 15 (Life on Land). Combined

they reflect a paradigm shift from traditional development models, emphasizing the interdependence of these dimensions and the necessity for their simultaneous consideration and advancement (Sachs, 2012).

The sequence in dependency of the 3 pillars is well visualized by the 'SDG wedding cake,' an adaptation of Kate Raworth's doughnut model to better visualize and communicate the integrated, interdependent nature of the SDGs.
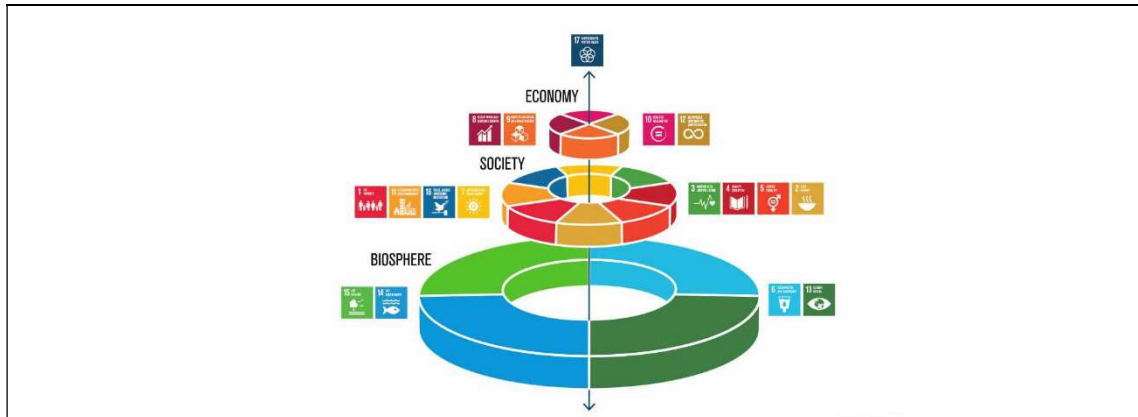
Figure 20 SDG wedding cake

The 'SDG wedding cake' model as depicted in Figure 20, conceptualizes the SDGs as a three-layered cake, denoting the three dimensions of sustainable development – biosphere, society, and economy – in their order of priority (Raworth, 2012). The model serves as a visualization tool for understanding and addressing the SDGs from a systems perspective, emphasizing the interconnections and dependencies among the goals. Building on the model, Obrecht et al. (2021) deemed biodiversity crucial to achieving the SDGs as it forms the foundation of the biosphere layer and is interconnected with several societal and economic goals. They argue that prioritizing biodiversity preservation can have cascading positive effects on other goals, given the critical role it plays in supporting social-ecological system services, promoting health and wellbeing, and enhancing resilience against environmental changes. Thus, using the SDG wedding cake model can help in prioritizing and integrating efforts to achieve the SDGs, with a strong focus on protecting and enhancing biodiversity.

The key assumptions underlying the SDGs, shape their design and implementation. They are universal and apply to all nations and peoples, whereas the preceding Millennium Development Goals (MDGs) focused predominantly on developing countries (Kanie & Biermann, 2017). They operate under the assumption that the goals are integrated and indivisible; progress in one goal can facilitate advances in others, implying a need for a holistic and integrated approach to their implementation (Le Blanc, 2015). The SDGs assume that the engagement of multiple stakeholders, including governments, civil society, the private sector, and the international community, is critical for their achievement; this is reflected in SDG 17, which advocates for partnerships (Bäckstrand & Kuyper, 2017). They presume that if achieved, they can catalyze significant social, economic, and environmental transformations, setting the world on a more sustainable path (Sachs et al., 2019a).

Application of the SDGs in most significant contexts
The application of the SDGs can be considered relevant in every context due to their universal nature and the underlying need for universal applicability. They apply to all

countries, sectors, industries, and societal aspects (Kanie & Biermann, 2017). Some contexts potentially have a more significant impact on the achievement of the SDGs and the required transformative pathways towards sustainable development (Sachs et al., 2019a). These are government, business, education, science and technology, health care, civil society organizations and urban planning and policy. Governmental policies, regulations and governance- ranging from environmental regulations to social policies and economic reform – play a crucial role in achieving the SDGs; integrating the SDGs into national and local policy-making processes can have a significant impact (Kanie & Biermann, 2017).

The private sector's actions can greatly influence the realization of the SDGs; business strategies and operations and industry standards can be realigned to contribute to the SDGs; sustainable business models can be developed (Bocken et al., 2014); in the business sphere, the SDGs can serve as a blueprint for aligning organizational strategies with global priorities (Sachs & Sachs, 2021); businesses worldwide are increasingly integrating SDGs into their strategic planning, operations, and reporting mechanisms, which in turn, drives innovation, risk management, stakeholder engagement, and new market opportunities (Bansal et al., 2014).

Integrating sustainability and the SDGs into educational curriculums at all levels can foster awareness and understanding of the SDGs and equip future generations with the knowledge and skills to achieve them (Sterling, 2010); education serves as both a goal (SDG 4) and a fundamental enabler of the other SDGs; embedding the principles of sustainable development into education systems equips learners with the necessary knowledge, skills, and attitudes to promote sustainable societies (Tilbury, 2011), ranging from incorporating sustainability into curricula to fostering research in sustainability-related topics (UNESCO, 2017). Innovations in science and technology, including digital technologies, Renewable energy technologies, and biotechnologies, can play a critical role in achieving the SDGs (Mazzucato, 2015).

The SDGs have significant implications for health, Care and overall wellbeing, with SDG 3 dedicated explicitly to health and wellbeing. However, numerous other goals directly or indirectly impact health outcomes. SDG 2 (Zero Hunger) and SDG 6 (Clean Water and Sanitation) address key determinants of health (Whitmee et al., 2015). Civil society organizations, including NGOs, can help achieve the SDGs through their work in areas such as advocacy, raising awareness, community development, and service delivery; thus creating civil society engagement (Siems et al., 2023).

The urban context represents a critical focus for the SDGs, with SDG 11 targeting sustainable cities and communities; cities are increasingly integrating the SDGs into their urban planning and policy development processes to address challenges of housing, transportation, infrastructure, climate change, and inclusivity (Hölscher & Frantzeskaki, 2021).

Interdisciplinary approaches to the SDGs

The SDGs represent an inherently interdisciplinary agenda. Their expansive and interconnected nature necessitates diverse, interdisciplinary approaches for effective understanding, action, and progress. Various key interdisciplinary approaches applied to the SDGs include systems thinking, stakeholder collaboration, transdisciplinary research, and interdisciplinary learning.

Systems thinking, which offers an integrative approach to tackling the SDGs, recognizing the interconnectedness of social, economic, and environmental systems (Sterman, 2001); this approach allows for understanding the complex interactions and feedback loops between different goals and targets, aiding the design of interventions that leverage these connections for enhanced impact (Breuer et al., 2019).

The realization of the SDGs requires active collaboration between diverse stakeholders, including governments, businesses, academia, civil society, and international organizations; such Collaborative Partnerships enable the combination of resources, expertise, and perspectives, fostering innovative solutions and collective action for the SDGs (Biermann et al., 2017).

Transdisciplinary research, which transcends the boundaries of individual disciplines, is a vital approach for addressing the SDGs; integrating academic knowledge with practical experience, can develop contextually relevant, robust, and holistic solutions for sustainable development challenges (Lang et al., 2012).

Education for Sustainable Development (ESD) promotes an interdisciplinary learning approach where learners are encouraged to view the world in a more integrated manner; addressing the interdependence of environmental, social, and economic factors cultivates the skills, knowledge, and values necessary for sustainable development (UNESCO, 2017).

Recent developments and future directions in SDGs Research

One of the recent trends in SDGs research involves the assessment of interlinkages and trade-offs among different SDGs. Researchers have developed various methodologies and tools to map and quantify these interconnections, enabling more integrated and efficient strategies for achieving the SDGs (Pradhan et al., 2017).

In addition, there has been a surge in research focusing on the localization of SDGs, examining how global goals can be adapted to fit local contexts. This trend recognizes the importance of context-specific strategies in achieving sustainable development outcomes (Frantzeskaki et al., 2021). Looking ahead, several promising directions emerge for SDGs research. The development of monitoring and evaluation frameworks for the SDGs is a crucial research area; these frameworks can help track progress, identify gaps, and guide policy adjustments, thereby supporting more effective SDG implementation (Sachs et al., 2019b).

Given the increasing recognition of the interconnectedness of the SDGs, future research can delve deeper into the systemic, complex dynamics between different goals and targets; i.e., the exploration of emerging fields such as network science and complex systems theory in the context of the SDGs (Weber et al., 2021).

The disruptive impacts of global challenges, such as the COVID-19 pandemic, on SDG progress present a critical area for future research; this includes assessing the impacts, exploring recovery strategies, and reimagining sustainable development in a post-pandemic world (Naidoo & Fisher, 2020).

Critiques and limitations of the SDGs

While the SDGs are widely accepted and generally viewed as beneficial in making substantial and joint progress in addressing contemporary environmental, social, and economic challenges, they are not without critique and limitations. The evolution of the SDGs reflects an increased understanding of the complexity and interconnectedness of sustainability challenges. Various researchers emphasize the synergies and trade-offs among different SDGs (Le Blanc, 2015; Renaud et al., 2022; Zhao et al., 2021). The pursuit of economic growth (SDG 8) could conflict with climate action (SDG 13) or responsible production (SDG 12) if not managed properly. Thus, the SDGs require an integrated and balanced approach to implementation, which as of yet has not proven to be easily obtained.

Despite the broad consensus on the SDGs, some researchers highlight concerns about the implementation process. It is argued that while the SDGs are conceptually sound, practical application is challenging due to their complexity and interdependence. They recommend a more systems-based approach to implementing the SDGs, linking them to

specific actions and policy measures (Griffiths, 2021; Stafford Smith et al., 2017). Hickel (2019) critiques the SDGs for being too conservative in addressing the structural causes of poverty and inequality, arguing that they focus more on symptoms rather than root causes. The SDGs should be more radical in advocating systemic changes, such as altering global economic structures and consumption patterns. To measure progress, statistical indicators have been developed for each target, but monitoring remains a challenge. As mentioned by Nilashi et al. (2023), data gaps, especially in developing countries, hinder accurate tracking of progress. Additionally, there us the danger of 'cherry-picking', where countries focus on easily achievable targets while neglecting others (Forestier & Kim, 2020).

Conclusion and implications for this research
Accelerating progress towards all 17 SDGs by the 2030 deadline is crucial for the world at large, including the business community within it. Whilst businesses are an important factor in achieving the SDGs and can significantly benefit in the process, they fail to live up to the challenge as a whole.
Businesses and their CEOs must cultivate a systems thinking approach, recognizing the interconnectedness of social, economic, and environmental aspects. This mindset helps in understanding the complex dynamics within and between organizations and provides insights into creating regenerative, circular models. Alignment with the SDGs offers a comprehensive blueprint for CEOs to develop regenerative strategies. By integrating the SDGs into corporate vision, mission, and operations, CEOs can provide direction and coherence to the transition, ensuring that it contributes to broader sustainability goals. The SDGs are widely applied in all aspects of society and business and as such prove to be well applicable in the aim for practical relevance in the business field and to develop models, tools and interventions for it.

The interdisciplinary nature of the SDGs emphasizes the importance of collaboration. CEOs must actively foster partnerships across various stakeholders, including suppliers, customers, regulators, and other businesses. Such collaboration enables collective action, innovation, and shared value creation in the transition to regenerative models. The interdisciplinary approaches to the SDGs highlight the need for holistic and integrated thinking. These aspects need to be addressed in this research.

Recent developments in SDG research underscore the need for continuous adaptation and learning. The finding that CEOs should invest in research, monitoring, and evaluation to understand the impact of the transition, identify areas for improvement, and adapt to emerging trends and challenges will need to be part of this research.

For the research question, 'How can companies become regenerative?', this literature review highlights several implications. The underlying assumption of this research that the global business community plays a significant role in achieving the SDGs is confirmed. The application of SDGs across various contexts underscores the need for leaders to integrate sustainability into all aspects of their organization.

From strategic planning and operations to reporting and stakeholder engagement, sustainability should be deeply embedded into the fabric of the organization, aligning with the comprehensive and cross-cutting nature of the SDGs. The SDGs offer a comprehensive and integrative framework to investigate the barriers and solutions to becoming regenerative, both as context to operate in and as goals to strive for. They invite businesses to not only minimize harm but also to actively contribute to global sustainability. By aligning with the SDGs, regenerative leaders can guide their

organizations towards a future that is sustainable, resilient, and inclusive, thereby playing a vital role in the global pursuit of sustainable development. As such the SDGs provide a good and valid framework, and support the aims of this research.

APPENDIX 2: Details of initial exploratory interviews and purpose game sessions

Here you find details of the five initial exploratory interviews, conducted to validate the importance of the elements barriers, capabilities and CEO leadership. The characteristics of the participants and companies are listed in Appendix 1.

Company14 specializes in renovating and customizing staircases. They are known for their innovative approach in transforming existing stairs, offering a sustainable alternative to completely replacing staircases. The company operates out the Netherlands, where they have established a hub for knowledge and development in the field of staircase renovation. Interviewee14 is the CEO of Company14, a man in his early thirties, leading the company with a focus on customer intimacy, craftsmanship, and premium brand quality. He is the second generation leading the family business, and under his and his father's leadership, Company14 has become a prominent name in the staircase renovation industry, prioritizing both the highest quality and innovative design. The transcript details a conversation regarding the challenges of integrating sustainability into business practices, with specific focus on the stair renovation company and their production sister company. The dialogue explores the tension between maintaining financial margins and pursuing sustainable practices, the limited market demand for sustainable products, and the complexities of ensuring supply chain sustainability. The discussion also touches on the importance of educating employees and stakeholders about sustainability, the potential of certified products and materials, and the desire to align company culture with sustainable initiatives. Interviewee14 grapples with the practical difficulties of making significant environmental impacts within their business models and considers the role of larger players in driving industry-wide sustainability.

Company15 is a creative agency based in the Netherlands focused on long-term brand building. They specialize in branding, digital marketing, social media strategy, and content creation, including photography and video. With a forward-looking approach, they strive to make brands stand out today and in the future. They work with a variety of partners ranging from supermarkets to non-food retail and industrial equipment manufacturers. Interview15, a man in his late thirties, has been co-CEO for several years, working as co-owner and partner with the original founder of the company after working with already for more than 10 years. The agency is revamping its corporate identity to embrace eco-friendly practices, with a strong focus on using recycled materials. Interviewee15 advocates for authenticity in sustainability, ensuring it's woven into the agency's and their clients' ethos, not just its marketing. He acknowledges the influence of client demand on sustainability efforts and emphasizes the importance of visual media in raising awareness. Interviewee15's leadership reflects a commitment to a balanced, realistic approach to sustainability, promoting open dialogue and inclusion within the agency and with clients.

Company17, a well-known retail chain that specializes in hobby materials and supplies. Originating in Scandinavia, it has expanded its presence across several European countries, including the Netherlands. Their product assortment caters to a diverse set of creative activities, from painting and drawing to crafting and home decor. Their commitment is to fostering creativity and providing resources for hobbyists of all levels, emphasizing quality, variety, and accessibility in their offerings. Their approach to retail and online sales demonstrates a blend of traditional and modern strategies to reach a broad customer base. Interviewee17 is CEO of the Dutch organization. He is in his late forties and has extensive experience in European retail and trade. He talks about integrating sustainability into the company's practices, highlighting challenges like aligning

economic goals with environmental considerations. Company17 values creativity and customer engagement over strict ecological goals, focusing on offering quality products and fulfilling experiences. Interviewee 17 emphasizes the importance of balancing practical business operations with sustainability, without making it the sole focus. The dialogue also touches on generational differences in perceiving sustainability, the role of money in business, and the pragmatic application of sustainability in a way that's meaningful to the community and economically viable.

Company20 is a Netherlands-based food chain specializing in high quality fresh products. Interviewee20, a man in his early fifties, is founder and CEO of the family business coming from a line of entrepreneurs and retailers. He emphasizes creating a customer-centric experience, evident in their stores and their employees. Despite recent set-backs, like the pandemic, Company20 has continued to be successful. They are beginning to integrate sustainability into their operations, recognizing the importance of aligning with the environmentally conscious younger generation. Interviewee20 advocates for a balanced approach to sustainability, focusing on gradual integration rather than drastic changes. Company20's marketing subtly incorporates sustainability, ensuring it complements their brand ethos of quality and efficient service. Interviewee20 believes in a planned approach to sustainability, aligning it with Company20's mission and communicating the 'why' behind actions effectively.

Company52 is a diversified manufacturing company, active in chemicals and intermediates, industrial polymers, fertilizers, and metals. It is one of the world's largest petrochemicals manufacturers and is present in most countries of the world. The company plays a significant role in global chemical industry development. Interviewee52, in her early fifties, holds a senior management role at the company. She delves into Company52's initiatives and challenges in research and development, with a particular focus on sustainability and innovation in the chemical industry. The discussion highlights the complexities of integrating sustainable practices in a large multinational corporation, dealing with the technical and economic aspects of sustainable product development, and navigating the global regulatory landscape. Interviewee52 also reflects on the importance of collaboration in R&D to drive sustainable innovation, underscoring the balance between commercial success and environmental responsibility.

Purpose game sessions

As discussed in section 1.3 Research method, 19 purpose game sessions were done in parallel to the 40 semi-structured interviews, primarily as a validation of the findings from the semi-structured interviews allowing for triangulation. Most of these sessions were not specifically planned for this research, but were part of the activities in the researcher's professional context as a researcher at a university of applied sciences in The Netherlands. The sessions lasted between 1 to 3 hours and were held between April 2020 and September 2023 as listed below in Table 16. They were all on-site at a university or a business location, 10 in Dutch, 9 in English. Three sessions were specifically planned for the research and were included in the empirical data gathering together with the interviews.

	ACT	YY	MM	DD	LANG	#PARTIC	CONTEXT
1	PEG	2020	04	01	eng	23	Combination of practitioners & IB students
4	PEG	2020	05	15	dut	4	MT of SME
5	PEG	2020	10	08	eng	20	Combination of practitioners & IB students
6	PEG	2020	10	08	eng	27	Combination of practitioners & CE students
7	PEG	2020	11	13	eng	9	Combination of practitioners & IB students
9	PEG	2021	04	01	eng	24	Combination of practitioners & IB students
10	PEG	2021	04	15	eng	5	Combination of lecturers & students
24	PEG	2022	04	05	dut	27	Combination of practitioners & multi disciplinary students
25	PEG	2022	04	19	dut	56	Various groups of CEO/C-level & IB students
38	PEG	2022	09	23	eng	25	Practitioners & students from 4 universities/countries
39	PEG	2022	09	26	dut	36	Minor sustainable technology
43	PEG	2022	9	27	dut	7	MT of LSME
47	PEG	2022	11	22	dut	7	Senior management NPO
48	PEG	2022	12	08	dut	7	Senior management NPO
91	PEG	2023	08	31	eng	5	Minor sustainable leadership
92	PEG	2023	08	31	dut	7	Senior management MNC
93	PEG	2023	09	04	dut	7	Minor sustainable business & entrepreneurship
95	PEG	2023	09	12	dut	16	Combination of practitioners & IB students
98	PEG	2023	09	20	dut	7	Peer group of researchers

Table 16 List of purpose game sessions

The purpose economy game ('Geef Betekenis aan circulaire kansen,' n.d.) was specifically designed to have companies assess their current position towards sustainable practices (Morel, 2018). It was developed by de Stichting Betekeniseconomie in Twente (the Foundation for Purpose Economy in Twente). This method is very suitable to create awareness on the current and desired position for an organization, and on the back of that determine a sustainable strategy and create support within the organization. It is done on a game board as depicted in Figure 21, with different quadrants: 'we do', 'we don't', 'we want to' and 'we don't want to'. A stack of cards is provided to the participants, each containing a statement about an organization's sustainable opportunities. The participants place these cards one-by-one on the board, making it clear what significance the statement currently has, where the ambitions for the future lie and what concrete steps the organization would want to take to get there. This serious game triggers a conversation and allows for joint decisions on which ambitions should be prioritized.
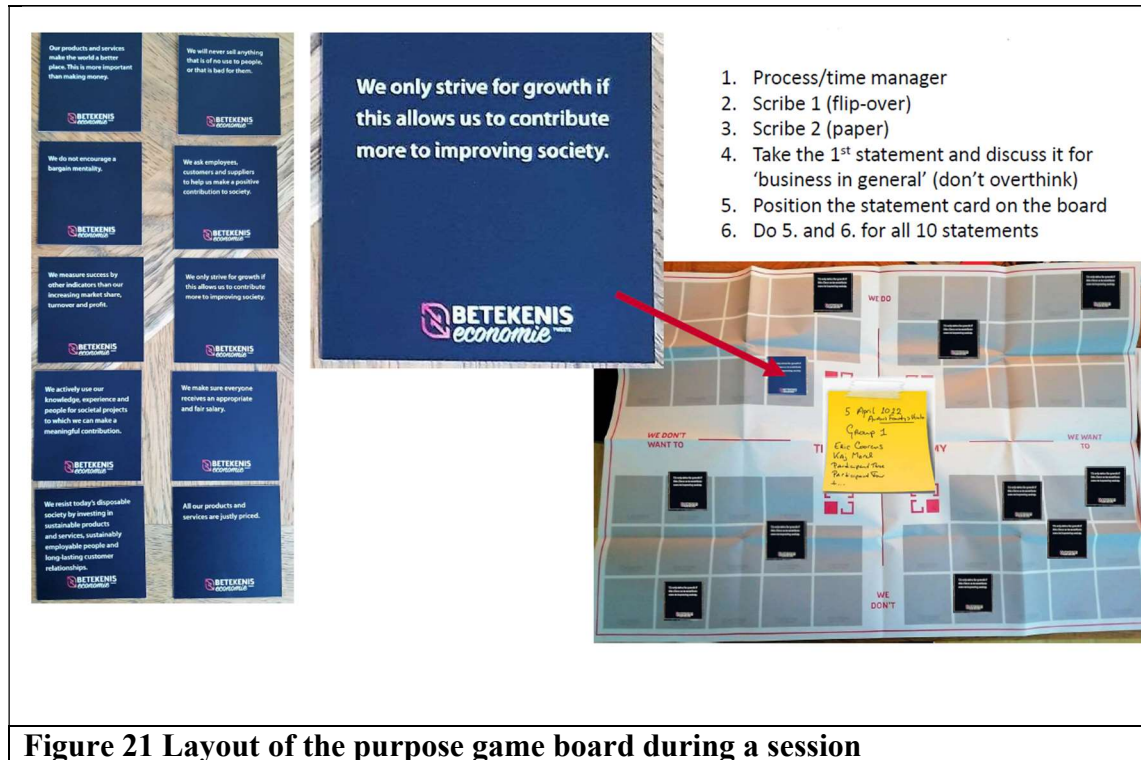
Figure 21 Layout of the purpose game board during a session

Data collection of the sessions was done in an Excel template as shown in Table 18. Depending on the length of the session and the setup all or some of the statements were discussed. In the template a red cell in the line of a statement under a session indicates that statement was not discussed. An 'x' under a statement behind the three constructs 'barriers', 'capabilities' and 'CEO leadership' indicates that during the statement discussion, the construct was a significant aspect in the discussion. For three of the sessions, specific quotes were noted under the statement were they came up.

Ques	Purpose game statement / game sessions	1	4	6	7	8	9	10	24	25	36	38	39	47	48	91	92	93	95	98
1	Our products and services make the world a better place. That is more important than making money.																			
	Barriers	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
	Capabilities	x		x					x	x		x			x	x	x	x	x	
	CEO leadership	x	x	x		x		x		x	x			x	x			x		
	Quote1								Adopting green te		Maintaining a	There's a sense of futility among								
	Quote2								The more transparent we are about our sustainability efforts, the											
	Quote3								We don't know exactly where our products come from and when											
2	We will never sell anything that is of no use to people, or that is bad for them.																			
	Barriers		x			x	x		x			x	x	x	x	x			x	
	Capabilities									x										
	CEO leadership	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
	Quote1													Integrating sustainability into our						
	Quote2													Sustaining our commitment to gre						
	Quote3																			
3	We do not encourage a bargain mentality																			
	Barriers				x				x	x						x				
	Capabilities															x				
	CEO leadership				x				x	x					x	x				
	Quote1																			
	Quote2																			
	Quote3																			
4	We ask employees, customers, and suppliers to help us make a positive contribution to society.																			
	Barriers			x	x	x	x		x	x	x	x			x		x	x	x	x
	Capabilities																			
	CEO leadership		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
	Quote1								We're working ha	Finding a way to integrate sustainability into ou										
	Quote2								Introducing susta	I know the world can't go on like this, but I've ha										
	Quote3								I've noticed a dip in enthusiasm for sustainability projects. The te											
5	We measure success by things Quote than the increase in our market share, our turnover, and our profit.																			
	Barriers	x	x	x	x	x	x	x	x	x	x	x							x	x
	Capabilities						x			x	x									x
	CEO leadership	x	x		x	x	x	x	x		x		x						x	x
	Quote1								The constant market fluctuations make it hard to stick to our sust											
	Quote2																			
	Quote3																			
6	We only strive for growth if this allows us to contribute more to improving society.																			
	Barriers				x	x			x		x	x	x		x	x		x	x	x
	Capabilities				x	x					x	x	x		x	x		x	x	x
	CEO leadership				x	x						x	x		x	x		x	x	x
	Quote1								We're hesitant to invest in sustainable infrastructure when we're											
	Quote2																			
	Quote3																			
7	We actively use our knowledge, experience, and people for social projects to which we can make a meaningful contribution																			
	Barriers																			
	Capabilities	x			x	x			x	x		x			x			x	x	x
	CEO leadership	x			x	x			x	x		x			x			x	x	x
	Quote1																			
	Quote2																			
	Quote3																			
8	We make sure everyone receives an appropriate and fair salary.																			
	Barriers		x						x	x		x			x		x			
	Capabilities								x								x			
	CEO leadership		x						x	x		x			x		x	x		
	Quote1																			
	Quote2																			
	Quote3																			
9	We resist today's disposable society by investing in sustainable products and services, sustainably employable people and long-lasting customer relationships.																			
	Barriers		x		x		x		x	x										
	Capabilities		x		x		x		x	x										
	CEO leadership		x		x		x		x	x										
	Quote1																			
	Quote2																			
	Quote3																			
10	All our products and services are justly priced.																			
	Barriers				x	x	x	x	x	x	x				x	x		x		
	Capabilities																x			
	CEO leadership				x							x			x	x	x	x		
	Quote1																			
	Quote2																			
	Quote3																			

Table 17 Empirical data from the purpose game sessions

APPENDIX 3: Comparison of regenerative, sustainable & traditional practices

Implicit Regenerative Behavior	Traditional	Sustainable	Regenerative
Operational assumptions	Resources are for exploitation. Externalities no primary concern	Resources are limited. Responsibility to reduce harm	Part of a larger interconnected system. Responsible for its rejuvenation and restoration
Employee engagement & culture	Efficiency, productivity, and profit first	Balanced with ESG	All are stewards of the ecosystem
Decision making process	Based on financial KPIs and short term	Also ESG aspects	Rooted in long term ecosystem wellbeing
Stakeholder relations	Transactional	Reciprocal & collaborative	Integral part of the ecosystem
Resources & Waste	Maximum utility, waste is a by-product	Efficieny & waste reduction	Circular, waste is a resource, holistic resource renewal
Crisis response	Protect business interest & short term fixes	Balance between business continuity and stakeholder consequences	Opportunity to learn & adapt for more resilience
Community interactions	Local community is resource provider	Partnerships & CSR	Deeply integrated
Learn & adapt	To market trends & competition	Best practices & stakeholder/ESG feedback	Continuous co-creation with all stakeholders
Legislation & Advocacy	**Traditional**	**Sustainable**	**Regenerative**
Attitude	Constraint to comply with	Framework for responsible business. Proactive engagement when aligned with ESG goals	Actively promote and drive legislation supportive of regeneration; go beyond compliance
Engagement	Defensive	Collaborate	Preemptive partnering
Policy development	Participate to protect own interests	Engage to support own and broader goals	Active co-creation
Lobbying	Against stricter regulations that could harm profitability	Incremental and transformative to achieve 3Ps	Transparant and open committed to holistic integrity
Internal	Support business positive policies	Also ESG policies	Advocacy in core operating and intrinsic to the mission
Scope	Industry and general business	Financial and ESG	Across multiple domains
Time	Short to medium term	Long term ESG goals	Multi-generational
Community	Industry groups and relevant stakeholders	Also local communities, NGOs etc.	Deep community connections
Business Model innovation	**Traditional**	**Sustainable**	**Regenerative**
Why	Grow profit, marketshare, shraeholder value	Balance those with ESG aspects	Restore, rejuvinate and revitalize ecosystems, communities and the world in general alongside financial continuity
Scope	Product, Service, Process for competitive advantage	Entire value chain	Holistic at system level
Co-creation	In-house or selected partners	Also with suppliers and customers	Deep with diverse stakeholders (also communities, ecosystems etc.)
Approach	Disruptive or incremental	Incremental and transformative to achieve 3Ps	Evolutionary innovations for organic adaptation
Risk	Financial	Also ESG risks	Risk and opportunity are part of systemic health and long term resilience
Drivers	Market, Competition, Technology	Also climate change, scarce resources or social needs	Aim for wellbeing, ecosystem restoration, cultural relience etc. (ecological feedback, community needs)
Success	Market uptake, revenue and profit margin	Also ESG metrics	Holistic, i.e., ecological regeneration or cultural enrichment
Implementation	Rapid scaling and maximum market adoption	Balanced scaling with ESG aspects	Appropriate scaling for relevance and benifits to local context and future rightscaling
Continuous Learning & Adapting	**Traditional**	**Sustainable**	**Regenerative**
Why	Competitive advantage & efficiency	Financial success aligned with ESG goals	Foundational and intrinsic to achieve systemic wellbeing and regenerative practices
Drivers	Regulation, Market, Competition	Best practices & benchmarks	Ongoing dialogue and deep listening within the system
Structure	Hierarchical & departmentalized	Collaborative and cross-departmental	Organic and decentralized, part of every process
Approach	Prevent future mistakes	Failure helps to learn / open dialogue	Culture of resilience and growth, istakes and failures are inherent
Format	Formal programs, workshops and external consultants	Also peer-to-peer, intervisions and with stakeholders	Immersive, hands-on, integrative with community of stakeholders
Evaluation	Reviews & Surveys	Also ESG assessments and stakeholder forums	Continuous stakeholder feedback
Updating	Short term based on internal objectives	Also Forward looking and long term goals	Long term organic perspective
Input	Best practices own industry, Market & Competitor research	Also ESG research, stakeholders and other industries	Holistic and broad, including local wisdom, stories and systemic aspects
Stakeholder Engagement	**Traditional**	**Sustainable**	**Regenerative**
Who	Shareholders, customers & employees	Also local communities, supply chain partners, NGOs etc.	Everybody in the system, including future generations, ecosystem etc.
Level	Transactional	Also inisghts and joint projects	Transformative on all levels
Purpose	Inform, sell, increase returns	Also enhance ESG	Co-create, learn, system improvement
Frequency	Periodic on legal, fiscal or market requirement	Also regular ESG updates	Ongoing for co-creation and shared learning
Format	Convential financing	Also include ethical & green investment	Adapted to participation (i.e., community led forums, collaborative platforms)
Transparancy	Required by law or market	Also ESG	Radical informed transparency
Interaction	Reactive (on need)	Reactive & proactive (need & helpful)	Activily engage (continuous)
Decision Making	Centralized at TMT	Partly decentralized on ESG aspects	Shared

Measurement & Feedback	Traditional	Sustainable	Regenerative
Metrics	Profit, Revenu, Market Share	Also ecological, social and governance	Also holistic like community wellbeing or ecosystem health
Feedback loops	Annual Reports, Periodic Reviews (internal)	Also external assessment (i.e. 3d party audits)	Multi-stakeholder
Adaptability	Reactive to macro, market and competition changes	Also proactive in ESG performance	Proactive and preemptive towards being 'system proof/resilient'
Time	Short term mainly fiscal	Middle and Long term including ESG	Long term / stewardship spanning generations
Scope	Direct organizational impacts	Also supply chain and external consequences	Direct and indirect consequences and root-causes on system level
Transparency	Share what is legally required	Also ESG data	Full transparancy on all aspects to a detailed level
Stakeholders	Limited to shareholders	Also customers, employees, communities and value chain partners	Joint metrics with all stakeholders in continuous development and interaction
Integration	Direct impact on Financial ROI	Also impact on ESG aspects	Fully integrated aimed a continous actionable change
Financing & Investment	Traditional	Sustainable	Regenerative
Goal	Maximize shareholder value	Balance people, profit, planet	Rejuvinate and restore ecosystems in addition to being profitable
Time	Short to medium term returns	Short and long term for long term viability of returns	Long term for lasting positive returns (and impact)
Risk	Assessed in financial terms	Assess combined financial, environmental and social risks	Proactively mitigate ecological, social and financial risks
Value	Tangible assets & immediate revenu	Also include sustainable value	Intangible assets and external stakeholder benefits
Sources	Convential financing	Also include ethical & green investment	Appropriate blend tied to their mission (i.e. community funding, impact investors etc.)
Return	Financial ROI	Financial ROI weighed against social and ecological impacts	Net Positive Impact ROI
Transparency	Standard financial reporting	Financial & Sustainability reporting	Extensive and Integrated reporting with social, ecological and financial metrics
Stakeholders	Mainly customer satisfaction & shareholder engagement	Also employee satisfaction, community relations and ecological partners	Broad range of stakeholders in co-creation & co-decisions

Table 18 Comparison of regenerative, sustainable & traditional practices

APPENDIX 4: Intermediate coding for systemic barriers (SPISO)

Source	Quotes related to perceived barriers (223)	1st round challenge descriptions
2	In a market of increasing costs and fierce competition, longer term goals are of low priority, inclduing sustainabiliy goals.	conflict between short-term financial gains and long-term sustainable value creation
2	The financial risks associated with investing in sustainability initiatives are a major concern.	managing financial risks associated with sustainability investments
2	Market volatility is a major challenge in maintaining our course towards sustainability.	navigating market fluctuations and sustainability
2	We have so often started something with full conviction, but then it goes out like a candle because we cannot give it continuity and scale.	sustainability initiatives failing to realize, over-costly, or not scalable
3	We face a constant struggle to align our sustainability practices with varying, sometimes contradictory, legislation across borders.	contradictory legislative frameworks in different countries
3	Our stakeholders have varying priorities, and aligning them with our sustainability objectives is not always straightforward.	difficulty in balancing stakeholder interests with sustainable objectives
3	We have to continuously adapt our sustainability strategies to align with market changes.	navigating market fluctuations and sustainability
8	Our sustainability efforts often clash with the need to keep operations cost-effective.	balancing cost-efficiency with sustainability goals
8	Aligning our current business model with sustainable practices requires substantial restructuring, which is a daunting task.	challenges in integrating sustainability into existing business processes
8	We're willing to adopt sustainable practices, but the lack of standardized guidelines often leaves us guessing.	lack of clear sustainability guidelines and standards
8	Despite our best efforts, the lack of transparency and control in our supply chain makes it hard to ensure sustainability throughout.	lack of control and oversight in supply and value chains
8	Although we are a big player in our field, we make up for less than 1% of sales of our main suppliers	lack of control and oversight in supply and value chains
8	The question of where we'll be operating in the future is a major roadblock in planning our sustainability initiatives.	uncertainty in business location and investment in sustainability
14	Balancing the pressure for short-term financial results with our long-term sustainability goals is one of our biggest challenges.	conflict between short-term financial gains and long-term sustainable value creation
14	Obviously there are many things we could do, but it would immediately decrease our margins or put us in jeopardy towards our competitors	conflict between short-term financial gains and long-term sustainable value creation
14	We struggle with the lack of standard metrics to measure and report our progress in sustainability.	difficulty in measuring and reporting sustainability impact
14	Our customers hardly ever ask about the sustainability aspects of our products.	lack of market demand for sustainable products
14	Balancing the diverse sustainability expectations of our stakeholders is an ongoing challenge.	managing stakeholder expectations around sustainability
14	sustainability is something I like on the one hand, on the other hand, I also find a bit difficult	adopting early sustainability technologies leading to complex and costly solutions
14	how are you going to make that concrete	adapting to rapidly changing environmental regulations
14	balancing the pressure for short-term financial results with our long-term sustainability goals is one of our biggest challenges	adopting early sustainability technologies leading to complex and costly solutions
14	it's challenging when we struggle with the lack of standard metrics to measure and report our progress in sustainability.	adapting to rapidly changing environmental regulations
14	how can you make sustainability concrete, because that is actually a bit where the challenge lies	adopting early sustainability technologies leading to complex and costly solutions
14	to make it really feasible in the short term, that that is often a bit more difficult	adapting to rapidly changing environmental regulations
14	When I look at Upstairs, the consumer doesn't ask for it at all	lack of market demand for sustainable products
14	so there's not really a market that people say, it has to be very sustainable, otherwise I won't buy it	adapting to rapidly changing environmental regulations
14	I would like it, especially as an A-brand, as we see ourselves anyway, to take the next step. But I don't see those 1, 2, 3	adapting to rapidly changing environmental regulations
14	Yes, we can separate our waste streams better and we can do this and that even better, but they are all little bits that are not very important things	adopting early sustainability technologies leading to complex and costly solutions
14	Every little bit helps, but it won't have a huge impact	difficulty in measuring and reporting sustainability impact
14	Very interesting track, but a super complex one because we do our own production, but we buy our raw materials, so we can consult with our raw material suppliers. They are all working on it. But all in all, it is quite complex at the moment to find something of a constant quality that can be delivered all year round and that is also a little bit affordable for companies.	adapting to rapidly changing environmental regulations
14	That really has to come from the big European players, Global players I suspect, who have to set up factories for that.	adapting to rapidly changing environmental regulations
14	If you look at top layers, you can see that there are already some things happening there, but they are all mouse steps	difficulty in measuring and reporting sustainability impact
14	And then I think maybe a bit traditionally of the record manufacturers; they have the market, they have the customers	adopting early sustainability technologies leading to complex and costly solutions
14	So you can't get a constant roadside grass - which grows certain time of year - not all year round. The quality is not constant. Those other [traditional] factories are churning out dozens of trucks a day. I think if they do their best, maybe they can realize that volume every year, so they have a whole different cost build up. It's a bit and and and and.	adopting early sustainability technologies leading to complex and costly solutions
14	the customer does not care	lack of market demand for sustainable products
14	For example, solar panels and a heat pump, we would have been better off hanging a central heating boiler in it. That would have been much cheaper economically	adopting early sustainability technologies leading to complex and costly solutions
14	I feel like I'm on a dead end street, apart from the communication and the dots and the commas, we can always do small things	adopting early sustainability technologies leading to complex and costly solutions
14	For the next step, I'm more in the wait-and-see position	uncertainty in business location and investment in sustainability
14	I honestly ask myself if we should want this, because it is ultimately what we sell is a luxe product, we want to give customers a nice and positive feeling	adapting to rapidly changing environmental regulations
14	I don't know if that fits into the story we want to tell them.	adapting to rapidly changing environmental regulations
14	that is very difficult to measure	adapting to rapidly changing environmental regulations
15	It often feels as if the rules and regulations actually oppose each other, making the compliance to sustainability requirements a tough job.	contradictory legislative frameworks in different countries
15	Without really understanding what we're up against, it's hard to come up with the right solutions	lack of clear sustainability guidelines and standards
15	Sustainability often comes up as part of the conversation, but its implementation can be limited by factors like cost-effectiveness	adopting early sustainability technologies leading to complex and costly solutions

Table 19 Intermediate re-coding for challenge descriptions – first page illustration

1st level coding challenge descriptions - unique entries (42) 2nd level coding - institutional theory pillars (3)
Cultural-cognitive
challenges in integrating sustainability into existing business processes
freezing in action due to overwhelming sustainability issues
loss of faith in the possibility of positive change
perceived inability to significantly contribute to regenerative processes
lack of control and oversight in supply and value chains
adopting early sustainability technologies leading to complex and costly solutions
difficulty in measuring and reporting sustainability impact
incorporating circular economy principles
overcoming supply chain inefficiencies for sustainable practices
overcoming technological barriers to sustainability
sustainability initiatives failing to realize, over-costly, or not scalable
aligning sustainability with company culture
conflict between short-term financial gains and long-term sustainable value creation
educating employees and management on sustainability
ensuring long-term commitment to sustainability goals
internal resistance to sustainable changes
lack of internal and industry expertise in tackling complex sustainability problems
managing financial risks associated with sustainability investments
navigating market fluctuations and sustainability
resistance to change due to entrenched industry practices
uncertainty in business location and investment in sustainability
Normative
consumer skepticism towards sustainability claims
increased scrutiny and criticism due to transparency in sustainability efforts
building consumer trust in sustainability efforts
competitors making unverified sustainability claims leading to unfair competition
difficulty in balancing stakeholder interests with sustainable objectives
managing stakeholder expectations around sustainability
aligning sustainability with business growth
balancing cost-efficiency with sustainability goals
lack of market demand for sustainable products
pressure to maintain traditional business practices from investors
lack of incentive structures to reward sustainable practices
misalignment between corporate strategy and sustainable goals
Regulative
investments in sustainability negated by changing market dynamics
high initial costs and uncertain roi of sustainable technologies
adapting to rapidly changing environmental regulations
contradictory legislative frameworks in different countries
navigating complex norms, laws, and regulations in sustainability
navigating complexities of global sustainability standards
regulatory lag in responding to emerging sustainable technologies
lack of clear sustainability guidelines and standards
limited access to sustainable materials and resources
Table 20 Intermediate coding for challenge descriptions via institutional theory

APPENDIX 5: Intermediate coding for regenerative capabilities (CROMC)

Data source	Quote indicating gap between desired and perceived capabilities	Systemic regenerative barriers	Gap indicating keywords			C1	C2	C3	C4	C5	>Cs
2	There's a lack of creative solutions due to our rigid corporate culture	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g12 learning orientation	1	0	0	0	0	0
2	Our leadership tends to dismiss unconventional approaches	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g12 learning orientation	1	0	0	0	0	0
2	We haven't been able to replicate our small-scale successes on a larger scale	Implementation & Scaling Impediments (B3)	g4 innovation	g6 business model	g14 cohesion	0	0	1	0	0	0
3	We lack a diverse range of viewpoints in our network	Partner-Network Gap (B2)	g2 misalignment	g5 partners	g16 engagement	0	1	0	0	0	0
3	Transitioning from pilot to full implementation is often where we falter	Implementation & Scaling Impediments (B3)	g4 innovation	g6 business model	g14 cohesion	0	0	1	1	0	1
8	Innovation is often stifled by our adherence to traditional practices	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g10 adaptability	1	0	0	1	0	0
8	Some stakeholders are not convinced of the benefits of sustainable practices	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g17 communication	0	0	0	1	0	0
14	We find it hard to envision alternative business models	Sociocultural & Imagination Limitations (B1)	g6 business model	g8 options	g11 visionary thinking	0	0	1	0	0	0
14	Creative risk-taking is often discouraged	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g10 adaptability	1	0	0	0	0	0
15	Our team struggles to think beyond conventional methods	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g10 adaptability	1	0	0	0	0	0
15	Stakeholder engagement in our environmental initiatives has been limited	Stakeholder Complexity (B4)	g3 stakeholders	g16 engagement	g17 communication	0	0	0	1	0	0
16	We struggle with the practical aspects of implementing regenerative models	Implementation & Scaling Impediments (B3)	g4 innovation	g7 value system	g14 cohesion	0	0	1	1	0	1
16	Aligning our business strategies with stakeholder expectations is challenging	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g18 expectation management	0	0	0	1	0	0
17	Our supply chain partners are not aligned with our sustainability vision	Partner-Network Gap (B2)	g2 misalignment	g5 partners	g17 communication	0	1	0	0	0	0
17	We need a more inclusive approach to stakeholder management	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g16 engagement	0	0	0	1	0	0
19	Finding partners who share our commitment to regeneration is challenging	Partner-Network Gap (B2)	g5 partners	g3 stakeholders	g16 engagement	0	1	0	0	0	0
19	There's a general resistance to change within our organization	Organizational Resistance (B5)	g1 culture	g4 innovation	g10 adaptability	1	0	0	0	0	1
20	Scaling our initiatives requires resources we currently don't possess	Implementation & Scaling Impediments (B3)	g4 innovation	g7 value system	g10 adaptability	0	0	1	0	0	0
20	Our sustainability efforts tend to be isolated rather than systemic	Implementation & Scaling Impediments (B3)	g9 social-ecological system	g7 value system	g18 expectation management	0	0	0	0	1	0
24	We need more collaborative efforts with industry leaders in sustainability	Partner-Network Gap (B2)	g5 partners	g3 stakeholders	g16 engagement	0	1	0	0	0	0
24	New sustainability initiatives are often met with skepticism	Organizational Resistance (B5)	g1 culture	g4 innovation	g12 learning orientation	1	0	0	1	0	1
31	There's a disconnection between our organization and key environmental groups	Partner-Network Gap (B2)	g5 partners	g9 social-ecological system	g17 communication	0	1	0	0	0	0
31	Our organization lacks the agility to scale up sustainable operations quickly	Implementation & Scaling Impediments (B3)	g4 innovation	g6 business model	g10 adaptability	0	0	1	0	0	0
31	Our employees are resistant to adopt new environmental practices	Organizational Resistance (B5)	g1 culture	g4 innovation	g10 adaptability	0	0	0	1	0	0
32	There's a gap between our sustainability goals and actual execution	Implementation & Scaling Impediments (B3)	g2 misalignment	g4 innovation	g13 strategic fit	0	0	0	1	0	0
32	Changing long-established operational processes is a major obstacle	Organizational Resistance (B5)	g1 culture	g7 value system	g12 learning orientation	1	0	0	1	0	1
33	Building a network that supports circular economy practices is a challenge	Partner-Network Gap (B2)	g5 partners	g7 value system	g15 integration	0	1	0	0	1	1
33	There's a lack of enthusiasm for sustainability initiatives among staff	Organizational Resistance (B5)	g1 culture	g4 innovation	g12 learning orientation	0	0	0	1	0	0
36	Scaling sustainability practices requires more than just good intentions	Implementation & Scaling Impediments (B3)	g4 innovation	g7 value system	g13 strategic fit	0	0	1	0	1	1
36	Our leadership is slow to embrace new sustainability strategies	Organizational Resistance (B5)	g1 culture	g4 innovation	g11 visionary thinking	1	0	0	1	0	1
37	Our external partnerships are not geared towards innovative solutions	Partner-Network Gap (B2)	g5 partners	g4 innovation	g16 engagement	0	1	0	0	0	0
37	Incorporating sustainable practices into our business model faces internal pushback	Organizational Resistance (B5)	g1 culture	g6 business model	g10 adaptability	1	0	0	1	0	1
38	Implementation of our green strategies is inconsistent across departments	Implementation & Scaling Impediments (B3)	g2 misalignment	g3 stakeholders	g14 cohesion	0	0	0	1	0	0
38	Our organizational structure is not conducive to rapid change	Organizational Resistance (B5)	g1 culture	g7 value system	g14 cohesion	0	0	0	1	0	0
41	We have not fully leveraged our network for sustainability initiatives	Partner-Network Gap (B2)	g5 partners	g3 stakeholders	g15 integration	0	1	0	0	0	0
41	Resistance from middle management hampers our sustainability efforts	Organizational Resistance (B5)	g1 culture	g4 innovation	g12 learning orientation	0	0	0	1	0	0
45	Navigating the diverse interests of our stakeholders is complex	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g16 engagement	0	0	0	1	0	0
45	Adopting new technologies for sustainability is met with apprehension	Organizational Resistance (B5)	g1 culture	g4 innovation	g12 learning orientation	1	0	0	1	0	1
47	We often find conflicting demands from different stakeholder groups	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g16 engagement	0	0	0	1	0	0
47	There's a preference for 'business as usual' over innovative green solutions	Organizational Resistance (B5)	g1 culture	g4 innovation	g6 business model	1	0	1	0	0	1
50	There's a general reluctance to consider untested ideas	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g10 adaptability	1	0	0	0	0	0
50	Scaling up our sustainable initiatives has been a major challenge	Implementation & Scaling Impediments (B3)	g4 innovation	g6 business model	g10 adaptability	0	0	1	0	0	0
51	Our decision-making is constrained by a narrow perspective	Sociocultural & Imagination Limitations (B1)	g2 misalignment	g8 options	g13 strategic fit	1	0	0	0	0	0
51	Balancing stakeholder needs with our sustainability goals is difficult	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g18 expectation management	0	0	0	1	0	0
52	We face difficulties in implementing our sustainability strategies effectively	Implementation & Scaling Impediments (B3)	g4 innovation	g3 stakeholders	g13 strategic fit	0	0	0	1	0	0
52	Our culture is not aligned with our sustainability aspirations	Organizational Resistance (B5)	g1 culture	g7 value system	g12 learning orientation	1	0	0	1	0	1
54	We struggle with adopting forward-thinking sustainability practices	Sociocultural & Imagination Limitations (B1)	g4 innovation	g9 social-ecological system	g10 adaptability	0	0	1	0	0	0
54	Our pilot projects in sustainability rarely transition to larger scales	Implementation & Scaling Impediments (B3)	g4 innovation	g6 business model	g14 cohesion	0	0	1	0	0	0
55	Our stakeholders have varying levels of understanding about sustainability	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g17 communication	0	0	0	1	0	0
55	We face internal barriers in trying to shift towards more sustainable practices	Organizational Resistance (B5)	g1 culture	g7 value system	g12 learning orientation	1	0	0	1	0	1
57	Our organization's historical success hampers our ability to imagine new strategies	Sociocultural & Imagination Limitations (B1)	g1 culture	g7 value system	g11 visionary thinking	1	0	0	0	0	0
57	Breaking away from industry standards to innovate is not encouraged	Sociocultural & Imagination Limitations (B1)	g4 innovation	g6 business model	g12 learning orientation	1	0	0	0	0	0
58	There's a resistance to rethinking our business model for regeneration	Sociocultural & Imagination Limitations (B1)	g6 business model	g7 value system	g14 cohesion	0	0	1	0	0	0
58	There's a lack of infrastructure to support widespread sustainable practices	Implementation & Scaling Impediments (B3)	g4 innovation	g7 value system	g13 strategic fit	0	0	1	0	1	1
59	Engaging all stakeholders in our regeneration efforts has been challenging	Stakeholder Complexity (B4)	g3 stakeholders	g16 engagement	g18 expectation management	0	0	0	1	0	0
59	There's a reluctance to invest in long-term sustainability projects	Organizational Resistance (B5)	g1 culture	g7 value system	g13 strategic fit	0	0	1	1	0	1
61	Implementing green initiatives is met with logistical challenges	Implementation & Scaling Impediments (B3)	g4 innovation	g7 value system	g13 strategic fit	0	0	0	1	0	0
61	Our current resource allocation does not support our sustainability ambitions	General Gaps in Practices and Resources	g7 value system	g13 strategic fit		0	0	0	1	0	1
62	We have limited connections outside our immediate industry	Partner-Network Gap (B2)	g5 partners	g9 social-ecological system	g15 integration	0	1	0	0	0	0
62	We face resistance from stakeholders who prioritize short-term gains	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g18 expectation management	0	0	0	1	0	0
65	Collaborating with unconventional partners is not a common practice for us	Partner-Network Gap (B2)	g5 partners	g3 stakeholders	g16 engagement	0	1	0	0	0	0
65	There's a lack of alignment among stakeholders on sustainability issues	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g17 communication	0	0	0	1	0	0
71	We rarely question our long-standing operational norms	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g12 learning orientation	1	0	0	0	0	0
71	Our network lacks partners with expertise in sustainable practices	Partner-Network Gap (B2)	g5 partners	g4 innovation	g15 integration	0	1	0	0	0	0
73	We struggle to find and integrate new partners into our business model	Partner-Network Gap (B2)	g5 partners	g6 business model	g15 integration	0	1	0	0	0	0
73	Communicating our sustainability vision to all stakeholders is not easy	Stakeholder Complexity (B4)	g3 stakeholders	g17 communication	g18 expectation management	0	0	0	1	0	0
82	There's a gap in understanding the needs and capabilities of potential partners	Partner-Network Gap (B2)	g5 partners	g3 stakeholders	g17 communication	0	1	0	0	0	0
82	We struggle with stakeholder skepticism about our regenerative initiatives	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g17 communication	0	0	0	1	0	0
85	Our current network doesn't support our regeneration goals	Partner-Network Gap (B2)	g5 partners	g9 social-ecological system	g15 integration	0	1	0	0	0	0
85	Building consensus among diverse stakeholder groups is a major hurdle	Stakeholder Complexity (B4)	g3 stakeholders	g2 misalignment	g18 expectation management	0	0	0	1	0	0
87	Thinking outside the industry norms is not a common practice here	Sociocultural & Imagination Limitations (B1)	g1 culture	g4 innovation	g11 visionary thinking	1	0	0	0	0	0
87	There's a gap between our sustainability rhetoric and actual practices	General Gaps in Practices and Resources	g2 misalignment	g4 innovation	g13 strategic fit	0	0	0	1	0	0
					215	**19**	**14**	**15**	**34**	**6**	**16**

APPENDIX 6: Intermediate coding for CEO leadership aspects (CHEMP)

#	Quotes on leadership	IND
55	Adopting a regenerative business outlook means thinking about the long-term impacts of our decisions.	12
61	As a leader, instilling environmental consciousness throughout our corporate culture is imperative for regenerative success.	13
14	At least if I understood that correctly, your point was that at the moment that you bring it close to people In the personal environment, there	123
20	Awareness is just the first step. Changing behavior requires more effort. It's about explaining the 'why' behind our actions and making sure eve	1
24	Clear communication is vital. I've learned to articulate the vision of regeneration in a way that resonates with all stakeholders.	1
61	Complex questions in our regeneration efforts often require complex solutions, which we're committed to pursuing.	1
51	Dealing with resistance and skepticism has been emotionally taxing, but staying committed to our regenerative vision is crucial.	124
24	Embracing change is at the heart of regenerative leadership; it's about being open to new ways of doing business.	12
16	Environmental consciousness is not just a policy, it's a core value that informs every decision we make.	1
36	Facing uncertainty and complexity head-on is crucial; it tests our resilience and pushes us towards innovative solutions.	1
14	Guiding the change process effectively requires clear vision, commitment, and patience.	1
41	I always prioritize initiatives that promise the most significant regenerative impact, even if they don't offer immediate financial returns.	124
14	I have the freedom to be busy with a lot of nice new things and among other things these are sustainability projects	1
14	I like to be busy with these kinds of things, like optimizing sustainability	1
14	Improvement in our practices means assessing and adjusting our strategies to better serve the planet.	1
58	In navigating our company towards regeneration, my understanding of sustainable ecosystems has been key. It's not just about reducing harm;	1
33	Misunderstandings can derail sustainability efforts. It's been essential for me to ensure that our regeneration goals are communicated clearly a	1
52	Our commitment to environmental consciousness is reflected in our relentless pursuit of ecological integrity and biodiversity.	1
87	Our decision-making is driven by what's best for the planet and people, not just our profit margins.	1
37	Our environmental consciousness drives us to pursue practices that support and revitalize natural ecosystems.	1
51	Our progress towards regenerative goals is a journey of continuous improvement and steadfast commitment.	1
16	Our shift towards ways to renew the environment stemmed from a thorough understanding of how businesses can operate in harmony with na	1
52	Professional experience in green industries has given me a unique perspective on how to integrate regeneration into our core business.	1
57	Regeneration involves stepping into the unknown; it's about managing complexity with a clear vision and adaptable strategies.	1
51	Regenerative leadership touches various aspects of life and society, aiming to create holistic benefits.	1
50	Understanding the principles of regeneration is crucial. For me, it's been a journey of continuous learning and adapting these principles to our b	1
82	We have a fairly self-managing organization, allowing me to spend time on being more sustainable	1
17	Years of working in sustainability have equipped me with the insights and skills necessary to steer our organization towards more holistic pract	1
14	Also in the company vision or in the marketing sustainability could also help to the general goal	2
14	And, I'm honestly a bit searching gosh, what would be a next step where we can really position ourselves as a green brand again another step?	25
82	As a CEO, I see myself as a driver of change, pushing our company towards more ways to renew the environment.	2
15	Authenticity is key. People can sense when a company is genuine about its sustainability efforts. It's about being part of the change, not just ma	2
87	Being a change driver involves inspiring and motivating the entire organization to embrace regenerative principles.	2
14	Building and maintaining strong relationships based on trust is essential for a regenerative transformation.	24
17	Change in the context of regeneration is about evolving in harmony with nature.	2
36	Change is not just a necessity but an opportunity to innovate and regenerate.	2
58	Driving change in our organization means challenging old paradigms and fostering a culture of regeneration.	2
2	Getting through the emotional side of change, especially when introducing ways to renew the environment, has been a significant part of my ro	2
50	I drive change by setting an example and encouraging others to join the regenerative movement.	2
14	I like to be in control a bit. I would like to be involved in the change process	235
71	In leading change, I focus on how we can contribute to the regeneration of ecosystems and communities.	2
17	It just leads to the fact that we think that sustainability fits within the corporate culture that we have all built up	2
14	it's essential that sustainable practices also make business sense	2
17	It's about finding a middle ground that aligns with business objectives	2
15	It's about setting realistic goals	2
20	Leading a regenerative change is tough; it requires not just planning but also strong feelings.	2
8	Leading change in our organization has involved shifting from traditional practices to more sustainable, regenerative approaches.	2
55	My background in sustainable business has been invaluable in leading our company through this change to ways to renew the environment.	2
14	Our business outlook has shifted from being profit-centric to being planet-centric.	2
82	Our change focus is on systemic transformation, aiming for a regenerative impact on society and the environment.	2
17	Our change process has been about integrating regeneration into every aspect of our business.	2
52	Our focus in change has been to move from mere sustainability to active regeneration.	2
52	Our journey of transformation has been about evolving from a traditional business to a regenerative one.	2
55	Our responsibility extends beyond the company to influence positive change in multiple facets of society.	2
15	Real transformation for regeneration requires courage to disrupt the status quo.	2
52	The change process towards regeneration is iterative, involving continuous learning and adaptation.	2
31	The focus of our change efforts is on creating positive impacts, not just reducing negatives.	2
71	The process of change for regeneration is as important as the outcome, requiring a thoughtful and inclusive approach.	2
14	this viewpoint is evolving as more businesses recognize the value of integrating sustainable practices into their marketing strategies	2
17	Transformation in our company meant a complete overhaul towards ways to renew the environment at all levels.	2
20	A regenerative business outlook involves balancing economic success with ecological and social responsibilities.	3
54	As a leader, my role involves demystifying ways to renew the environment for my team, ensuring everyone is aligned and moving in the same d	3
14	Gosh, am I not sleeping and am I missing something on sustainability options	3
14	However, it remains a concern that we could do more regarding sustainability.	3

#	Quotes on leadership	IND
15	I find more value in conversations with those who acknowledge the nuances and are trying to find their balance	3
14	I think I'm pretty average in the way I act on sustainability issues	3
14	If we decide to enhance our sustainability efforts, it would involve setting clear goals and actions, both short-term and long-term	3
20	If you believe in something or support it, your engagement is more meaningful	3
14	I'm stimulated a bit in a fun way to think along the lines of increased sustainability	3
85	In a regenerative business model, interpersonal trust leads to more cohesive and effective teamwork towards shared goals.	3
57	In our business, we observe these generational differences and try to navigate them carefully	3
15	It's about making it relevant to their lives	3
61	On the one hand, it is very relaxed to know we've done all we can on sustainability, because you can't do anything about it	3
24	People who say they do everything right or nothing at all are likely oversimplifying complex issues	3
57	Regenerative leadership involves rethinking priorities to align with a sustainable future.	3
14	Staying goal-oriented lets us track our progress in tangible ways as we strive for regenerative outcomes.	3
85	Sustainability in our industry is not just about recycling. It encompasses carbon neutrality, social responsibility, and collaboration across value	3
54	The journey towards regeneration has been as much an emotional process as a strategic one, involving highs and lows as we break new ground	3
15	Trust is the foundation of our interpersonal relationships, which is vital for collaboration on regenerative initiatives.	3
14	we sponsor a lot of local initiatives	3
15	Authenticity in sustainability efforts is key to making a real impact and maintaining public trust	4
57	Fostering trust among stakeholders is as crucial as any other aspect of regenerative leadership.	4
15	I'm certainly not overly concerned with sustainability, but of course, I do pay attention to the things that we all expect a bit for norms and valu	4
20	It's better to be a truly sustainable company than to do it as an afterthought	4
15	It's better to work on projects that align with your values	4
15	It's not solely about profit or ideology but a synergy of both	4
41	There does not have to be a payback model in being more sustainable	4
58	True motivation comes from a belief in making a positive difference.	4
17	while profitability is necessary, it is not the sole mission of your company	4
17	Companies should be more proactive in reducing emissions and using sustainable materials	5
52	Failing to adapt could result in becoming obsolete	5
85	Our industry is part of both the problem and the solution	5
15	Price increases due to sustainability are cumbersome, because we just have to pass it on to our customers.	5
36	So call it maybe not overly ambitious, but I don't have the impression – I can contribute to it – that I'm going to get the wheel turning towards	5
14	we're interested in sustainable initiatives but recognize we have steps to take	5
20	We've moved from being part of the problem to being part of the solution	5
52	While it's not the main focus of our operations, this aspect of business proves to be a beneficial afterthought	5
14	Because we just have to pass it on to our customers.	14
59	Being goal-oriented in a regenerative context means setting milestones that reflect both business growth and ecological restoration.	12
52	Communicating the long-term benefits of regeneration, despite short-term questions, has been a critical aspect of my leadership.	125
47	Continuous improvement is key in regenerative leadership; we're always looking for ways to enhance our impact.	145
57	Critical analysis is integral to our validation process, ensuring our ways to renew the environment are truly effective.	25
2	Critical analysis lets us question assumptions and validate the regenerative impact of our operations.	25
31	Embracing uncertainty is part of leading a regenerative shift; it requires flexibility and a willingness to adapt.	25
52	We are a fairly self-managing organization, allowing for a sustainability focus from top management	2
14	Having a career focused on sustainability has made it easier for me to understand and implement regenerative strategies.	25
14	I believe genuine commitment to sustainability is crucial	14
15	I believe sustainability should be a gradual process, not a radical shift	23
14	I see potential in making a real difference, not just for the environment but also for our brand's image	12
41	In a regenerative model, the business outlook expands to include the well-being of communities and ecosystems.	1
17	In regenerative leadership, prioritizing long-term ecological and social health over short-term gains is crucial.	12
14	It's about integrating sustainability into the company's DNA, not just as a marketing strategy but as a fundamental part of business practice.	24
20	I've spent years studying ways to renew the environment. This deep dive into sustainability science has fundamentally shaped our company's s	12
37	Leading through uncertainty and complexity is critical in regeneration. It's about finding opportunities in questions and being agile.	25
61	My view on sustainability is evolving	12
37	Our goals are ambitious, aiming not just for progress but for measurable, regenerative impact on the environment.	1
31	Our improvement efforts focus on how we can make a more significant regenerative impact in our operations.	1
14	Sustainability is a journey, not a destination	24
20	The complexity of implementing ways to renew the environment can be overwhelming, but as a CEO, I've learned to navigate these questions	23
71	The only certainty in leading a regenerative business is the constant presence of uncertainty and complexity.	3
31	The regenerative approach is all-encompassing, impacting the social, economic, and environmental threads of life.	14
15	Uncertainty and complexity in regenerative efforts are not roadblocks but rather stepping stones for innovation and growth.	25
50	Validation of our work through critical analysis helps us refine our approaches and correct our course when necessary.	25
33	We aim to blend ways to renew the environment into the fabric of society, enhancing life in its many forms.	14
2	We continually analyze and validate our strategies to ensure they contribute to regenerative outcomes.	25
8	We're convinced that sustainability can provide dual benefits	12
52	When sustainability is presented in a relatable way, people are more likely to engage with it	35
17	While sustainability is a crucial aspect of our business, we must carefully consider its implications and ensure that it aligns with both our econo	2

APPENDIX 7: Detailed description of the cases Do and Ki

Introduction to Do Urban mobility solutions

Do Urban mobility solutions began its journey in the bustling city of Velona, a central hub in The Netherlands. Established initially as a standard urban mobility management company in the mid-1990s, it was the brainchild of innovators Giancarlo and Elena Feretti, both of Italian origins. The founders recognized an emerging need for effective and accessible urban mobility solutions amidst the rapid urbanization of their region. This realization led to the creation of Do, which swiftly emerged as a front-runner in the urban mobility sector, introducing state-of-the-art technology and client-focused services. Do set itself apart by being the first in its market to incorporate automated mobility systems and digital transaction methods, radically transforming the traditional urban transit experience. With a growing emphasis on ecological responsibility, the company soon embarked on sustainability initiatives, including the integration of electric vehicle charging options and energy-saving illumination in its facilities. By the late 1990s, Do had broadened its reach beyond its initial location, marking its presence in key urban areas and neighboring countries.

A pivotal point in Do's evolution was the launch of the 'Innovative Urban Transit' model in the early 2000s. This avant-garde concept merged cutting-edge technological solutions with modern urban design, redefining mobility spaces as seamless parts of the urban landscape. The company's dedication to improving city living standards was further evidenced through its participation in community ventures and projects aimed at alleviating urban congestion and minimizing environmental impact. Entering several major European markets in the late 2000s, Do introduced its distinctive model to one of the continent's key economies. This expansion was accompanied by the initiation of the 'Do urban experience', a comprehensive approach to urban mobility that emphasized customer contentment and fluid integration with city transportation systems. This initiative gained acclaim for its commitment to crafting safe, user-friendly, and visually appealing mobility environments.

Celebrating two decades of operation in the mid-2010s, Do highlighted its progress and forward-thinking ethos with the revelation of the 'Next-Gen Mobility' project. This venture delved into future-oriented mobility concepts, including automated concierge services and AI-led mobility management systems. The company's dedication to sustainable practices was underscored in its partnership with a national environmental agency, focusing on reducing the ecological footprint of urban mobility. In recent times, Do has continued to be an industry vanguard with trailblazing initiatives like the 'Eco-mobility recognition', advocating environmentally conscious transit methods, and the 'Do mobility hub', a versatile space blending mobility with other urban functionalities. Its steadfast commitment to corporate social responsibility and the advancement of sustainable urban development remains a fundamental aspect of its philosophy. This case study will explore how Do's innovative and sustainable approaches to urban mobility solutions can benefit by the developed consulting model for regeneration, while remaining in sync with current challenges in urban transportation.

The engagement with Do Urban mobility solutions

First contact with Do was established in 2020 just after the initial stages of this research. The engagement was established with the CEO and other top managers of Do. In general, contact was on a monthly basis in varying forms, primarily in-person. During this period, I had wide access to the company and its employees, whilst the main interaction was with

8 participants. Most of them were present throughout the full period. Although there were occasional telephone and videocalls (especially during the COVID-period), most of the communication was done in-person at the Do facilities. Access to confidential data, written and oral, was given under a gentlemen's agreement which was implicitly assumed in our relationship, which can be described as professional.

The 'building on issues' workshop at Do

This session – some 2,5 years into the facilitation trajectory of more than 4 years at Do – , was initiated by the CEO who contacted me on the difficulty the Do team was having with translating the clear objectives for sustainability into concrete steps. We agreed to do a workshop starting from a five of issues the top management team identified as challenging to take next steps on. These top five (sustainability) issues were handed to me, and in a short session with the CEO we optimized them for the specific purpose of base material for the workshop. The list of issues was meant to be exemplary, not necessarily complete. In preparing the session with the CEO, we decided I would facilitate the session, allowing him to fully focus on content. The session was held at mid-size meeting room at the Velona HQ, with 6 people sitting around the table (the CEO on 5and me on 6. 4 flipcharts were in the corners of the room, of which #1 had the top five issues noted on it (see Figure 22).
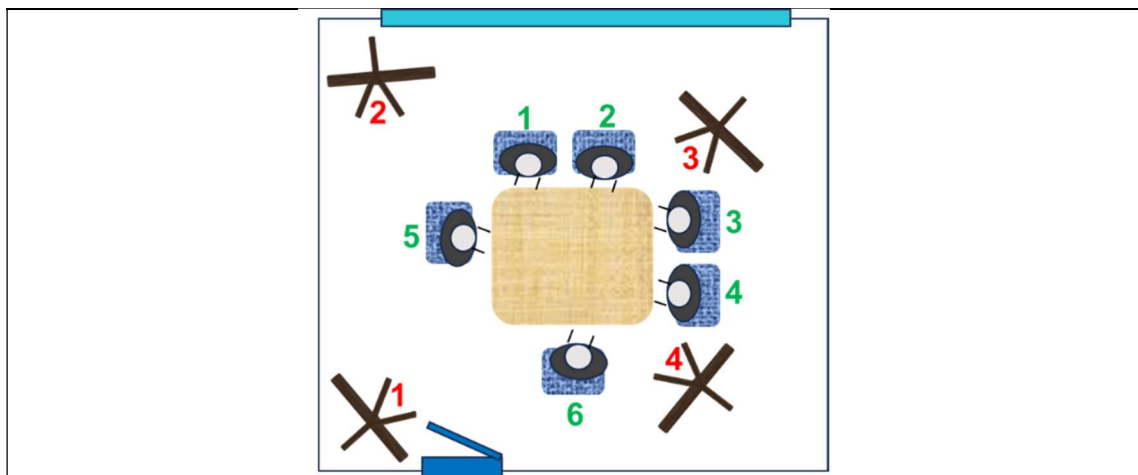

Figure 22 Room set-up of work session at Do headquarters

After a short intro by the CEO on why we had gathered (to determine next steps in Do's sustainability trajectory), I took the lead in the session. Next to the CEO, the CFO and me, the VPs of innovation, operations and marketing were present. The 5 participants of Do were direct colleagues and I knew all of them, albeit in different levels of familiarity. I started by clarifying with the team if the representation of the issues was in fact accurate given the chosen strategy. This was confirmed, supported by a few remarks from the participants. From the start, there was engagement of all attendants in the meeting. After confirming accuracy of the list, I invited the team to rank them in order of significance. Issue 1 (as indicated in Figure 22, flipchart #1) was quickly raised as the most significant, followed closely by issue 2. The other three issues were found to be lower in ranking, but not necessarily one higher than the other. During the discussion priorities, I started noting the five capabilities on flipchart #2.

After this first round, the five issues got a ranking number and a color by circling the number. I introduced the CROMC capabilities briefly and asked the participants to indicate for each issue which capabilities would be helpful in addressing them. As flipchart #2 shows with corresponding colors to the issues, virtually all capabilities were

found to be beneficial for all five issues. This ultimately led to a joint comprehension of, and agreement on all issues by the entire team. On my inquiry, albeit not fully comprehensive on all issues, the list was agreed upon to be representative of the current situation the path to regeneration. After a short coffee break, we used that base to brainstorm on what we could do if the capabilities were fully present (meaning without limitations) at Do. In an iterative process the actions on flipchart #4 were determined, showing concrete steps, linked to specific capabilities and indicating the aimed for outcomes. Ultimately, we concluded the session by evaluating the proceedings and outcomes. In an evaluation under four eyes, together with the CEO we categorized the actions on flipchart 3 into the CEO leadership aspects conducive for that action.

Figure 23 The flipcharts at the end of the Do workshop
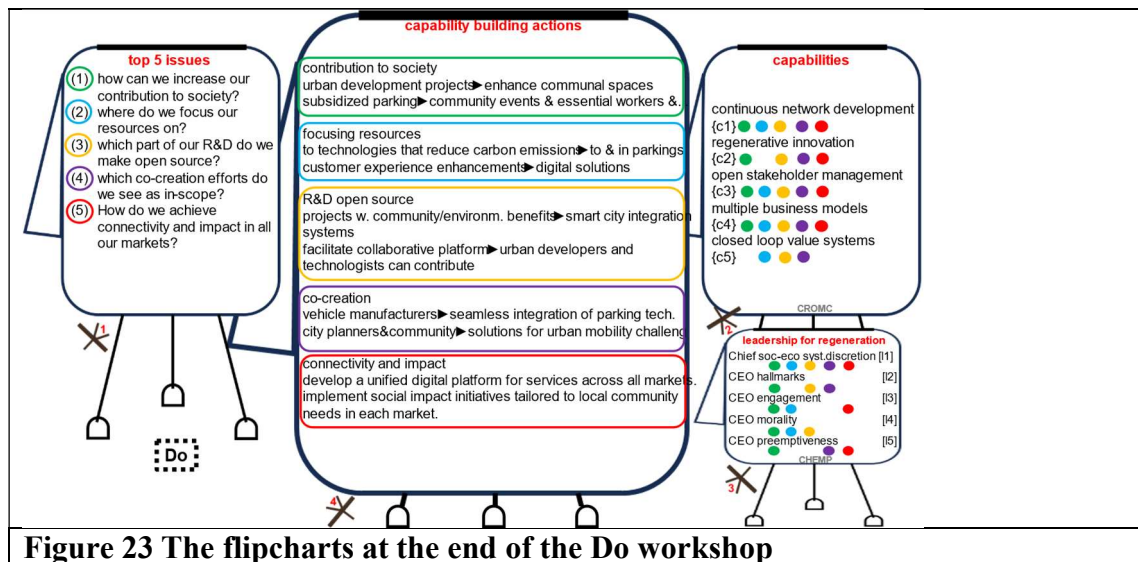
Do: Unscripted insights -be ready for the value in the unexpected
In an early encounter with a high-ranking Do executive, I was prepared with specific inquiries about their stance on sustainability and their envisioned trajectory within this realm. However, the meeting took an unexpected turn. Rather than a conventional Q&A, the executive commandeered the conversation, embarking on an extensive monologue complemented by a presentation from a recent session in Belgium. The focus was on their strategies for urban planning in a Belgian city, a topic seemingly little related to my original line of questioning. Throughout this discourse, which spanned over an hour, my role was predominantly that of an active listener, interjecting only for nods of affirmation or to seek clarity. Remarkably, this unanticipated narrative organically addressed all my prepared questions and delved even deeper. The executive painted a comprehensive and forward-looking picture of Do's role in society and their future business integration. The depth and richness of this dialogue were so enlightening that it reshaped my approach to subsequent interviews, prompting me to incorporate broader, interconnected questions. This experience imparted two pivotal lessons: the importance of maintaining an open mind during interviews and the pursuit of empirical data, and the value of entering discussions without preconceived notions. Contrary to my expectations, the insights gleaned were profoundly different from my initial assumptions about Do's policies and operations, underscoring the transformative potential of an open, unbiased conversational stance.

Do: Conversational delights
At a quaint upscale restaurant in Do's hometown, I found myself in an engaging lunchtime conversation with the CEO and CFO. The ambiance was warm and inviting, underscored by sparkling drinks and a complementing glass of wine, setting the stage for

an open and amicable discussion about Do's stance on sustainability. Comforted by the convivial atmosphere, I ventured to inquire about their approach to aligning their organizational ownership structure with their sustainability ambitions. Admittedly, I harbored preconceived notions, anticipating a defensive stance given my assumption of their ownership model's potential resistance to sustainability and regenerative transformation. Contrary to my expectations, the responses from my esteemed counterparts were enlightening. Their openness and depth of thought regarding their individual roles and the potential influence of the company's owners in a regenerative transition were profoundly insightful. This dialogue shattered my initial perceptions, revealing the untapped potential for regenerative transitions even with parties initially deemed counterproductive to such processes. The setting of the conversation, a relaxed lunch away from the formal confines of an office, may have played a part in fostering this candid exchange. It allowed us to express our views and concerns freely, seeking common ground without the pressure of unanimous agreement on every issue. Reflecting on this interaction, I recognize that I stepped beyond the researcher's objective stance, actively participating in the discourse as much as my two companions. In retrospect, this was a pivotal interaction, not formally scheduled in our joint process but invaluable nonetheless. The open exchange, mutual respect, and willingness to understand diverse viewpoints enriched the follow-up trajectory and significantly informed my role in the process at Do. The setting, seemingly informal, proved conducive to fostering a deeper understanding and respect for varied perspectives, making it an immensely rewarding (and fun) experience for all parties involved.

Introduction to Ki Semiconductor manufacturing
Ki Semiconductor Manufacturing, originally established as Aventus Technologies, embarked on its journey in the historic city of Solaris, in a prominent European country. Founded in the late 19th century by Heinrich Heute as a producer of industrial chemicals, the company swiftly transitioned to become a leader in semiconductor technology. This shift was highlighted by the invention of a revolutionary microchip processor in the early 20th century, showcasing the company's pioneering spirit. Throughout the following decades, Aventus Technologies solidified its reputation as an innovator in semiconductor fabrication and microprocessor technologies. The post-war era witnessed the company diversifying into advanced computing components, meeting the increasing demand for sophisticated electronic devices. This era of growth and creativity was characterized by the introduction of groundbreaking products such as the UltraChip in the late 20th century, setting new industry benchmarks. The late 20th and early 21st centuries marked a critical period in the company's history, characterized by international expansion and technological breakthroughs. The company built a robust presence in markets across Europe, North America, and Asia, becoming renowned for its high-speed microprocessor technology. This period was further defined by the release of state-of-the-art products, including advanced semiconductor chips and integrated circuit systems, catering to the demands of the computing and electronics industries.

In a landmark event in the early 21st century, the company was acquired by a global giant in the technology sector, marking the inception of Ki Semiconductor Manufacturing. This merger synergized Aventus Technologies' expertise in semiconductor fabrication with the acquirer's broad technological capabilities, catapulting the company to new heights of innovation and market reach. Ki continued to spearhead the industry with its commitment to eco-friendly technologies and high-quality manufacturing. The company's research and development efforts were dedicated to creating environmentally sustainable semiconductor solutions, reducing the ecological footprint of its products, and advancing microprocessor technology. Notable accomplishments include the

development of energy-efficient semiconductor components and the incorporation of recycled materials in production processes. In recent years, Ki has embraced digital transformation, focusing on areas like advanced computing and digital infrastructure. The company's expansion into software development and cloud computing reflects its adaptability and progressive approach in a rapidly evolving technological landscape. As Ki Semiconductor Manufacturing commemorates its key milestones, it stands as a symbol of resilience, innovation, and dedication to excellence in the semiconductor industry. This case study will delve into how the developed consulting model for regeneration matches Ki Semiconductor Manufacturing's evolution, its sustainable and innovative strategies, and its influential role in shaping the future of semiconductor technology and electronic computing solutions.

<u>The engagement with Ki Semiconductor manufacturing</u>
First contact with Ki was established in September 2022, when the contours of this research were well established. The engagement was established with the VP of innovation and sustainability. Initially random, but later structural contact on a bi-weekly basis was established in a combination of telephone calls, video meetings and in-person sessions. During this period, I had wide access to the company and its employees, whilst the main interaction was with some 20 participants. A group of 5 people was present throughout the full period, the others joined later in the process. The in-person sessions were done at various office and production locations of Do. Access to confidential data, written and oral, was given under a non-disclosure agreement (NDA) and the relationship can be perceived as consultative.

<u>Ki: From cross to wheel – The cross and wheel symbols exchange</u>
In the early stages of the Ki project, I introduced a rudimentary concept which I coined the innovation cross. Initially intended merely as a foundational element in a presentation, the innovation cross rapidly evolved into a central symbol within our collective mindset. Its prominence was especially felt by some key members of the central project team. However, a pivotal moment arose when a new member of our team pointed out the model's limitations, noting its lack of alignment with our evolving process. Embracing this feedback, I took the initiative to reformulate our model, shifting from the static innovation cross to a more dynamic symbol: the wheel. This transition was intellectually embraced by the core team due to the content's robustness. Yet, the shift in symbolism from the cross to the wheel stirred a wave of concern. The cross had become emblematic of innovation for sustainability within the project, and replacing it with the wheel felt, to many, like upending a newfound tradition. Navigating these waters required patience and thoughtful dialogue. Over several sessions, I brought the symbolism behind both representations up, creating a natural evolvement from the cross symbol to the wheel. The breakthrough came when we delved into the inherent nature of the symbols: the cross, static and unyielding, versus the wheel, dynamic and perpetually in motion. I even went as far as to make the wheel turn in a PowerPoint presentation. This reflection ushered in a new understanding. The wheel, with its connotations of continuous movement and progress, resonated better with our journey of innovation and change. Through this shared insight, we gradually aligned our perceptions, embracing the wheel not just as a symbol but as a testament to our commitment to ongoing evolution and growth.

The 'classifying issues' workshop at Ki

This session – some 6 months into the facilitation trajectory 1,5 years at Ki –, was initiated by the VP innovation in our bi-weekly update sessions. The main aim was to determine the status of the Ki initiatives towards regeneration. By determining who should be present, the key project team of 4 people (including the VP and me), we got a feel of what we wanted to do. After a long period of preparation and contacting the designated participants, a session was done with 12 people, 9 of Ki, 1 observer from my team, and 2 facilitators. The session was held in another small meeting room at Ki HQ, with all participants sitting around 4 tables arranged in a square as depicted in Figure 24.
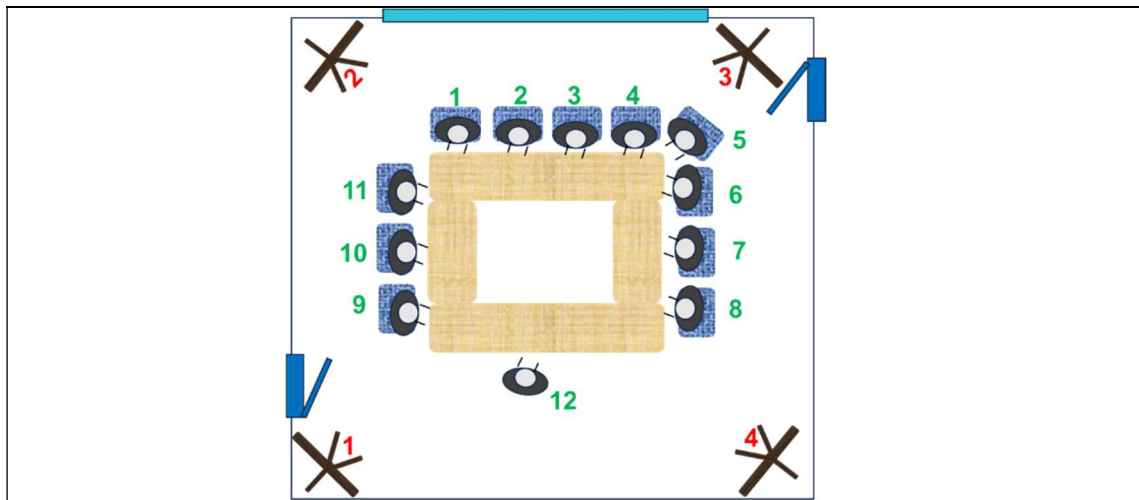
Figure 24 Room set-up of work session at Ki headquarters

After an introduction by the VP innovation, the 2nd facilitator used appreciative inquiry to discuss the five issues pre-determined by the project team for this sessions (flipchart #1 in Figure 25). The participants started to voice the strengths Ki was bringing to the table to address the issues and I started noting on flipcharts #2 and #4, the capabilities and barriers that came up in the conversation. In the evaluation after the session with my 2 colleagues, we linked the found data to flipchart #3, the leadership aspects. Parallel to Ki's aim, my secondary aim for this sessions was to see if the determined key issues could be a base for developing (regenerative) capabilities, or even transmute some directly to capabilities. This I found to be possible in this session.

Figure 25 The flipcharts at the end of the Ki workshop
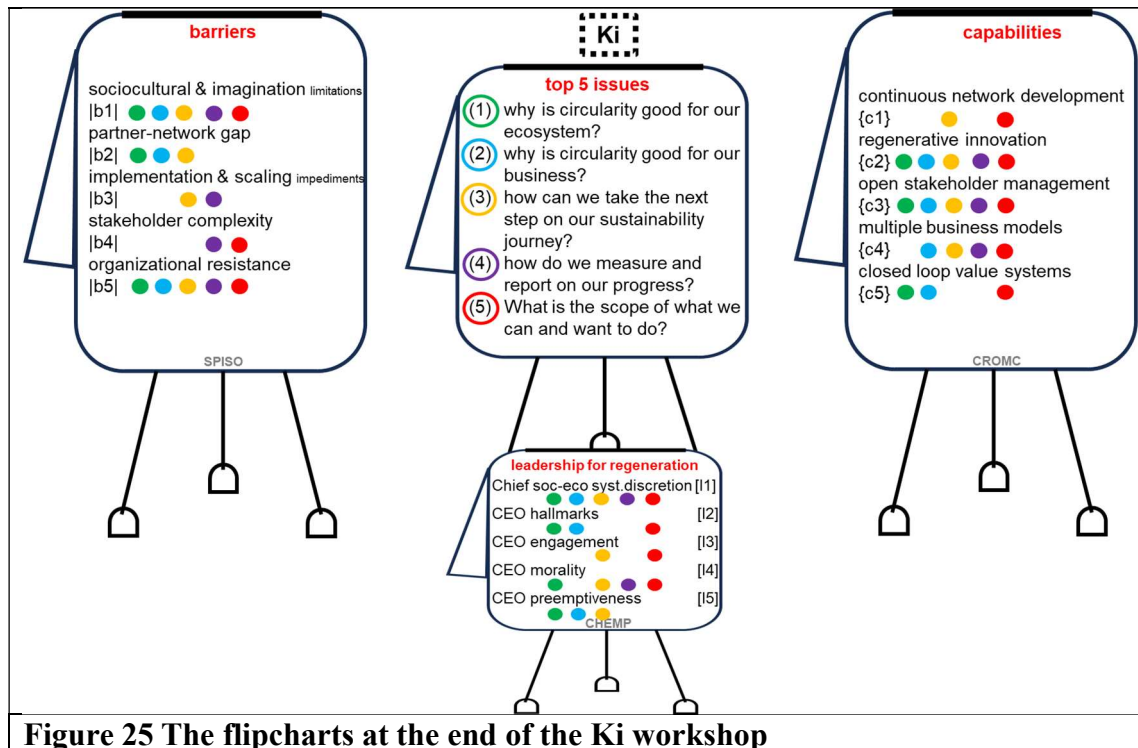
Ki: The inspiring plant manager

During a scheduled meeting with Ki, I was presented with the unexpected opportunity to tour one of their manufacturing facilities. Anticipated as a brief 15-minute walkthrough, this tour, guided by the plant manager, transformed into a profound 90-minute journey of discovery. The manager, brimming with pride, meticulously showcased the facility's machinery and processes, introducing me to each team member we encountered. What was meant to be a cursory introduction soon evolved into an in-depth exploration of the facility's pivotal role within Ki's supply and value chain. The plant manager's transparency and the ready engagement of his colleagues unearthed a myriad of perspectives and experiences. This tour, initially perceived as a simple walkthrough, metamorphosed into a veritable treasure hunt, unearthing valuable insights and potential points of connection for future workshops. Even months following this tour, the nuances and key points obtained from that day continued to enrich our workshops, significantly contributing to our journey towards circularity and regeneration at Ki. This experience was a testament to how openness, approachability, and a willingness to engage can catalyze meaningful dialogue, swiftly bringing critical issues to the forefront. Although these insights were not fully developed during the tour, their contribution to our ongoing process was invaluable, highlighting the potency of open and accessible communication in fostering substantial progress in a remarkably short span.

APPENDIX 8: Field research schedule

	ACT	YY	MM	DD	LANG	FUNC/#	ORG	BUSS	G	BIRTH
1	PEG	2020	04	01	eng	23				
2	INT	2020	04	04	fre	CBO	LSME	BEL	M	BEL
3	INT	2020	05	10	dut	CEO	MNC	NLD	M	NLD
4	PEG	2020	05	15	dut	4				
5	PEG	2020	10	08	eng	20				
6	PEG	2020	10	08	eng	27				
7	PEG	2020	11	13	eng	9				
8	INT	2021	06	03	dut	COO	MNC	NLD	M	NLD
9	PEG	2021	04	01	eng	24				
10	PEG	2021	04	15	eng	5				
14	INT	2021	06	23	dut	CEO	SME	DEU	F	NLD
15	INT	2021	06	23	dut	CEO	SME	NLD	M	NLD
16	INT	2021	06	23	dut	CMO	SME	NLD	M	NLD
17	INT	2021	06	24	dut	CEO	MNC	NLD	M	NLD
19	INT	2021	07	08	dut	CEO	SME	NLD	M	NLD
20	INT	2021	08	26	dut	CEO	SME	NLD	M	NLD
24	PEG	2022	04	05	dut	27				
25	PEG	2022	04	19	dut	56				
26	INT	2022	05	03	eng	CEO	NGO	GHA	M	AUS
29	INT	2022	06	14	dut	CMO	LSME	NLD	M	NLD
30	INT	2022	06	17	dut	R&D	NPO	NLD	M	NLD
31	INT	2022	07	12	lim	COO	NPO	NLD	M	NLD
32	INT	2022	07	12	lim	VP R&D	NPO	NLD	M	NLD
33	INT	2022	07	21	ger	CEO	LSME	DEU	F	DEU
36	INT	2022	09	12	dut	CMO	SME	DEU	F	NLD
37	INT	2022	09	20	eng	CMO	LSME	FRA	F	DEU
38	PEG	2022	09	23	eng	25				
39	PEG	2022	09	26	dut	36				
40	INT	2022	09	30	dut	CIO	LSME	NLD	M	NLD
41	INT	2022	11	02	dut	COO	LSME	NLD	M	NLD
42	INT	2022	11	03	dut	SUP	SME	NLD	M	NLD
43	PEG	2022	9	27	dut	7				
47	PEG	2022	11	22	dut	7				
48	PEG	2022	12	08	dut	7				
49	INT	2022	12	15	ger	CEO	NPO	DEU	M	DEU
50	INT	2022	12	18	eng	MD	SME	USA	M	CAN
51	INT	2023	01	17	eng	CEO	SME	USA	F	USA
52	INT	2023	01	30	eng	VP R&D	MNC	NLD	F	DEU
53	INT	2023	01	31	eng	ADV	SME	NLD	M	USA
54	INT	2023	02	01	dut	CEO	MNC	NLD	M	BEL
55	INT	2023	02	06	eng	CEO	SME	TWN	F	TWN
57	INT	2023	02	06	dut	CFO	LSME	NLD	M	NLD
58	INT	2023	02	07	eng	MD	LSME	USA	M	CAN
59	INT	2023	02	13	dut	SMNG	NPO	NLD	M	NLD
61	INT	2023	02	14	eng	CEO	SME	USA	M	USA
62	INT	2023	02	21	eng	ADV	SME	USA	M	USA
64	INT	2023	02	23	eng	SMNG	CON	TUR	M	TUR
65	INT	2023	03	03	dut	SMNG	MNC	NLD	M	NLD
69	INT	2023	05	16	eng	CEO	LSME	LBN	F	LBN
71	INT	2023	05	17	eng	VP OPS	LSME	NLD	M	NLD
73	INT	2023	06	15	lim	SMNG	MNC	DEU	F	NLD
82	INT	2023	06	29	dut	ADV	NPO	NLD	M	NLD
85	INT	2023	07	07	dut	CEO	MNC	NLD	M	NLD
87	INT	2023	07	12	dut	MD	SME	NLD	M	NLD
88	RFI	2023	07	23	dut	CEO	CEO	NLD		
89	RFI	2023	08	09	ger	CEO	CEO	DEU		
91	PEG	2023	08	31	eng	5				
92	PEG	2023	08	31	dut	7				
93	PEG	2023	09	04	dut	7				
95	PEG	2023	09	12	dut	16				
98	PEG	2023	09	20	dut	7				
109	RFI	2023	10	11	eng	CEO	CEO	ZAF		
116	WCC	2023	10	30	dut	3				
123	WCC	2023	11	09	eng	21				
126	WCC	2023	11	14	dut	16				
128	IMW	2023	11	16	eng	14				
129	IMW	2023	11	17	eng	21				
136	IMW	2023	12	05	eng	17				

Table 21 Details of field research activities used for empirical data

Legend of terms in Table 16

ACT: type of activity (see Figure 26 for abbreviations)

ACT	ACTIVITY TYPE
INT	Individual interviews
PEG	Purpose economy game
RFI	Refinement individual interviews
WCC	Workshop 100 biggest culprits
IMW	Implementation workshops

YYMMDD: date of activity

YY MM DD	DATE OF ACTIVITY
2021 04 15	15 April 2021

LANG: language of activity

LANG	LANGUAGE
dut	Dutch
eng	English
fre	French
ger	German
lim	Limburgs (dialect)

FUNC/#: function of interviewee OR number of participants

FUNCT	FUNCTION
ADV	advisor
CBO	chief buying officer
CEO	chief executive officer
CFO	chief financial officer
CIO	chief information officer
CMO	chief marketing officer
COO	chief operation officer
MD	managing director
SMNG	senior manager
VP OPS	vice president operations
VP R&D	vice president research & dev.

ORG: type of organization

ORG	TYPE OF ORGANIZATION
CON	Consulting firm
LSME	Large SME
MNC	Multinational company
NGO	Nongovernmental organization
NPO	Not-for-profit organization
SME	Small or medium sized enterprise
STUP	Start up

BIRTH: country of birth interviewee

BIRTH	COUNTRY OF BIRTH
AUS	Australia
BEL	Belgium
CAN	Canada
CMR	Cameroon
DEU	Germany
LBN	Lebanon
NLD	Netherlands
TUR	Turkey
TWN	Taiwan
USA	United States of America
ZAF	South Africa

BUSS: market region of business/organization

BUSS	COUNTRY OR REGION OF BUSINESS
BENELUX	Benelux
CHN	China
DEU	Germany
EU	European union
FRA	France
GHA	Ghana
LBN	Lebanon
NLD	Netherlands
TUR	Turkey
TWN	Taiwan
USA	United States of America
WORLD	The world
ZAF	South Africa

Figure 26 Overview of all field research & validation activities per month